

## Supplementary Table S1

Raw peptide digest mass spectroscopy data spanning a centroid mass window ranging from 698 to 2551. All peaks with a signal:noise ratio  $\geq 20$  are included and sorted in descending order of signal:noise ratio. Peptides that represent  $\alpha$ Syn fragments are labeled.

Centroid Mass	Lower Bound	Upper Bound	Height	S/N Ratio	Area	Peptide
2152.47168	2151.56	2153.1	17632	7589	172022.36	K.TKEQVTNVGGAVVTGVTAVAQK.T
1475.54956	1474.99	1476.26	27363	2761	222522.95	K.TVEGAGSIAAXTGFKV.K
1603.36572	1602.88	1604.08	13968	1868	113905.4	K.TVEGAGSIAAXTGFKV.D
842.51001	842.03	842.92	43994	1745	306816.53	<i>R.VATVSLPR.S autocatalysis of trypsin</i>
1521.51367	1521.16	1522.09	11994	1336	93803.47	K.TKEGVVHGVATVAEK.T
1178.07813	1177.35	1178.57	16580	1079	125467.45	K.TKEGVLYVGSK.T
1923.82312	1923.27	1924.43	3683	1016	32158.61	K.EQVTNVGGAVVTGVTAVAQK.T
2190.36816	2190.01	2190.87	1286	637	11770.84	
1292.87134	1292.31	1293.55	7732	630	60242.06	K.EGVVHGVATVAEK.T
840.67639	840.48	841.07	16956	614	100705.4	
2174.42578	2173.9	2174.96	907	422	7882.5	
949.43634	949.25	949.91	9697	414	63217.34	K.EGVLYVGSK.T
2178.4231	2178.03	2178.94	814	351	6864.81	
858.474	858.22	858.89	6823	275	45629.51	
1513.44153	1513.16	1513.95	2169	242	16183.37	
1318.82849	1318.37	1319.29	2627	223	20695.55	
1070.25989	1070.05	1070.68	4288	223	28800.85	K.AKEGVVAAAEK.T
2194.38135	2193.95	2194.93	484	177	4319	
975.39667	975.22	975.88	3441	154	22471.35	
1497.50293	1497.27	1497.93	1323	146	9696.56	
1961.72693	1961.43	1962.11	413	142	3091.08	
1547.47412	1547.05	1547.94	1042	122	8422.04	
1043.29224	1043.11	1043.71	2259	116	14429.85	<i>K.LSSPATLNSR.V autocatalysis of trypsin</i>
1641.25635	1640.91	1641.81	746	112	6183.45	
2134.54028	2133.86	2134.96	219	107	3423.7	
1204.03931	1203.8	1204.42	1448	107	10513.74	
880.39276	880.15	880.79	2636	105	20801.92	
1215.96924	1215.76	1216.45	1269	102	9221.45	
1559.4071	1558.9	1559.89	795	101	6661.4	
1501.50916	1501.01	1501.89	956	100	7539.54	K.TVEGAGSIAAXTGFKV.K
869.46356	869.23	869.61	1986	81	13699.23	
2206.25757	2205.95	2206.93	176	78	1800.28	
1945.77539	1945.37	1946.35	248	75	2262.27	
1625.32007	1624.81	1625.83	500	70	4566.34	

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1200.02698	1199.8	1200.48	909	70	6224.12	
1161.06018	1160.47	1161.54	1070	70	11293.31	
896.32343	895.97	896.81	1697	68	15195.81	
828.62994	828.47	828.99	1891	65	15790.78	K.QGVAEAAGK.T
2108.57129	2107.72	2109.1	184	63	2954.49	
971.38177	971.21	971.83	1395	63	10392.53	
778.66058	778.56	778.92	1687	62	10211.17	
1330.76465	1330.52	1331.22	690	61	4962	
864.45026	864.21	864.84	1578	60	14629.84	
1517.46118	1517.2	1517.82	576	59	4500.05	
1314.81348	1314.49	1315.11	677	59	4888.77	
1543.46472	1543.18	1543.9	502	58	3899.83	
704.6626	704.5	705.18	1749	57	18281.48	
1629.32129	1629.03	1629.58	402	56	3302.89	K.TVEGAGSIAAXTG FVKK.D
1965.73181	1965.22	1966.01	205	54	1709.25	
1949.77173	1949.49	1950.15	190	52	1733.28	
1229.54968	1229.24	1230.06	346	52	1642.18	-.MDVFMKGLSK.A N-Acetyl (Protein); 2 Oxidation (M)
1563.42688	1563.1	1563.85	474	51	3692.62	
2212.30835	2211.91	2212.66	101	50	1125.78	
871.54382	871.02	871.89	1541	50	16900.82	
866.63361	866.54	866.98	1231	49	8929.18	
1057.271	1057.1	1057.68	949	48	6541.08	
850.55505	850.44	850.92	1315	48	10580.59	
826.55048	826.09	826.95	1274	48	13756.99	
723.62408	723.29	724.15	1512	47	15449.96	
2162.4834	2161.96	2163.04	108	46	1396.64	
1530.45837	1530.09	1530.91	594	44	5202.64	
705.65259	705.34	706.11	1536	44	16610.01	
1645.28235	1644.95	1645.7	332	42	2681.81	K.TVEGAGSIAAXTG FVKK.D
811.63654	811.54	811.97	1093	42	8989.73	
1334.79163	1334.45	1335.17	537	40	4381.3	
987.32233	987.18	987.61	905	40	6312.34	
1535.43799	1535.03	1535.89	364	39	4239.43	
703.65759	703.52	704.15	1288	39	14599.14	
700.66791	700.34	701.22	1117	39	14667.8	
2216.32495	2215.87	2216.74	115	38	1193.55	
1219.99988	1219.75	1220.29	623	38	4675	
860.46637	860	860.85	1438	37	14596.82	

