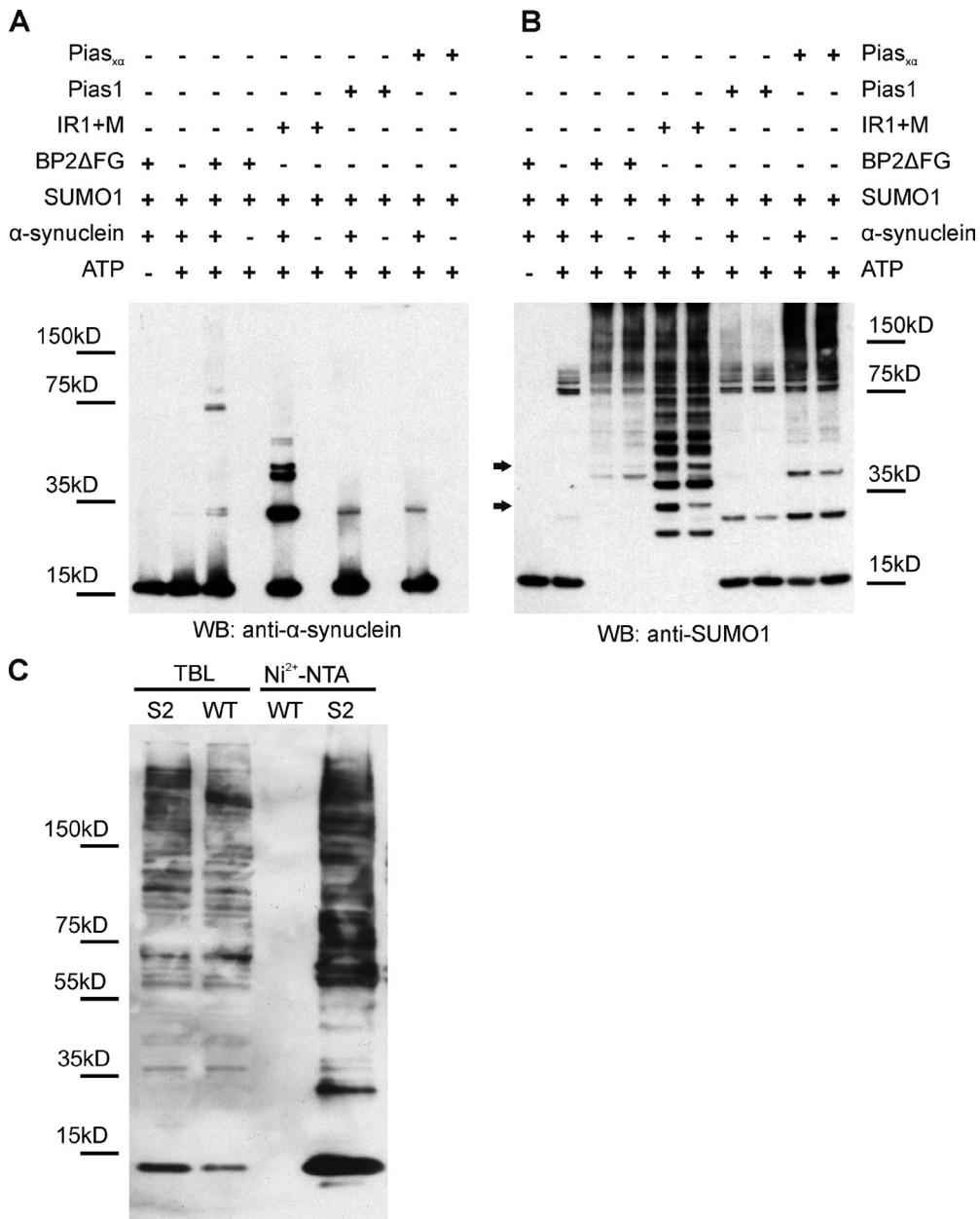
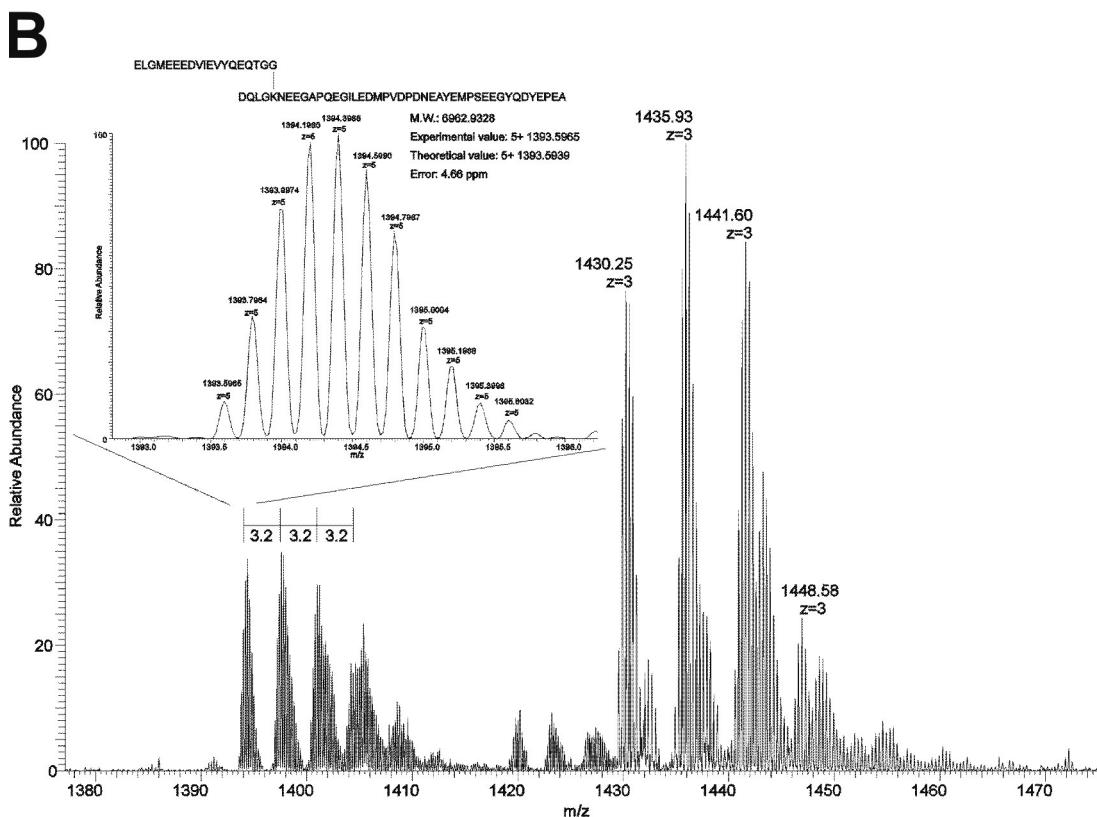
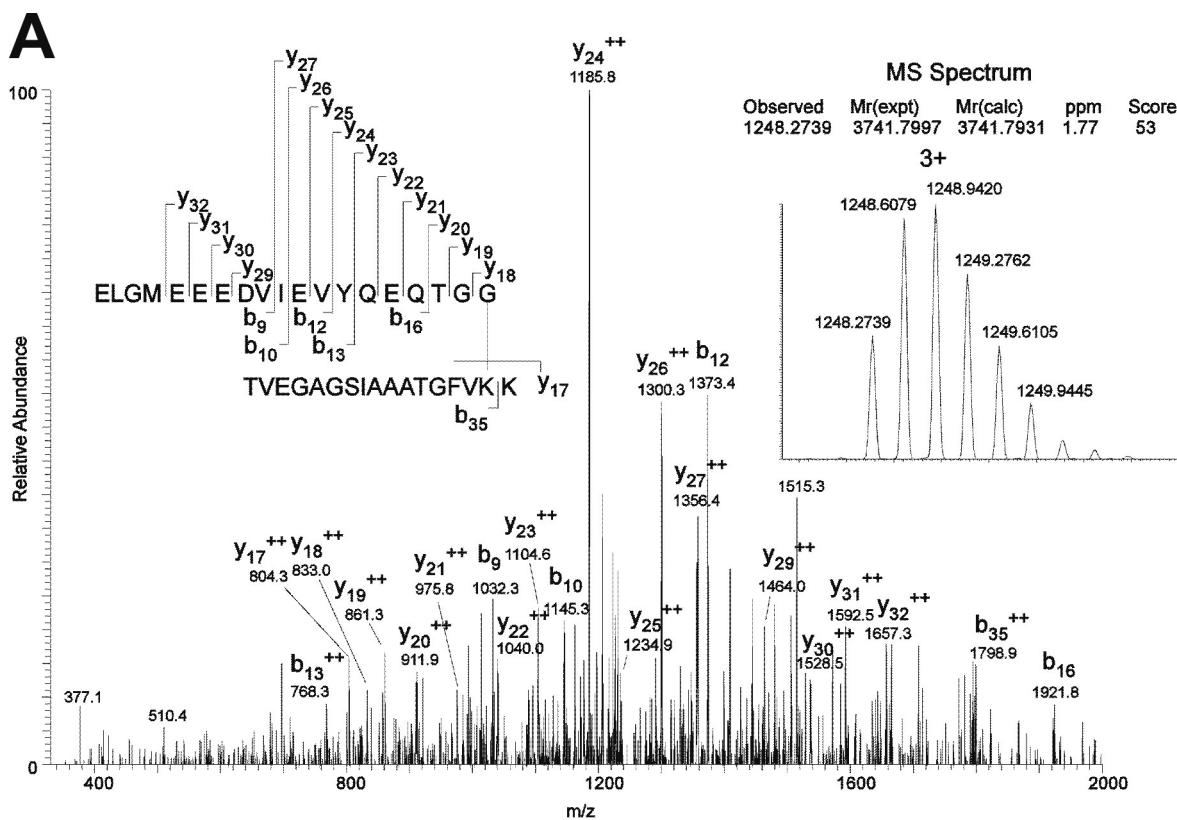
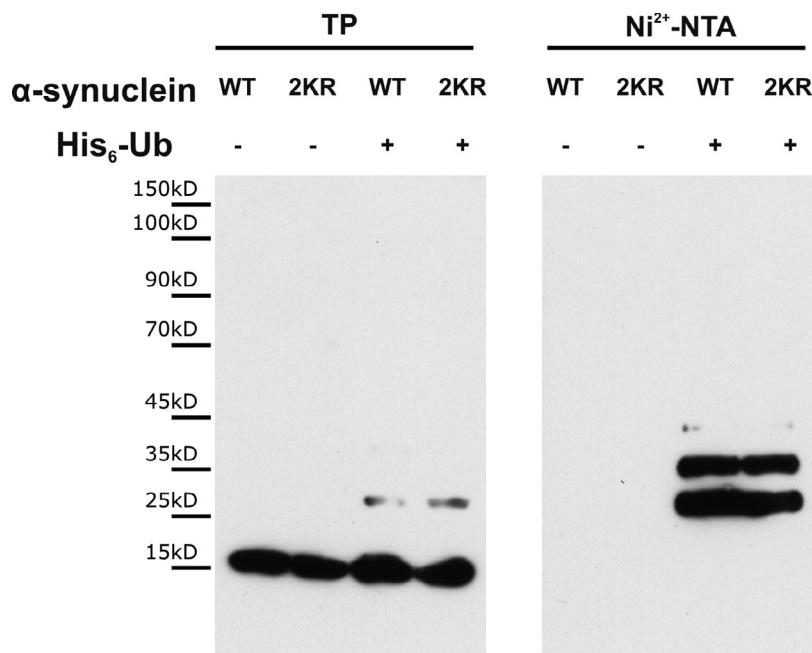


Krumova et al., <http://www.jcb.org/cgi/content/full/jcb.201010117/DC1>

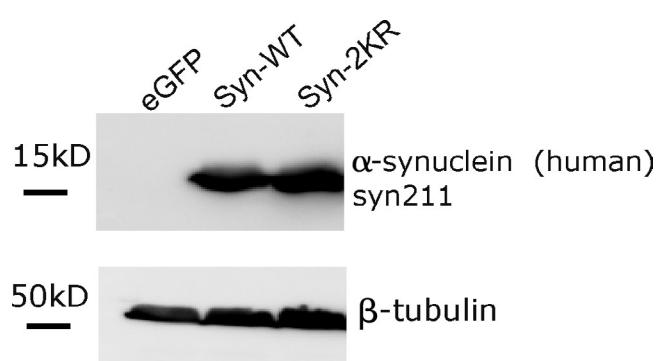
**Figure S1. SUMO2-conjugated proteins in mice expressing His-tagged SUMO2.** (A and B) α-Synuclein is SUMO1 conjugated in vitro. 500 ng α-synuclein, 1,000 ng SUMO1, 150 ng Aos1/Uba2, 200 ng Ubc9, and 5–10 ng E3 ligase fragments were incubated for 30 min at 30°C with and without ATP in a volume of 20 μl. Reactions were stopped with SDS sample buffer before analysis by SDS-PAGE and immunoblotting with mouse monoclonal anti-α-synuclein antibody (A) or with anti-SUMO1 antibody (B). Immunoblotting with α-synuclein antibody reveals nonmodified α-synuclein and the presence of higher molecular mass species corresponding to mono- (~35 kD), di- (~55 kD), or polysumoylated α-synuclein. Conjugation of multiple SUMO1 molecules is facilitated by the exceptionally active IR1+M (~10 kD) catalytic fragment of RanBP2. Immunoblotting the in vitro reactions with SUMO1 antibody (B) shows the presence of bands most likely representing mono- and disumoylated α-synuclein in the condition with the highly active IR1+M (arrows), free, or nonconjugated SUMO1 as well as different polysumoylated E3 ligases. The latter are extensively sumoylated in vitro and overrepresented on the SUMO1 blot as a result of antibody avidity effects. This, together with the relatively small amount of sumoylated α-synuclein in conditions other than IR1+M, obscures the reflection of sumoylated α-synuclein species on SUMO-stained immunoblots. WB, Western blot. (C) SUMO2 (S2)-conjugated proteins in TBLs from WT and SUMO2 transgenic mice expressing His-tagged SUMO2 under the neuron-specific Thy1.2 promoter. His<sub>6</sub>-SUMO2 transgenic mice, used here as a tool to prove in vivo sumoylation of α-synuclein, have been generated by M. Tirard and N. Brose (Max Planck Institute for Experimental Medicine, Göttingen, Germany). Animals are fertile and have no obvious brain abnormalities (not depicted). Western blot analysis with goat anti-SUMO2 antibody revealed moderate overexpression of unconjugated SUMO2 in brain homogenates of positive transgenic animals. His<sub>6</sub>-SUMO2 overexpression did not lead to an increase in SUMO2 conjugates. After Ni<sup>2+</sup>-NTA pulldown, enrichment of His<sub>6</sub>-SUMO2-conjugated proteins was detected in the eluate of the SUMO2 transgenic brain lysate.



