

Supplemental Results and Discussion:

Singly charged ions often yield low quality peptide fragmentation patterns when analyzed with ion trap-based instrumentation. The REACT algorithm includes the ability to target higher charge state released peptides even if the signal-to-noise ratio of higher charge state ions is too low to be selected or even observable within the mass spectrum. It has been shown previously that quadrupole ion storage devices are prone to exclusion of low abundance ions if simultaneously accumulated with more abundant ions^{22,23}. Instrument duty cycle has been reduced as mentioned previously. The analysis time liberated by using the real-time targeted approach can be utilized here in the accumulation of low abundance ions. The targeting of low abundance, higher charge ions in some cases results in a cross-linked peptide identification, which would otherwise not be obtainable with 1+ fragmentation patterns alone. This targeting feature of REACT is illustrated in **Supplemental Figure 2**, where the 2+ ion for the released peptide is observed at a low intensity near the noise level, while the 1+ ion is the base peak in the spectrum. By specifically targeting the 2+ ion for MS³, a fragmentation spectrum useful for peptide sequence identification was acquired. However, MS³ analysis of the 1+ ion of this peptide did not yield sufficient fragment ion information to obtain sequence identification.

A set of purified proteins were labeled to illustrate that REACT is useful for real-time analysis of PIR cross-linked peptides. The data resultant from this set of experiments is presented in **Supplemental Table S1**. Each protein is displayed with the number of fully identified relationships and unique relationships. Unique relationships are defined here as meaning two unique peptide sequences fully identified ($E<0.1$). An unambiguous α - β hemoglobin cross-link was observed as well as unambiguous homodimeric cross-links supporting protein dimerization of ribonuclease A and carbonic anhydrase. The presence of concentrated tryptic peptides from each protein, approximately 100 times more abundant than cross-linked products, provided a more appropriate test for the algorithm. Some examples within

the data show cross-linked peptide products were identified with a signal-to-noise ratio of ~2. This illustrates the ability of ReACT to extract useful information, even from low intensity ions.

One important feature of REACT is that the algorithm is customizable for use with any mass spectrometry cleavable cross-linker including linkers with mono, bi, or higher order CID cleavage sites. To demonstrate this flexibility we analyzed a digest of Ribonuclease A (RNase A) sample that had been cross-linked using two different PIR molecules, 2Rink and BDP^{11,15}. For this sample the respective reporter masses were entered into REACT so that ions matching either the mass relationship for 2Rink or for BDP would be identified as cross-linked peptide pairs and the released peptide ions would be selected for MS³ analysis. The cross-linked peptide pairs from both 2Rink and BDP are listed in **Supplemental Table S2**. If the 2Rink RNase A sample was run alone we detected 8 fully identified cross-linked relationships, 5 of which are unique. When we mixed the BDP and 2Rink labeled RibA digests in equimolar ratios we detected a total of four fully identified cross-linked products with 3 unique. Of the four, two are obtained from BDP and two are obtained from 2Rink. All four share a single cross-linking site with a different second site. One pair overlaps between the two linkers. Although this manuscript has focused on the initial description and application of REACT, one could employ REACT for analysis of a sample with varying linker arm distances to achieve finer granularity in distance constraints for protein topologies.

In **Supplemental Figure 3A**, the mass accuracy of all high confidence fully identified cross-links(<5% FDR) within *E. coli* is presented. From these data it is readily apparent that relationship mass error of identified species is significantly narrower than the applied 20 ppm threshold. To try understand better how mass accuracy effects PIR relationship false discovery, we conducted performed a Monte Carlo simulation in which we search previously acquired ReACT MS² data on a real *E. coli* sample against randomized reporter masses. The Figure 3B shows that when considering 1000 random reporter masses per mass accuracy threshold the rate relationship false discovery per MS² queried. We

noticed that at 20 ppm we obtained approximately 5% false discoveries at this mass accuracy. But even at this relatively low rate, we still have to identify both MS³ acquired at <5% FDR to obtain a completely false identification that would meet our cut-off criteria.

Reproducibility in using ReACT is comparable to intensity driven sampling processes like data-dependent acquisition (DDA). We found the reproducibility of fully identified unique cross-links between two technical replicates to be ~70% in our E. coli analysis(**Supplemental Figure 4**). The biological reproducibility of the overall cross-linking methodology as surveyed by the same metric, fully identified unique cross-links, is approximately 30-35%. This reproducibility includes all sources of variance, which includes, but is not limited to cell growth, lysis, effective cross-linker concentration, free-amine in labeling solution during labeling, and three separate stages of purification.

Supplemental Figure 1. Protein interaction reporter (PIR) molecules which have been used in this study.

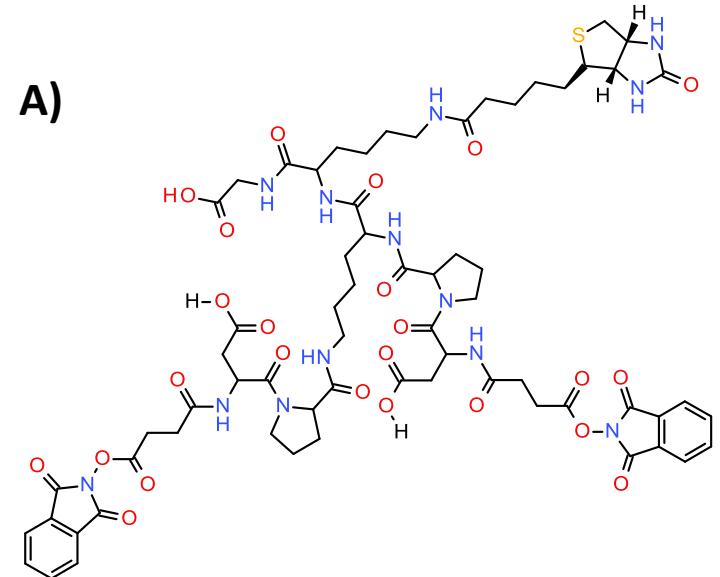
A) Biotin Aspartate Proline N-Hydroxyphthalimide (BDP-NHP) **B)** Biotin Rink N-Hydroxysuccinimide (BRink-NHS) **C)** Rink N-Hydroxysuccinimide (2Rink-NHS).

Supplemental Figure 2. REACT algorithm permits targeting of 2+ or greater low abundance peptide cleavage products to increase peptide identification probability. Example presented here includes the MS, MS2, and MS3 of a cross-linked peptide pair.

Supplemental Figure 3. A) Histogram of relationship mass error determined by ReACT for both *E. coli* B) Relationship false discovery rate estimated post acquisition by randomizing reporter mass and search all acquired MS^2 spectra for an entire run.

Supplemental Figure 4. Venn diagram showing overlapping identifications across technical and biological replicates. A) Technical reproducibility between two LC-ReACT acquisitions(80 mM salt fraction) B) Biological reproducibility between two separate *E. coli* PIR cross-linked samples C) Reproducibility of proteins found within identified cross-linked relationships

Supplemental Figure 5. The number of inter-(blue) and intra-(red) protein cross-links found in the *E. coli* cellular cross-linking experiments.

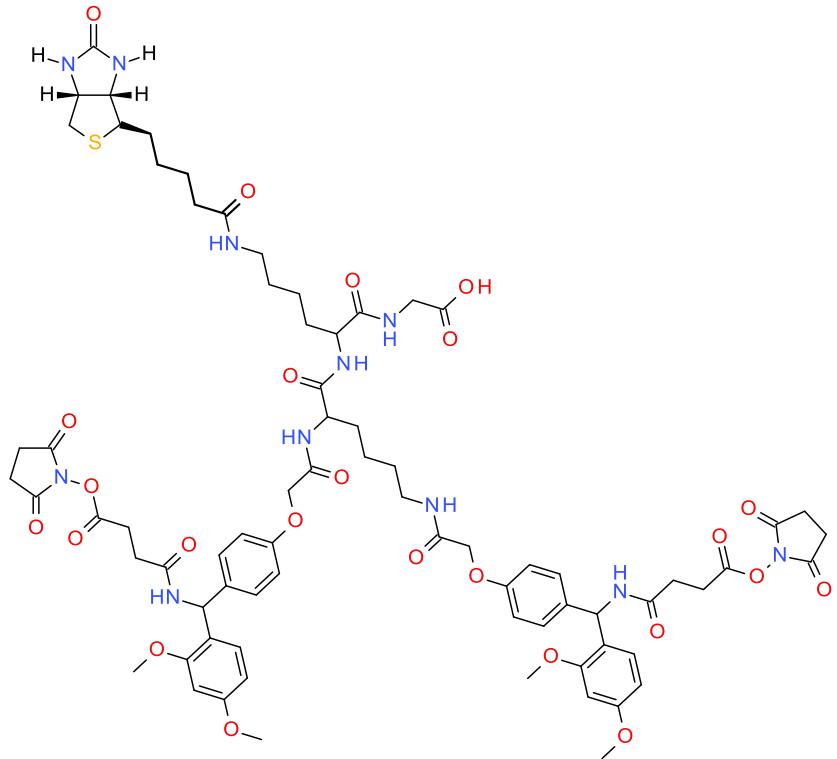
A)

Formula Weight : 1472.49(5)

Exact Mass : 1471.5238113(1)

Formula : C₆₆H₈₁N₁₃O₂₄S

Composition : C 53.8% H 5.5% N 12.4% O 26.1% S 2.2%

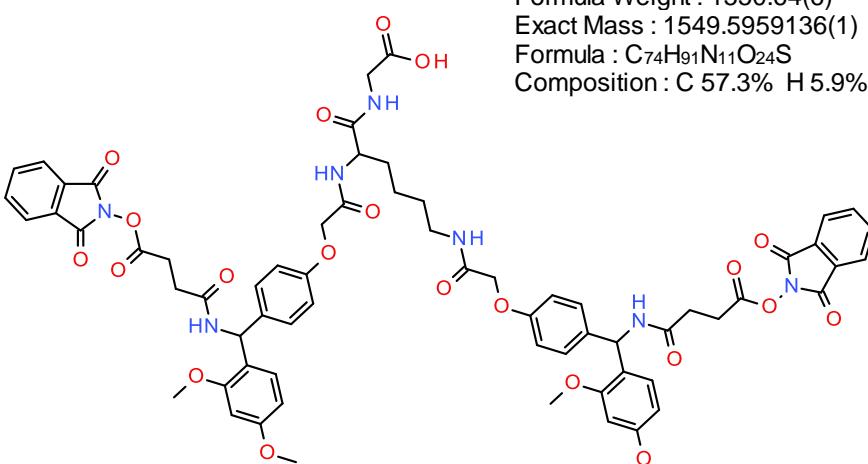
B)

Formula Weight : 1550.64(6)

Exact Mass : 1549.5959136(1)

Formula : C₇₄H₉₁N₁₁O₂₄S

Composition : C 57.3% H 5.9% N 9.9% O 24.8% S 2.1%

C)

Formula Weight : 1292.26(5)

Exact Mass : 1291.42335219(4)

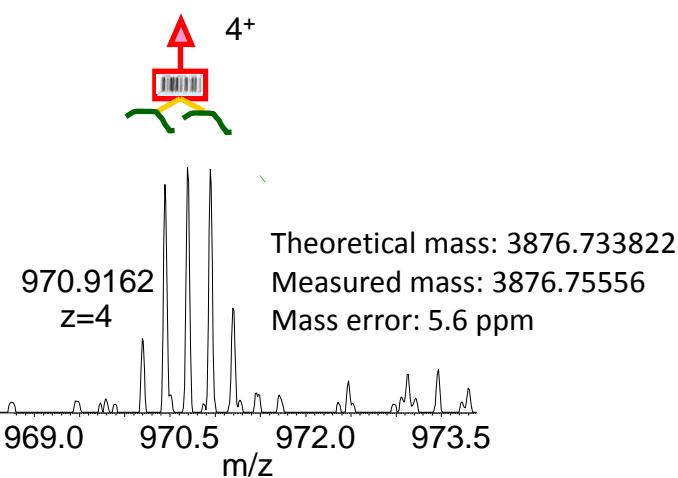
Formula : C₆₆H₆₅N₇O₂₁

Composition : C 61.3% H 5.1% N 7.6% O 26.0%

Supplemental Figure 1.

Supplemental Figure 2.

High Resolution MS¹

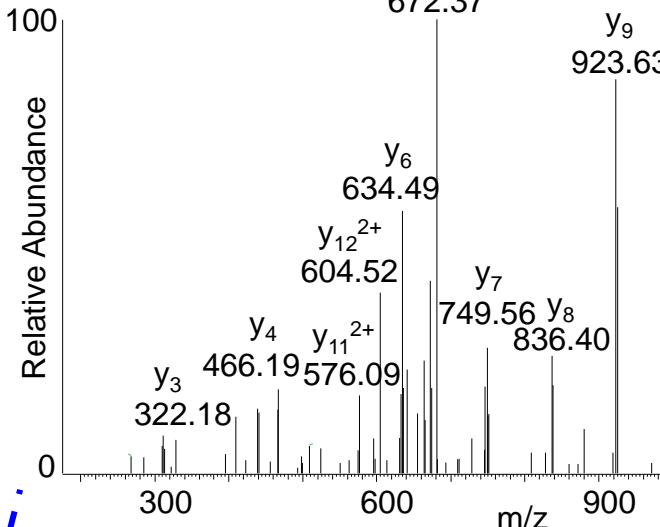


Low Resolution MS³

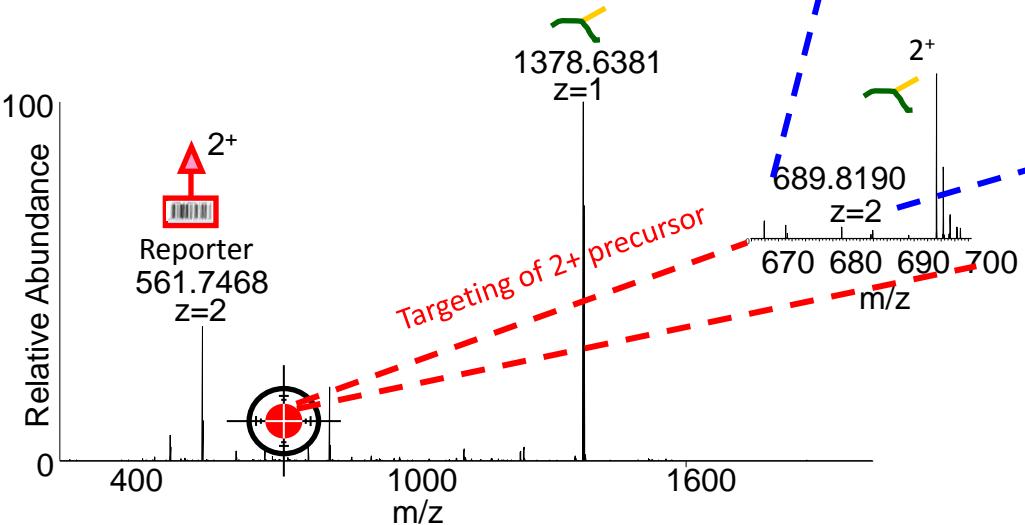
K.GNGKSSDPAGSFR.V

[M+2H]²⁺-H₂O

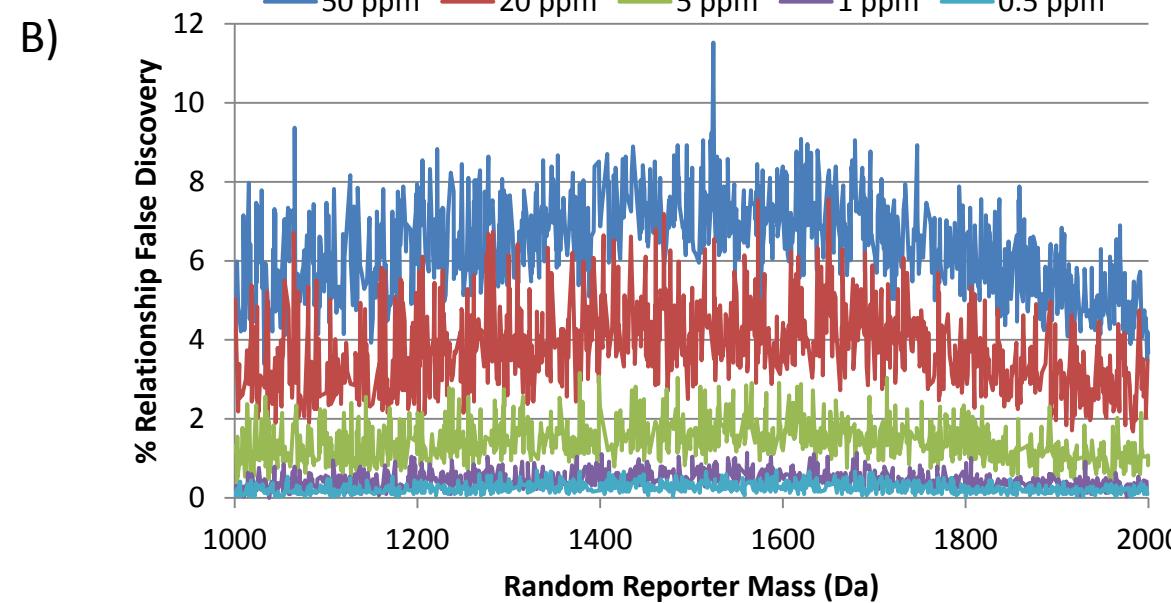
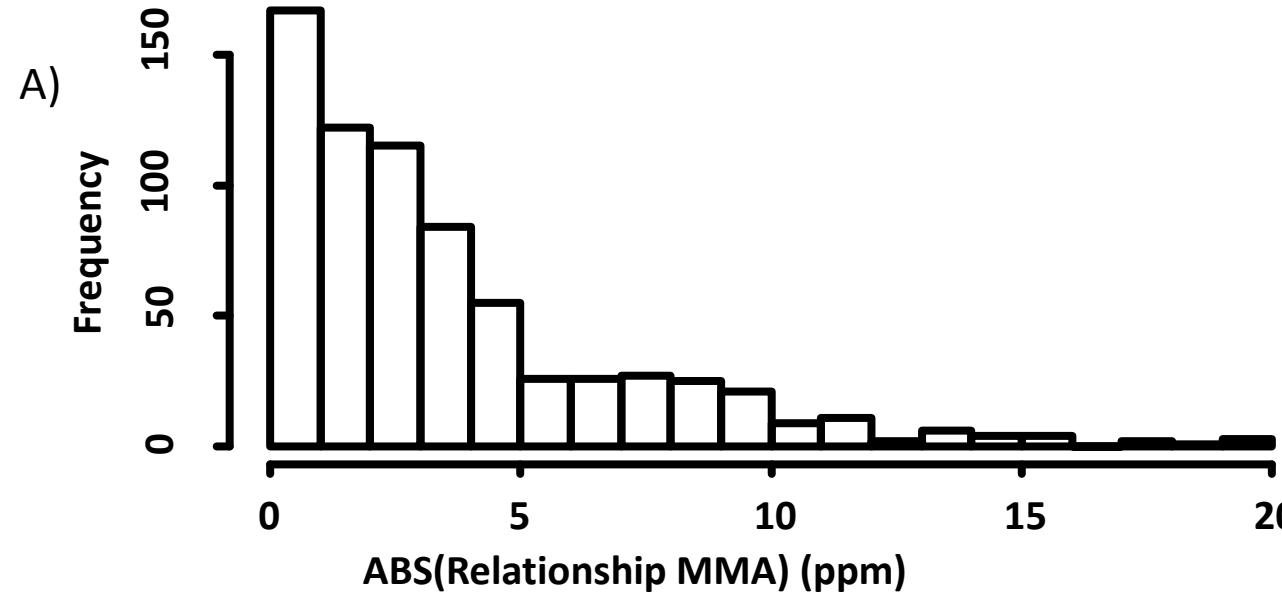
672.37