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2510.88354	2510.53	2511.27	55	36	501.11
702.66254	702.54	703.11	1146	36	14890.03
701.65527	701.22	702.16	1247	36	14299.56
1177.03711	1176.42	1177.35	498	35	5464.37
1108.15088	1107.93	1108.53	658	35	5003.68
722.62927	722.28	723.16	1092	35	13733
1905.86755	1905.57	1906.38	121	34	1132.61
741.58356	741.14	742.03	1017	34	11228.89
707.64197	707.22	708.17	1087	34	12372.07
2151.47583	2151.22	2151.56	67	33	848.98
1526.48425	1526.15	1526.84	385	33	3418.33
1274.90332	1274.4	1275.35	433	33	4971.82
724.62872	724.28	725.19	1089	33	15259.19
717.62622	717.27	718.16	1001	33	12974.34
1665.2688	1664.84	1665.57	195	32	1765.07
1529.37402	1528.96	1529.8	265	32	2931.78
1457.60352	1456.98	1458.17	387	32	5184.41
730.59637	730.17	731.1	1039	32	11824.69
727.62122	727.18	728.18	1032	32	12325.38
1585.37878	1585.05	1585.94	285	31	3442.63
731.58545	731.16	732.1	1010	31	12582.09
716.62347	716.29	716.77	995	31	10099.8
1503.52026	1503.1	1504.08	537	30	5235.15
891.07642	890.86	891.21	969	30	6781.89
729.59943	729.25	730.08	920	30	11371.12
1472.54346	1472.27	1472.86	300	29	2349.75
1431.60962	1431.13	1432.09	332	29	3825.7
907.00977	906.77	907.14	963	29	6076.78
726.60522	726.37	727.18	937	29	11867.27
715.62726	715.36	715.75	927	29	8964.83
706.64691	706.34	707.14	1043	29	12871
742.58215	742.15	743.07	918	28	11597.49
698.64093	698.53	699.15	711	28	12627.19
744.57379	744.21	744.76	811	27	9494.79
1254.92993	1254.61	1255.29	309	26	3557.22
1077.22253	1077.06	1077.55	653	26	4889.21
774.4975	774.26	775.1	706	26	8887.55
2230.26025	2229.93	2230.6	64	25	679.9

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1240.94885	1240.76	1241.28	308	25	2832.74
1096.21167	1096.03	1096.48	616	25	4366.74
767.52521	767.09	768.03	766	25	9817.43
721.61932	721.4	722.2	778	25	11121.08
719.61768	719.46	720.1	789	25	11385.95
713.64197	713.24	714.04	763	25	11274.11
711.64429	711.25	712.14	815	25	11007.58
709.63599	709.25	710.05	787	25	10959.93
2215.29639	2214.97	2215.87	80	24	944.04
870.46552	870.2	870.86	1008	24	11935.96
785.49585	785.22	785.96	765	24	9470.64
781.51147	781.27	782.01	614	24	8661.86
745.58185	745.31	746.12	766	24	10821.44
733.58929	733.26	734.19	759	24	9902.97
728.61438	728.39	729.12	866	24	9937.13
698.44489	698.31	698.53	776	24	5275.27
770.51794	770.09	771.07	781	23	9368.71
765.53693	765.24	766.05	657	23	9867.95
732.58527	732.28	733.11	839	23	9930.67
725.62817	725.19	726.15	840	23	11853.94
718.62561	718.47	719.05	844	23	10161.17
854.58325	854.46	854.95	731	22	6395.74
824.46204	823.98	824.88	547	22	11023.72
807.44812	807.06	808	557	22	8107.39
789.49316	789.27	790.1	569	22	7601.67
769.52325	769.09	770.09	686	22	9220.96
760.54266	760.28	761.09	754	22	9644.53
756.54626	756.1	757.08	709	22	8995.44
753.55377	753.31	754.07	708	22	8719.67
751.58374	751.3	752.08	663	22	9067.92
739.57532	739.18	739.99	663	22	9179.46
710.64111	710.27	711.07	746	22	10407.34
699.67761	699.51	699.82	958	22	9498.55
2146.49438	2146.09	2146.8	66	21	904.12
1581.36267	1581.04	1581.73	248	21	2197.76
834.39948	834.13	834.86	557	21	8309.39
786.48901	786.13	787.01	741	21	8903.81
747.56769	747.3	748.14	676	21	9309.38