**Figure S2. MS analysis identified  $\alpha$ -synuclein consensus lysines K96 and K102 to be SUMO conjugated.** (A)  $\alpha$ -Synuclein K96 SUMO conjugation mapped by MS. Electrospray ionization-MS/MS spectrum of the SUMO1-conjugated  $\alpha$ -synuclein at lysine 96 ( $m/z = 1,248.2739$ ) derived from  $\alpha$ -synuclein encompassing positions 81–97 with fragment ions recorded in the Fourier transform analyzer of Orbitrap. Y- and b-type ions are shown in the spectrum at their respective positions in the conjugated peptide. (B)  $\alpha$ -Synuclein SUMO conjugation at K102. The spectrum shows the nonoxidized form of the peptide and its mono-, di-, and trioxidation states. The nonoxidized mass peak is magnified, and the sequence of the C-terminal peptide conjugated to SUMO1 is listed. As the charge state of the peptide is +5, the mass difference to its oxidized forms is  $m/z = 3.2$  ( $3.2 \times 5 = 16$ ). M.W., molecular weight; ppm, parts per million.



**Figure S3. WT  $\alpha$ -Synuclein and 2KR (K96R and K102R) mutants are ubiquitinated in HEK293T cells at comparable levels.** HEK293T cells were cotransfected with His-tagged Ubiquitin ( $\text{His}_6\text{Ubiquitin} \times 8$ ) plasmid (a gift from B. Stillman, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY) and myc-tagged WT  $\alpha$ -synuclein, 2KR mutant, or empty vector. Cells were lysed under denaturing conditions, and  $\text{His}_6\text{-Ubiquitin}$  conjugates were isolated via Ni<sup>2+</sup>-NTA chromatography. Eluates (Ni<sup>2+</sup>-NTA, right) were analyzed by immunoblotting with anti-myc antibody (clone 9E10). Total protein (TP) aliquots (left) probed with anti-myc antibody showed comparable WT  $\alpha$ -synuclein and 2KR amounts.



**Figure S4. Transgene expression levels of recombinant adeno-associated viral vectors (AAV2) encoding EGFP, WT  $\alpha$ -synuclein, and  $\alpha$ -synuclein–2KR (K96R and K102R).** Primary rat cortical neurons were transduced with AAV2 vectors encoding EGFP, WT  $\alpha$ -synuclein (Syn-WT), or  $\alpha$ -synuclein–2KR (Syn-2KR) under the neuron-specific human synapsin 1 gene promoter (hSyn1). Cells were lysed 4 d after transduction, and  $\alpha$ -synuclein expression levels were analyzed by immunoblotting with human-specific  $\alpha$ -synuclein antibody (clone 211; Invitrogen).

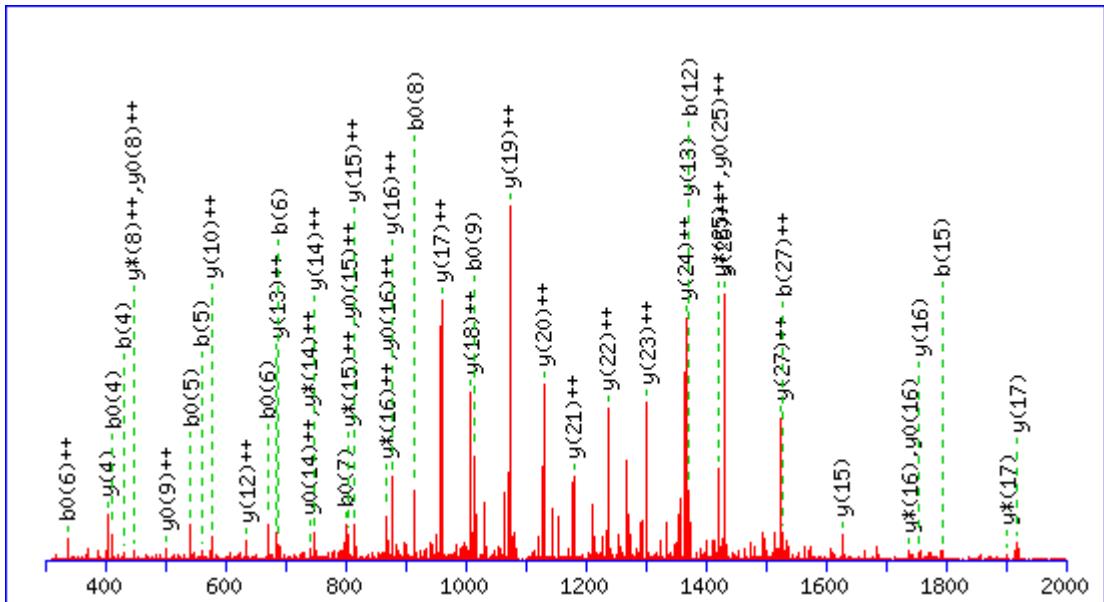
## References

- Hsiao, H.H., E.E. Meulmeester, B.T. Frank, F. Melchior, and H. Urlaub. 2009. "ChopNSpice," a mass spectrometric approach that allows identification of endogenous small ubiquitin-like modifier-conjugated peptides. *Mol. Cell. Proteomics*. 8:2664–2675. doi:10.1074/mcp.M900087-MCP200

**A supplemental pdf is also provided that shows  $\alpha$ -synuclein sumoylation sites identified by the MASCOT search engine in combination with ChopNSpice software.**

Identification of sumoylated lysine residues was performed exactly as described in Hsiao et al. (2009). In brief, sumoylated  $\alpha$ -synuclein was cut from 1D PAGE and in-gel digested with trypsin. Extracted peptides were analyzed by LC-MS/MS on a Velos Orbitrap XL (Thermo Fisher Scientific). We used the ChopNSpice software to generate a concatenated protein sequence in order to identify the actual SUMO sites with the MASCOT search engine. For this, the FASTA sequence of  $\alpha$ -synuclein was chopped into tryptic fragments allowing zero to three missed cleavages. The tryptic peptide sequence of SUMO1/2/3 that is putatively attached to any lysine residue within  $\alpha$ -synuclein is attached to the N terminus of each tryptic peptide of  $\alpha$ -synuclein that contains a lysine residue and a missed cleavage site. To avoid the generation of nonnatural peptides, a virtual amino acid J is attached to the C terminus of each tryptic fragment derived from  $\alpha$ -synuclein and SUMO 1/2/3. The thus modified tryptic fragments are concatenated to yield a large novel FASTA sequence that is submitted into the database search. Upon the database search with the search engine MASCOT, cleavage with an artificial endoproteinase was allowed that specifically recognizes N- and C-terminal J and a user-defined number of missed cleavages. The search engine then compares the in silico-generated and –concatenated tryptic peptides derived from  $\alpha$ -synuclein attached to a tryptic peptide derived from SUMO 1/2/3 with the experimentally obtained fragment spectra by LC-MS/MS (Hsiao et al., 2009). Display of the fragment spectra with annotations from sumoylated  $\alpha$ -synuclein tryptic peptides as obtained by an in-house version of MASCOT. The table above each spectrum reveals the observed experimental and calculated mass of the tryptic peptide derived from  $\alpha$ -synuclein conjugated to a tryptic peptide derived from SUMO1 (ELGME...QTGG, 2,153.9310 D). The sequence of tryptic peptide derived from  $\alpha$ -synuclein conjugated to SUMO1 and the conjugated lysine residues are listed as well. The different ion series that identified both the tryptic peptide derived from  $\alpha$ -synuclein and SUMO1 are assigned in the table under the fragment spectra.

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1097.8431	3290.5076	3290.5033	1.32	122	7.1e-013	ELGMEEEDVIEVYQEQTGG-MDVFM <u>K</u> GLSK	K6

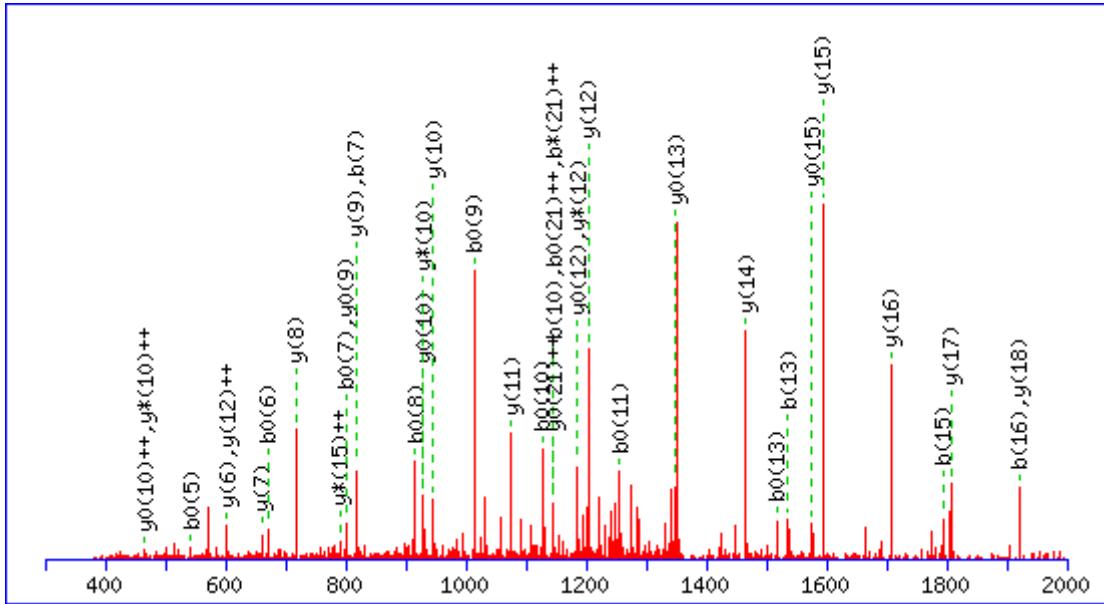


Matches (**Bold Red**): 48/308 fragment ions using 98 most intense peaks

#	B	b <sup>++</sup>	b*	b* <sup>++</sup>	b <sup>0</sup>	b <sup>0<sup>++</sup></sup>	Seq.	y	y <sup>++</sup>	y*	y* <sup>++</sup>	y <sup>0</sup>	y <sup>0<sup>++</sup></sup>	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>29</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	3162.4680	1581.7376	3145.4414	1573.2243	3144.4574	1572.7323	<b>28</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	3049.3839	<b>1525.1956</b>	3032.3574	1516.6823	3031.3733	1516.1903	<b>27</b>	
<b>4</b>	<b>431.1959</b>	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	2992.3624	1496.6849	2975.3359	1488.1716	2974.3519	1487.6796	<b>26</b>	
<b>5</b>	<b>560.2385</b>	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	2861.3220	<b>1431.1646</b>	2844.2954	<b>1422.6513</b>	2843.3114	<b>1422.1593</b>	<b>25</b>	
<b>6</b>	<b>689.2811</b>	345.1442			<b>671.2705</b>	<b>336.1389</b>	<b>E</b>	2732.2794	<b>1366.6433</b>	2715.2528	1358.1300	2714.2688	1357.6380	<b>24</b>	
<b>7</b>	818.3237	409.6655			<b>800.3131</b>	400.6602	<b>E</b>	2603.2368	<b>1302.1220</b>	2586.2102	1293.6087	2585.2262	1293.1167	<b>23</b>	
<b>8</b>	933.3506	467.1789			<b>915.3400</b>	458.1737	<b>D</b>	2474.1942	<b>1237.6007</b>	2457.1676	1229.0875	2456.1836	1228.5954	<b>22</b>	
<b>9</b>	1032.4190	516.7131			<b>1014.4085</b>	507.7079	<b>V</b>	2359.1672	<b>1180.0873</b>	2342.1407	1171.5740	2341.1567	1171.0820	<b>21</b>	
<b>10</b>	1145.5031	573.2552			1127.4925	564.2499	<b>I</b>	2260.0988	<b>1130.5530</b>	2243.0723	1122.0398	2242.0883	1121.5478	<b>20</b>	
<b>11</b>	1274.5457	637.7765			1256.5351	628.7712	<b>E</b>	2147.0148	<b>1074.0110</b>	2129.9882	1065.4977	2129.0042	1065.0057	<b>19</b>	
<b>12</b>	<b>1373.6141</b>	687.3107			1355.6035	678.3054	<b>V</b>	2017.9722	<b>1009.4897</b>	2000.9456	1000.9764	1999.9616	1000.4844	<b>18</b>	
<b>13</b>	1536.6774	768.8423			1518.6669	759.8371	<b>Y</b>	<b>1918.9037</b>	<b>959.9555</b>	<b>1901.8772</b>	951.4422	1900.8932	950.9502	<b>17</b>	
<b>14</b>	1664.7360	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	<b>1755.8404</b>	<b>878.4238</b>	<b>1738.8139</b>	<b>869.9106</b>	<b>1737.8299</b>	<b>869.4186</b>	<b>16</b>	
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	1775.7680	888.3877	<b>E</b>	<b>1627.7818</b>	<b>814.3946</b>	1610.7553	<b>805.8813</b>	1609.7713	<b>805.3893</b>	<b>15</b>	