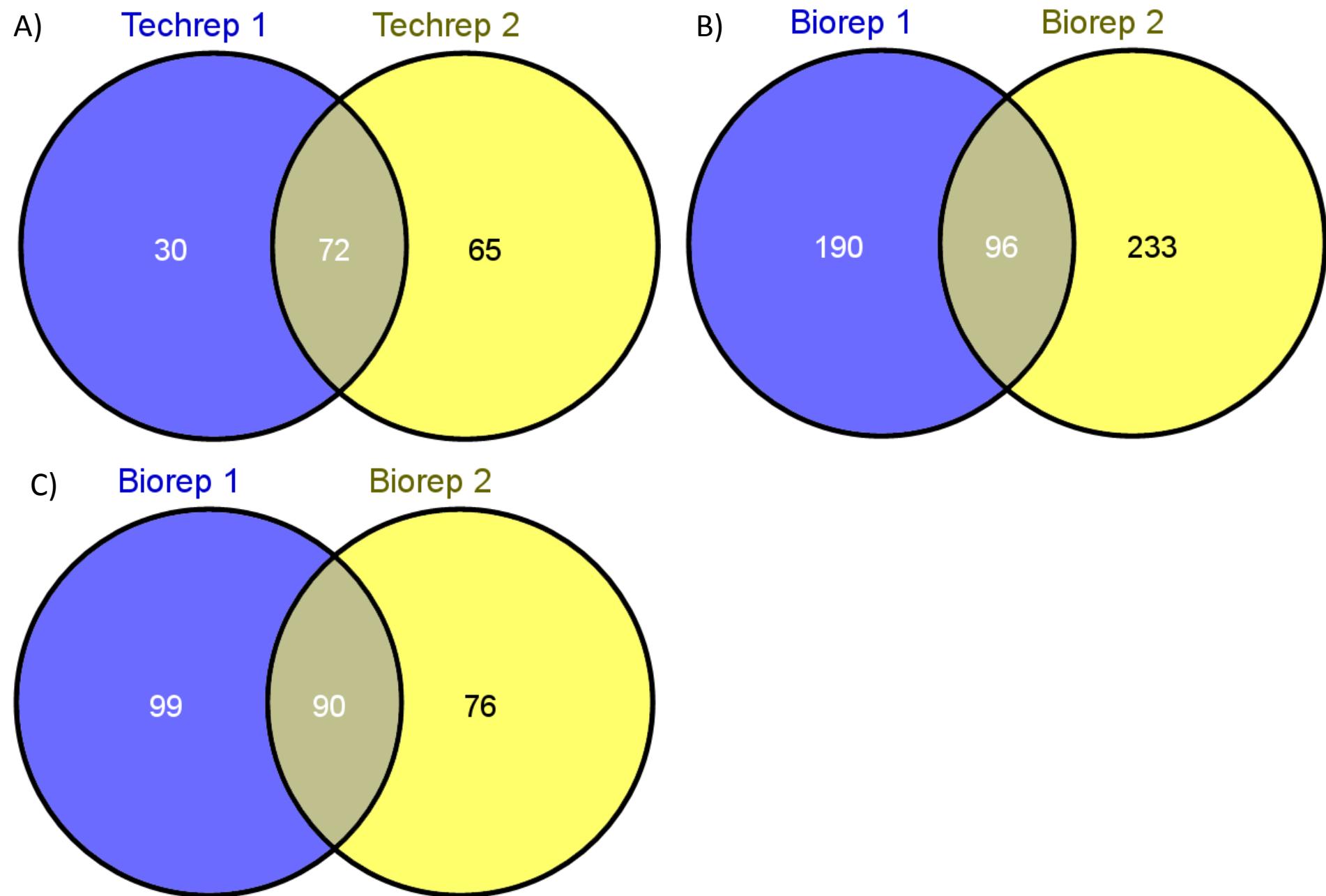
High Resolution MS²



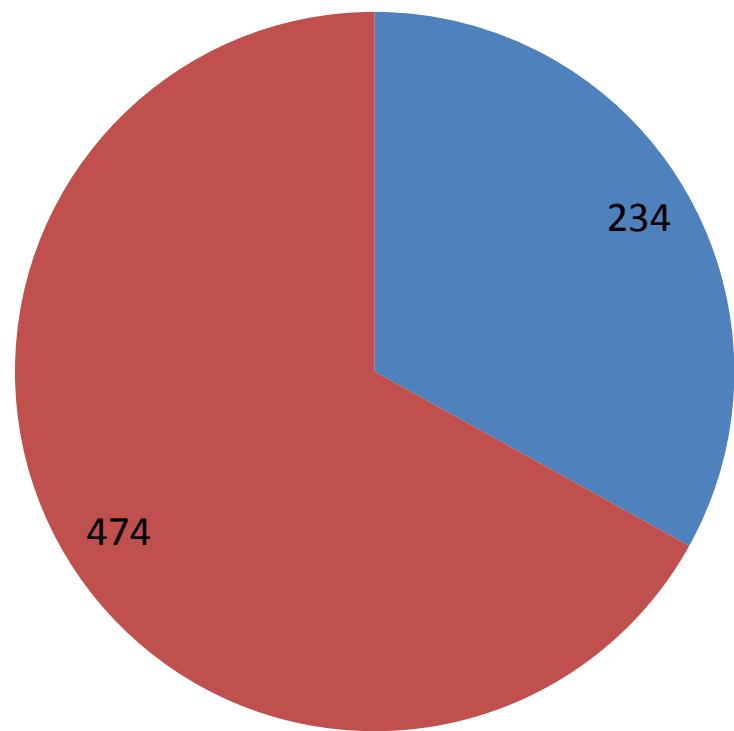
Supplemental Figure 3.



Supplemental Figure 4.



Supplemental Figure 5.



Supplemental Table S1: Purified protein cross-linked peptides

ms2 query mass	ms2 prec mass	ms2 ppm error	ms2 mass1	ms2 mass2	ms3 pep1	ms3 pep2	ms3 expect1	ms3 expect2	ms3 prot1	ms3 prot2
4366.97	4366.929	9.38	2787.137	812.428	IWC[160.03]K[325.13]DDQNPSSNIC[160.03]NISC[160.03]DK	K[325.13]ILDK	0.00E+00	3.10E-03	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
3664.833	3664.861	7.71	812.428	2085.001	K[325.13]ILDK	VGINYWLAHK[325.13]ALC[160.03]SEK	3.40E-03	6.00E-04	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
4358.091	4358.11	4.39	1505.684	2085.003	EQLTK[325.13]C[160.03]EVFR	VGINYWLAHK[325.13]ALC[160.03]SEK	5.00E-04	3.10E-03	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
4248.96	4248.978	4.14	1975.871	1505.685	ALC[160.03]SEK[325.13]LDQWL[160.03]EK	EQLTK[325.13]C[160.03]EVFR	2.00E-04	1.81E-02	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
3673.722	3673.709	3.44	1505.684	1400.633	EQLTK[325.13]C[160.03]EVFR	LDQWL[160.03]EK[325.13]L	0.00E+00	1.00E-04	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
3093.507	3093.509	0.63	941.472	1400.63	ELK[325.13]DLK	LDQWL[160.03]EK[325.13]L	6.10E-03	5.00E-04	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
4346.052	4346.056	0.99	2088.961	1505.686	ALC[160.03]SEK[325.13]LDQWL[160.03]EK[325.13]L	EQLTK[325.13]C[160.03]EVFR	7.00E-04	3.26E-02	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
4346.042	4346.046	0.76	2088.955	1505.682	ALC[160.03]SEK[325.13]LDQWL[160.03]EKL	EQLTK[325.13]C[160.03]EVFR	1.21E-02	1.48E-02	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
4237.035	4237.052	4.15	1400.629	2085.001	LDQWL[160.03]EK[325.13]L	VGINYWLAHK[325.13]ALC[160.03]SEK	2.17E-02	1.08E-02	sp P00711 LALBA_BOVIN	sp P00711 LALBA_BOVIN
2596.275	2596.278	1.43	914.435	914.435	K[325.13]ETAAAK	K[325.13]ETAAAK	1.00E-04	9.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
2867.413	2867.414	0.05	914.434	1185.575	K[325.13]ETAAAK	SRNLTK[325.13]DR	9.00E-04	3.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
2252.112	2252.116	1.93	914.435	586.271	K[325.13]ETAAAK	K[325.13]SR	8.40E-03	2.20E-03	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
2624.281	2624.283	0.81	914.435	942.441	K[325.13]ETAAAK	NLTK[325.13]DR	1.60E-03	2.60E-03	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
2383.15	2383.153	1	914.434	717.311	K[325.13]ETAAAK	MK[325.13]SR	6.00E-04	1.09E-02	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
3056.492	3056.503	3.71	1346.646	942.441	KETAAAK[325.13]FER	NLTK[325.13]DR	3.00E-04	4.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
3283.629	3283.633	1.47	1346.648	1185.575	KETAAAK[325.13]FER	SRNLTK[325.13]DR	0.00E+00	8.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
3637.679	3637.704	6.93	1700.699	1185.574	ETGSSK[325.13]YPNC[160.03]AYK	SRNLTK[325.13]DR	0.00E+00	6.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
3155.534	3155.525	3.01	1218.555	1185.575	ETAAAK[325.13]FER	SRNLTK[325.13]DR	6.00E-04	2.90E-03	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
4468.91	4468.938	6.41	914.436	2803.068	K[325.13]ETAAAK	QHMDSTSAASSSNYC[160.03]NQMMK[325.13]SR	2.00E-04	0.00E+00	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
2912.399	2912.415	5.24	1218.552	942.442	ETAAAK[325.13]FER	NLTK[325.13]DR	1.20E-03	2.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
6149.668	6149.664	0.65	2344.028	3054.234	ETGSSKYPMC[160.03]AYK[325.13]TTQANK	NVAC[160.03]K[325.13]NGQTNC[160.03]YQSYSTMSITDC[160.03]R	4.56E-02	0.00E+00	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
4379.089	4379.092	0.7	2713.247	914.436	C[160.03]K[325.13]PVNTFVHESLADVQAVC[160.03]SQK	K[325.13]ETAAAK	1.00E-04	9.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
4407.11	4407.109	0.11	2713.26	942.445	C[160.03]K[325.13]PVNTFVHESLADVQAVC[160.03]SQK	NLTK[325.13]DR	1.00E-04	2.00E-04	sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN
3877.004	3877.029	6.51	931.513	2178.086	HK[325.13]IPIK	KGHHEAELK[325.13]PLAQSHATK	1.55E-02	1.58E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3748.903	3748.923	5.2	2049.986	931.513	GHHEAELK[325.13]PLAQSHATK	HK[325.13]IPIK	2.00E-04	2.10E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4398.269	4398.28	2.51	880.4	2766.465	FDFK[325.13]FK	GHHEAELKPLAQSHATK[325.13]HKIPIK	1.40E-03	1.96E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
2941.562	2941.575	4.53	1258.64	931.517	FDKFK[325.13]HLK	HK[325.13]IPIK	2.50E-03	1.20E-03	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
2634.263	2634.271	3.27	986.46	880.399	ASEDLKK[325.13]	FDK[325.13]FK	3.80E-03	1.19E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
2801.44	2801.469	10.26	931.513	1118.523	HK[325.13]IPIK	NDIAAK[325.13]YK	2.80E-03	1.00E-04	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4058.038	4058.087	12.02	1441.612	1865.021	K[325.13]GHHEAELK[325.13]	PLAQSHATK[325.13]HKIPIK	8.29E-02	4.00E-04	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3493.734	3493.754	5.75	868.446	1857.883	FK[325.13]HLK	LFTGHPETLEK[325.13]FDK	7.40E-03	0.00E+00	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4760.556	4760.594	8.05	1702.967	2306.184	K[325.13]HGTVVLTALGGILK	K[325.13]KGHHEAELKPLAQSHATK	0.00E+00	1.87E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4632.454	4632.49	7.84	1702.964	2178.085	HGTVVLTALGGILK[325.13]K	K[325.13]GHHEAELKPLAQSHATK	3.65E-02	3.11E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4760.556	4760.588	6.73	2306.184	1702.967	KK[325.13]GHHEAELKPLAQSHATK	K[325.13]HGTVVLTALGGILK	1.32E-02	5.40E-03	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3147.539	3147.568	9.09	1258.639	1137.495	FDKFK[325.13]HLK	YK[325.13]ELGFQG	9.00E-04	8.50E-03	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3841.11	3841.118	2.05	1258.64	1831.065	FDKFK[325.13]HLK	K[325.13]HGTVVLTALGGILKK	2.19E-02	0.00E+00	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3450.911	3450.916	1.44	868.446	1831.06	FK[325.13]HLK	K[325.13]HGTVVLTALGGILKK	2.05E-02	4.00E-04	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3729.014	3729.036	6.13	1258.639	1702.97	FDKFK[325.13]HLK	K[325.13]HGTVVLTALGGILK	4.60E-03	3.04E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4356.336	4356.313	5.25	2346.29	1258.641	ASEDLKK[325.13]HGTVVLTALGGILK	FDKFK[325.13]HLK	4.00E-04	2.20E-03	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3462.864	3462.887	6.4	880.399	1831.061	FDK[325.13]FK	K[325.13]HGTVVLTALGGILKK	3.19E-02	1.20E-03	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
4715.517	4715.533	3.41	1831.063	2133.049	K[325.13]HGTVVLTALGGILKK	LFTGHPETLEKFDK[325.13]FK	2.50E-03	7.46E-02	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
3372.679	3372.718	11.51	1483.774	1137.5	HKIPIK[325.13]YLEF	YK[325.13]ELGFQG	9.79E-02	1.50E-03	sp P68082 MYG_HORSE	sp P68082 MYG_HORSE
5406.813	5406.843	5.52	2797.527	1857.88	HK[325.13]IPIKYLEFISDAIIHLHSK	LFTGHP				

2617.367	2617.375	2.8	722.334	1143.628 GGK[325.13]HK	GKK[325.13]IFVQK	1.35E-02	1.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2752.457	2752.487	10.91	1143.628	857.423 GKK[325.13]IFVQK	KK[325.13]TER	6.00E-04	4.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2225.14	2225.145	2.24	471.233	1002.502 K[325.13]K	K[325.13]YIPGK	8.56E-02	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2483.236	2483.235	0.24	729.329	1002.502 K[325.13]TER	K[325.13]YIPGK	3.13E-02	1.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3546.666	3546.667	0.09	758.31	2036.951 K[325.13]ATNE	K[325.13]TGQAPGFTYTDANKNK	1.54E-02	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3766.971	3766.977	1.64	1871.938	1143.628 GGK[325.13]HKTGPNLHGLFGR	GKK[325.13]IFVQK	0.00E+00	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3381.653	3381.659	1.72	1871.94	758.308 GGK[325.13]HKTGPNLHGLFGR	K[325.13]ATNE	0.00E+00	5.90E-03 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2600.297	2600.304	2.56	729.329	1119.563 K[325.13]TER	M[147.04]IFAGIKK[325.13]	1.30E-03	5.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2600.298	2600.299	0.33	729.33	1119.563 K[325.13]TER	M[147.04]IFAGIK[325.13]K	3.62E-02	2.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3581.855	3581.856	0.05	1871.938	958.512 GGKHK[325.13]TGPNLHGLFGR	K[325.13]IFVQK	5.00E-04	4.40E-03 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2985.573	2985.581	2.89	1002.504	1231.664 K[325.13]YIPGK	MIFAGIK[325.13]KK	0.00E+00	1.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2985.574	2985.592	6.07	1002.503	1231.666 K[325.13]YIPGK	MIFAGIKKK[325.13]	0.00E+00	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2584.303	2584.307	1.51	729.329	1103.569 K[325.13]TER	MIFAGIK[325.13]K	2.60E-03	1.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2873.468	2873.48	3.97	1002.502	1119.562 K[325.13]YIPGK	M[147.04]IFAGIK[325.13]K	0.00E+00	2.10E-03 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2941.585	2941.587	0.71	958.514	1231.665 K[325.13]IFVQK	MIFAGIK[325.13]KK	1.40E-03	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2829.484	2829.485	0.34	958.512	1103.567 K[325.13]IFVQK	MIFAGIK[325.13]K	4.00E-04	1.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2829.476	2829.506	10.44	958.511	1119.56 K[325.13]IFVQK	M[147.04]IFAGIK[325.13]K	4.00E-04	1.10E-03 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3339.717	3339.732	4.44	1629.799	958.512 HK[325.13]TGPNLHGLFGR	K[325.13]IFVQK	0.00E+00	1.20E-03 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
2857.476	2857.485	3.14	1002.505	1103.566 K[325.13]YIPGK	MIFAGIK[325.13]K	1.00E-03	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
4093.009	4093.024	3.58	1288.657	2036.948 EDLIAYLK[325.13]K	K[325.13]TGQAPGFTYTDANKNK	1.00E-04	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3428.656	3428.664	2.25	1819.825	857.426 EETLMYELENPK[325.13]K	K[325.13]KTER	7.00E-04	9.81E-02 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3834.869	3834.881	3.31	1288.657	1794.807 EDLIAYLK[325.13]K	K[325.13]TGQAPGFTYTDANK	5.80E-03	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
3529.818	3529.816	0.52	1674.845	1103.568 K[325.13]TEREDLIAYLK	MIFAGIK[325.13]K	0.00E+00	2.00E-04 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
4462.237	4462.296	13.34	2479.169	1231.663 EETLMYELENPK[325.13]KYIPGK	MIFAGIKK[325.13]K	1.96E-02	0.00E+00 sp P00004 CYC_HORSE	sp P00004 CYC_HORSE
4050.069	4050.055	3.4	1229.574	2069.09 M[147.04]EK[325.13]GQIVGR	SPIK[325.13]VVGLSTLPEIYEK	0.00E+00	2.55E-02 sp P00330 ADH1_YEAST	sp P00330 ADH1_YEAST
2327.02	2326.996	10.18	869.338	706.276 YDDSQDK[325.13]	DDDSQDK[325.13]	2.00E-04	2.00E-04 sp P00921 CAH2_BOVIN	sp P00921 CAH2_BOVIN