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746.57599	746.32	747.2	731	21	9353.66
737.58978	737.23	738.15	676	21	9638.14
720.62256	720.43	721.07	724	21	9855.81
708.63324	708.17	708.79	775	21	9770.2
2550.74292	2550.38	2551.28	49	20	475.26
1241.9469	1241.71	1242.32	425	20	3896.43
1076.71655	1076.48	1076.88	507	20	3869.28
991.35437	991.21	991.67	580	20	4582.2
763.54193	763.32	763.69	521	20	6425.7
740.57458	740.22	740.77	684	20	8540.1
735.58905	735.21	735.98	644	20	8744.47
734.59009	734.41	735.08	707	20	8358.14

**Supplementary Table S2**

Raw peptide digest mass spectroscopy data spanning a centroid mass window ranging from 1476 to 5045. All peaks with a signal:noise ratio  $\geq 20$  are included and sorted in descending order of signal:noise ratio. Peptides that represent  $\alpha$ Syn fragments are labeled.

Centroid Mass	Lower Bound	Upper Bound	Height	S/N Ratio	Area	Peptide
2156.665039	2143.57	2173.21	41905	2712.4	1142795.5	K.TKEQVTNVGGAVVTGVTAVAQK.T
1605.908936	1594.48	1619.83	17854	720.33	451622.09	K.TVEGAGSIAAATGFVKK.D
1927.199097	1916.13	1942.76	9695	555.41	238922.78	K.EQVTNVGGAVVTGVTAVAQK.T
1523.921265	1518.58	1544.16	13003	479.42	354009.03	K.EGVVHGVATVAEKT.K
4862.766602	4826.78	4875.64	3659	343.69	104337.85	K.DQLGKNEEGAPQEGILEDMPVDPDNEAYEMPSEEG YQDYEPEA.- + 2 Oxidation (M) K.NEEGAPQEGILEDMPVDPDNEAYEMPSEEGYQDYE PEA.- + 2 Oxidation (M)
4320.220703	4292.06	4350.65	2689	247.2	93012.25	
4991.289551	4977.83	5003.92	2735	212.92	44780.04	
2181.481201	2173.21	2189.21	4093	162.73	84704.18	
2210.473633	2204.03	2226.12	3656	151.42	79721.41	
2195.958252	2189.21	2204.03	3564	132.42	61218.86	
4374.340332	4364.93	4393.2	1459	76.17	18747.08	
1501.979736	1495.26	1510.17	2721	60.54	49865.7	
1550.208862	1544.16	1557.86	2602	45.01	28389.76	
1516.080566	1510.17	1518.58	2913	39.74	40604.07	
4916.710938	4908.85	4938.09	1234	38.29	11850.92	
1967.338135	1959.29	1974.95	1613	36.83	21413.79	
1630.390381	1623.23	1638.56	2264	33.9	29549.62	
1951.202148	1944.85	1959.29	1547	32.86	17968.72	
2112.112061	2104.21	2118.99	1504	30.96	15730.66	
2140.505127	2131.63	2143.57	1929	30.42	23242.7	
1476.872803	1463.63	1478.19	1733	26.25	29845.23	
1659.413818	1654.6	1664.69	2149	26.2	13615.05	
5044.238281	5036.81	5065.68	1057	25.46	10205.03	
4878.573242	4875.64	4896.66	1354	25.31	11535.31	
1980.763428	1974.95	1986.92	1450	24.7	9468.05	
3664.537354	3654.93	3675.36	746	24.3	4416.23	
2263.260742	2256.32	2270.86	1832	23.44	9780.78	
2354.366943	2346.35	2362.21	1498	23.07	8428.99	