<b>16</b>	1921.8372	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	1498.7392	<b>749.8733</b>	1481.7127	<b>741.3600</b>	1480.7287	<b>740.8680</b>	<b>14</b>
<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	<b>1370.6807</b>	<b>685.8440</b>	1353.6541	677.3307	1352.6701	676.8387	<b>13</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	1031.9435	2061.8957	1031.4515	<b>G</b>	1269.6330	<b>635.3201</b>	1252.6064	626.8069	1251.6224	626.3149	<b>12</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	1212.6115	606.8094	1195.5850	598.2961	1194.6010	597.8041	<b>11</b>
<b>20</b>	2267.9683	1134.4878	2250.9417	1125.9745	2249.9577	1125.4825	<b>M</b>	1155.5901	<b>578.2987</b>	1138.5635	569.7854	1137.5795	569.2934	<b>10</b>
<b>21</b>	2382.9952	1192.0012	2365.9687	1183.4880	2364.9846	1182.9960	<b>D</b>	1024.5496	512.7784	1007.5230	504.2652	1006.5390	<b>503.7731</b>	<b>9</b>
<b>22</b>	2482.0636	1241.5354	2465.0371	1233.0222	2464.0531	1232.5302	<b>V</b>	909.5226	455.2650	892.4961	<b>446.7517</b>	891.5121	<b>446.2597</b>	<b>8</b>
<b>23</b>	2629.1320	1315.0697	2612.1055	1306.5564	2611.1215	1306.0644	<b>F</b>	810.4542	405.7307	793.4277	397.2175	792.4437	396.7255	<b>7</b>
<b>24</b>	2760.1725	1380.5899	2743.1460	1372.0766	2742.1619	1371.5846	<b>M</b>	663.3858	332.1965	646.3593	323.6833	645.3752	323.1913	<b>6</b>
<b>25</b>	2888.2675	1444.6374	2871.2409	1436.1241	2870.2569	1435.6321	<b>K</b>	532.3453	266.6763	515.3188	258.1630	514.3348	257.6710	<b>5</b>
<b>26</b>	2945.2889	1473.1481	2928.2624	1464.6348	2927.2784	1464.1428	<b>G</b>	<b>404.2504</b>	202.6288	387.2238	194.1155	386.2398	193.6235	<b>4</b>
<b>27</b>	3058.3730	<b>1529.6901</b>	3041.3465	1521.1769	3040.3624	1520.6849	<b>L</b>	347.2289	174.1181	330.2023	165.6048	329.2183	165.1128	<b>3</b>
<b>28</b>	3145.4050	1573.2062	3128.3785	1564.6929	3127.3945	1564.2009	<b>S</b>	234.1448	117.5761	217.1183	109.0628	216.1343	108.5708	<b>2</b>
<b>29</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1370.1569	2738.2992	2738.2956	1.29	80	1.1e-008	ELGMEEEDVIEVYQEQTGG-GLSKAK	K10

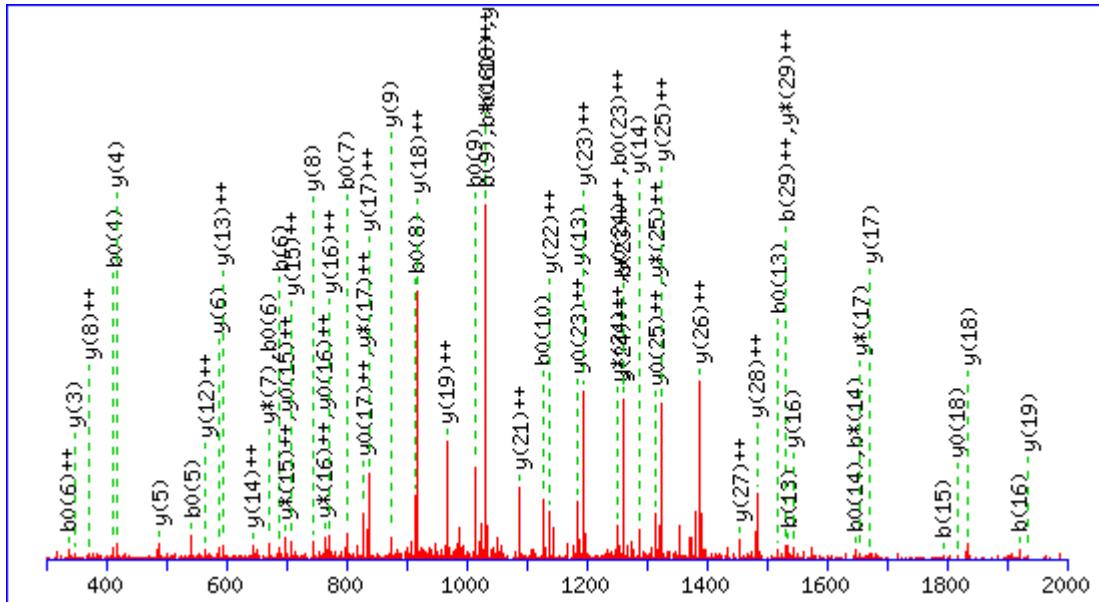


Matches (**Bold Red**): 39/256 fragment ions using 88 most intense peaks

#	b	$b^{++}$	$b^*$	$b^{*++}$	$b^0$	$b^{0++}$	Seq.	y	$y^{++}$	$y^*$	$y^{*++}$	$y^0$	$y^{0++}$	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>25</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	2610.2603	1305.6338	2593.2338	1297.1205	2592.2498	1296.6285	<b>24</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	2497.1763	1249.0918	2480.1497	1240.5785	2479.1657	1240.0865	<b>23</b>	
<b>4</b>	431.1959	216.1016			413.1853	207.0963	<b>M</b>	2440.1548	1220.5810	2423.1283	1212.0678	2422.1442	1211.5758	<b>22</b>	
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	2309.1143	1155.0608	2292.0878	1146.5475	2291.1038	<b>1146.0555</b>	<b>21</b>	
<b>6</b>	689.2811	345.1442			<b>671.2705</b>	336.1389	<b>E</b>	2180.0717	1090.5395	2163.0452	1082.0262	2162.0612	1081.5342	<b>20</b>	
<b>7</b>	<b>818.3237</b>	409.6655			<b>800.3131</b>	400.6602	<b>E</b>	2051.0291	1026.0182	2034.0026	1017.5049	2033.0186	1017.0129	<b>19</b>	
<b>8</b>	933.3506	467.1789			<b>915.3400</b>	458.1737	<b>D</b>	<b>1921.9866</b>	961.4969	1904.9600	952.9836	1903.9760	952.4916	<b>18</b>	
<b>9</b>	1032.4190	516.7131			<b>1014.4085</b>	507.7079	<b>V</b>	<b>1806.9596</b>	903.9834	1789.9331	895.4702	1788.9490	894.9782	<b>17</b>	
<b>10</b>	<b>1145.5031</b>	573.2552			<b>1127.4925</b>	564.2499	<b>I</b>	<b>1707.8912</b>	854.4492	1690.8646	845.9360	1689.8806	845.4440	<b>16</b>	
<b>11</b>	1274.5457	637.7765			<b>1256.5351</b>	628.7712	<b>E</b>	<b>1594.8071</b>	797.9072	1577.7806	<b>789.3939</b>	<b>1576.7966</b>	788.9019	<b>15</b>	
<b>12</b>	1373.6141	687.3107			1355.6035	678.3054	<b>V</b>	<b>1465.7645</b>	733.3859	1448.7380	724.8726	1447.7540	724.3806	<b>14</b>	
<b>13</b>	<b>1536.6774</b>	768.8423			<b>1518.6669</b>	759.8371	<b>Y</b>	1366.6961	683.8517	1349.6696	675.3384	<b>1348.6856</b>	674.8464	<b>13</b>	
<b>14</b>	1664.7360	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	<b>1203.6328</b>	<b>602.3200</b>	<b>1186.6062</b>	593.8068	<b>1185.6222</b>	593.3148	<b>12</b>	
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	1775.7680	888.3877	<b>E</b>	<b>1075.5742</b>	538.2907	1058.5477	529.7775	1057.5637	529.2855	<b>11</b>	
<b>16</b>	<b>1921.8372</b>	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	<b>946.5316</b>	473.7694	<b>929.5051</b>	<b>465.2562</b>	<b>928.5211</b>	<b>464.7642</b>	<b>10</b>	

<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	<b>818.4730</b>	409.7402	801.4465	401.2269	<b>800.4625</b>	400.7349	<b>9</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	1031.9435	2061.8957	1031.4515	<b>G</b>	<b>717.4254</b>	359.2163	700.3988	350.7030	699.4148	350.2110	<b>8</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	<b>660.4039</b>	330.7056	643.3774	322.1923	642.3933	321.7003	<b>7</b>
<b>20</b>	2193.9492	1097.4783	2176.9227	1088.9650	2175.9387	1088.4730	<b>G</b>	<b>603.3824</b>	302.1949	586.3559	293.6816	585.3719	293.1896	<b>6</b>
<b>21</b>	2307.0333	1154.0203	2290.0068	<b>1145.5070</b>	2289.0227	<b>1145.0150</b>	<b>L</b>	546.3610	273.6841	529.3344	265.1709	528.3504	264.6788	<b>5</b>
<b>22</b>	2394.0653	1197.5363	2377.0388	1189.0230	2376.0548	1188.5310	<b>S</b>	433.2769	217.1421	416.2504	208.6288	415.2663	208.1368	<b>4</b>
<b>23</b>	2522.1603	1261.5838	2505.1337	1253.0705	2504.1497	1252.5785	<b>K</b>	346.2449	173.6261	329.2183	165.1128			<b>3</b>
<b>24</b>	2593.1974	1297.1023	2576.1709	1288.5891	2575.1868	1288.0971	<b>A</b>	218.1499	109.5786	201.1234	101.0653			<b>2</b>
<b>25</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1070.1810	3207.5213	3207.5129	2.61	140	9.5e-015	ELGMEEEDVIEVYQEQTGG-A <u>K</u> EVVAAAEK	K12