Supplemental Table S2: Multiple cross-linkers applied to Ribonuclease A

ms2 query mass	ms2 prec mass	ms2 ppm error	ms2 mass1	ms2 mass2	ms3 pep1	ms3 pep2	ms3 expect1	ms3 expect2	ms3 prot1	ms3 prot2	Cross-linker
3394.544	3394.554	3.16	1700.697	942.441 ETGSSKYPNCAYK	NLTKDR		1.48E-02	1.10E-03 sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN	BDP	
2912.392	2912.4	2.64	1218.547	942.44 ETAAKFER	NLTKDR		0.00E+00	1.00E-04 sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN	BDP	
2732.296	2732.246	18.36	1120.551	844.439 ETAAKFER	NLTKDR		3.40E-03	1.07E-02 sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN	2RINK	
4226.996	4227.007	2.57	2615.25	844.441 CKPVNTFVHESLADVQAVCSQK	NLTKDR		0.00E+00	3.10E-03 sp P61823 RNAS1_BOVIN	sp P61823 RNAS1_BOVIN	2RINK	

Supplemental Table S3: High confidence E. coli cross-linked sites

ms2 query mass	ms2 prec mass	ms2 ppm error	ms2 mass1	ms2 mass2	ms3 pep1	ms3 pep2	ms3 fdr1	ms3 fdr2	ms3 prot1	prot1 red	ms3 prot2	prot2 red
3250.585701	3250.607855	6.82	1223.60503	AEFEK[325.13]AAASR	LDQLPADK[325.13]K	0.00E+00	0.00E+00	SODM_ECOLI	0 sp P00448 SODM_ECOLI	0		
2967.552484	2967.556585	1.38	1204.62168	1011.52574 INLDK[325.13]IHR	K[325.13]LLNEAK	0.00E+00	6.09E-03	SP P00452 RIR1_ECOLI	0 sp P77434 YFDZ_ECOLI	0		
3081.594782	3083.610296	2.86	1204.62094	1125.56877 INLDK[325.13]IHR	VDILAK[325.13]DR	0.00E+00	2.40E-02	SP P00452 RIR1_ECOLI	0 sp P76481 YFBK_ECOLI	0		
3444.746271	3445.768988	5.62	1149.57683	1543.76434 GYVSIK[325.13]ASK	QLEGK[325.13]VLVQNR	0.00E+00	0.00E+00	SP P00452 RIR1_ECOLI	0 sp P00452 RIR1_ECOLI	0		
3871.002374	3871.036322	8.77	1450.73943	1668.85788 DLTTAYK[325.13]FGVK	FPSGK[325.13]VPMQQLK	0.00E+00	0.00E+00	SP P00452 RIR1_ECOLI	0 sp P00452 RIR1_ECOLI	0		
4277.065451	4279.087591	3.62	1762.83017	1762.83017 K[325.13]AEQVLLNETTK	K[325.13]AEQVLLNETTK	0.00E+00	0.00E+00	SP P00509 AAT_ECOLI	0 sp P00509 AAT_ECOLI	0		
3937.910944	3939.935736	4.59	1115.5363	2070.96958 NAGFINK[325.13]R	YVDEQAPWVVAK[325.13]QEGR	9.68E-03	0.00E+00	SP P00595 SYM_ECOLI	0 sp P00595 SYM_ECOLI	0		
4146.101373	4146.117865	3.98	1552.79277	1841.90354 TLDAAAALAAANK[325.13]R	VSNILAK[325.13]SDEVLSDR	0.00E+00	0.00E+00	SP P00961 SYGB_ECOLI	0 sp P00961 SYGB_ECOLI	0		
3612.840021	3610.76264	19.58	1605.75425	1239.68132 IK[325.13]FAEHHQTGNK	K[325.13]LNLLVTDK	2.19E-02	4.07E-02	SP P00962 SYL_ECOLI	1 sp P00962 SYL_ECOLI	0		
2864.347284	2864.358343	3.86	1594.76267	518.179552 TK[325.13]AVTEASPMVK	nM[147.04]R	0.00E+00	1.16E-02	SP P02358 R56_ECOLI	0 sp P02358 R56_ECOLI	0		
2526.360054	2526.353949	2.42	1006.53929	768.415697 K[325.13]ILDPK	K[325.13]VGLR	0.00E+00	1.77E-02	SP P02359 R57_ECOLI	0 sp P0A7X3 R59_ECOLI	0		
2150.054451	2150.062047	2.70	771.351427	627.29794 GOK[325.13]SR	QK[325.13]R	1.85E-03	4.45E-03	SP P02413 R15_ECOLI	0 sp P0A65 PB2_ECOLI	24		
2747.429573	2747.432318	1.00	1168.61028	827.414232 K[325.13]AAITAEIR	VTK[325.13]GAR	0.00E+00	0.00E+00	SP P02413 R15_ECOLI	0 sp P02413 R15_ECOLI	0		
2778.374811	2780.383978	0.89	1255.61704	771.352708 GISSLGK[325.13]TGGR	GOK[325.13]SR	0.00E+00	1.14E-02	SP P02413 R15_ECOLI	0 sp P02413 R15_ECOLI	0		
2857.416559	2857.429632	4.58	850.394212	1255.61728 GHK[325.13]GQK	GISSLGK[325.13]TGGR	0.00E+00	0.00E+00	SP P02413 R15_ECOLI	0 sp P02413 R15_ECOLI	0		
2229.098444	2229.10639	3.57	627.298204	850.395175 AGK[325.13]R	GHK[325.13]GQK	1.00E-02	3.55E-03	SP P02413 R15_ECOLI	0 sp P02413 R15_ECOLI	5		
2636.267098	2636.285101	6.83	856.390794	1028.47124 K[325.13]AGEGAK	LSK[325.13]EEAR	1.23E-02	4.47E-02	SP P02413 RBSB_ECOLI	0 sp P23882 FMT_ECOLI	0		
2708.410638	2708.411566	0.34	1174.58786	782.417711 IAGDYIAK[325.13]K	LVK[325.13]Q	0.00E+00	0.00E+00	SP P02925 RBSB_ECOLI	5 sp P02925 RBSB_ECOLI	0		
2962.494454	2962.504828	3.50	955.461656	1255.62773 GEK[325.13]VQAK	GVTADK[325.13]VLK	0.00E+00	0.00E+00	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
2977.549188	2977.547552	0.55	856.393053	1369.75107 K[325.13]AGEGAK	YPVDLK[325.13]LVVK	1.59E-02	0.00E+00	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
3083.481453	3083.478704	0.89	1157.48662	1174.58977 DGAQK[325.13]EADK	IAGDYIAK[325.13]K	0.00E+00	0.00E+00	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
3295.745538	3297.678744	5.01	1174.58977	1369.75071 IAGDYIAK[325.13]K	YPVDLK[325.13]LVVK	0.00E+00	0.00E+00	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
3824.015863	3824.012884	0.78	2290.19223	782.418565 AVNDGK[325.13]LAATIAQLPDQIGAK	LVVK[325.13]Q	0.00E+00	4.01E-02	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
3897.989435	3898.007269	4.58	856.39409	1029.19028 AVNDGK[325.13]LAATIAQLPDQIGAK	K[325.13]AGEGAK	0.00E+00	1.59E-02	SP P02925 RBSB_ECOLI	6 sp P02925 RBSB_ECOLI	0		
4113.010351	4113.084662	4.58	955.46129	2406.23716 GEK[325.13]VQAK	LAATIAQLPDQIGAK[325.13]GVTADK	0.00E+00	7.61E-03	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
4216.170587	4216.218451	11.35	2290.18051	1174.58501 AVNDGK[325.13]LAATIAQLPDQIGAK	IAGDYIAK[325.13]K	3.89E-03	2.05E-03	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
4314.183893	4314.202337	4.28	2206.08652	1356.69231 QATK[325.13]GEVVSIIASDNVLLGGK	VQAK[325.13]YPVDLK	0.00E+00	0.00E+00	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
4825.350153	4825.367376	3.57	2899.35727	1174.58782 GEFFQQVAVAHK[325.13]FNLVASQPADFDR	IAGDYIAK[325.13]K	0.00E+00	1.31E-02	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
6430.275859	6430.255363	3.19	3472.78159	2206.08921 ILLNPTSDAVGNNAVK[325.13]MANQANPVITLDR	QATK[325.13]GEVVSIIASDNVLLGGK	0.00E+00	0.00E+00	SP P02925 RBSB_ECOLI	0 sp P02925 RBSB_ECOLI	0		
4099.001764	4098.014693	10.56	2365.46676	966.449754 FLK[325.13]GOGGQWITAEGYM[147.04]LPR	nMAHRRP	3.53E-02	3.03E-02	SP P02925 RBSB_ECOLI	0 sp P12996 BIOB_ECOLI	0		
3323.761591	3324.797064	9.67	1789.92575	782.430772 AHV[325.13]SHHNVGLLPK	K[325.13]LIGR	0.00E+00	0.00E+00	SP P04079 GUAA_ECOLI	0 sp POAERO GLPF_ECOLI	0		
2762.418681	2762.425773	2.57	891.456882	1119.55674 AK[325.13]HAIR	VYTGK[325.13]VTR	0.00E+00	0.00E+00	SP P05055 PNP_ECOLI	0 sp P05055 PNP_ECOLI	0		
3017.576715	3017.581732	1.66	1891.45634	1374.7153 AK[325.13]HAIR	IHTIK[325.13]INPDFK	0.00E+00	0.00E+00	SP P05055 PNP_ECOLI	0 sp P05055 PNP_ECOLI	0		
4083.98089	4083.968206	3.11	2294.05527	1038.52056 K[325.13]FOYQOHTVLTETMMAR	nMLNPIVR	0.00E+00	0.00E+00	SP P05055 PNP_ECOLI	0 sp P05055 PNP_ECOLI	0		
3054.502924	3056.523626	4.58	1306.54746	996.550401 AE[147.04]EAM[147.04]K[325.13]R	IK[325.13]ELAVK	0.00E+00	0.00E+00	SP P05704 MCP3_ECOLI	0 sp POAF6G ODD2_ECOLI	0		
3130.57818	3131.59638	4.74	917.47307	1461.7003 K[325.13]HAPLR	TNEK[325.13]GYIVVDK	0.00E+00	6.17E-03	SP P06715 GSHR_ECOLI	0 sp P06715 GSHR_ECOLI	0		
5149.522685	5151.549919	3.99	2239.11484	2159.00278 IHTSYENVLGK[325.13]NNVDVIK	VYK[325.13]SSFTAMYTAVTHR	0.00E+00	0.00E+00	SP P06715 GSHR_ECOLI	0 sp P06715 GSHR_ECOLI	0		
2146.156474	2146.156474	2.59	725.408433	669.345684 LK[325.13]R	VAK[325.13]R	2.36E-02	1.68E-02	SP P06846 EBGR_ECOLI	0 sp P16916 RHS_A_ECOLI	0		
2947.51922	2948.539496	5.74	1382.7153	813.398851 IQK[325.13]ISGANLRS	VK[325.13]GTGR	0.00E+00	0.00E+00	SP P06959 ODP2_ECOLI	0 sp P06959 ODP2_ECOLI	0		

3647.694025	3647.710394	4.49	1869.78757	1026.50139	ETQK[325.13]STC[160.03]TGVEMFR	K[325.13]LLDEGR	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
3647.782939	3648.79998	3.75	904.394395	1991.98348	EK[325.13]FER	TK[325.13]PHNVGTTIGHVDHGK	2.25E-02	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
3669.756245	3669.75629	1.68	904.39268	2013.96467	EK[325.13]FER	VM[147.04]DVAAAPGSK[325.13]TTQISAR	2.22E-03	6.12E-03	sp POA6N1 EFTU_ECOLI	0	sp P76273 RSMF_ECOLI	0
3702.773004	4.72	1924.86801	1026.49993	FESEVYILSK[325.13]DEGGR	K[325.13]LLDEGR	0.00E+00	1.22E-02	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0	
3769.88792	3771.900261	1.50	1026.50029	1991.98256	K[325.13]LLDEGR	TK[325.13]PHNVGTTIGHVDHGK	0.00E+00	2.37E-02	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
3781.904067	3781.965765	6.65	1991.9874	1028.54814	TK[325.13]PHNVGTTIGHVDHGK	VLGK[325.13]AGAAAR	3.55E-03	1.37E-02	sp POA6N1 EFTU_ECOLI	0	sp P60422 R12_ECOLI	0
3794.99052	3796.010673	4.43	1991.98165	1051.60381	TK[325.13]PHNVGTTIGHVDHGK	VAVIK[325.13]AVR	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA7K2 R17_ECOLI	0
3969.012384	3971.018988	0.02	2313.20957	904.397752	AIDK[325.13]PFLLPIEDVFSIGR	EK[325.13]FER	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
4091.098566	4091.122992	5.97	2313.19394	1026.49956	AIDK[325.13]PFLLPIEDVFSIGR	K[325.13]LLDEGR	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
4351.001351	4353.07099	14.47	1799.79814	1799.79814	AFDQIDNAPEEK[325.13]AR	AFDQIDNAPEEK[325.13]AR	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
4476.080621	4478.103705	3.66	1799.80193	1924.87363	AFDQIDNAPEEK[325.13]AR	FESEVYILSK[325.13]DEGGR	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
4543.184781	4544.204507	3.61	1799.79807	1991.98165	AFDQIDNAPEEK[325.13]AR	TK[325.13]PHNVGTTIGHVDHGK	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
4727.356134	4728.362982	0.74	1799.80327	2176.1478	AFDQIDNAPEEK[325.13]AR	TTTAATTIVLAK[325.13]TYGAAR	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
4735.37422	4737.39301	2.56	1991.98458	1991.98458	TK[325.13]PHNVGTTIGHVDHGK	TK[325.13]PHNVGTTIGHVDHGK	0.00E+00	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
3412.742242	3412.774603	9.48	669.346361	1991.99082	EK[325.13]R	TK[325.13]PHNVGTTIGHVDHGK	8.66E-03	0.00E+00	sp POA6N1 EFTU_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
2889.495599	2890.50922	3.56	1338.68125	799.409284	K[325.13]AGNVAADGVIK	K[325.13]SGAIAA	0.00E+00	3.56E-03	sp POA6P1 EFTS_ECOLI	0	sp POA6P1 EFTS_ECOLI	0
3031.569161	3031.589788	6.80	1338.68071	941.483385	K[325.13]AGNVAADGVIK	SGAIA[325.13]AAK	0.00E+00	0.00E+00	sp POA6P1 EFTS_ECOLI	0	sp POA6P1 EFTS_ECOLI	0
4139.987726	4142.012884	4.46	1357.61919	2030.96347	EIAEK[325.13]MVEGR	EYQVQLDIAMOSGK[325.13]PK	1.91E-03	3.56E-03	sp POA6P1 EFTS_ECOLI	0	sp POA6P1 EFTS_ECOLI	0
2164.122003	2164.134222	5.65	613.308275	799.408664	AAK[325.13]K	K[325.13]SGAIAA	7.80E-03	2.37E-02	sp POA6P1 EFTS_ECOLI	11	sp POA6P1 EFTS_ECOLI	0
3577.828282	3577.815483	9.28	618.267747	2208.10947	M[147.04]K[325.13]K	TVGQLLK[325.13]EHNAEVTFIR	2.10E-02	0.00E+00	sp POA6P1 EFTS_ECOLI	0	sp POA6P1 EFTS_ECOLI	0
2670.30024	2672.311468	1.70	873.347887	1045.54729	DGDK[325.13]SR	FLGK[325.13]GVTK	0.00E+00	0.00E+00	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
2791.535103	2792.542181	1.34	1045.54668	994.58336	FLGK[325.13]GVT	IVK[325.13]IIGR	0.00E+00	9.70E-04	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
3207.576288	3207.60639	9.39	1742.81125	713.359972	IEEALGEK[325.13]APYNGR	K[325.13]EIK	0.00E+00	7.52E-03	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
3416.6607	3416.648382	3.61	873.349657	1791.90594	DGDK[325.13]SR	MGSEVFHHLAK[325.13]VJK	1.47E-03	0.00E+00	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
3555.835504	3557.848136	1.67	1791.90573	1012.52471	MGSEVFHHLAK[325.13]VJK	TVK[325.13]EAI	0.00E+00	4.99E-03	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
3571.82287	3572.816351	2.76	1807.89731	1012.52049	M[147.04]GSEVFHHLAK[325.13]VJK	TVK[325.13]EAI	3.17E-03	4.45E-03	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
3588.853236	3590.86987	2.78	1045.54778	1791.90040	FLGK[325.13]GVT	MGSEVFHHLAK[325.13]VJK	0.00E+00	0.00E+00	sp POA6P9 ENO_ECOLI	0	sp POA6P9 ENO_ECOLI	0
2875.451058	2875.452337	0.45	1081.57768	1042.46831	AGLEV[325.13]R	QATK[325.13]DAGR	1.52E-02	0.00E+00	sp POA6Y8 DNAK_ECOLI	0	sp POA6Y8 DNAK_ECOLI	0
3003.487238	3005.502386	2.81	1194.58432	1057.49785	HMMNIK[325.13]VTR	MPMVQK[325.13]K	0.00E+00	1.47E-03	sp POA6Y8 DNAK_ECOLI	0	sp POA6Y8 DNAK_ECOLI	0
3490.761041	3490.801458	11.58	1681.85715	1057.49883	AK[325.13]ESLVEDLVRN	MPMVQK[325.13]K	0.00E+00	0.00E+00	sp POA6Y8 DNAK_ECOLI	0	sp POA6Y8 DNAK_ECOLI	0
3643.83233	3643.838079	1.58	1681.85124	1210.57602	AK[325.13]ESLVEDLVRN	HM[147.04]NIK[325.13]VTR	0.00E+00	0.00E+00	sp POA6Y8 DNAK_ECOLI	0	sp POA6Y8 DNAK_ECOLI	0
3768.79223	3768.804876	3.36	1898.452501	2118.93467	NALT[325.13]VJK	TINEM[147.04]SSYYTPHMK[325.13]VNR	1.83E-02	4.26E-02	sp POA6Z3 HTPG_ECOLI	0	sp Q9JMS7 YUAM_ECOLI	0
2684.33642	2684.362249	9.62	866.462633	1066.46872	AARP[325.13]K	GNK[325.13]HAESK	1.68E-02	0.00E+00	sp POA705 IF2_ECOLI	5	sp POA705 IF2_ECOLI	0
2948.401985	2950.408392	0.10	1098.49846	1098.49846	EAAEQAK[325.13]R	EAAEQAK[325.13]R	0.00E+00	0.00E+00	sp POA705 IF2_ECOLI	0	sp POA705 IF2_ECOLI	0
2445.246515	2445.286566	16.38	642.29837	1051.54303	K[325.13]GNK	NAK[325.13]AARP[325.13]R	1.05E-02	0.00E+00	sp POA705 IF2_ECOLI	2	sp POA705 IF2_ECOLI	0
3904.920438	3906.938516	2.91	1161.53134	1991.98403	QEEEK[325.13]R	TK[325.13]PHNVGTTIGHVDHGK	1.50E-02	0.00E+00	sp POA759 NAGB_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
2236.169319	2236.174505	2.32	709.376634	775.38762	LPK[325.13]R	YLK[325.13]R	1.41E-02	1.05E-02	sp POA776 RPPH_ECOLI	1	P77334 GMR_ECOLI	1
2939.561884	2940.574163	3.04	813.404161	1374.75261	GK[325.13]WVK	LVAVPHSK[325.13]LSK	1.47E-03	6.17E-03	sp POA7A9 IPYR_ECOLI	0	sp POA7A9 IPYR_ECOLI	0
3011.569269	3011.583197	4.63	885.410203	1374.754	DLEK[325.13]GK	LVAVPHSK[325.13]LSK	4.99E-03	4.01E-03	sp POA7A9 IPYR_ECOLI	0	sp POA7A9 IPYR_ECOLI	0
5170.696344	5170.728386	6										