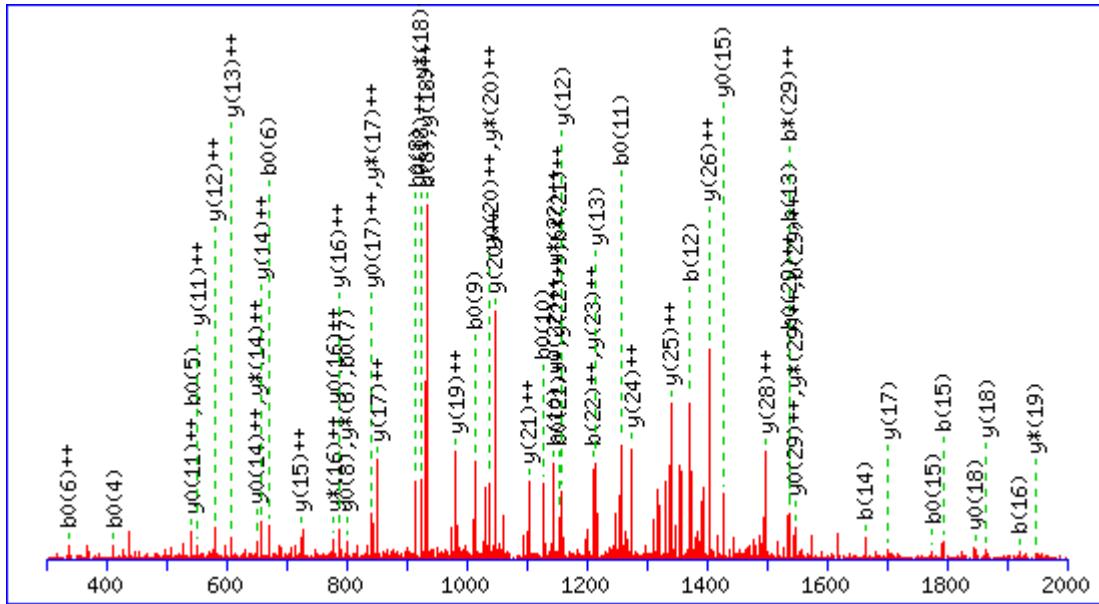


Matches (**Bold Red**): 66/320 fragment ions using 110 most intense peaks

#	b	$b^{++}$	$b^*$	$b^{*++}$	$b^0$	$b^{0++}$	Seq.	y	$y^{++}$	$y^*$	$y^{*++}$	$y^0$	$y^{0++}$	#
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>							<b>30</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	3079.4776	1540.2424	3062.4511	<b>1531.7292</b>	3061.4670	1531.2372	<b>29</b>
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	2966.3935	<b>1483.7004</b>	2949.3670	1475.1871	2948.3830	1474.6951	<b>28</b>
<b>4</b>	431.1959	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	2909.3721	<b>1455.1897</b>	2892.3455	1446.6764	2891.3615	1446.1844	<b>27</b>
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	2778.3316	<b>1389.6694</b>	2761.3050	1381.1562	2760.3210	1380.6642	<b>26</b>
<b>6</b>	<b>689.2811</b>	345.1442			<b>671.2705</b>	<b>336.1389</b>	<b>E</b>	2649.2890	<b>1325.1481</b>	2632.2625	<b>1316.6349</b>	2631.2784	<b>1316.1429</b>	<b>25</b>
<b>7</b>	818.3237	409.6655			<b>800.3131</b>	400.6602	<b>E</b>	2520.2464	<b>1260.6268</b>	2503.2199	<b>1252.1136</b>	2502.2358	<b>1251.6216</b>	<b>24</b>
<b>8</b>	933.3506	467.1789			<b>915.3400</b>	458.1737	<b>D</b>	2391.2038	<b>1196.1055</b>	2374.1773	1187.5923	2373.1932	<b>1187.1003</b>	<b>23</b>
<b>9</b>	<b>1032.4190</b>	516.7131			<b>1014.4085</b>	507.7079	<b>V</b>	2276.1769	<b>1138.5921</b>	2259.1503	1130.0788	2258.1663	1129.5868	<b>22</b>
<b>10</b>	1145.5031	573.2552			<b>1127.4925</b>	564.2499	<b>I</b>	2177.1085	<b>1089.0579</b>	2160.0819	1080.5446	2159.0979	1080.0526	<b>21</b>
<b>11</b>	1274.5457	637.7765			1256.5351	628.7712	<b>E</b>	2064.0244	<b>1032.5158</b>	2046.9978	1024.0026	2046.0138	1023.5106	<b>20</b>
<b>12</b>	1373.6141	687.3107			1355.6035	678.3054	<b>V</b>	<b>1934.9818</b>	<b>967.9945</b>	1917.9553	959.4813	1916.9712	958.9893	<b>19</b>
<b>13</b>	<b>1536.6774</b>	768.8423			<b>1518.6669</b>	759.8371	<b>Y</b>	<b>1835.9134</b>	<b>918.4603</b>	1818.8868	909.9471	<b>1817.9028</b>	909.4550	<b>18</b>
<b>14</b>	1664.7360	832.8716	<b>1647.7094</b>	824.3584	<b>1646.7254</b>	823.8664	<b>Q</b>	<b>1672.8501</b>	<b>836.9287</b>	<b>1655.8235</b>	<b>828.4154</b>	1654.8395	<b>827.9234</b>	<b>17</b>
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	1775.7680	888.3877	<b>E</b>	<b>1544.7915</b>	<b>772.8994</b>	1527.7649	<b>764.3861</b>	1526.7809	<b>763.8941</b>	<b>16</b>
<b>16</b>	<b>1921.8372</b>	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	1415.7489	<b>708.3781</b>	1398.7223	<b>699.8648</b>	1397.7383	<b>699.3728</b>	<b>15</b>

<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	<b>1287.6903</b>	<b>644.3488</b>	1270.6638	635.8355	1269.6797	635.3435	<b>14</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	<b>1031.9435</b>	2061.8957	<b>1031.4515</b>	<b>G</b>	<b>1186.6426</b>	<b>593.8250</b>	1169.6161	585.3117	1168.6321	584.8197	<b>13</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	1129.6212	<b>565.3142</b>	1112.5946	556.8009	1111.6106	556.3089	<b>12</b>
<b>20</b>	2207.9649	1104.4861	2190.9383	1095.9728	2189.9543	1095.4808	<b>A</b>	1072.5997	536.8035	1055.5732	528.2902	1054.5891	527.7982	<b>11</b>
<b>21</b>	2336.0599	1168.5336	2319.0333	1160.0203	2318.0493	1159.5283	<b>K</b>	1001.5626	501.2849	984.5360	492.7717	983.5520	492.2796	<b>10</b>
<b>22</b>	2465.1024	1233.0549	2448.0759	1224.5416	2447.0919	1224.0496	<b>E</b>	<b>873.4676</b>	437.2375	856.4411	428.7242	855.4571	428.2322	<b>9</b>
<b>23</b>	2522.1239	<b>1261.5656</b>	2505.0974	1253.0523	2504.1133	<b>1252.5603</b>	<b>G</b>	<b>744.4250</b>	<b>372.7162</b>	727.3985	364.2029	726.4145	363.7109	<b>8</b>
<b>24</b>	2621.1923	1311.0998	2604.1658	1302.5865	2603.1818	1302.0945	<b>V</b>	687.4036	344.2054	<b>670.3770</b>	335.6921	669.3930	335.2001	<b>7</b>
<b>25</b>	2720.2607	1360.6340	2703.2342	1352.1207	2702.2502	1351.6287	<b>V</b>	<b>588.3352</b>	294.6712	571.3086	286.1579	570.3246	285.6659	<b>6</b>
<b>26</b>	2791.2979	1396.1526	2774.2713	1387.6393	2773.2873	1387.1473	<b>A</b>	<b>489.2667</b>	245.1370	472.2402	236.6237	471.2562	236.1317	<b>5</b>
<b>27</b>	2862.3350	1431.6711	2845.3084	1423.1578	2844.3244	1422.6658	<b>A</b>	<b>418.2296</b>	209.6185	401.2031	201.1052	400.2191	200.6132	<b>4</b>
<b>28</b>	2933.3721	1467.1897	2916.3455	1458.6764	2915.3615	1458.1844	<b>A</b>	<b>347.1925</b>	174.0999	330.1660	165.5866	329.1819	165.0946	<b>3</b>
<b>29</b>	3062.4147	<b>1531.7110</b>	3045.3881	1523.1977	3044.4041	1522.7057	<b>E</b>	276.1554	138.5813	259.1288	130.0681	258.1448	129.5761	<b>2</b>
<b>30</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1080.1838	3237.5297	3237.5235	1.93	120	1e-012	ELGMEEEDVIEVYQEQTGG-EGVVAAA <b>E</b> KTK	K21

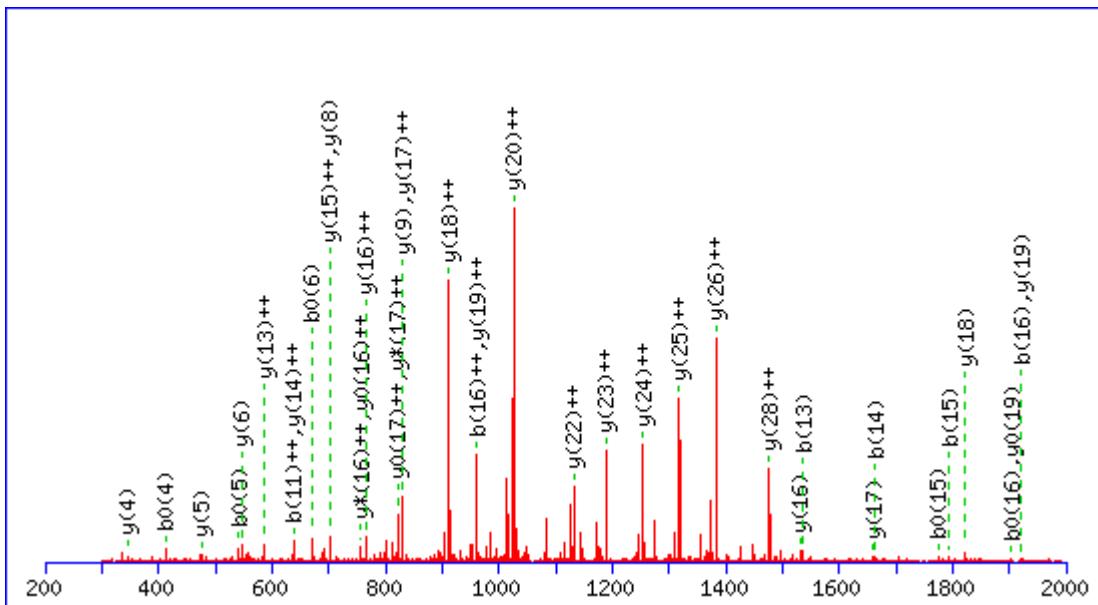


Matches (**Bold Red**): 64/320 fragment ions using 107 most intense peaks

#	b	<b>b<sup>++</sup></b>	<b>b*</b>	<b>b*<sup>++</sup></b>	<b>b<sup>0</sup></b>	<b>b<sup>0<sup>++</sup></sup></b>	Seq.	y	y <sup>++</sup>	y*	y <sup>*<sup>++</sup></sup>	y <sup>0</sup>	y <sup>0<sup>++</sup></sup>	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>30</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	3109.4882	1555.2477	3092.4616	<b>1546.7344</b>	3091.4776	<b>1546.2424</b>	<b>29</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	2996.4041	<b>1498.7057</b>	2979.3776	1490.1924	2978.3935	1489.7004	<b>28</b>	
<b>4</b>	431.1959	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	2939.3826	1470.1950	2922.3561	1461.6817	2921.3721	1461.1897	<b>27</b>	
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	2808.3422	<b>1404.6747</b>	2791.3156	1396.1614	2790.3316	1395.6694	<b>26</b>	
<b>6</b>	689.2811	345.1442			<b>671.2705</b>	<b>336.1389</b>	<b>E</b>	2679.2996	<b>1340.1534</b>	2662.2730	1331.6401	2661.2890	1331.1481	<b>25</b>	
<b>7</b>	818.3237	409.6655			<b>800.3131</b>	400.6602	<b>E</b>	2550.2570	<b>1275.6321</b>	2533.2304	1267.1188	2532.2464	1266.6268	<b>24</b>	
<b>8</b>	<b>933.3506</b>	467.1789			<b>915.3400</b>	458.1737	<b>D</b>	2421.2144	<b>1211.1108</b>	2404.1878	1202.5976	2403.2038	1202.1055	<b>23</b>	
<b>9</b>	1032.4190	516.7131			<b>1014.4085</b>	507.7079	<b>V</b>	2306.1874	<b>1153.5974</b>	2289.1609	<b>1145.0841</b>	2288.1769	<b>1144.5921</b>	<b>22</b>	
<b>10</b>	<b>1145.5031</b>	573.2552			<b>1127.4925</b>	564.2499	<b>I</b>	2207.1190	<b>1104.0631</b>	2190.0925	1095.5499	2189.1085	1095.0579	<b>21</b>	
<b>11</b>	1274.5457	637.7765			<b>1256.5351</b>	628.7712	<b>E</b>	2094.0350	<b>1047.5211</b>	2077.0084	<b>1039.0078</b>	2076.0244	<b>1038.5158</b>	<b>20</b>	
<b>12</b>	<b>1373.6141</b>	687.3107			1355.6035	678.3054	<b>V</b>	1964.9924	<b>982.9998</b>	<b>1947.9658</b>	974.4865	1946.9818	973.9945	<b>19</b>	
<b>13</b>	<b>1536.6774</b>	768.8423			1518.6669	759.8371	<b>Y</b>	<b>1865.9240</b>	<b>933.4656</b>	1848.8974	<b>924.9523</b>	<b>1847.9134</b>	<b>924.4603</b>	<b>18</b>	
<b>14</b>	<b>1664.7360</b>	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	<b>1702.8606</b>	<b>851.9339</b>	1685.8341	<b>843.4207</b>	1684.8501	<b>842.9287</b>	<b>17</b>	
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	<b>1775.7680</b>	888.3877	<b>E</b>	1574.8020	<b>787.9047</b>	1557.7755	<b>779.3914</b>	1556.7915	<b>778.8994</b>	<b>16</b>	
<b>16</b>	<b>1921.8372</b>	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	1445.7595	<b>723.3834</b>	1428.7329	714.8701	<b>1427.7489</b>	714.3781	<b>15</b>	