2492.251032	2492.256292	2.11	908.411349	832.434618	K[325.13]HNASR	TFIK[325.13]K	0.00E+00	3.10E-02	sp POA7U7 RS20_ECOLI	0	sp POA7U7 RS20_ECOLI	0
2758.350824	2758.351996	0.43	1098.53435	908.41141	AHQSEK[325.13]AR	K[325.13]HNASR	0.00E+00	0.00E+00	sp POA7U7 RS20_ECOLI	0	sp POA7U7 RS20_ECOLI	0
2821.427972	2821.429632	0.59	808.409654	1161.61323	K[325.13]HNASR	QAQK[325.13]GLIHK	0.00E+00	0.00E+00	sp POA7U7 RS20_ECOLI	0	sp POA7U7 RS20_ECOLI	0
3190.659479	3190.660101	0.20	1005.52593	1433.72849	GLIHK[325.13]NK	HK[325.13]ANLTAQINK	0.00E+00	0.00E+00	sp POA7U7 RS20_ECOLI	0	sp POA7U7 RS20_ECOLI	0
3346.747736	3346.752386	1.39	1433.72739	1161.61528	HK[325.13]ANLTAQINK	QAQK[325.13]GLIHK	4.26E-03	0.00E+00	sp POA7U7 RS20_ECOLI	0	sp POA7U7 RS20_ECOLI	0
3320.669061	3320.705023	10.83	1625.81858	943.44542	ELEK[325.13]LENSLGGIK	K[325.13]EALMR	0.00E+00	0.00E+00	sp POA7V0 RS2_ECOLI	0	sp POA7V0 RS2_ECOLI	0
3404.608942	3404.633734	7.28	1792.83322	860.370653	DMLK[325.13]AGVHFHGHQTR	nMM[147.04]VIR	0.00E+00	3.88E-02	sp POA7V0 RS2_ECOLI	0	sp P76544 YFFM_ECOLI	0
3417.766534	3418.78656	4.88	1262.61772	1403.74375	MK[325.13]PFIGAR	NK[325.13]VHINLEK	0.00E+00	0.00E+00	sp POA7V0 RS2_ECOLI	0	sp POA7V0 RS2_ECOLI	0
4413.159479	4413.195013	8.05	2532.13994	1129.61443	AASEAVK[325.13]DAALSC[160.03]DQFFVNHR	ILFVGTK[325.13]R	0.00E+00	2.84E-02	sp POA7V0 RS2_ECOLI	0	sp POA7V0 RS2_ECOLI	0
2335.205574	2335.2143	3.74	882.482652	701.317857	LGAK[325.13]GIK	MAK[325.13]R	0.00E+00	2.23E-03	sp POA7V3 RS3_ECOLI	0	sp POACT2 ENVR_ECOLI	5
2449.198616	2449.209906	4.61	701.316942	996.47661	AMK[325.13]JR	K[325.13]PELDAK	8.64E-03	0.00E+00	sp POA7V3 RS3_ECOLI	0	sp POA7V3 RS3_ECOLI	0
2593.302118	2593.305121	1.16	701.317979	1140.57907	AMK[325.13]JR	GK[325.13]VEVSGR	4.99E-03	0.00E+00	sp POA7V3 RS3_ECOLI	0	sp POA7V3 RS3_ECOLI	0
2904.455452	2904.460394	1.70	1156.5728	996.477586	ELAK[325.13]AVSVR	K[325.13]PELDAK	2.01E-03	0.00E+00	sp POA7V3 RS3_ECOLI	0	sp POA7V3 RS3_ECOLI	0
3198.540047	3199.584662	12.90	1140.58061	1306.55437	GK[325.13]VEVSGR	IAEM[147.04]EAM[147.04]K[325.13]R	2.07E-02	2.45E-02	sp POA7V3 RS3_ECOLI	0	sp P05704 MCP3_ECOLI	0
2541.199335	2541.204779	2.14	725.334215	1064.46006	K[325.13]PER	MEGTFK[325.13]R	0.00E+00	0.00E+00	sp POA7V8 RS4_ECOLI	0	sp POA7V8 RS4_ECOLI	0
2690.268732	2691.266058	2.24	2728.335985	1210.52763	EK[325.13]QK	NYK[325.13]EAAR	5.39E-03	0.00E+00	sp POA7V8 RS4_ECOLI	0	sp POA7V8 RS4_ECOLI	0
3283.686823	3284.74555	16.86	1517.74289	1014.53887	EGTDLFLK[325.13]SGVR	YLGPK[325.13]LK	0.00E+00	4.85E-03	sp POA7V8 RS4_ECOLI	0	sp POA7V8 RS4_ECOLI	0
3370.722833	3370.72846	1.67	725.335008	1893.98276	K[325.13]PER	LK[325.13]GNTGENLALLER	1.16E-02	3.70E-03	sp POA7V8 RS4_ECOLI	0	sp POA7V8 RS4_ECOLI	0
3855.92962	3857.94599	2.51	1893.99003	2120.53422	LK[325.13]GNTGENLALLER	NYK[325.13]EAAR	2.07E-02	0.00E+00	sp POA7V8 RS4_ECOLI	0	sp POA7V8 RS4_ECOLI	0
2137.050545	2137.059515	4.20	671.314073	714.331407	EK[325.13]AK	K[325.13]QSR	7.80E-03	2.63E-02	sp POA7V8 RS4_ECOLI	3	sp POA7V8 RS4_ECOLI	3
2889.46911	2890.483831	3.94	714.309091	1423.73313	K[325.13]QSR	VK[325.13]AALELAEQR	2.45E-02	0.00E+00	sp POA7V8 RS4_ECOLI	3	sp POA7V8 RS4_ECOLI	0
2510.2528001	2510.253914	1.63	901.398241	857.450605	AMEK[325.13]AR	VSK[325.13]TVK	2.10E-02	0.00E+00	sp POA7W1 RS5_ECOLI	0	sp POA7W1 RS5_ECOLI	0
2759.397699	2760.409613	3.10	1150.54197	857.45067	VGFGYGK[325.13]AR	VSK[325.13]TVK	0.00E+00	0.00E+00	sp POA7W1 RS5_ECOLI	0	sp POA7W1 RS5_ECOLI	0
2803.344829	2803.351996	2.56	901.397311	1150.54245	AMEK[325.13]AR	VGFGYGK[325.13]AR	0.00E+00	0.00E+00	sp POA7W1 RS5_ECOLI	0	sp POA7W1 RS5_ECOLI	0
3412.682306	3413.686468	0.24	1510.73728	1150.53996	EVPAAIQK[325.13]AMEK	VGFGYGK[325.13]AR	0.00E+00	0.00E+00	sp POA7W1 RS5_ECOLI	0	sp POA7W1 RS5_ECOLI	0
4250.066095	4252.097357	5.78	2243.02695	1255.63408	ATIDGLENMNSPEMVAAK[325.13]R	GK[325.13]SVEELGK	0.00E+00	0.00E+00	sp POA7W1 RS5_ECOLI	0	sp POA7W1 RS5_ECOLI	0
4281.147258	4283.164299	2.42	2754.35463	775.387559	NMINVALNNGTLQHPVK[325.13]GVHTGSR	YLK[325.13]R	4.80E-02	8.72E-03	sp POA7W1 RS5_ECOLI	0	sp P77334 GMVR_ECOLI	1
2452.233331	2452.236273	1.20	925.440158	775.388109	K[325.13]DELPK	LYK[325.13]R	0.00E+00	5.39E-03	sp POA7W7 RS8_ECOLI	0	sp P63284 CLPB_ECOLI	0
2634.369745	2634.371038	0.49	768.412584	1114.5521	K[325.13]VGLR	RPOFSK[325.13]R	0.00E+00	0.00E+00	sp POA7X3 RS9_ECOLI	0	sp POA7X3 RS9_ECOLI	0
2732.424496	2732.446478	7.86	974.484727	1006.5152	K[325.13]AGFVTR	K[325.13]PDLPK	0.00E+00	9.70E-04	sp POA7X3 RS9_ECOLI	0	sp P02359 R57_ECOLI	0
3179.61297	3180.639593	7.32	839.450853	1588.75705	IK[325.13]VQR	nMQGSVTEFLKPR	2.15E-03	0.00E+00	sp POA7Z4 RPOA_ECOLI	0	sp POA7Z4 RPOA_ECOLI	0
2834.498759	2833.507025	4.10	1041.54685	1041.54685	TQISK[325.13]R	TQISK[325.13]R	1.16E-02	1.59E-02	sp POA805 RFF_ECOLI	0	sp POA805 RFF_ECOLI	0
2988.364435	2988.374945	3.52	913.412767	1323.54566	K[325.13]DAEVR	MDK[325.13]C[160.03]VEAFK	2.07E-02	0.00E+00	sp POA805 RFF_ECOLI	0	sp POA805 RFF_ECOLI	0
3117.492928	3116.507757	5.83	1324.54534	1041.54253	MDK[325.13]C[160.03]VEAFK	TQJSK[325.13]R	0.00E+00	1.08E-03	sp POA805 RFF_ECOLI	0	sp POA805 RFF_ECOLI	0
2570.252803	2570.260687	3.33	1075.48288	743.364182	GFK[325.13]EAEEK	MLK[325.13]R	0.00E+00	3.21E-02	sp POA825 GLYA_ECOLI	0	sp POA825 GLYA_ECOLI	0
3194.490656	3194.513861	7.26	1206.54228	1236.54331	GGSEELYK[325.13]K	YAEGYPGK[325.13]R	0.00E+00	0.00E+00	sp POA825 GLYA_ECOLI	0	sp POA825 GLYA_ECOLI	0
3301.596979	3301.585638	3.44	1075.48479	1474.70713	GFK[325.13]EAEEK	TYQQVAK[325.13]NAK	0.00E+00	0.00E+00	sp POA825 GLYA_ECOLI	0	sp POA825 GLYA_ECOLI	0
3469.674202	3469.685836	4.49	1206.54228	1511.72683	GGSEELYK[325.13]K	NLTGK[325.13]EADAALGR	0.00E+00	0.00E+00	sp POA825 GLYA_ECOLI	0	sp POA825 GLYA_ECOLI	0
3499.678034	3500.700872	5.57	1511.72568	1236.54729	NLTGK[325.13]EADAALGR	YAEGYPGK[325.13]R	0.00E+00	0.00E+00	sp POA825 GLYA_ECOLI	0	sp POA825 GLYA_ECOLI	0
3764.824762	3765.813177	3.97	1806.87448	1206.54521	ANITVNK[325.13]NSVPNDPK	GGSEELYK[325.13]K	0.00E+00	0.00E+00	sp POA825 GLYA_ECOLI	0	sp POA	

5029.583795	5030.618841	6.30	3054.5606	1223.61833	FQGGEAAPVVAPAPAPAPEVQTK[325.13]HFTLK	GIPADK[325.13]ISAR	0.00E+00	1.07E-02	sp P0A910 OMPA_ECOLI	0	sp P0A910 OMPA_ECOLI	0
5114.543512	5115.590033	8.44	3055.5503	1307.58342	FQGGEAAPVVAPAPAPAPEVQTK[325.13]HFTLK	LDNMATK[325.13]YR	0.00E+00	7.01E-03	sp P0A910 OMPA_ECOLI	0	sp P69776 LPP_ECOLI	0
5157.613036	5157.65058	3.79	3054.55893	1351.66704	FQGGEAAPVVAPAPAPAPEVQTK[325.13]HFTLK	G1K[325.13]DVTPQPA	0.00E+00	0.00E+00	sp P0A910 OMPA_ECOLI	0	sp P0A910 OMPA_ECOLI	0
5271.309062	5271.312689	0.69	2259.952	2259.952	GMGESNPVTGNTC[160.03]DNVK[325.13]QR	GMGESNPVTGNTC[160.03]DNVK[325.13]QR	0.00E+00	0.00E+00	sp P0A910 OMPA_ECOLI	0	sp P0A910 OMPA_ECOLI	0
6146.117656	6148.176506	8.49	3054.56748	2340.14511	FQGGEAAPVVAPAPAPAPEVQTK[325.13]HFTLK	MYLQGK[325.13]GVSDAQ[SIVSYGK]	4.85E-03	0.00E+00	sp P0A910 OMPA_ECOLI	0	sp P0A912 PAL_ECOLI	0
6860.150742	6861.655068	17.63	3054.56284	3054.56284	FQGGEAAPVVAPAPAPAPEVQTK[325.13]HFTLK	FQGGEAAPVVAPAPAPAPEVQTK[325.13]HFTLK	0.00E+00	1.47E-03	sp P0A910 OMPA_ECOLI	0	sp P0A910 OMPA_ECOLI	0
4547.123515	4547.106634	3.71	1810.84092	1984.87754	EK[325.13]PAVLGHDAAYSK	SNPSYK[325.13]VTEGHADER	0.00E+00	0.00E+00	sp P0A912 PAL_ECOLI	0	sp P0A912 PAL_ECOLI	0
2385.247675	2385.24555	0.89	1021.51944	612.323167	HITAGAK[325.13]JK	K[325.13]LR	0.00E+00	2.22E-03	sp P0A9B2 G3P1_ECOLI	0	sp P00968 CARB_ECOLI	0
2915.4972	2915.500433	1.11	1021.52312	1142.56902	K[325.13]HITAGAK	K[325.13]VMMTGPSK	0.00E+00	1.47E-03	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3266.58625	3267.59516	1.70	1021.51272	1493.65947	K[325.13]HITAGAK	TVDPSPHK[325.13]DWR	0.00E+00	1.47E-03	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3388.700678	3388.735785	10.36	2024.97165	612.323964	FDGTVEVK[325.13]DGHLIVNGK	K[325.13]LR	7.26E-03	1.98E-02	sp P0A9B2 G3P1_ECOLI	0	sp Q57261 TRUD_ECOLI	92
3665.825739	3666.844183	4.12	1420.76262	1493.65805	AVGK[325.13]VLPFLNGK	TVDPSPHK[325.13]DWR	7.80E-03	1.47E-03	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3719.843486	3721.873405	6.24	1021.52109	1946.91733	K[325.13]HITAGAK	VVMTGPSK[325.13]DNTPMFVK	0.00E+00	0.00E+00	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3725.909418	3727.920355	1.14	1952.98208	1021.52233	GASONIIPSSSTGAAK[325.13]AVGK	K[325.13]HITAGAK	0.00E+00	3.17E-03	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3733.811578	3734.812445	0.67	1488.7479	1493.65862	AAYTEOIK[325.13]AAVK	TVDPSPHK[325.13]DWR	0.00E+00	2.37E-02	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3738.720195	3740.737249	2.77	1493.65757	1493.65757	TVDPSPHK[325.13]DWR	TVDPSPHK[325.13]DWR	0.00E+00	0.00E+00	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
4119.082028	4121.149603	14.74	1420.76177	1946.91538	AVGK[325.13]VLPFLNGK	VVMTGPSK[325.13]DNTPMFVK	0.00E+00	0.00E+00	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
4191.981914	4193.00263	4.14	1493.65891	1946.91794	TVDPSPHK[325.13]DWR	VVMTGPSK[325.13]DNTPMFVK	1.47E-03	0.00E+00	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
4198.051325	4199.078314	5.63	1952.98655	1493.65972	GASONIIPSSSTGAAK[325.13]AVGK	TVDPSPHK[325.13]DWR	2.92E-03	2.92E-03	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
4651.294122	4652.348333	10.94	1952.98154	1946.90752	GASONIIPSSSTGAAK[325.13]AVGK	VVMTGPSK[325.13]DNTPMFVK	0.00E+00	0.00E+00	sp P0A9B2 G3P1_ECOLI	0	sp P0A9B2 G3P1_ECOLI	0
3066.552301	3067.578558	7.47	1065.48088	1249.66635	FNTMTK[325.13]JK	IPVSSPK[325.13]AR	4.37E-03	9.70E-04	sp P0A9C5 GLNA_ECOLI	0	sp P0A9C5 GLNA_ECOLI	0
3749.784357	3749.802679	4.89	1065.48232	1932.89604	FNTMTK[325.13]JK	K[325.13]NAIMMIVDFALEAQR	3.17E-03	3.14E-02	sp P0A9C5 GLNA_ECOLI	0	sp P76399 MDTC_ECOLI	0
3933.968852	3933.988578	5.01	1249.66941	1932.89438	IPVSSPK[325.13]AR	K[325.13]NAIMMIVDFALEAQR	0.00E+00	1.05E-02	sp P0A9C5 GLNA_ECOLI	0	sp P76399 MDTC_ECOLI	0
5672.75999	5672.801139	7.25	3671.68264	1249.67222	EQHTVPAHQVNAAEFFEGK[325.13]MFDGSSIGGWK	IPVSSPK[325.13]AR	0.00E+00	0.00E+00	sp P0A9C5 GLNA_ECOLI	0	sp P0A9C5 GLNA_ECOLI	0
3269.651544	3271.702826	13.64	1294.69004	1223.55644	GK[325.13]VGINELL	YFDK[325.13]VPMK	0.00E+00	0.00E+00	sp P0A9D8 DADP_ECOLI	0	sp P0A9D8 DADP_ECOLI	0
3285.64344	3285.674749	9.53	1294.68877	1239.54961	GK[325.13]VGINELL	YFDK[325.13]VPM[147.04]JK	0.00E+00	0.00E+00	sp P0A9D8 DADP_ECOLI	0	sp P0A9D8 DADP_ECOLI	0
2748.392342	2748.396917	1.67	1025.51689	971.470384	K[325.13]AALAER	NTK[325.13]SGLR	0.00E+00	2.79E-03	sp P0A9K3 PHOL_ECOLI	0	sp P0A9K3 PHOL_ECOLI	0
3047.502618	3048.522162	5.31	1025.51714	1270.58042	K[325.13]AALAER	QQELDK[325.13]WK	0.00E+00	7.80E-03	sp P0A9K3 PHOL_ECOLI	0	sp P77354 YAFU_ECOLI	0
5072.558818	5074.55595	1.96	1872.91001	2448.24375	K[325.13]HQFAQSLNYEIAK	NTNTGIVVNK[325.13]LNAPVDEQGR	0.00E+00	0.00E+00	sp P0A9M8 PTA_ECOLI	0	sp P0A9M8 PTA_ECOLI	0
5647.861308	5647.904439	7.99	2448.22812	2448.22812	NTNTGIVVNK[325.13]LNAPVDEQGR	NTNTGIVVNK[325.13]LNAPVDEQGR	0.00E+00	0.00E+00	sp P0A9M8 PTA_ECOLI	0	sp P0A9M8 PTA_ECOLI	0
3194.604608	3194.630072	7.97	1620.77207	822.427476	GILEQYGHK[325.13]VMF	HTLK[325.13]JK	3.00E-02	8.66E-03	sp P0A9N4 PFLA_ECOLI	0	sp P32721 ALSA_ECOLI	0
2690.350885	2691.365423	4.16	1092.52072	846.425094	K[325.13]APAEPOQR	VFTK[325.13]JR	9.70E-04	5.39E-03	sp P0A9P0 DLDH_ECOLI	0	sp P0A9P0 DLDH_ECOLI	0
2695.30992	2695.310247	0.10	1130.50498	813.39995	K[325.13]HYFDPK	VK[325.13]GTGR	1.55E-02	1.85E-02	sp P0A9P0 DLDH_ECOLI	0	sp P06959 ODP2_ECOLI	0
2836.389642	2836.398871	3.25	1130.50498	954.47496	K[325.13]HYFDPK	VDK[325.13]QLR	7.80E-03	0.00E+00	sp P0A9P0 DLDH_ECOLI	0	sp P0A9P0 DLDH_ECOLI	0
3248.681879	3249.689398	1.28	1825.92649	671.350232	EK[325.13]VINQLTGLLAGMAK	ISK[325.13]K	0.00E+00	3.96E-02	sp P0A9P0 DLDH_ECOLI	0	sp P0A9P0 DLDH_ECOLI	1
3379.741923	3381.75988	3.33	846.424655	1781.9122	VFTK[325.13]R	VINOLTGGLAGMAK[325.13]GR	9.70E-04	0.00E+00	sp P0A9P0 DLDH_ECOLI	0	sp P0A9P0 DLDH_ECOLI	0
3423.758295	3423.767767	2.77	1825.92795	846.425279	EK[325.13]VINQLTGLLAGMAK	VFTK[325.13]R	0.00E+00	7.01E-03	sp P0A9P0 DLDH_ECOLI	0	sp P0A9P0 DLDH_ECOLI	0
3889.948466	3891.970146	3.85	1797.90484	1304.63854	VGHEGVAAEVIAVAGK[325.13]K	LIFDK[325.13]ESHR	0.00E+00	0.00E+00	sp P0A9P0 DLDH_ECOLI	0	sp P0A9P0 DLDH_ECOLI	0
3949.981744	3952.005316	4.27										

4626.331523	4625.362175	7.35	2276.12314	1598.80332	AQVAQIAGK[325.13]PSSEVSMI HAR	DQFVQPVK[325.13]DVK	0.00E+00	0.00E+00	sp POADB1 OSME_ECOLI	0 sp POADB1 OSME_ECOLI	0
4641.327203	4641.346869	4.24	2292.12119	1597.80095	AQVAQIAGK[325.13]PSSEVSMI HAR	DQFVQPVK[325.13]DVK	0.00E+00	1.94E-03	sp POADB1 OSME_ECOLI	0 sp POADB1 OSME_ECOLI	0
5319.650859	5319.671867	3.95	2276.12387	2292.12191	AQVAQIAGK[325.13]PSSEVSMI HAR	AQVAQIAGK[325.13]PSSEVSMI HAR	0.00E+00	0.00E+00	sp POADB1 OSME_ECOLI	0 sp POADB1 OSME_ECOLI	0
6082.081035	1.99	2276.12656	3054.54941	AQVAQIAGK[325.13]PSSEVSMI HAR	FGQGAAVPVAPAPAPEVQT[325.13]HFTLK	0.00E+00	8.13E-03	sp POADB1 OSME_ECOLI	0 sp POA910 OMPA_ECOLI	0	
3559.759576	3559.762396	0.79	1089.47466	1718.87986	DFQK[325.13]AER	LK[325.13]EIHQMQGLR	1.47E-03	2.37E-02	sp POADG7 IMDH_ECOLI	0 sp POADG7 IMDH_ECOLI	0
3024.491083	3024.484076	2.32	1234.67089	1435.61533	IK[325.13]RPK	YFDNK[325.13]HYPR	0.00E+00	0.00E+00	sp POADN2 YIFP_ECOLI	0 sp POADN2 YIFP_ECOLI	0
3180.670784	3181.678656	1.42	1214.63284	1214.63286	K[325.13]LGPVYYSVR	K[325.13]LGPVYYSVR	0.00E+00	0.00E+00	sp POADS6 YGGE_ECOLI	0 sp POADS6 YGGE_ECOLI	0
4823.536357	4823.515326	4.36	2036.06565	2036.06565	TAWIPLK[325.13]QLSTEPLSR	TAWIPLK[325.13]QLSTEPLSR	0.00E+00	0.00E+00	sp POADT8 YGM_ECOLI	0 sp POADT8 YGM_ECOLI	0
3141.503168	3141.525579	7.13	1736.79587	653.302232	DASGTINVDIDHK[325.13]R	K[325.13]VNPN	0.00E+00	0.00E+00	sp POADUS YGIW_ECOLI	0 sp POADUS YGIW_ECOLI	0
3775.810555	3775.843939	8.84	1302.60711	1721.79839	GGDFAALAK[325.13]EK	YSIIQTK[325.13]TEDEAK	0.00E+00	0.00E+00	sp POADY1 PPID_ECOLI	5 sp POADY1 PPID_ECOLI	0
2843.513666	2843.525091	4.02	1236.67272	855.435894	ITK[325.13]EAIR	K[325.13]GDVLK	0.00E+00	1.11E-03	sp POADY3 RL14_ECOLI	0 sp POADY3 RL14_ECOLI	0
3540.823053	3540.864203	11.62	1236.67095	1552.74704	ITK[325.13]EAIR	VMC[160.03]K[325.13]VLGGSHR	0.00E+00	0.00E+00	sp POADY3 RL14_ECOLI	0 sp POADY3 RL14_ECOLI	0
2234.162897	2234.167425	2.03	627.323658	855.434176	GK[325.13]VK	K[325.13]GDVLK	1.11E-03	2.15E-03	sp POADY3 RL14_ECOLI	4 sp POADY3 RL14_ECOLI	0
2323.118111	2323.122015	1.68	824.358629	747.354417	MHK[325.13]GR	TK[325.13]FR	0.00E+00	2.22E-03	sp POADY7 RL16_ECOLI	0 sp POADY7 RL16_ECOLI	0
2517.315179	2517.321722	2.60	1096.56589	669.344224	QGK[325.13]JIWIR	VAK[325.13]JR	9.62E-03	1.35E-02	sp POADY7 RL16_ECOLI	0 sp P16916 RHS_A_ECOLI	0
2541.397638	2541.399115	0.58	1120.64841	669.344163	LAAAK[325.13]LPK	VAK[325.13]JR	0.00E+00	1.30E-02	sp POADY7 RL16_ECOLI	0 sp P16916 RHS_A_ECOLI	0
3239.724090	3239.73139	2.00	1144.58281	1343.73703	EAFK[325.13]LAAAK	LPIK[325.13]TTFVTK	0.00E+00	0.00E+00	sp POADY7 RL16_ECOLI	0 sp POADY7 RL16_ECOLI	0
4059.048517	4059.061956	3.31	1144.58061	2163.06284	EAFK[325.13]LAAAK	GLAQGTDVSFGSFLK[325.13]AVGR	0.00E+00	0.00E+00	sp POADY7 RL16_ECOLI	0 sp POADY7 RL16_ECOLI	0
4258.206842	4258.229193	4.46	1263.06455	1343.73723	GLAQGTDVSFGSFLK[325.13]AVGR	LPIK[325.13]TTFVTK	0.00E+00	0.00E+00	sp POADY7 RL16_ECOLI	0 sp POADY7 RL16_ECOLI	0
2707.505257	2707.50849	1.19	1018.5374	937.562791	K[325.13]AYVTLK	LLK[325.13]VLR	0.00E+00	3.56E-03	sp POADZ0 RL23_ECOLI	0 sp POADZ0 RL23_ECOLI	0
2759.379646	2759.406683	9.80	1018.53673	989.437852	K[325.13]AYVTLK	nm[147.04]SAIEVK	2.49E-03	2.36E-02	sp POADZ0 RL23_ECOLI	0 sp P37774 YECC_ECOLI	0
2841.45533	2841.458929	1.27	1071.51262	1018.53761	DATK[325.13]AEIK	K[325.13]AYVTLK	0.00E+00	0.00E+00	sp POADZ0 RL23_ECOLI	0 sp POADZ0 RL23_ECOLI	0
3038.637764	3038.648138	3.41	1018.53478	1268.69792	K[325.13]AYVTLK	SNTVLK[325.13]VAK	0.00E+00	0.00E+00	sp POADZ0 RL23_ECOLI	0 sp POADZ0 RL23_ECOLI	0
3371.736261	3370.747015	4.18	1682.7695	937.561693	APHVSEK[325.13]ASTAMEK	LLK[325.13]VLR	6.60E-03	1.57E-02	sp POADZ0 RL23_ECOLI	0 sp POADZ0 RL23_ECOLI	0
3451.707391	3451.732611	7.31	1681.76584	1018.53649	APHVSEK[325.13]ASTAMEK	K[325.13]AYVTLK	0.00E+00	0.00E+00	sp POADZ0 RL23_ECOLI	0 sp POADZ0 RL23_ECOLI	0
2624.358406	2624.354681	1.42	748.373582	1088.57976	K[325.13]DVAR	K[325.13]ILDDYK	9.70E-04	0.00E+00	sp POADZ4 RS15_ECOLI	0 sp POADZ4 RS15_ECOLI	0
3808.862665	3808.878851	4.25	816.363894	2241.08924	GTMK[325.13]AL	LMDSIAK[325.13]GDEVLTNGGLVGR	1.66E-02	0.00E+00	sp POADZ7 YAJC_ECOLI	0 sp POADZ7 YAJC_ECOLI	0
4565.294122	4566.308294	2.37	1572.79131	2241.09775	DFAAVALPK[325.13]GTMK	LMDSIAK[325.13]GDEVLTNGGLVGR	2.79E-03	0.00E+00	sp POADZ7 YAJC_ECOLI	0 sp POADZ7 YAJC_ECOLI	0
4442.413507	4442.448919	7.97	1098.51982	1815.94646	IAEVRPQVSGIILK[325.13]R	INLAYTK[325.13]VTSPISGR	8.13E-03	0.00E+00	sp POAE06 ACRA_ECOLI	0 sp POAE06 ACRA_ECOLI	0
3508.709039	3508.731146	6.30	1273.60552	1483.69842	SPTK[325.13]TETVSK	SQWLQDK[325.13]NIR	0.00E+00	0.00E+00	sp POAE22 APHA_ECOLI	0 sp POAE22 APHA_ECOLI	0
2772.39637	2772.410589	5.13	1216.62029	804.371019	K[325.13]LLTWGFR	TFK[325.13]GR	2.01E-03	3.70E-03	sp POAEB2 DACA_ECOLI	0 sp POAEB2 DACA_ECOLI	0
3340.701898	3340.696478	1.62	746.359483	1842.93735	AGK[325.13]JFK	ASLGVDK[325.13]DVYLTIPR	2.79E-02	0.00E+00	sp POAE2 DACA_ECOLI	0 sp POAE2 DACA_ECOLI	0
3406.648737	3406.653021	1.26	1135.50498	1519.7387	K[325.13]ALDSYDK	TTVVK[325.13]ELNDK	0.00E+00	0.00E+00	sp POAE5 DGAL_ECOLI	0 sp POAE5 DGAL_ECOLI	0
3449.639703	3449.668402	8.32	1112.53472	1585.69992	ELNDK[325.13]GIK	GAADGTNWK[325.13]IDNK	0.00E+00	0.00E+00	sp POAE5 DGAL_ECOLI	0 sp POAE5 DGAL_ECOLI	0
3586.821832	3586.830999	2.56	1098.51982	1736.89694	K[325.13]AEQDQK	QNDQIDVLLAK[325.13]GVK	0.00E+00	0.00E+00	sp POAE5 DGAL_ECOLI	0 sp POAE5 DGAL_ECOLI	0
4311.085992	4311.09638	2.41	2424.17588	1135.50505	AYYVGTDSK[325.13]ESGIOGLDIAK	K[325.13]ALDSYDK	0.00E+00	0.00E+00	sp POAE5 DGAL_ECOLI	0 sp POAE5 DGAL_ECOLI	0
3935.900201	3936.93305	7.50	1866.94968	1317.54546	ILK[325.13]SDDLEPVVIGR	K[325.13]MAGQMGNER	4.21E-02	0.00E+00	sp POAEH3 ELAA_ECOLI	0 sp P60438 RL3_ECOLI	0
2814.416878	2814.417669	0.28	1031.50591	1031.50591	AK[325.13]QAVYR	AK[325.13]QAVYR	0.00E+00	0.00E+00	sp POAEHS ELAB_ECOLI	0 sp POAEHS ELAB_ECOLI	0
3338.660577	3338.676214	4.68	1031.50554	1555.74997	AK[325.13]QAVYR	LETGDBAIAK[325.13]QTR	0.00E+00	0.00E+00	sp POAEH5 ELAB_ECOLI	0 sp P64581 YQJD_ECOLI	0
2556.260187	2556.268255	3.16	804.352525	1000.5026	AMMK[325.13]JK	LSK[325.13]AVMV	6.60E-03	4.65E-02	sp POAEK2 FABG_ECOLI	0 sp POAEK2 FABG_ECOLI	0
3847.91424	3847.922038	2.10	1721.827	1374.68218	K[325.13]MLAHC[160.03]EAVTPIR	TLAASGIK[325.13]DFR	0.00E+00	3.65E-03	sp POAEK4 FABI_ECOLI	0 sp POAEK	