<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	1317.7009	<b>659.3541</b>	1300.6743	<b>650.8408</b>	1299.6903	<b>650.3488</b>	<b>14</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	1031.9435	2061.8957	1031.4515	<b>G</b>	<b>1216.6532</b>	<b>608.8302</b>	1199.6266	600.3170	1198.6426	599.8250	<b>13</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	<b>1159.6317</b>	<b>580.3195</b>	1142.6052	571.8062	1141.6212	571.3142	<b>12</b>
<b>20</b>	2265.9704	1133.4888	2248.9438	1124.9755	2247.9598	1124.4835	<b>E</b>	1102.6103	<b>551.8088</b>	1085.5837	543.2955	1084.5997	<b>542.8035</b>	<b>11</b>
<b>21</b>	2322.9918	1161.9996	2305.9653	<b>1153.4863</b>	2304.9813	<b>1152.9943</b>	<b>G</b>	973.5677	487.2875	956.5411	478.7742	955.5571	478.2822	<b>10</b>
<b>22</b>	2422.0602	<b>1211.5338</b>	2405.0337	1203.0205	2404.0497	1202.5285	<b>V</b>	916.5462	458.7767	899.5197	450.2635	898.5356	449.7715	<b>9</b>
<b>23</b>	2521.1287	1261.0680	2504.1021	1252.5547	2503.1181	1252.0627	<b>V</b>	817.4778	409.2425	<b>800.4512</b>	400.7293	<b>799.4672</b>	400.2373	<b>8</b>
<b>24</b>	2592.1658	1296.5865	2575.1392	1288.0732	2574.1552	1287.5812	<b>A</b>	718.4094	359.7083	701.3828	351.1951	700.3988	350.7030	<b>7</b>
<b>25</b>	2663.2029	1332.1051	2646.1763	1323.5918	2645.1923	1323.0998	<b>A</b>	647.3723	324.1898	630.3457	315.6765	629.3617	315.1845	<b>6</b>
<b>26</b>	2734.2400	1367.6236	2717.2135	1359.1104	2716.2294	1358.6184	<b>A</b>	576.3352	288.6712	559.3086	280.1579	558.3246	279.6659	<b>5</b>
<b>27</b>	2863.2826	1432.1449	2846.2560	1423.6317	2845.2720	1423.1397	<b>E</b>	505.2980	253.1527	488.2715	244.6394	487.2875	244.1474	<b>4</b>
<b>28</b>	2991.3776	1496.1924	2974.3510	1487.6791	2973.3670	1487.1871	<b>K</b>	376.2554	188.6314	359.2289	180.1181	358.2449	179.6261	<b>3</b>
<b>29</b>	3092.4252	<b>1546.7163</b>	3075.3987	<b>1538.2030</b>	3074.4147	<b>1537.7110</b>	<b>T</b>	248.1605	124.5839	231.1339	116.0706	230.1499	115.5786	<b>2</b>
<b>30</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1065.8403	3194.4989	3194.4925	2.01	125	3.3e-013	ELGMEEEDVIEVYQEQTGG-T <b>K</b> QGVAEAAGK	K23

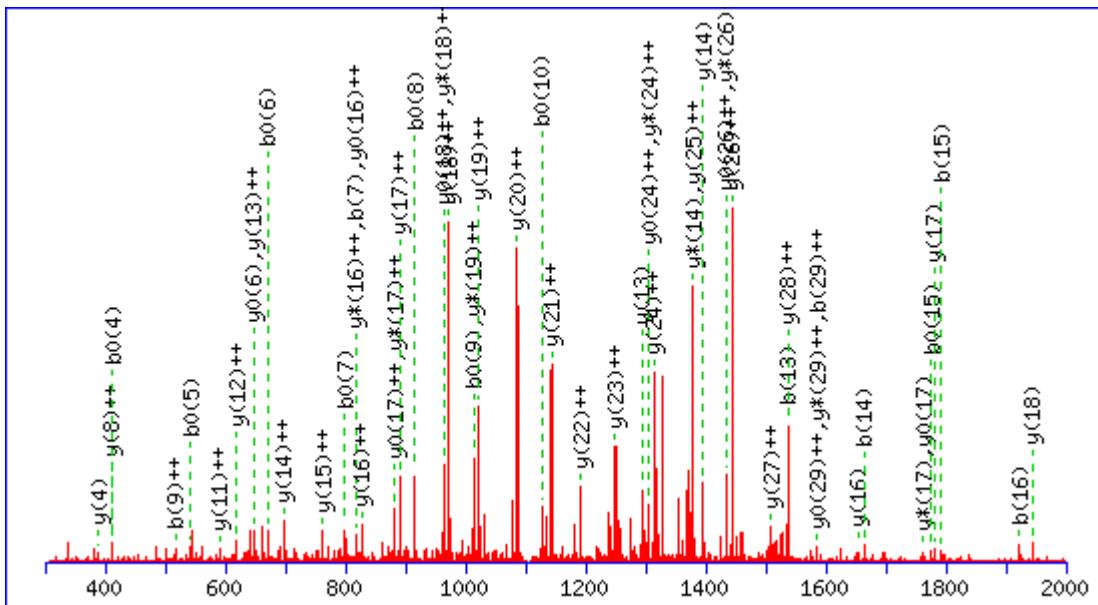


Matches (**Bold Red**): 39/314 fragment ions using 64 most intense peaks

#	b	<b>b</b> <sup>++</sup>	<b>b</b> *	<b>b</b> * <sup>++</sup>	<b>b</b> <sup>0</sup>	<b>b</b> <sup>0++</sup>	Seq.	y	y <sup>++</sup>	y*	y* <sup>++</sup>	y <sup>0</sup>	y <sup>0++</sup>	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>30</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	3066.4572	1533.7322	3049.4307	1525.2190	3048.4466	1524.7270	<b>29</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	2953.3731	<b>1477.1902</b>	2936.3466	1468.6769	2935.3626	1468.1849	<b>28</b>	
<b>4</b>	431.1959	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	2896.3517	1448.6795	2879.3251	1440.1662	2878.3411	1439.6742	<b>27</b>	
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	2765.3112	<b>1383.1592</b>	2748.2846	1374.6460	2747.3006	1374.1540	<b>26</b>	
<b>6</b>	689.2811	345.1442			<b>671.2705</b>	336.1389	<b>E</b>	2636.2686	<b>1318.6379</b>	2619.2421	1310.1247	2618.2580	1309.6327	<b>25</b>	
<b>7</b>	818.3237	409.6655			800.3131	400.6602	<b>E</b>	2507.2260	<b>1254.1166</b>	2490.1995	1245.6034	2489.2154	1245.1114	<b>24</b>	
<b>8</b>	933.3506	467.1789			915.3400	458.1737	<b>D</b>	2378.1834	<b>1189.5953</b>	2361.1569	1181.0821	2360.1728	1180.5901	<b>23</b>	
<b>9</b>	1032.4190	516.7131			1014.4085	507.7079	<b>V</b>	2263.1565	<b>1132.0819</b>	2246.1299	1123.5686	2245.1459	1123.0766	<b>22</b>	
<b>10</b>	1145.5031	573.2552			1127.4925	564.2499	<b>I</b>	2164.0881	1082.5477	2147.0615	1074.0344	2146.0775	1073.5424	<b>21</b>	
<b>11</b>	1274.5457	<b>637.7765</b>			1256.5351	628.7712	<b>E</b>	2051.0040	<b>1026.0056</b>	2033.9774	1017.4924	2032.9934	1017.0004	<b>20</b>	
<b>12</b>	1373.6141	687.3107			1355.6035	678.3054	<b>V</b>	<b>1921.9614</b>	<b>961.4843</b>	1904.9349	952.9711	<b>1903.9508</b>	952.4791	<b>19</b>	
<b>13</b>	<b>1536.6774</b>	768.8423			1518.6669	759.8371	<b>Y</b>	<b>1822.8930</b>	<b>911.9501</b>	1805.8664	903.4369	1804.8824	902.9448	<b>18</b>	
<b>14</b>	<b>1664.7360</b>	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	<b>1659.8297</b>	<b>830.4185</b>	1642.8031	<b>821.9052</b>	1641.8191	<b>821.4132</b>	<b>17</b>	
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	<b>1775.7680</b>	888.3877	<b>E</b>	<b>1531.7711</b>	<b>766.3892</b>	1514.7445	<b>757.8759</b>	1513.7605	<b>757.3839</b>	<b>16</b>	
<b>16</b>	<b>1921.8372</b>	<b>961.4222</b>	1904.8106	952.9089	<b>1903.8266</b>	952.4169	<b>Q</b>	1402.7285	<b>701.8679</b>	1385.7019	693.3546	1384.7179	692.8626	<b>15</b>	

<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	1274.6699	<b>637.8386</b>	1257.6434	629.3253	1256.6593	628.8333	<b>14</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	1031.9435	2061.8957	1031.4515	<b>G</b>	1173.6222	<b>587.3148</b>	1156.5957	578.8015	1155.6117	578.3095	<b>13</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	1116.6008	558.8040	1099.5742	550.2907	1098.5902	549.7987	<b>12</b>
<b>20</b>	2237.9755	1119.4914	2220.9489	1110.9781	2219.9649	1110.4861	<b>T</b>	1059.5793	530.2933	1042.5528	521.7800	1041.5687	521.2880	<b>11</b>
<b>21</b>	2366.0704	1183.5388	2349.0439	1175.0256	2348.0599	1174.5336	<b>K</b>	958.5316	479.7694	941.5051	471.2562	940.5211	470.7642	<b>10</b>
<b>22</b>	2494.1290	1247.5681	2477.1024	1239.0549	2476.1184	1238.5629	<b>Q</b>	<b>830.4367</b>	415.7220	813.4101	407.2087	812.4261	406.7167	<b>9</b>
<b>23</b>	2551.1505	1276.0789	2534.1239	1267.5656	2533.1399	1267.0736	<b>G</b>	<b>702.3781</b>	351.6927	685.3515	343.1794	684.3675	342.6874	<b>8</b>
<b>24</b>	2650.2189	1325.6131	2633.1923	1317.0998	2632.2083	1316.6078	<b>V</b>	645.3566	323.1819	628.3301	314.6687	627.3461	314.1767	<b>7</b>
<b>25</b>	2721.2560	1361.1316	2704.2294	1352.6184	2703.2454	1352.1263	<b>A</b>	<b>546.2882</b>	273.6477	529.2617	265.1345	528.2776	264.6425	<b>6</b>
<b>26</b>	2850.2986	1425.6529	2833.2720	1417.1397	2832.2880	1416.6476	<b>E</b>	<b>475.2511</b>	238.1292	458.2245	229.6159	457.2405	229.1239	<b>5</b>
<b>27</b>	2921.3357	1461.1715	2904.3091	1452.6582	2903.3251	1452.1662	<b>A</b>	<b>346.2085</b>	173.6079	329.1819	165.0946			<b>4</b>
<b>28</b>	2992.3728	1496.6900	2975.3463	1488.1768	2974.3622	1487.6848	<b>A</b>	275.1714	138.0893	258.1448	129.5761			<b>3</b>
<b>29</b>	3049.3943	1525.2008	3032.3677	1516.6875	3031.3837	1516.1955	<b>G</b>	204.1343	102.5708	187.1077	94.0575			<b>2</b>
<b>30</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1106.1997	3315.5774	3315.5704	2.10	128	1.5e-013	ELGMEEEDVIEVYQEQTGG-T <u>K</u> EGVLVYGSK	K34

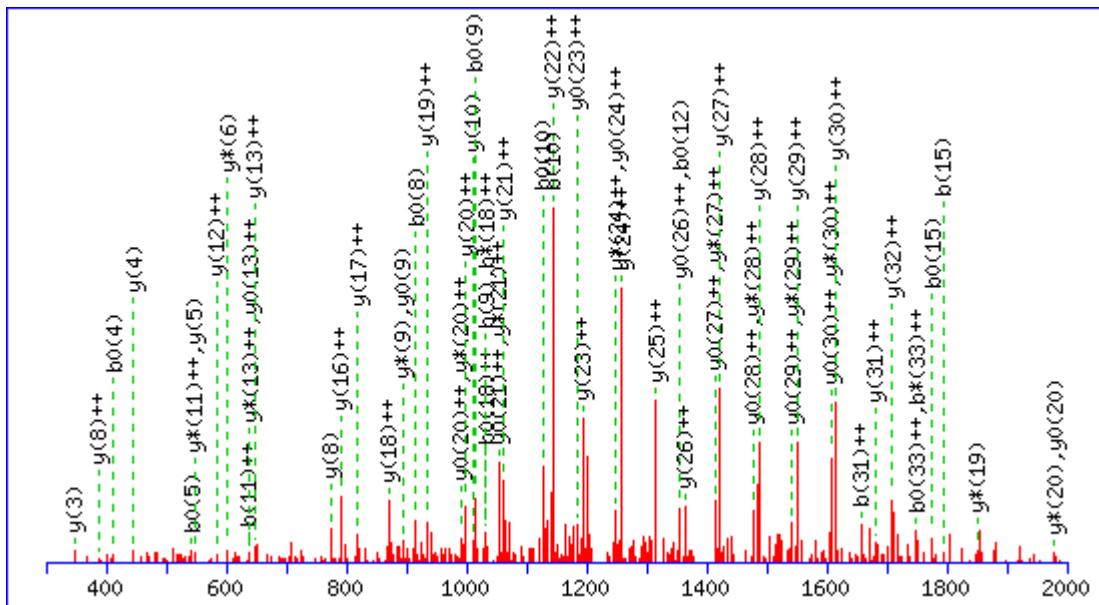


**Matches (Bold Red):** 57/320 fragment ions using 116 most intense peaks

#	b	b <sup>++</sup>	b*	b <sup>*++</sup>	b <sup>0</sup>	b <sup>0++</sup>	Seq.	y	y <sup>++</sup>	y*	y <sup>*++</sup>	y <sup>0</sup>	y <sup>0++</sup>	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>30</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	3187.5351	1594.2712	3170.5086	<b>1585.7579</b>	3169.5246	<b>1585.2659</b>	<b>29</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	3074.4511	<b>1537.7292</b>	3057.4245	1529.2159	3056.4405	1528.7239	<b>28</b>	
<b>4</b>	431.1959	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	3017.4296	<b>1509.2184</b>	3000.4030	1500.7052	2999.4190	1500.2132	<b>27</b>	
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	2886.3891	<b>1443.6982</b>	2869.3626	<b>1435.1849</b>	2868.3785	<b>1434.6929</b>	<b>26</b>	
<b>6</b>	689.2811	345.1442			<b>671.2705</b>	336.1389	<b>E</b>	2757.3465	<b>1379.1769</b>	2740.3200	1370.6636	2739.3359	1370.1716	<b>25</b>	
<b>7</b>	<b>818.3237</b>	409.6655			<b>800.3131</b>	400.6602	<b>E</b>	2628.3039	<b>1314.6556</b>	2611.2774	<b>1306.1423</b>	2610.2934	<b>1305.6503</b>	<b>24</b>	
<b>8</b>	933.3506	467.1789			<b>915.3400</b>	458.1737	<b>D</b>	2499.2613	<b>1250.1343</b>	2482.2348	1241.6210	2481.2508	1241.1290	<b>23</b>	
<b>9</b>	1032.4190	<b>516.7131</b>			<b>1014.4085</b>	507.7079	<b>V</b>	2384.2344	<b>1192.6208</b>	2367.2078	1184.1076	2366.2238	1183.6155	<b>22</b>	
<b>10</b>	1145.5031	573.2552			<b>1127.4925</b>	564.2499	<b>I</b>	2285.1660	<b>1143.0866</b>	2268.1394	1134.5733	2267.1554	1134.0813	<b>21</b>	
<b>11</b>	1274.5457	637.7765			1256.5351	628.7712	<b>E</b>	2172.0819	<b>1086.5446</b>	2155.0554	1078.0313	2154.0713	1077.5393	<b>20</b>	
<b>12</b>	1373.6141	687.3107			1355.6035	678.3054	<b>V</b>	2043.0393	<b>1022.0233</b>	2026.0128	<b>1013.5100</b>	2025.0288	1013.0180	<b>19</b>	
<b>13</b>	<b>1536.6774</b>	768.8423			1518.6669	759.8371	<b>Y</b>	<b>1943.9709</b>	<b>972.4891</b>	1926.9444	<b>963.9758</b>	1925.9603	<b>963.4838</b>	<b>18</b>	
<b>14</b>	<b>1664.7360</b>	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	<b>1780.9076</b>	<b>890.9574</b>	<b>1763.8810</b>	<b>882.4441</b>	<b>1762.8970</b>	<b>881.9521</b>	<b>17</b>	
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	<b>1775.7680</b>	888.3877	<b>E</b>	<b>1652.8490</b>	<b>826.9281</b>	1635.8224	<b>818.4149</b>	1634.8384	<b>817.9229</b>	<b>16</b>	
<b>16</b>	<b>1921.8372</b>	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	1523.8064	<b>762.4068</b>	1506.7799	753.8936	1505.7958	753.4016	<b>15</b>	

<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	<b>1395.7478</b>	<b>698.3775</b>	<b>1378.7213</b>	689.8643	1377.7373	689.3723	<b>14</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	1031.9435	2061.8957	1031.4515	<b>G</b>	<b>1294.7001</b>	<b>647.8537</b>	1277.6736	639.3404	1276.6896	638.8484	<b>13</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	1237.6787	<b>619.3430</b>	1220.6521	610.8297	1219.6681	610.3377	<b>12</b>
<b>20</b>	2237.9755	1119.4914	2220.9489	1110.9781	2219.9649	1110.4861	<b>T</b>	1180.6572	<b>590.8322</b>	1163.6307	582.3190	1162.6467	581.8270	<b>11</b>
<b>21</b>	2366.0704	1183.5388	2349.0439	1175.0256	2348.0599	1174.5336	<b>K</b>	1079.6095	540.3084	1062.5830	531.7951	1061.5990	531.3031	<b>10</b>
<b>22</b>	2495.1130	1248.0601	2478.0865	1239.5469	2477.1024	1239.0549	<b>E</b>	951.5146	476.2609	934.4880	467.7477	933.5040	467.2556	<b>9</b>
<b>23</b>	2552.1345	1276.5709	2535.1079	1268.0576	2534.1239	1267.5656	<b>G</b>	822.4720	<b>411.7396</b>	805.4454	403.2264	804.4614	402.7343	<b>8</b>
<b>24</b>	2651.2029	1326.1051	2634.1763	1317.5918	2633.1923	1317.0998	<b>V</b>	765.4505	383.2289	748.4240	374.7156	747.4400	374.2236	<b>7</b>
<b>25</b>	2764.2870	1382.6471	2747.2604	1374.1338	2746.2764	1373.6418	<b>L</b>	666.3821	333.6947	649.3556	325.1814	<b>648.3715</b>	324.6894	<b>6</b>
<b>26</b>	2927.3503	1464.1788	2910.3237	1455.6655	2909.3397	1455.1735	<b>Y</b>	553.2980	277.1527	536.2715	268.6394	535.2875	268.1474	<b>5</b>
<b>27</b>	3026.4187	1513.7130	3009.3921	1505.1997	3008.4081	1504.7077	<b>V</b>	<b>390.2347</b>	195.6210	373.2082	187.1077	372.2241	186.6157	<b>4</b>
<b>28</b>	3083.4402	1542.2237	3066.4136	1533.7104	3065.4296	1533.2184	<b>G</b>	291.1663	146.0868	274.1397	137.5735	273.1557	137.0815	<b>3</b>
<b>29</b>	3170.4722	<b>1585.7397</b>	3153.4456	1577.2265	3152.4616	1576.7344	<b>S</b>	234.1448	117.5761	217.1183	109.0628	216.1343	108.5708	<b>2</b>
<b>30</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1220.9260	3659.7562	3659.7513	1.36	104	1.5e-013	ELGMEEEDVIEVYQEQTGG-T <u>K</u> EVVHGVATVAEK	K45

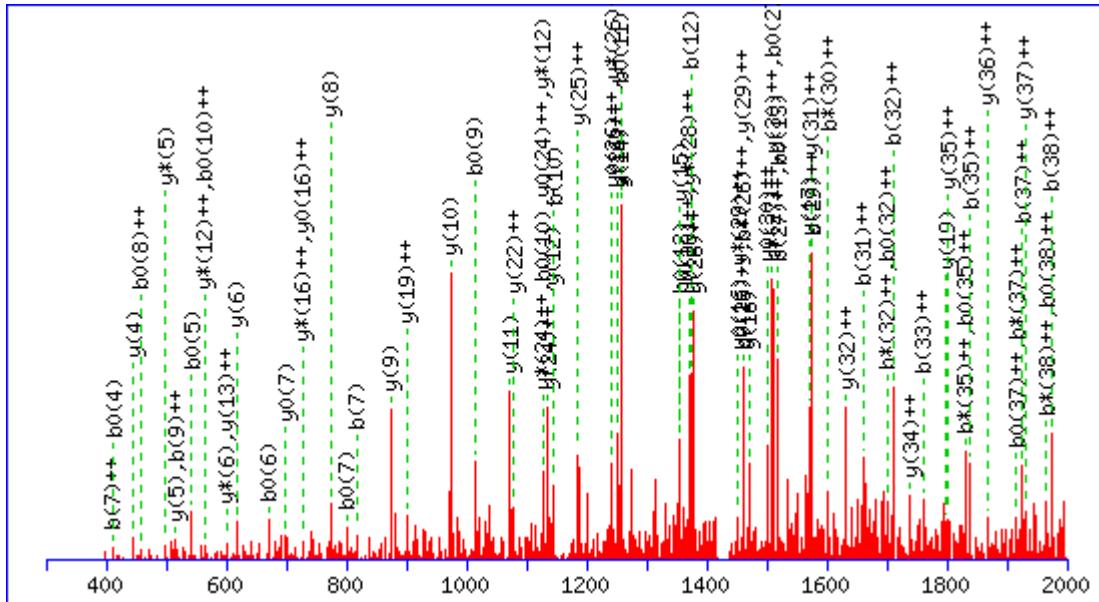


**Matches (Bold Red):** 66/368 fragment ions using 118 most intense peaks

#	b	b <sup>++</sup>	b*	b <sup>*++</sup>	b <sup>0</sup>	b <sup>0++</sup>	Seq.	y	y <sup>++</sup>	y*	y <sup>*++</sup>	y <sup>0</sup>	y <sup>0++</sup>	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>34</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	3531.7159	1766.3616	3514.6894	1757.8483	3513.7054	1757.3563	<b>33</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	3418.6319	<b>1709.8196</b>	3401.6053	1701.3063	3400.6213	1700.8143	<b>32</b>	
<b>4</b>	431.1959	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	3361.6104	<b>1681.3088</b>	3344.5839	1672.7956	3343.5998	1672.3036	<b>31</b>	
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	3230.5699	<b>1615.7886</b>	3213.5434	<b>1607.2753</b>	3212.5594	<b>1606.7833</b>	<b>30</b>	
<b>6</b>	689.2811	345.1442			671.2705	336.1389	<b>E</b>	3101.5273	<b>1551.2673</b>	3084.5008	<b>1542.7540</b>	3083.5168	<b>1542.2620</b>	<b>29</b>	
<b>7</b>	818.3237	409.6655			800.3131	400.6602	<b>E</b>	2972.4847	<b>1486.7460</b>	2955.4582	<b>1478.2327</b>	2954.4742	<b>1477.7407</b>	<b>28</b>	
<b>8</b>	933.3506	467.1789			<b>915.3400</b>	458.1737	<b>D</b>	2843.4421	<b>1422.2247</b>	2826.4156	<b>1413.7114</b>	2825.4316	<b>1413.2194</b>	<b>27</b>	
<b>9</b>	<b>1032.4190</b>	516.7131			<b>1014.4085</b>	507.7079	<b>V</b>	2728.4152	<b>1364.7112</b>	2711.3887	1356.1980	2710.4046	<b>1355.7060</b>	<b>26</b>	
<b>10</b>	<b>1145.5031</b>	573.2552			<b>1127.4925</b>	564.2499	<b>I</b>	2629.3468	<b>1315.1770</b>	2612.3202	1306.6638	2611.3362	1306.1718	<b>25</b>	
<b>11</b>	1274.5457	<b>637.7765</b>			1256.5351	628.7712	<b>E</b>	2516.2627	<b>1258.6350</b>	2499.2362	<b>1250.1217</b>	2498.2522	<b>1249.6297</b>	<b>24</b>	
<b>12</b>	1373.6141	687.3107			<b>1355.6035</b>	678.3054	<b>V</b>	2387.2201	<b>1194.1137</b>	2370.1936	1185.6004	2369.2096	<b>1185.1084</b>	<b>23</b>	
<b>13</b>	1536.6774	768.8423			1518.6669	759.8371	<b>Y</b>	2288.1517	<b>1144.5795</b>	2271.1252	1136.0662	2270.1412	1135.5742	<b>22</b>	
<b>14</b>	1664.7360	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	2125.0884	<b>1063.0478</b>	2108.0618	<b>1054.5346</b>	2107.0778	<b>1054.0426</b>	<b>21</b>	
<b>15</b>	<b>1793.7786</b>	897.3929	1776.7520	888.8797	<b>1775.7680</b>	888.3877	<b>E</b>	1997.0298	<b>999.0185</b>	<b>1980.0033</b>	<b>990.5053</b>	<b>1979.0192</b>	<b>990.0133</b>	<b>20</b>	
<b>16</b>	1921.8372	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	1867.9872	<b>934.4972</b>	<b>1850.9607</b>	925.9840	1849.9767	925.4920	<b>19</b>	