2236.119026	2236.121038	0.90	712.351793	772.362169	GK[325.13]GVR	TK[325.13]EAK	4.06E-02	7.26E-03	sp POAG55 RL6_ECOLI	0	sp POAG55 RL6_ECOLI	0
2694.335748	2694.341253	2.04	1170.56858	772.362108	RPEPYK[325.13]GK	VAK[325.13]APVPPAGVDVK	0.00E+00	0.00E+00	sp POAG55 RL6_ECOLI	0	sp POAG55 RL6_ECOLI	0
4133.190804	4133.186224	1.11	1736.87303	1644.91263	GADK[325.13]QVIGQVAADLR	LK[325.13]JVR	0.00E+00	1.31E-02	sp POAG59 RS14_ECOLI	0	sp P16431 HYCE_ECOLI	0
2366.244454	2366.248236	1.60	903.446764	711.392625	K[325.13]FGLSR	VALADK[325.13]YFAK	4.57E-02	0.00E+00	sp POAG59 RS14_ECOLI	0	sp POAG59 RS14_ECOLI	0
2800.411005	2800.410345	0.24	727.350206	1321.65573	EVK[325.13]R	FVK[325.13]HPYIK	4.01E-03	0.00E+00	sp POAG63 RS17_ECOLI	2	sp POAG63 RS17_ECOLI	0
2795.451837	2795.472357	7.34	759.393601	1284.65317	FIK[325.13]R	K[325.13]INR	0.00E+00	3.56E-03	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	24
2334.201532	2335.222357	7.49	969.513644	613.282823	K[325.13]GAIVTGU	VLK[325.13]JFDR	0.00E+00	9.70E-04	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
2764.451546	2764.466986	5.59	1039.55779	973.488694	VIK[325.13]LDQK	VK[325.13]GGFTVELNGIR	3.56E-03	0.00E+00	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
3376.776544	3377.800726	6.17	1039.55791	1585.81357	VIK[325.13]LDQK	K[325.13]NR	0.00E+00	4.84E-02	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
3459.605646	3459.592474	3.81	2094.91855	613.28203	ANPWQQFAETHNK[325.13]GDR	GGSEELYK[325.13]K	2.09E-02	0.00E+00	sp POAG67 RS1_ECOLI	0	sp POA825 GLYA_ECOLI	0
3484.746881	3485.691839	16.76	1526.7977	1206.54412	GAIVTGU[325.13]JTAVIDAK	TK[325.13]PHNVGTTIGHVDHGK	3.55E-03	0.00E+00	sp POAG67 RS1_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
3712.909479	3712.937689	7.60	969.516283	1991.98813	K[325.13]GAIVTGU	VIK[325.13]LDQK	0.00E+00	3.72E-02	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
3780.912531	3781.979925	16.94	1989.95017	1039.55773	AYEDAETVGWING[325.13]VK	K[325.13]JFDR	0.00E+00	1.47E-03	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
3815.841119	3816.848991	1.19	2094.92124	969.514814	ANPWQQFAETHNK[325.13]GDR	VSLGLK[325.13]QLGEDPVWAIAK	2.03E-02	0.00E+00	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
4151.119257	4151.123236	0.96	969.515123	2430.19907	K[325.13]GAIVTGU	VTAVDAK[325.13]GATVELADGVVEGLR	0.00E+00	0.00E+00	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
4273.224099	4274.303412	17.59	2552.30332	969.516527	ISLGVK[325.13]QLAEDPFNNWVALNK	K[325.13]GAIVTGU	0.00E+00	0.00E+00	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
2278.129511	2278.150335	9.14	671.314317	855.410129	EK[325.13]AK	LDQK[325.13]R	1.67E-02	2.45E-02	sp POAG67 RS1_ECOLI	0	sp POAG67 RS1_ECOLI	0
2462.276056	2463.294867	6.28	671.31389	1039.55774	EK[325.13]AK	VIK[325.13]LDQK	2.30E-02	9.70E-04	sp POAG67 RS1_ECOLI	3	sp POAG67 RS1_ECOLI	0
3794.888239	3795.884954	1.75	613.282884	2430.20029	K[325.13]NR	VTAVDAK[325.13]GATVELADGVVEGLR	2.86E-02	0.00E+00	sp POAG67 RS1_ECOLI	24	sp POAG67 RS1_ECOLI	0
3024.526863	3024.540228	4.42	1114.51628	1158.60552	ETADNLK[325.13]K	IVVNYAK[325.13]R	3.56E-03	0.00E+00	sp POAG2 SECY_ECOLI	0	sp POAG2 SECY_ECOLI	0
3741.774347	3741.798773	6.53	1573.77573	1416.59356	K[325.13]GSQVYIEGQLR	K[325.13]WTDQSGQDR	0.00E+00	0.00E+00	sp POAGEO SSB_ECOLI	0	sp POAGEO SSB_ECOLI	0
3768.932306	3768.933294	0.26	1577.83554	1439.6917	IGOPGHIHK[325.13]PGK	LEGNNELGAK[325.13]K	0.00E+00	0.00E+00	sp POA836 SUCC_ECOLI	0	sp POA836 SUCC_ECOLI	0
5248.775615	5248.781974	1.21	1577.83432	2919.53623	IGOPGHIHK[325.13]PGK	LADSLGNLIAAK[325.13]GLTDAAQVQVAAVEGK	0.00E+00	0.00E+00	sp POA836 SUCC_ECOLI	0	sp POA836 SUCC_ECOLI	0
3167.584833	3168.600775	3.98	954.504015	1461.67575	ALEK[325.13]GIK	YTGNK[325.13]DAAAAGVK	1.24E-02	0.00E+00	sp POC018 RL18_ECOLI	0	sp POC018 RL18_ECOLI	0
3707.85081	3709.888128	8.26	1531.75351	1424.69223	AIAEQLK[325.13]YTGNIK	DAAAAGVK[325.13]AVAER	0.00E+00	0.00E+00	sp POC018 RL18_ECOLI	0	sp POC018 RL18_ECOLI	0
3082.507257	3082.539984	10.62	1492.67575	822.42704	GOAHWEGLIK[325.13]R	HLTK[325.13]R	0.00E+00	8.66E-03	sp POCOL2 OSMC_ECOLI	0	sp P32721 ALSA_ECOLI	0
2380.140877	2380.147406	2.74	814.367906	814.367906	VK[325.13]EDK	VK[325.13]EDK	2.01E-03	2.01E-03	sp POCO51 MSCS_ECOLI	0	sp POCO51 MSCS_ECOLI	0
3598.724786	3599.756292	7.82	998.45097	1848.86875	MVGK[325.13]DPR	NLTSMQMVEYGQVK[325.13]R	1.84E-02	0.00E+00	sp POCOVO DEGP_ECOLI	0	sp POCOVO DEGP_ECOLI	0
3731.954767	3731.94013	3.92	804.366258	2176.18344	K[325.13]FDAK	SDIALIQIQNPK[325.13]NLTAIK	0.00E+00	0.00E+00	sp POCOVO DEGP_ECOLI	0	sp POCOVO DEGP_ECOLI	0
3768.916803	3769.919378	0.21	2213.14365	804.368089	AGDVITSNLGK[325.13]PISSFAALR	K[325.13]FDAK	0.00E+00	6.09E-03	sp POCOVO DEGP_ECOLI	0	sp POCOVO DEGP_ECOLI	0
3840.971124	3840.975511	4.07	1520.72091	1636.84507	GK[325.13]DQGVVVNNVK	K[325.13]GDVIGANQQAVK	0.00E+00	4.70E-02	sp POCOVO DEGP_ECOLI	0	sp POCOVO DEGP_ECOLI	0
2987.429804	2987.430609	0.27	893.376817	1342.64792	DGK[325.13]SYK	LNTSNNTK[325.13]VR	0.00E+00	1.63E-02	sp P10100 RPLA_ECOLI	0	sp P10100 RPLA_ECOLI	0
2460.307869	2461.311712	0.20	854.451402	854.451402	LLK[325.13]JER	LLK[325.13]JER	0.00E+00	4.85E-03	sp P11458 NADA_ECOLI	4	sp P11458 NADA_ECOLI	4
4455.116144	4456.133001	3.03	1577.69512	2126.01594	ATDESK[325.13]ELFEGR	FAPLNSWPDNVSLDK[325.13]AR	0.00E+00	0.00E+00	sp P13029 KATG_ECOLI	0	sp P13029 KATG_ECOLI	0
3878.791681	3879.787542	1.93	1233.56829	1893.81833	SGYLEOGK[325.13]R	SYDDNNK[325.13]GIYAGQPR	0.00E+00	0.00E+00	sp P13036 Feca_ECOLI	0	sp P13036 Feca_ECOLI	0
3209.592889	3210.601507	1.64	1441.71848	1016.46935	C[160.03]VIELDIK[325.13]GK	SK[325.13]EELSK	1.14E-02	0.00E+00	sp P14294 TOP3_ECOLI	0	sp P64581 YQJD_ECOLI	0
3478.781183	3478.775533	1.05	1441.71897	1285.65715	C[160.03]VIELDIK[325.13]GK	YPQATIK[325.13]ILR	3.38E-02	1.50E-02	sp P14294 TOP3_ECOLI	0	sp P31463 YIDZ_ECOLI	0
3748.872905	3748.888661	4.26	1441.71799	1555.74985	C[160.03]VIELDIK[325.13]GK	LGETGDAIAK[325.13]QTR	3.89E-02	0.00E+00	sp P14294 TOP3_ECOLI	0	sp P64581 YQJD_ECOLI	0
4120.068781	4121.086615	3.52	1421.74675	1946.91697	ILVDAK[325.13]YYK	VVMTGPSK[325.13]DNTPMFVK	2.86E-02	0.00E+00	sp P15006 MRCR_ECOLI	0	sp POA982 G3P1_ECOLI	0
2861.496393	2861.493597	0.98	1025.55002	1084.54131	AALIAK[325.13]JSR	LAGAK[325.13]TEAK	0.00E+00					

3209.614679	3209.616888	0.69	1419.66391	1038.5457 HIGGGHK[325.13]QAYR	VLGK[325.13]AGAAR	0.00E+00	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3369.772894	3369.772894	11.20	1419.66611	1198.63399 HIGGGHK[325.13]QAYR	YILAPK[325.13]GLK	3.55E-03	8.88E-03	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3466.760199	3466.760199	4.16	1295.67656	1419.66416 GK[325.13]FPAFLKE	HIGGGHK[325.13]QAYR	0.00E+00	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3564.764825	3564.764825	5.62	1419.6666	1393.69316 HIGGGHK[325.13]QAYR	NK[325.13]DGIPAVVER	0.00E+00	3.55E-03	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3641.936578	3643.959417	4.43	1295.68169	1594.84983 GK[325.13]FPAFLKE	HVK[325.13]VVNPFLHK	1.47E-03	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3727.875848	3728.899115	5.34	973.488267	2002.98252 IVDFK[325.13]R	NIPVGSTVHNEMK[325.13]PGK	2.37E-02	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3743.874567	3743.886663	3.23	973.489427	2018.98008 IVDFK[325.13]R	NIPVGSTVHNEM[147.04]K[325.13]PGK	1.88E-02	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3765.917461	3767.946708	5.99	1419.66416	1594.84824 HIGGGHK[325.13]QAYR	HVK[325.13]VVNPFLHK	0.00E+00	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3792.93902	3792.957464	4.86	2002.98557	1038.54839 NIPVGSTVHNEMK[325.13]PGK	VLGK[325.13]AGAAR	0.00E+00	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3841.997539	3842.017035	5.07	1594.84751	1495.74497 HVVK[325.13]VVNPFLHK	K[325.13]VGVQNGTTHQK	0.00E+00	1.39E-02	sp P60422 RL2_ECOLI	1	sp P30859 ART1_ECOLI	0
3843.834772	3843.846624	3.08	1073.44817	2002.98213 K[325.13]VEADC[160.03]R	NIPVGSTVHNEMK[325.13]PGK	0.00E+00	2.49E-03	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
3971.105815	3973.112724	0.05	1594.85007	1624.85068 HVVK[325.13]VVNPFLHK	SK[325.13]AEVYHIIQLK	0.00E+00	3.38E-02	sp P60422 RL2_ECOLI	0	sp P52123 YFIH_ECOLI	0
4385.245294	4387.25263	0.15	2435.17807	1198.66216 AGDQIQSGVDAAK[325.13]PGNTLPMR	YILAPK[325.13]GLK	0.00E+00	0.00E+00	sp P60422 RL2_ECOLI	0	sp P60422 RL2_ECOLI	0
2052.008675	2052.017767	4.43	600.287889	700.315721 K[325.13]TR	SNK[325.13]R	1.41E-02	8.72E-03	sp P60422 RL2_ECOLI	27	sp P60422 RL2_ECOLI	0
2843.343439	2843.347845	1.55	1317.54587	774.392503 K[325.13]MAGQMGNER	VFK[325.13]GK	0.00E+00	1.04E-02	sp P60438 RL3_ECOLI	0	sp P60438 RL3_ECOLI	0
2913.460701	2913.464056	1.15	2913.46076	1130.54884 GFAGTVK[325.13]R	K[325.13]VDVTGTSK	5.39E-03	0.00E+00	sp P60438 RL3_ECOLI	0	sp P60438 RL3_ECOLI	0
3344.710016	3345.724066	3.20	1212.63701	1380.66794 AIVQTTGAK[325.13]K	VTK[325.13]PEAGHFAK	0.00E+00	0.00E+00	sp P60438 RL3_ECOLI	0	sp P60438 RL3_ECOLI	0
4167.245172	4167.25849	3.20	2008.04074	1407.79936 HQK[325.13]PVPALNQPGGIVEK	VIVEGINLVK[325.13]K	0.00E+00	1.47E-03	sp P60624 RL2_ECOLI	0	sp P60624 RL2_ECOLI	0
2218.122994	2218.122519	0.99	782.372423	684.345504 K[325.13]PWR	VNK[325.13]K	1.84E-03	2.20E-02	sp P60723 RL4_ECOLI	0	sp P60723 RL4_ECOLI	0
2335.133295	2336.14179	2.30	799.38309	684.34514 AQK[325.13]TR	VNK[325.13]K	1.14E-02	1.24E-02	sp P60723 RL4_ECOLI	0	sp P60723 RL4_ECOLI	4
2262.180123	2262.185492	2.37	799.382799	711.392259 AQK[325.13]TR	LK[325.13]VR	2.36E-02	3.16E-02	sp P60723 RL4_ECOLI	0	sp P16431 HYCE_ECOLI	0
2333.160957	2333.163031	0.89	799.38352	782.372301 AQK[325.13]TR	K[325.13]PWR	1.89E-02	1.42E-02	sp P60723 RL4_ECOLI	0	sp P60723 RL4_ECOLI	0
2877.449701	2878.45722	1.45	799.38463	1326.66001 AQK[325.13]TR	SGSIK[325.13]S5PIWR	1.41E-02	7.80E-03	sp P60723 RL4_ECOLI	0	sp P60723 RL4_ECOLI	0
2917.564142	2918.579046	3.96	1481.81357	684.345504 GALK[325.13]SILSELVR	NVK[325.13]K	0.00E+00	3.34E-02	sp P60723 RL4_ECOLI	0	sp P60504 DHSC_ECOLI	3
2963.570184	2964.591986	6.23	1202.58249	1009.58263 FSVEAPK[325.13]LK	LLAQK[325.13]LK	0.00E+00	0.00E+00	sp P60723 RL4_ECOLI	0	sp P60723 RL4_ECOLI	0
3752.973444	3752.988714	4.07	1099.58293	1991.98545 LLAQK[325.13]LK	TK[325.13]PHVNVTGIGHVDHGK	2.57E-02	3.55E-03	sp P60723 RL4_ECOLI	0	sp POA6N1 EFTU_ECOLI	0
3767.820917	3769.836126	2.26	793.34422	2223.07162 K[325.13]MYR	SGGVTFARPQDHDSQK[325.13]VNK	5.47E-03	0.00E+00	sp P60723 RL4_ECOLI	0	sp P60723 RL4_ECOLI	0
2924.433724	2924.438177	1.52	1086.51433	1086.51433 IAMQK[325.13]SGR	IAMQK[325.13]SGR	1.08E-03	9.43E-03	sp P60757 HIS1_ECOLI	0	sp P60757 HIS1_ECOLI	0
2904.427179	2904.436956	3.37	1181.5521	971.470018 METIAK[325.13]HR	SSAQK[325.13]VR	0.00E+00	4.27E-02	sp P61175 RL2_ECOLI	0	sp P61175 RL2_ECOLI	0
3465.845941	3467.87641	6.86	924.529039	1789.91184 AAVALVK[325.13]K	VSQLADILTYTNK[325.13]K	5.39E-03	0.00E+00	sp P61175 RL2_ECOLI	0	sp P61175 RL2_ECOLI	0
4210.116632	4212.134955	2.76	924.529344	2534.18222 K[325.13]AAVLVK	K[325.13]VLESIANAEHNDGADDLK	6.09E-03	0.00E+00	sp P61175 RL2_ECOLI	0	sp P61175 RL2_ECOLI	0
2104.111097	2104.114935	1.89	627.298265	725.40764 AK[325.13]GR	IK[325.13]J	2.36E-02	1.35E-02	sp P60711 NSHS_ECOLI	0	sp P60711 NSHS_ECOLI	0
2350.174188	2350.176214	0.86	627.299486	971.469634 AK[325.13]GR	SSAQK[325.13]VR	2.85E-02	2.49E-03	sp P61175 RL2_ECOLI	0	sp P61175 RL2_ECOLI	0
3361.708002	3361.72016	3.62	1912.90134	697.401598 GAFAYISDQQK[325.13]VYAR	LK[325.13]LK	0.00E+00	3.74E-02	sp P61320 LOLB_ECOLI	0	sp P00968 CARB_ECOLI	10
3162.689433	3162.714544	7.94	1205.64218	1205.64218 HGISNLK[325.13]LK	HGISNLK[325.13]LK	1.29E-02	0.00E+00	sp P61517 CAN_ECOLI	0	sp P61517 CAN_ECOLI	0
2550.172859	2550.180853	3.14	899.383897	899.383897 K[325.13]PGMDR	K[325.13]PGMDR	0.00E+00	0.00E+00	sp P61889 MDH_ECOLI	0	sp P61889 MDH_ECOLI	0
2566.164606	2568.166204	1.99	899.382738	915.376803 K[325.13]PGMDR	K[325.13]PGM[147.04]DR	0.00E+00	9.70E-04	sp P61889 MDH_ECOLI	0	sp P61889 MDH_ECOLI	0
4492.149347	4493.144232	1.88	2841.36167	899.382616 IQNAGTEVVEAK[325.13]AGGSATLSMGQAAR	K[325.13]PGMDR	0.00E+00	5.39E-03	sp P61889 MDH_ECOLI	0	sp P61889 MDH_ECOLI	0
3901.954535	3901.954535	4.95	1224.61345	1925.91672 AAAVANQKG[325.13]AK	HYALQGLNK[325.13]AETAEK	0.00E+00	0.00E+00	sp P62707 GPMA_ECOLI	0	sp P62707 GPMA_ECOLI	0
4181.98443	4181.973822	2.54	1925.91635	1504.66301 HYALQGLNK[325.13]AETAEK	YGEQVK[325.13]QWR	0.00E+00	0.00E+00	sp P62707 GPMA_ECOLI	0	sp P62707 GPMA_ECOLI	0
4257.991313	4258.013237	5.15	1580.66574</								