<b>17</b>	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	<b>T</b>	1739.9286	<b>870.4680</b>	1722.9021	861.9547	1721.9181	861.4627	<b>18</b>
<b>18</b>	2079.9063	1040.4568	2062.8798	<b>1031.9435</b>	2061.8957	<b>1031.4515</b>	<b>G</b>	1638.8810	<b>819.9441</b>	1621.8544	811.4308	1620.8704	810.9388	<b>17</b>
<b>19</b>	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	<b>G</b>	1581.8595	<b>791.4334</b>	1564.8329	782.9201	1563.8489	782.4281	<b>16</b>
<b>20</b>	2237.9755	1119.4914	2220.9489	1110.9781	2219.9649	1110.4861	<b>T</b>	1524.8380	762.9227	1507.8115	754.4094	1506.8275	753.9174	<b>15</b>
<b>21</b>	2366.0704	1183.5388	2349.0439	1175.0256	2348.0599	1174.5336	<b>K</b>	1423.7904	712.3988	1406.7638	703.8855	1405.7798	703.3935	<b>14</b>
<b>22</b>	2495.1130	1248.0601	2478.0865	1239.5469	2477.1024	1239.0549	<b>E</b>	1295.6954	<b>648.3513</b>	1278.6688	<b>639.8381</b>	1277.6848	<b>639.3461</b>	<b>13</b>
<b>23</b>	2552.1345	1276.5709	2535.1079	1268.0576	2534.1239	1267.5656	<b>G</b>	1166.6528	<b>583.8300</b>	1149.6263	575.3168	1148.6422	574.8248	<b>12</b>
<b>24</b>	2651.2029	1326.1051	2634.1763	1317.5918	2633.1923	1317.0998	<b>V</b>	1109.6313	555.3193	1092.6048	<b>546.8060</b>	1091.6208	546.3140	<b>11</b>
<b>25</b>	2750.2713	1375.6393	2733.2448	1367.1260	2732.2607	1366.6340	<b>V</b>	<b>1010.5629</b>	505.7851	993.5364	497.2718	992.5524	496.7798	<b>10</b>
<b>26</b>	2887.3302	1444.1687	2870.3037	1435.6555	2869.3196	1435.1635	<b>H</b>	911.4945	456.2509	<b>894.4680</b>	447.7376	<b>893.4839</b>	447.2456	<b>9</b>
<b>27</b>	2944.3517	1472.6795	2927.3251	1464.1662	2926.3411	1463.6742	<b>G</b>	<b>774.4356</b>	<b>387.7214</b>	757.4090	379.2082	756.4250	378.7162	<b>8</b>
<b>28</b>	3043.4201	1522.2137	3026.3935	1513.7004	3025.4095	1513.2084	<b>V</b>	717.4141	359.2107	700.3876	350.6974	699.4036	350.2054	<b>7</b>
<b>29</b>	3114.4572	1557.7322	3097.4307	1549.2190	3096.4466	1548.7270	<b>A</b>	618.3457	309.6765	<b>601.3192</b>	301.1632	600.3352	300.6712	<b>6</b>
<b>30</b>	3215.5049	1608.2561	3198.4783	1599.7428	3197.4943	1599.2508	<b>T</b>	<b>547.3086</b>	274.1579	530.2821	265.6447	529.2980	265.1527	<b>5</b>
<b>31</b>	3314.5733	<b>1657.7903</b>	3297.5467	1649.2770	3296.5627	1648.7850	<b>V</b>	<b>446.2609</b>	223.6341	429.2344	215.1208	428.2504	214.6288	<b>4</b>
<b>32</b>	3385.6104	1693.3088	3368.5839	1684.7956	3367.5998	1684.3036	<b>A</b>	<b>347.1925</b>	174.0999	330.1660	165.5866	329.1819	165.0946	<b>3</b>
<b>33</b>	3514.6530	1757.8301	3497.6265	<b>1749.3169</b>	3496.6424	<b>1748.8249</b>	<b>E</b>	276.1554	138.5813	259.1288	130.0681	258.1448	129.5761	<b>2</b>
<b>34</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1431.7094	4292.1062	4292.1006	1.31	90	1.1e-009	ELGMEEEDVIEVYQEQTGG-TKEQVTNVGGAVVTGVTAVAQK	K60

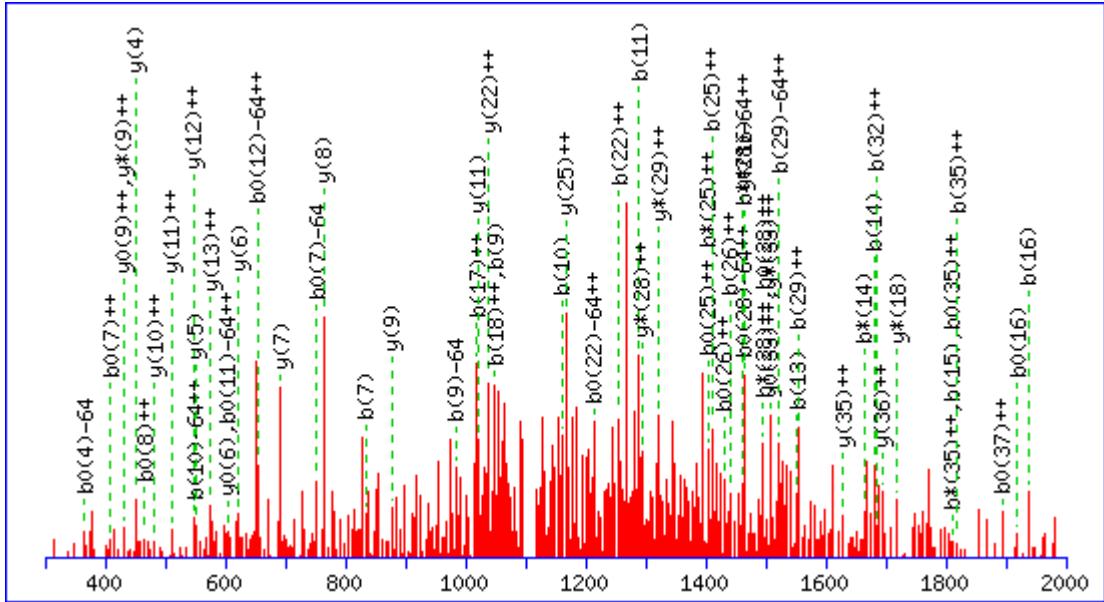


Matches (Bold Red): 81/444 fragment ions using 135 most intense peaks

#	b	$b^{++}$	$b^*$	$b^{*++}$	$b^0$	$b^{0++}$	Seq.	y	$y^{++}$	$y^*$	$y^{*++}$	$y^0$	$y^{0++}$	#	
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>								<b>41</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	4164.0653	2082.5363	4147.0387	2074.0230	4146.0547	2073.5310	<b>40</b>	
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	4050.9812	2025.9942	4033.9547	2017.4810	4032.9707	2016.9890	<b>39</b>	
<b>4</b>	431.1959	216.1016			<b>413.1853</b>	207.0963	<b>M</b>	3993.9598	1997.4835	3976.9332	1988.9702	3975.9492	1988.4782	<b>38</b>	
<b>5</b>	560.2385	280.6229			<b>542.2279</b>	271.6176	<b>E</b>	3862.9193	<b>1931.9633</b>	3845.8927	1923.4500	3844.9087	1922.9580	<b>37</b>	
<b>6</b>	689.2811	345.1442			<b>671.2705</b>	336.1389	<b>E</b>	3733.8767	<b>1867.4420</b>	3716.8501	1858.9287	3715.8661	1858.4367	<b>36</b>	
<b>7</b>	<b>818.3237</b>	<b>409.6655</b>			<b>800.3131</b>	400.6602	<b>E</b>	3604.8341	<b>1802.9207</b>	3587.8075	1794.4074	3586.8235	1793.9154	<b>35</b>	
<b>8</b>	933.3506	467.1789			915.3400	<b>458.1737</b>	<b>D</b>	3475.7915	<b>1738.3994</b>	3458.7649	1729.8861	3457.7809	1729.3941	<b>34</b>	
<b>9</b>	1032.4190	<b>516.7131</b>			<b>1014.4085</b>	507.7079	<b>V</b>	3360.7645	1680.8859	3343.7380	1672.3726	3342.7540	1671.8806	<b>33</b>	
<b>10</b>	<b>1145.5031</b>	573.2552			<b>1127.4925</b>	<b>564.2499</b>	<b>I</b>	3261.6961	<b>1631.3517</b>	3244.6696	1622.8384	3243.6856	1622.3464	<b>32</b>	
<b>11</b>	1274.5457	637.7765			<b>1256.5351</b>	628.7712	<b>E</b>	3148.6121	<b>1574.8097</b>	3131.5855	1566.2964	3130.6015	1565.8044	<b>31</b>	
<b>12</b>	<b>1373.6141</b>	687.3107			<b>1355.6035</b>	678.3054	<b>V</b>	3019.5695	<b>1510.2884</b>	3002.5429	1501.7751	3001.5589	<b>1501.2831</b>	<b>30</b>	
<b>13</b>	1536.6774	768.8423			<b>1518.6669</b>	759.8371	<b>Y</b>	2920.5011	<b>1460.7542</b>	2903.4745	<b>1452.2409</b>	2902.4905	1451.7489	<b>29</b>	
<b>14</b>	1664.7360	832.8716	1647.7094	824.3584	1646.7254	823.8664	<b>Q</b>	2757.4377	<b>1379.2225</b>	2740.4112	<b>1370.7092</b>	2739.4272	<b>1370.2172</b>	<b>28</b>	
<b>15</b>	1793.7786	897.3929	1776.7520	888.8797	1775.7680	888.3877	<b>E</b>	2629.3792	1315.1932	2612.3526	1306.6799	2611.3686	1306.1879	<b>27</b>	
<b>16</b>	1921.8372	961.4222	1904.8106	952.9089	1903.8266	952.4169	<b>Q</b>	2500.3366	<b>1250.6719</b>	2483.3100	<b>1242.1586</b>	2482.3260	<b>1241.6666</b>	<b>26</b>	

17	2022.8848	1011.9461	2005.8583	1003.4328	2004.8743	1002.9408	T	2372.2780	1186.6426	2355.2514	1178.1294	2354.2674	1177.6373	25
18	2079.9063	1040.4568	2062.8798	1031.9435	2061.8957	1031.4515	G	2271.2303	1136.1188	2254.2038	1127.6055	2253.2197	1127.1135	24
19	2136.9278	1068.9675	2119.9012	1060.4543	2118.9172	1059.9622	G	2214.2088	1107.6081	2197.1823	1099.0948	2196.1983	1098.6028	23
20	2237.9755	1119.4914	2220.9489	1110.9781	2219.9649	1110.4861	T	2157.1874	1079.0973	2140.1608	1070.5841	2139.1768	1070.0920	22
21	2366.0704	1183.5388	2349.0439	1175.0256	2348.0599	1174.5336	K	2056.1397	1028.5735	2039.1131	1020.0602	2038.1291	1019.5682	21
22	2495.1130	1248.0601	2478.0865	1239.5469	2477.1024	1239.0549	E	1928.0447	964.5260	1911.0182	956.0127	1910.0342	955.5207	20
23	2623.1716	1312.0894	2606.1450	1303.5762	2605.1610	1303.0841	Q	1799.0021	900.0047	1781.9756	891.4914	1780.9916	890.9994	19
24	2722.2400	1361.6236	2705.2135	1353.1104	2704.2294	1352.6184	V	1670.9436	835.9754	1653.9170	827.4621	1652.9330	826.9701	18
25	2823.2877	1412.1475	2806.2611	1403.6342	2805.2771	1403.1422	T	1571.8751	786.4412	1554.8486	777.9279	1553.8646	777.4359	17
26	2937.3306	1469.1689	2920.3041	1460.6557	2919.3200	1460.1637	N	1470.8275	735.9174	1453.8009	727.4041	1452.8169	726.9121	16
27	3036.3990	1518.7031	3019.3725	1510.1899	3018.3885	1509.6979	V	1356.7845	678.8959	1339.7580	670.3826	1338.7740	669.8906	15
28	3093.4205	1547.2139	3076.3939	1538.7006	3075.4099	1538.2086	G	1257.7161	629.3617	1240.6896	620.8484	1239.7056	620.3564	14
29	3150.4419	1575.7246	3133.4154	1567.2113	3132.4314	1566.7193	G	1200.6947	600.8510	1183.6681	592.3377	1182.6841	591.8457	13
30	3221.4791	1611.2432	3204.4525	1602.7299	3203.4685	1602.2379	A	1143.6732	572.3402	1126.6467	563.8270	1125.6626	563.3350	12
31	3320.5475	1660.7774	3303.5209	1652.2641	3302.5369	1651.7721	V	1072.6361	536.8217	1055.6095	528.3084	1054.6255	527.8164	11
32	3419.6159	1710.3116	3402.5893	1701.7983	3401.6053	1701.3063	V	973.5677	487.2875	956.5411	478.7742	955.5571	478.2822	10
33	3520.6636	1760.8354	3503.6370	1752.3221	3502.6530	1751.8301	T	874.4993	437.7533	857.4727	429.2400	856.4887	428.7480	9
34	3577.6850	1789.3462	3560.6585	1780.8329	3559.6745	1780.3409	G	773.4516	387.2294	756.4250	378.7162	755.4410	378.2241	8
35	3676.7534	1838.8804	3659.7269	1830.3671	3658.7429	1829.8751	V	716.4301	358.7187	699.4036	350.2054	698.4196	349.7134	7
36	3777.8011	1889.4042	3760.7746	1880.8909	3759.7906	1880.3989	T	617.3617	309.1845	600.3352	300.6712	599.3511	300.1792	6
37	3848.8382	1924.9228	3831.8117	1916.4095	3830.8277	1915.9175	A	516.3140	258.6607	499.2875	250.1474			5
38	3947.9067	1974.4570	3930.8801	1965.9437	3929.8961	1965.4517	V	445.2769	223.1421	428.2504	214.6288			4
39	4018.9438	2009.9755	4001.9172	2001.4622	4000.9332	2000.9702	A	346.2085	173.6079	329.1819	165.0946			3
40	4147.0023	2074.0048	4129.9758	2065.4915	4128.9918	2064.9995	Q	275.1714	138.0893	258.1448	129.5761			2
41							K	147.1128	74.0600	130.0863	65.5468			1