2904.469782	2905.494818	7.466	1410.71323	742.351488 *QVNPK[325.13]AMISVK	DK[325.13]VKG	8.03	0.007264 *sp P09831 GLTB_ECOLI	0 sp POA7J7 RL11_ECOLI	2
4281.151897	4282.174919	4.595	775.387071	2754.35976 *GLMK[325.13]K	NMINVALNNGLTQHPVK[325.13]GVHTGSR	11.76	0.004451 *sp POA613 COAA_ECOLI	0 sp POA7W1 RS5_ECOLI	0
3072.657904	6.106	1268.62632	1051.60444 *YVPHK[325.13]PGK	VAVIK[325.13]AVR	33.88	0 *sp POA611 IHFBL_ECOLI	0 sp POA7K2 RL7_ECOLI	0	
3768.786188	1.738	898.452074	2118.92905 *NALTK[325.13]R	TINEM[147.04]SSYTPHMK[325.13]VNR	0.577	0.02463 *sp POA623 HTPG_ECOLI	0 sp Q9JMS7 YUAM_ECOLI	0	
3904.918498	3904.928825	2.645	1161.53179	1991.98165 *QYEK[325.13]JR	TK[325.13]PHVNVTGIGHVDHGK	1.507	0 *sp POA759 NAGB_ECOLI	0 sp POA6N1 EFTU_ECOLI	0
4087.174935	4088.177923	0.088	1667.88494	1667.88494 *NFLVPQGK[325.13]AVPATK	AIAMLNEPEIJK[325.13]K	14.61	0.04206 *sp POA7R1 RL9_ECOLI	0 sp P27128 RFA1_ECOLI	0
4562.325372	4563.334662	1.302	2097.08579	1713.83452 *LRPMTGLDK[325.13]PVAAFDLR	LLNDTDMAIDK[325.13]R	5.833	0 *sp POA894 YHBJ_ECOLI	0 sp POA717 KPRS_ECOLI	0
4665.298151	4667.371283	14.239	1081.54338	2832.3497 *GSAPK[325.13]APR	TEGK[325.13]QSPPFVLFSNPADVQPNAR	3.482	0 *sp POA8P6 XERC_ECOLI	0 sp P77717 YBAE_ECOLI	0
3379.746211	3379.741888	1.279	846.424913	1781.91623 *K[325.13]NIFK	VINOLTTGLLAGMAK[325.13]GR	7.301	0 *sp POA932 GFCE_ECOLI	0 sp POA9P0 DLDH_ECOLI	0
2690.350824	2691.361517	2.729	846.424547	1092.52121 *K[325.13]NIFK	K[325.13]APAEPQR	4.964	0.001473 *sp POA932 GFCE_ECOLI	0 sp POA9P0 DLDH_ECOLI	0
3582.892328	3582.872503	5.533	894.442369	1937.04489 *AVGHGK[325.13]K	VLDAAVAGK[325.13]JTDVEVLK	53.54	0 *sp POA9H5 BTUR_ECOLI	0 sp POA6P1 EFTS_ECOLI	0
3263.648004	3264.659857	2.605	1285.65256	1226.59038 *QVLNMPTK[325.13]JR	AEOALK[325.13]QSR	2.192	0 *sp POA84B1 UBID_ECOLI	0 sp P64581 YQJD_ECOLI	0
2592.241693	2593.248968	1.514	804.366563	1036.47007 *MTTK[325.13]K	HAK[325.13]QSQGR	1.85	0 *sp POA880 ILVE_ECOLI	0 sp POA6M8 EFFG_ECOLI	0
4516.250299	4516.267767	3.868	2135.0354	1629.81169 *ADGTL SVNVMGGDK[325.13]AIFDK	K[325.13]SGVLTGLPDAYGR	5.853	0 *sp POA802 GARR_ECOLI	0 sp P09373 PFLB_ECOLI	0
5658.010722	5659.059684	8.061	3964.13503	942.470628 *LANQVIVALNIAAM[147.04]SEALTLATK[325.13]AGVNPDLVYQAIR	IK[325.13]SAATR	159.1	0.01778 *sp POA802 GARR_ECOLI	0 sp P09546 PUTA_ECOLI	0
3086.647028	3087.662298	3.862	1094.61138	1240.63059 *IK[325.13]QAVALR	GATGLGLK[325.13]EAK	26.17	0 *sp POAED9 DCM_ECOLI	0 sp POA7K2 RL7_ECOLI	0
3065.56695	3067.576361	0.884	1102.58823	2121.57366 *MFVK[325.13]LRL	GEFFAK[325.13]SVK	114	0.03226 *sp POAEE3 DEGS_ECOLI	0 sp P62768 YAEH_ECOLI	0
4221.160333	4222.162787	0.212	1667.86955	1801.88572 *LDTESTVK[325.13]VHVK	SFGAPTITK[325.13]DGVSVAR	2.675	0 *sp POA28 NARL_ECOLI	0 sp POA6F5 CH60_ECOLI	0
3663.837396	3663.8393	0.52	175.314073	2197.11826 *K[325.13]SER	APAK[325.13]ESAPAAAAPAAQPALAAR	2.147	0 *sp POA77 RS5_ECOLI	0 sp POA6F6 OD02_ECOLI	0
3641.81518	3642.816839	0.464	715.314317	2175.0958 *K[325.13]SER	LAEHNLDAAIK[325.13]GTGVGGR	2.457	0 *sp POAFG0 NUSG_ECOLI	1 sp POA6F6 OD02_ECOLI	0
4021.926494	4021.937187	2.659	715.314317	2555.20711 *K[325.13]SER	STFQLPGTVK[325.13]PDQFHSQTR	0.7373	0.004011 *sp POAFG0 NUSG_ECOLI	1 sp POAFG3 OD01_ECOLI	0
2904.469049	2905.490179	6.122	1410.71238	742.35161 *K[325.13]LSPEVANDK	DK[325.13]YGR	3.189	0.006173 *sp POAFK9 POTD_ECOLI	0 sp POA7J7 RL11_ECOLI	2
3468.822565	3469.833441	2.17	1079.60015	1637.88136 *ILVK[325.13]PGQK	EAK[325.13]DLVESAPALK	3.224	0 *sp POAF89 YEBA_ECOLI	0 sp P08395 SPPA_ECOLI	0
3275.687494	3276.705511	4.478	858.460557	1665.82187 *IVK[325.13]FR	VGTVK[325.13]SAVEPFIR	5.733	0.03744 *sp POA48 RL21_ECOLI	0 sp P08395 SPPA_ECOLI	0
3378.740534	3379.754095	3.022	845.422288	1781.91314 *K[325.13]SSGR	VINOLTTGLLAGMAK[325.13]GR	5.907	0 *sp POA671 RMUC_ECOLI	0 sp POA9P0 DLDH_ECOLI	0
4120.064752	4121.084173	3.901	1421.74468	1946.91501 *ILVDAK[325.13]YYK	VVMTGPSK[325.13]DNTPMFVK	3.352	0 *sp P15006 MCRC_ECOLI	0 sp POA9B2 G3P1_ECOLI	0
3422.821405	3423.834173	2.752	884.497423	1786.91897 *VLSK[325.13]LK	NVLVDK[325.13]SFGAPTITK	10.81	0 *sp P19926 AGP_ECOLI	0 sp POA6F5 CH60_ECOLI	0
4497.109918	4499.112982	0.809	2830.3226	915.38249 *DC[160.03]ELVTQIFHK[325.13]TEIM[147.04]PFLLER	M[147.04]HEK[325.13]R	2.696	0.03438 *sp P21189 DP02_ECOLI	0 sp POADG7 IMDH_ECOLI	0
5306.538598	5308.592155	0.35	2830.3275	1724.81258 *DC[160.03]ELVTQIFHK[325.13]TEIM[147.04]PFLLER	VALYGIYDLMK[325.13]DK	16.88	0 *sp P21189 DP02_ECOLI	0 sp P09373 PFLB_ECOLI	0
4282.156963	4284.17321	2.23	775.38688	2755.36501 *LK[325.13]YR	NNINVALNGLTQHPVK[325.13]GVHTGSR	8.891	0 *sp P21889 SYD_ECOLI	0 sp POA7W1 RS5_ECOLI	0
4113.035577	4114.064642	6.252	1025.51689	2336.11362 *K[325.13]LDDLPK	VAMVSMGTVSAGEK[325.13]IMATAAK	1.964	0 *sp P23865 PRC_ECOLI	0 sp P25553 ALDA_ECOLI	0
3875.936512	3875.939398	1.603	1482.77231	1641.76824 *IAK[325.13]LAQNQLR	M[147.04]IPGFEQIK[325.13]GRH	6.238	0.02115 *sp P27129 RFAJ_ECOLI	0 sp POA850 TIG_ECOLI	0
3425.795699	3425.799749	9.741	846.425462	1825.92917 *GFIK[325.13]K	EK[325.13]VINQLTGLLAGMAK	1.979	0 *sp P27241 RFAZ_ECOLI	0 sp POA9P0 DLDH_ECOLI	0
4221.164972	4222.191107	5.398	1667.87041	1801.88595 *AIEILK[325.13]HYEGEGK	SFGAPTITK[325.13]DGVSVAR	88.61	0 *sp P27242 WAAU_ECOLI	0 sp POA6F5 CH60_ECOLI	0
4177.072443	4177.082473	2.808	1502.78042	1724.81258 *QAM[147.04]LK[325.13]AVALAFK	EGAEALFTYQNDK[325.13]LK	2.606	0 *sp P27294 INAA_ECOLI	0 sp POAEK4 FABI_ECOLI	0
3712.737226	3712.748236	2.831	1161.53227	1799.80039 *MAALM[147.04]K[325.13]QR	AFDQIDNAPEEK[325.13]AR	8.444	0 *sp P27302 TKT1_ECOLI	0 sp POA6N1 EFTU_ECOLI	0
3904.925151	3905.938346	2.521	1161.53533	1991.98476 *MAALM[147.04]K[325.13]QR	TK[325.13]PHVNVTGIGHVDHGK	0.4738	0 *sp P27302 TKT1_ECOLI	0 sp POA6N1 EFTU_ECOLI	0
2747.452387	2749.454535	1.657	685.355699	1310.69162 *GLK[325.13]J	APVVK[325.13]NPK	14.5	0.02507 *sp P27830 RFFG_ECOLI	0 sp POA8M0 SYN_ECOLI	0
5215.538019	5215.578802	7.179	2830.32016	1632.81279 *SHHQAYAWLLTPHPK[325.13]AMTTDAQK	K[325.13]SGVLTGLPDAYGR	10.11	0 *sp P130958 MFD_ECOLI	0 sp P09373 PFLB_ECOLI	0
5309.576868	5310.652533	13.28	2830.32505	1727.84856 *SHHQAYAWLLTPHPK[325.13]AMTTDAQK	VALYGIYDLMK[325.13]DK	20.2	0.0009699 *sp P130958 MFD_ECOLI	0 sp P09373 PFLB_ECOLI	0
3003.4591	3004.476751	4.761	717.30134	1534.7529 *DMK[325.13]K	FGAK[325.13]SISTIAESK	3.657	0 *sp P132694 YBMB_ECOLI	0 sp P69910 DCEB_ECOLI	0
4562.325372	4562.349798	5.354	2097.08676	1713.83354 *VNLNK[325.13]ATLQNINLDSK	LLNDTDMAIDK[325.13]R	13.58	0 *sp P37204 YJCF_ECOLI	0 sp POA717 KPRS_ECOLI	0
3404.609308	3404.608343	0.283	860.370775	1792.83347 *NEK[325.13]SGK	DMLK[325.13]AVGVFHGQTR	19.24	0 *sp P33228 RECT_ECOLI	0 sp POA7V0 RS2_ECOLI	0
3219.720758	3219.700872	6.176	1049.57817</td						

2910.397455	2910.405462	2.751	694.328599	1464.66379	*K[325.13]HGR	K[325.13]GQAHWEGDIK	13.8	0 sp P00968 CARB_ECOLI	0 sp POCOL2 OSMC_ECOLI	0
3155.524408	3156.535101	2.327	799.41002	1604.70932	*GTAVK[325.13]K	MAEANK[325.13]AFAHYR	0.6426	0 sp P02359 RS7_ECOLI	0 sp P02359 RS7_ECOLI	0
4341.160638	4341.237982	17.816	2728.34165	845.41537	SGK[325.13]SELEAFEAVALENVRPTVEVK	*MQK[325.13]LK	0.03407	0.763 sp P02359 RS7_ECOLI	0 sp P39306 ULAF_ECOLI	0
2150.055611	2150.05097	2.158	627.298387	771.352159	*AGK[325.13]R	GOK[325.13]SR	0.8219	0.004451 sp P02413 RL15_ECOLI	7 sp P02413 RL15_ECOLI	0
2819.416437	2819.435736	6.845	627.298631	1440.71274	*AGK[325.13]R	LNTLSPAEGSK[325.13]K	7.323	0.001848 sp P02413 RL15_ECOLI	7 sp P02413 RL15_ECOLI	0
2122.049873	2123.055609	1.124	599.292409	771.352405	*K[325.13]AGK	GOK[325.13]SR	0.6555	0.03473 sp P02413 RL15_ECOLI	3 sp P02413 RL15_ECOLI	0
2229.09772	2229.105658	3.537	627.298692	850.394015	*AGK[325.13]R	GHK[325.13]GQK	1.22	0 sp P02413 RL15_ECOLI	0 sp P02413 RL15_ECOLI	0
2636.28376	2636.292669	3.379	856.395494	1028.4832	K[325.13]AGEGAK	*ISK[325.13]GGTNR	0.003891	4.92 sp P02925 RBSB_ECOLI	0 sp P77555 ALLD_ECOLI	0
3221.703424	3221.699652	1.171	1174.5883	1295.71006	*AGDYIAK[325.13]K	*AVEGIPALK[325.13]K	0	5.43 sp P02925 RBSB_ECOLI	0 sp P02919 BPBP_ECOLI	0
5110.490045	5110.4914	0.265	1174.5866	3184.49839	*AGDYIAK[325.13]K	*TNM[147.04]SPLK[325.13]IPIADYFQLNNANDEFMGK	0.001838	10.4 sp P02925 RBSB_ECOLI	0 sp P71296 YAGM_ECOLI	0
3063.572565	3061.506048	19.538	1321.68357	974.484544	*HTDGLK[325.13]LK	K[325.13]AGFVTR	3.95	0.003361 sp P03841 MALM_ECOLI	0 sp P0A7X3 RSP_ECOLI	0
2419.321419	2419.339544	7.492	774.39232	893.524034	*K[325.13]MGK	LPVIK[325.13]K	4.21	0 sp P03960 ATKB_ECOLI	0 sp P76197 YDIM_ECOLI	0
3893.895868	3893.915228	4.972	2209.03379	933.457017	AK[325.13]PGQDFPLTVNYQER	*MGK[325.13]LTGK	0.04167	7.69 sp P05055 PNP_ECOLI	1 sp P37440 UCPA_ECOLI	0
3011.559515	3011.559515	2.631	885.408861	1374.75354	*E[325.13]GIDK	LVAVPHSK[325.13]LSK	0.144	0.03322 sp P05458 PTRA_ECOLI	0 sp P0A7A9 IPYR_ECOLI	0
3432.724251	3431.779486	17.071	1457.70488	1223.61431	*LHK[325.13]HSVSAEPR	GIPADK[325.13]ISAR	12.8	0.01656 sp P05704 MCP3_ECOLI	5 sp P0A910 OMPA_ECOLI	0
3361.715059	3361.73432	5.596	812.404954	1797.90541	*EAIIK[325.13]R	GVHEGHAAEVIAIGK[325.13]K	0.313	0 sp P06959 ODP2_ECOLI	0 sp P0A9P0 DLHD_ECOLI	0
3159.616266	3160.565374	17.167	798.41192	1609.79929	K[325.13]IDVK	*[325.13]GHLTLQM[147.04]JTLR	0.03378	11.52 sp P06968 DUT_ECOLI	0 sp P08312 SYFA_ECOLI	0
3920.926691	3920.945746	4.86	1161.53399	1991.98825	*K[325.13]VTWEDGK	TK[325.13]PHVNVTGIGHVDHGK	6.4	0.003546 sp P07024 USHA_ECOLI	4 sp P0A6N1 EFTU_ECOLI	0
3928.897638	3928.917516	4.601	1732.80027	1444.69231	*MPGDAWQK[325.13]FANLR	GTVDK[325.13]MTLER	0.916	0 sp P07762 GLGB_ECOLI	0 sp P0A7J3 RL10_ECOLI	0
4069.956659	4068.936468	4.139	2505.19101	797.36192	YAGQDK[325.13]VNPGSIILSAEM[147.04]MLR	*SK[325.13]PNR	0.03207	39.6 sp P08200 IDH_ECOLI	0 sp P31474 HSRA_ECOLI	0
3484.719002	3484.731146	3.485	1226.63603	1506.6779	*LPAFK[325.13]DALR	VYNNPK[325.13]YAGER	0.925	0 sp P08202 ARAA_ECOLI	0 sp P69797 PTNAB_ECOLI	0
2855.427301	2855.441107	4.835	775.338548	1328.68361	*M[147.04]K[325.13]ASK	GK[325.13]LNGIGFAQK	3.68	0.03463 sp P08369 CRED_ECOLI	0 sp P31473 RAVA_ECOLI	0
4378.197076	4378.213568	3.767	2856.41098	770.381029	K[325.13]LGLTNTTQTVHGLDAPQFSTAR	*ADK[325.13]IK	0	0.000303 sp P08506 DACC_ECOLI	0 sp P08506 DACC_ECOLI	0
3830.965387	3830.997259	8.32	1827.02573	1252.53459	*VELENVLLHK[325.13]LPV	K[325.13]GTSM[147.04]AAESR	1.62	0.04689 sp P09152 NARG_ECOLI	0 sp POAHC1 SFSB_ECOLI	0
4391.114191	4391.093451	4.723	1629.8073	2009.90183	K[325.13]SGVLTGLPDAYGR	*M[147.04]DVSYLSDLNK[325.13]QR	0	15.59 sp P09373 FBP_ECOLI	0 sp P03018 UVRD_ECOLI	0
4391.114191	4391.058294	12.73	1629.80583	2009.90329	K[325.13]SGVLTGLPDAYGR	*VAPSTQK[325.13]YHMH[147.04]EDVHR	0	9.22 sp P09373 PFLB_ECOLI	0 sp P05791 ILVD_ECOLI	0
4391.1159	4392.108587	2.428	1629.80779	2009.90303	K[325.13]SGVLTGLPDAYGR	*FGAGFVFTDOAK[325.13]MK	0	21.41 sp P09373 PFLB_ECOLI	0 sp P31131 YDEJ_ECOLI	0
4391.123224	4393.087591	9.641	1629.8123	2009.90586	K[325.13]SGVLTGLPDAYGR	*DAAVFGFIDK[325.13]EQLDK	0	3.325 sp P09373 PFLB_ECOLI	0 sp P42592 YGK_ECOLI	0
4299.14129	4299.174505	7.726	1629.81047	1917.92575	K[325.13]SGVLTGLPDAYGR	*ALIPFGGIK[325.13]MIEGSC[160.03]K	0	3.86 sp P09373 PFLB_ECOLI	0 sp P09373 PFLB_ECOLI	0
4204.027643	4204.031439	0.903	2593.30184	859.32072	LTGMVQDAQQNK[325.13]LVHPYTVR	*M[147.04]HNDK	0	4.86 sp P09394 GLPK_ECOLI	0 sp P60752 MSBA_ECOLI	0
3120.578912	3118.592718	6.575	1378.68357	974.490892	*SSDVK[325.13]ALLGHR	IVDFK[325.13]R	2.15	0.009158 sp P09831 GLTB_ECOLI	0 sp P60422 RL2_ECOLI	0
2086.093939	2086.093939	1.579	681.37120	653.314376	K[325.13]PLK	*K[325.13]GPR	0.03101	0.514 sp P09832 GLTD_ECOLI	0 sp P0A759 R513_ECOLI	0
3744.971857	3745.010199	10.238	602.255662	2391.31113	*M[147.04]JK	AVQLGGVLAGTTQVINSK[325.13]TPLK	45	0 sp P0A69 BIO2_ECOLI	0 sp POABT2 DPS_ECOLI	0
3619.733331	3621.791693	14.272	1736.86203	1131.46623	K[325.13]YIVALDQGTTSSR	*K[325.13]C[160.03]PTGTDK	0	65.71 sp P0A6F3 GLPK_ECOLI	0 sp P16919 RHSD_ECOLI	0
2843.509027	2843.495794	4.654	669.346544	1422.75741	*AVK[325.13]R	LEX[325.13]LAADPLK	13	0.03636 sp P0A6F3 GLPK_ECOLI	9 sp P46125 YEDI_ECOLI	0
2369.18586	2369.188665	1.184	669.345262	948.435533	*AVK[325.13]R	YAGWK[325.13]K	0.555	0 sp P0A6F3 GLPK_ECOLI	0 sp POA6F3 GLPK_ECOLI	0
3290.542108	3290.559759	5.364	669.345689	1869.79135	*AVK[325.13]R	ETQK[325.13]STC[160.03]TGDEMFR	8.04	0 sp P0A6F3 GLPK_ECOLI	0 sp POA6N1 EFTU_ECOLI	0
3733.973822	3733.973822	5.414	669.346056	2313.20249	*AVK[325.13]R	AIDK[325.13]PFLPIEDVFSISGR	0.807	0 sp P0A6F3 GLPK_ECOLI	0 sp P0A6N1 EFTU_ECOLI	0
3442.807062	3442.82929	6.456	1023.53704	1667.86496	VTLGPK[325.13]GR	*TIPLTNPMK[325.13]QSX	0	20.04 sp P0A6F5 CH60_ECOLI	0 *sp P75672 YAFS_ECOLI	0
3587.89222	3588.888128	2.074	1168.61404	1667.87309	VASK[325.13]LADLR	*LDITESTVK[325.13]VHVK	0	17.54 sp P0A6F5 CH60_ECOLI	0 sp P0A28 NARL_ECOLI	0
3587.899422	3588.9018	0.271	1168.61614	1667.87822	VASK[325.13]LADLR	*OLIDNFPK[325.13]LNR	0.003562	5.744 sp P0A6F5 CH60_ECOLI	0 *sp P77748 YDU_ECOLI	0
3587.879938	3587.889382	5.141	168.60991	1667.86496	VASK[325.13]LADLR	*K[325.13]LAAQNLNTDDIR	0	2.08 sp P0A6F5 CH60_ECOLI	0 sp P39410 YJJJ_ECOLI	0
2909.500543	2909.506292	1.976	810.459642	1347.63584	*VVK[325.13]R</td					