Observed	Mr(expt)	Mr(calc)	ppm	Score	Expect	Peptide	Site
1108.7546	5538.7368	5538.7200	3.04	19	0.012	ELGMEEEDVIEVYQEQTGG-EQVTNVGAVVTGVTAVAQ <b>K</b> TVEGAGSIAATGFVK+M(Ox)	K80



Matches (**Bold Red**): 62/918 fragment ions using 155 most intense peaks

#	b	$b^{++}$	$b^*$	$b^{*++}$	$b^0$	$b^{0++}$	Seq.	y	$y^{++}$	$y^*$	$y^{*++}$	$y^0$	$y^{0++}$	#
<b>1</b>	130.0499	65.5286			112.0393	56.5233	<b>E</b>							<b>55</b>
<b>2</b>	243.1339	122.0706			225.1234	113.0653	<b>L</b>	5410.6847	2705.8460	5393.6581	2697.3327	5392.6741	2696.8407	<b>54</b>
<b>3</b>	300.1554	150.5813			282.1448	141.5761	<b>G</b>	5297.6006	2649.3039	5280.5740	2640.7907	5279.5900	2640.2987	<b>53</b>
<b>4</b>	447.1908	224.0990			429.1802	215.0938	<b>M</b>	5240.5791	2620.7932	5223.5526	2612.2799	5222.5686	2611.7879	<b>52</b>
<b>5</b>	576.2334	288.6203			558.2228	279.6151	<b>E</b>	5093.5437	2547.2755	5076.5172	2538.7622	5075.5332	2538.2702	<b>51</b>
<b>6</b>	705.2760	353.1416			687.2654	344.1363	<b>E</b>	4964.5011	2482.7542	4947.4746	2474.2409	4946.4906	2473.7489	<b>50</b>
<b>7</b>	<b>834.3186</b>	417.6629			816.3080	<b>408.6576</b>	<b>E</b>	4835.4585	2418.2329	4818.4320	2409.7196	4817.4480	2409.2276	<b>49</b>
<b>8</b>	949.3455	475.1764			931.3350	<b>466.1711</b>	<b>D</b>	4706.4159	2353.7116	4689.3894	2345.1983	4688.4054	2344.7063	<b>48</b>
<b>9</b>	<b>1048.4139</b>	524.7106			1030.4034	515.7053	<b>V</b>	4591.3890	2296.1981	4574.3625	2287.6849	4573.3784	2287.1929	<b>47</b>
<b>10</b>	<b>1161.4980</b>	581.2526			1143.4874	572.2474	<b>I</b>	4492.3206	2246.6639	4475.2940	2238.1507	4474.3100	2237.6586	<b>46</b>
<b>11</b>	<b>1290.5406</b>	645.7739			1272.5300	636.7687	<b>E</b>	4379.2365	2190.1219	4362.2100	2181.6086	4361.2260	2181.1166	<b>45</b>
<b>12</b>	1389.6090	695.3081			1371.5984	686.3029	<b>V</b>	4250.1939	2125.6006	4233.1674	2117.0873	4232.1834	2116.5953	<b>44</b>
<b>13</b>	<b>1552.6723</b>	776.8398			1534.6618	767.8345	<b>Y</b>	4151.1255	2076.0664	4134.0990	2067.5531	4133.1150	2067.0611	<b>43</b>
<b>14</b>	<b>1680.7309</b>	840.8691	<b>1663.7044</b>	832.3558	1662.7203	831.8638	<b>Q</b>	3988.0622	1994.5347	3971.0356	1986.0215	3970.0516	1985.5294	<b>42</b>
<b>15</b>	<b>1809.7735</b>	905.3904	1792.7470	896.8771	1791.7629	896.3851	<b>E</b>	3860.0036	1930.5054	3842.9771	1921.9922	3841.9930	1921.5002	<b>41</b>
<b>16</b>	<b>1937.8321</b>	969.4197	1920.8055	960.9064	<b>1919.8215</b>	960.4144	<b>Q</b>	3730.9610	1865.9841	3713.9345	1857.4709	3712.9505	1856.9789	<b>40</b>

<b>17</b>	2038.8798	<b>1019.9435</b>	2021.8532	1011.4302	2020.8692	1010.9382	<b>T</b>	3602.9024	1801.9549	3585.8759	1793.4416	3584.8919	1792.9496	<b>39</b>
<b>18</b>	2095.9012	<b>1048.4543</b>	2078.8747	1039.9410	2077.8907	1039.4490	<b>G</b>	3501.8548	1751.4310	3484.8282	1742.9177	3483.8442	1742.4257	<b>38</b>
<b>19</b>	2152.9227	1076.9650	2135.8961	1068.4517	2134.9121	1067.9597	<b>G</b>	3444.8333	1722.9203	3427.8067	1714.4070	3426.8227	1713.9150	<b>37</b>
<b>20</b>	2281.9653	1141.4863	2264.9387	1132.9730	2263.9547	1132.4810	<b>E</b>	3387.8118	<b>1694.4096</b>	3370.7853	1685.8963	3369.8013	1685.4043	<b>36</b>
<b>21</b>	2410.0239	1205.5156	2392.9973	1197.0023	2392.0133	1196.5103	<b>Q</b>	3258.7692	<b>1629.8883</b>	3241.7427	1621.3750	3240.7587	1620.8830	<b>35</b>
<b>22</b>	2509.0923	<b>1255.0498</b>	2492.0657	1246.5365	2491.0817	1246.0445	<b>V</b>	3130.7107	1565.8590	3113.6841	1557.3457	3112.7001	1556.8537	<b>34</b>
<b>23</b>	2610.1400	1305.5736	2593.1134	1297.0603	2592.1294	1296.5683	<b>T</b>	3031.6422	1516.3248	3014.6157	<b>1507.8115</b>	3013.6317	<b>1507.3195</b>	<b>33</b>
<b>24</b>	2724.1829	1362.5951	2707.1563	1354.0818	2706.1723	1353.5898	<b>N</b>	2930.5946	1465.8009	2913.5680	1457.2876	2912.5840	1456.7956	<b>32</b>
<b>25</b>	2823.2513	<b>1412.1293</b>	2806.2247	<b>1403.6160</b>	2805.2407	<b>1403.1240</b>	<b>V</b>	2816.5516	1408.7795	2799.5251	1400.2662	2798.5411	1399.7742	<b>31</b>
<b>26</b>	2880.2728	<b>1440.6400</b>	2863.2462	1432.1267	2862.2622	<b>1431.6347</b>	<b>G</b>	2717.4832	1359.2453	2700.4567	1350.7320	2699.4727	1350.2400	<b>30</b>
<b>27</b>	2937.2942	1469.1508	2920.2677	1460.6375	2919.2837	1460.1455	<b>G</b>	2660.4618	1330.7345	2643.4352	<b>1322.2212</b>	2642.4512	1321.7292	<b>29</b>
<b>28</b>	3008.3313	1504.6693	2991.3048	<b>1496.1560</b>	2990.3208	<b>1495.6640</b>	<b>A</b>	2603.4403	1302.2238	2586.4137	<b>1293.7105</b>	2585.4297	1293.2185	<b>28</b>
<b>29</b>	3107.3998	<b>1554.2035</b>	3090.3732	1545.6902	3089.3892	1545.1982	<b>V</b>	2532.4032	1266.7052	2515.3766	1258.1920	2514.3926	1257.6999	<b>27</b>
<b>30</b>	3206.4682	1603.7377	3189.4416	1595.2244	3188.4576	1594.7324	<b>V</b>	2433.3348	1217.1710	2416.3082	1208.6577	2415.3242	1208.1657	<b>26</b>
<b>31</b>	3307.5158	1654.2616	3290.4893	1645.7483	3289.5053	1645.2563	<b>T</b>	2334.2664	<b>1167.6368</b>	2317.2398	1159.1235	2316.2558	1158.6315	<b>25</b>
<b>32</b>	3364.5373	<b>1682.7723</b>	3347.5108	1674.2590	3346.5267	1673.7670	<b>G</b>	2233.2187	1117.1130	2216.1921	1108.5997	2215.2081	1108.1077	<b>24</b>
<b>33</b>	3463.6057	1732.3065	3446.5792	1723.7932	3445.5952	1723.3012	<b>V</b>	2176.1972	1088.6022	2159.1707	1080.0890	2158.1866	1079.5970	<b>23</b>
<b>34</b>	3564.6534	1782.8303	3547.6269	1774.3171	3546.6428	1773.8251	<b>T</b>	2077.1288	<b>1039.0680</b>	2060.1023	1030.5548	2059.1182	1030.0628	<b>22</b>
<b>35</b>	3635.6905	<b>1818.3489</b>	3618.6640	<b>1809.8356</b>	3617.6800	<b>1809.3436</b>	<b>A</b>	1976.0811	988.5442	1959.0546	980.0309	1958.0706	979.5389	<b>21</b>
<b>36</b>	3734.7589	1867.8831	3717.7324	1859.3698	3716.7484	1858.8778	<b>V</b>	1905.0440	953.0256	1888.0175	944.5124	1887.0334	944.0204	<b>20</b>
<b>37</b>	3805.7960	1903.4017	3788.7695	1894.8884	3787.7855	<b>1894.3964</b>	<b>A</b>	1805.9756	903.4914	1788.9490	894.9782	1787.9650	894.4862	<b>19</b>
<b>38</b>	3933.8546	1967.4309	3916.8281	1958.9177	3915.8441	1958.4257	<b>Q</b>	1734.9385	867.9729	<b>1717.9119</b>	859.4596	1716.9279	858.9676	<b>18</b>
<b>39</b>	4061.9496	2031.4784	4044.9230	2022.9652	4043.9390	2022.4731	<b>K</b>	1606.8799	803.9436	1589.8534	795.4303	1588.8693	794.9383	<b>17</b>
<b>40</b>	4162.9973	2082.0023	4145.9707	2073.4890	4144.9867	2072.9970	<b>T</b>	1478.7849	739.8961	<b>1461.7584</b>	731.3828	1460.7744	730.8908	<b>16</b>
<b>41</b>	4262.0657	2131.5365	4245.0391	2123.0232	4244.0551	2122.5312	<b>V</b>	1377.7373	689.3723	1360.7107	680.8590	1359.7267	680.3670	<b>15</b>
<b>42</b>	4391.1083	2196.0578	4374.0817	2187.5445	4373.0977	2187.0525	<b>E</b>	1278.6688	639.8381	1261.6423	631.3248	1260.6583	630.8328	<b>14</b>
<b>43</b>	4448.1297	2224.5685	4431.1032	2216.0552	4430.1192	2215.5632	<b>G</b>	1149.6263	<b>575.3168</b>	1132.5997	566.8035	1131.6157	566.3115	<b>13</b>
<b>44</b>	4519.1669	2260.0871	4502.1403	2251.5738	4501.1563	2251.0818	<b>A</b>	1092.6048	<b>546.8060</b>	1075.5782	538.2928	1074.5942	537.8007	<b>12</b>
<b>45</b>	4576.1883	2288.5978	4559.1618	2280.0845	4558.1778	2279.5925	<b>G</b>	<b>1021.5677</b>	<b>511.2875</b>	1004.5411	502.7742	1003.5571	502.2822	<b>11</b>
<b>46</b>	4663.2203	2332.1138	4646.1938	2323.6005	4645.2098	2323.1085	<b>S</b>	964.5462	<b>482.7767</b>	947.5197	474.2635	946.5356	473.7715	<b>10</b>

<b>47</b>	4776.3044	2388.6558	4759.2779	2380.1426	4758.2938	2379.6506	<b>I</b>	<b>877.5142</b>	439.2607	860.4876	<b>430.7475</b>	859.5036	<b>430.2554</b>	<b>9</b>
<b>48</b>	4847.3415	2424.1744	4830.3150	2415.6611	4829.3310	2415.1691	<b>A</b>	<b>764.4301</b>	382.7187	747.4036	374.2054	746.4196	373.7134	<b>8</b>
<b>49</b>	4918.3786	2459.6930	4901.3521	2451.1797	4900.3681	2450.6877	<b>A</b>	<b>693.3930</b>	347.2001	676.3665	338.6869	675.3824	338.1949	<b>7</b>
<b>50</b>	4989.4157	2495.2115	4972.3892	2486.6982	4971.4052	2486.2062	<b>A</b>	<b>622.3559</b>	311.6816	605.3293	303.1683	<b>604.3453</b>	302.6763	<b>6</b>
<b>51</b>	5090.4634	2545.7354	5073.4369	2537.2221	5072.4529	2536.7301	<b>T</b>	<b>551.3188</b>	276.1630	534.2922	267.6498	533.3082	267.1577	<b>5</b>
<b>52</b>	5147.4849	2574.2461	5130.4583	2565.7328	5129.4743	2565.2408	<b>G</b>	<b>450.2711</b>	225.6392	433.2445	217.1259			<b>4</b>
<b>53</b>	5294.5533	2647.7803	5277.5268	2639.2670	5276.5427	2638.7750	<b>F</b>	393.2496	197.1285	376.2231	188.6152			<b>3</b>
<b>54</b>	5393.6217	2697.3145	5376.5952	2688.8012	5375.6112	2688.3092	<b>V</b>	246.1812	123.5942	229.1547	115.0810			<b>2</b>
<b>55</b>							<b>K</b>	147.1128	74.0600	130.0863	65.5468			<b>1</b>