3426.710504	3426.742132	9.23	1102.52837	1572.77707 ANAK[325.13]FEVK	*GDQDM[147.04]IILLSK[325.13]K	0	1.34 sp P0A7J3 RL10_ECOLI	0 sp POA9E5 FNR_ECOLI	0
3510.849786	3510.852972	0.907	1444.6884	1314.75632 GVTVDK[325.13]MTEL	*IK[325.13]APIVHALR	0	83.4 sp P0A7J3 RL10_ECOLI	0 sp P07003 POXB_ECOLI	2
2819.41601	2820.424505	1.825	627.29832	1440.71262 *K[325.13]AGR	LNTLSPAEGSK[325.13]K	0.505	0 sp P0A7J3 RL10_ECOLI	3 sp P02413 RL15_ECOLI	0
2748.380304	0.085	783.41472	1213.56052 K[325.13]AAGIK	*WVIK[325.13]DGGR	0.01423	3.175 sp P0A7J7 RL11_ECOLI	0 *sp P76159 LYSL_ECOLI	0	
3395.81602	3397.823417	0.205	1233.69834	1410.71262 TPPAAVLK[325.13]K	*QVNPK[325.13]AMISVK	0	1.165 sp P0A7J7 RL11_ECOLI	0 *sp P09831 GLTB_ECOLI	0
2820.403999	2821.425238	6.342	855.446153	1213.55272 VGK[325.13]ISR	*SK[325.13]SFFDGVK	0.004988	8.843 sp P0A7J7 RL11_ECOLI	0 *sp P08622 DNAJ_ECOLI	0
3017.562311	3018.57929	4.517	855.446092	1410.71115 VGK[325.13]ISR	*NPQVAAMLK[325.13]NK	0.004011	2.364 sp P0A7J7 RL11_ECOLI	0 sp POACT6 UIDR_ECOLI	0
2748.377924	2748.417669	14.461	783.41356	1213.5593 K[325.13]AAGIK	*NVSNNAK[325.13]NIR	0.002227	12.5 sp P0A7J7 RL11_ECOLI	0 sp P64624 YHEO_ECOLI	0
2820.406305	2820.407904	0.567	855.443773	1213.55747 VGK[325.13]ISR	*HFINSKD[325.13]R	0.01296	1.29 sp P0A7J7 RL11_ECOLI	0 sp P08201 NIRB_ECOLI	5
3017.563226	3017.573675	3.463	855.445665	1410.7125 VGK[325.13]ISR	*QVNPK[325.13]AMISVK	0.00365	6.58 sp P0A7J7 RL11_ECOLI	0 sp P09831 GLTB_ECOLI	0
4812.549493	4814.56475	1.778	1051.60527	3009.53916 VAVIK[325.13]AVR	*NTVLPSGLLFVAKH[325.13]YDPTTPWINAR	0	10.77 sp P0A7K2 RL7_ECOLI	0 *sp P34211 YUAR_ECOLI	0
4812.535991	4814.556069	2.78	1051.60417	3009.52675 VAVIK[325.13]AVR	*M[147.04]GK[325.13]TEIAETGAGQHQHVASALASALLK	0	19.87 sp P0A7K2 RL7_ECOLI	0 *sp P0A879 TRPB_ECOLI	0
2903.28324	2903.397162	4.797	791.33172	1360.64646 *nM[147.04]SITK	LEK[325.13]LANATM[147.04]R	2.19	0.02392 sp P0A7K2 RL7_ECOLI	0 sp P76128 DPPA_ECOLI	0
3071.633919	3071.684271	16.392	1051.60464	1268.62419 VAVIK[325.13]AVR	*VK[325.13]SNIPMQR	0	11 sp P0A7K2 RL7_ECOLI	0 sp P52037 YGFY_ECOLI	0
3086.638313	3086.675482	12.042	1051.60466	1283.62859 VAVIK[325.13]AVR	*GENQIK[325.13]AVR	0	1.46 sp P0A7K2 RL7_ECOLI	0 sp P39325 YTFQ_ECOLI	0
3229.701912	3229.695257	2.061	1237.66594	1240.63091 AAGANK[325.13]VAVIK	*GATGLGLK[325.13]JEAK	0.009479	0.874 sp P0A7K2 RL7_ECOLI	0 sp P0A7K2 RL7_ECOLI	2
3440.82525	3440.861761	10.611	1051.60356	1637.81662 *VAVIK[325.13]AVR	EAK[325.13]DLVESAPAALK	4.25	0.003546 sp P0A7K2 RL7_ECOLI	0 sp P0A7K2 RL7_ECOLI	0
3496.886041	3496.895453	2.691	1637.81382	1107.66716 EAK[325.13]DLVESAPAALK	*K[325.13]LPVVVR	0	7.14 sp P0A7K2 RL7_ECOLI	0 sp P45756 GSPA_ECOLI	0
3996.115852	3996.161322	11.378	791.33172	1360.64646 *nM[147.04]SITK	*LPVAVK[325.13]TVAGWIR	0	11.4 sp P0A7K2 RL7_ECOLI	0 sp P69425 TATB_ECOLI	0
4180.254572	4180.259466	1.171	1051.60454	2377.24497 VAVIK[325.13]AVR	*HPLK[325.13]AVEYWITPLFEK	0	23.2 sp P0A7K2 RL7_ECOLI	0 sp P46890 YBAE_ECOLI	0
4208.32525	4208.30097	5.77	1051.60539	2405.31479 VAVIK[325.13]AVR	*VIAGIM[147.04]QQILASHQVTLK[325.13]IK	0.001838	16.2 sp P0A7K2 RL7_ECOLI	0 sp P33595 SGRR_ECOLI	0
4811.536296	4811.569253	6.85	1051.60403	3008.52718 VAVIK[325.13]AVR	*MNSLPELLETPOALTSLNAGFVK	0	9.11 sp P0A7K2 RL7_ECOLI	0 sp P33531 YEHQ_ECOLI	0
2350.171977	2352.209173	12.976	799.383456	799.383456 *TGK[325.13]AAR	LEGK[325.13]R	0.6845	0.02246 sp P0A7K6 RL19_ECOLI	0 sp POAFR2 YCHM_ECOLI	0
3293.671028	3293.685247	4.317	1042.46892	1499.79704 K[325.13]SDQNR	*FSGK[325.13]ELATPLLK	0	5.83 sp P0A7L0 RL1_ECOLI	0 sp P23325 ARPA_ECOLI	0
2256.215033	2256.215033	8.337	608.293077	896.49808 HK[325.13]K	*LK[325.13]QOK	0.02996	0.001 sp P0A7L3 RL20_ECOLI	0 sp P0A7L3 RL20_ECOLI	0
2496.262154	2495.264593	2.32	798.411424	930.446275 *VIDK[325.13]K	K[325.13]LQSMK	0.0303	0.001942 sp P0A7M2 RL28_ECOLI	0 sp POAEU7 SKP_ECOLI	0
2816.417108	2816.395941	7.516	1193.58782	855.424791 SHALNATK[325.13]R	*MGLVK	0	0.927 sp P0A7M2 RL28_ECOLI	0 sp POACX0 YDGC_ECOLI	4
2441.226679	2441.233343	2.73	1071.52024	618.301378 HK[325.13]HANLR	*FK[325.13]K	0	7.12 sp P0A7Q1 RL35_ECOLI	0 sp P0A7Q1 RL35_ECOLI	4
2785.436884	2785.433538	1.201	671.323473	1362.70835 *ATK[325.13]R	HLRPK[325.13]AMVSK	16.6	0 sp P0A7Q1 RL35_ECOLI	0 sp P0A7Q1 RL35_ECOLI	0
2068.039742	2068.044867	2.478	618.301256	698.333421 *FK[325.13]K	GAAK[325.13]R	0.0882	0.02487 sp P0A7Q1 RL35_ECOLI	0 sp P0A7Q1 RL35_ECOLI	0
3233.625299	3234.661078	10.028	1853.93821	628.28203 LIDQATAEIVETAK[325.13]R	*K[325.13]ER	0	16.88 sp P0A7R5 RL10_ECOLI	0 sp P0A7R5 RL10_ECOLI	27
2635.290399	2635.304144	5.216	158.33789	1125.54795 K[325.13]VC[160.03]R	*ELNK[325.13]AAQR	0.03709	1.71 sp P0A7R5 RL12_ECOLI	0 sp P76616 YGAQ_ECOLI	0
3281.659418	3281.676947	5.341	758.339582	1771.91477 K[325.13]VC[160.03]R	*FAVENK[325.13]TLSALNIR	0.02357	1.43 sp P0A7S3 RS12_ECOLI	0 sp P41066 TRAK1_ECOLI	0
2291.132149	2291.136175	1.757	653.312913	886.414171 *K[325.13]GPR	TK[325.13]TNAR	0.429	0.007614 sp P0A7S9 RS13_ECOLI	0 sp P0A7S9 RS13_ECOLI	0
2758.350153	2758.348832	0.665	908.411227	1098.53382 K[325.13]HNASR	*K[325.13]PAEELGR	0	0.929 sp P0A7U7 R52_ECOLI	0 sp P33242 AIDB_ECOLI	0
2994.521784	2994.524115	0.778	1098.52995	1144.58676 AIQSEK[325.13]AR	*LK[325.13]ENGFIK	0.00659	4.94 sp P0A7U7 R52_ECOLI	0 sp P00959 SYM_ECOLI	0
3957.938043	3959.951361	1.672	943.444749	2263.08823 K[325.13]EALMR	*EK[325.13]DVFSATASMLLEGLR	0.003165	1.403 sp P0A7V0 R52_ECOLI	0 sp P10026 TRAM1_ECOLI	0
3307.784601	3305.721624	17.024	1403.74411	1136.63601 NK[325.13]WHINLEK	*ALLTPGK[325.13]LK	0.002494	13 sp P0A7V0 R52_ECOLI	0 sp POAC33 FUMA_ECOLI	0
3404.610223	3404.628607	5.4	1792.83469	860.37047 DMLK[325.13]JAGVHFHQTR	*K[325.13]NQM[147.04]K	0	35.2 sp P0A7V0 R52_ECOLI	0 sp P37330 MASZ_ECOLI	4
3441.875665	3441.886175	3.054	1403.74387	1286.72673 NK[325.13]WHINLEK	*K[325.13]LAVALFVK	0.003546	8.47 sp P0A7V0 R52_ECOLI	0 sp Q00937 TNPA_ECOLI	0
3839.009909	3839.015081	3.692	1131.61113	1955.98471 *LFGTK[325.13]LLQR	TOLVESINM[147.04]AK[325.13]LLQR	7.4	0.0257 sp P0A7V0 R52_ECOLI	0 sp P32712 NRFQ_ECOLI	0
3957.93902	3957.974798	9.04	943.444994	2263.08896 K[325.13]EALMR	*MAGK[325.13]TM[147.04]PPLAFAAWSGTK	0	0.572 sp P0A7V0 R52_ECOLI	0 sp P32125 MOBB_ECOLI	0
3637.807806	3637.807806	1.647	1434.68582	1451.71091 *MGQK[325.13]VHPNGIR	QQAAQLK[325.13]QANR	35.7	0.01087 sp P0A7V3 R53_ECOLI	5 sp P09127 HEMX_ECOLI	0
2153.048165	2152.035101	4.514	671.313585	714.330125 EK[325.13]AK	*K[325.13]QSR	0.02487	1.46 sp P0A7V8 R54_ECOLI	0 sp P0A7V8 R54_ECOLI	0

3450.793268	3448.729437	16.566	1624.84946	1074.53874 *IIDQEVK[325.13]ALIER	TDK[325.13]FIVR	11.2	0.0122	sp P0AA13 FTSH_ECOLI	1 sp P60422 RL2_ECOLI	0
3897.98028	3897.989691	2.414	856.392747	2290.18247 *K[325.13]GAAADK	AVNDGK[325.13]LAATIAQLPDQIGAK	0.0367	0	sp P0AB58 Y CIM_ECOLI	0 sp P02925 RBSB_ECOLI	0
4032.013849	4033.024359	1.776	2243.16269	1037.44609 APPVQFSNGGASFIAGK[325.13]GVK	*K[325.13]YDPPR	0	6.911	sp P0A71 ALF_ECOLI	0 sp P0AB71 ALF_ECOLI	0
2992.443584	2991.495794	18.573	1120.51926	1120.51926 SFLVSEK[325.13]JN	*EGK[325.13]FVTSR	0.04869	6.36	sp P0A85 APBE_ECOLI	0 sp P32132 TYPA_ECOLI	0
3259.581429	3259.584662	0.992	1167.5988	1324.57817 QLNAV[325.13]AR	*YAK[325.13]AQGM[147.04]WR	0	25.8	sp P0A91 AROG_ECOLI	0 sp P25516 ACON1_ECOLI	0
3773.938898	3774.960394	4.808	1217.56243	1864.97141 ASATDQLK[325.13]K	*GAVSVLNDLSPIK[325.13]AER	0.001473	2.301	sp P0A80 ATPF_ECOLI	0 sp P75949 NAGZ_ECOLI	0
2870.439386	2872.457464	3.964	926.48491	1192.54941 K[325.13]LSGGIR	*WEEYLK[325.13]K	0	2.284	sp P0A80 ATPA_ECOLI	0 sp P42592 YGJK_ECOLI	0
2978.526117	2979.545843	5.498	926.48582	1300.63547 K[325.13]LSGGIR	*VILK[325.13]AC[160.03]VTADK	0	2.956	sp P0A80 ATPA_ECOLI	0 *sp P06149 DLD_ECOLI	0
2828.420472	2828.442572	7.811	926.483995	1150.53142 K[325.13]LSGGIR	*M[147.04]K[325.13]GIGGFTK	0	0.344	sp P0A80 ATPA_ECOLI	1 sp P0A898 ATP6_ECOLI	0
2977.536263	2977.533636	0.882	926.482225	1299.64897 K[325.13]LSGGIR	*VGAAQTK[325.13]IMK	0.01629	0.153	sp P0A80 ATPA_ECOLI	0 sp P0A80 ATPA_ECOLI	0
2978.5216	2978.542425	6.992	926.48399	1300.63254 K[325.13]LSGGIR	*VEK[325.13]DLQLMK	0.003788	0.117	sp P0A80 ATPA_ECOLI	0 sp P06864 BGA2_ECOLI	0
3173.638727	3173.659857	6.658	1216.63572	1205.59795 LK[325.13]GILDSFK	*K[325.13]FLATTNK	0.001838	4.61	sp P0A80 ATPA_ECOLI	0 sp P37751 YEFI_ECOLI	0
3223.622003	3223.649847	8.637	1728.8685	743.348436 *IPFETVK[325.13]MLDAR	*K[325.13]SQK	0.02	6.11	sp P0ABC3 HFLC_ECOLI	0 sp P77538 YFHR_ECOLI	5
2811.444222	2811.444525	0.108	760.39579	1299.64336 *K[325.13]LFR	*VGGAAQTK[325.13]IMK	144	0.03571	sp P0A81 PCNB_ECOLI	0 sp P0A80 ATPA_ECOLI	0
4895.502422	4895.52265	4.132	1925.96421	2218.13135 *GLVALIEASDAM[147.04]VK[325.13]JAAR	GLMPNPK[325.13]VGTVTPNVAEAVK	4.5	0	sp P0AB4 EUTM_ECOLI	0 sp P0A7L0 R1L_ECOLI	0
4138.018744	4138.018744	0.646	1276.04453	1276.57183 MLEELISVK[325.13]HIPEFVR	*EK[325.13]DPSLSFR	0	9.253	sp P0A87 CISY_ECOLI	0 sp P07014 DHSB_ECOLI	0
4138.016582	4140.024345	0.257	2110.04282	1276.5687 MLEELISVK[325.13]HIPEFVR	*T1K[325.13]NSTSDSGR	0	10.87	sp P0A87 CISY_ECOLI	0 sp P77188 MATC_ECOLI	0
2739.328058	2739.337103	3.302	770.417039	1217.50595 *LVK[325.13]SK	NDVSDEK[325.13]K	1.43	0.02622	sp P0ABT2 DPS_ECOLI	0 sp P0ABT2 DPS_ECOLI	0
2761.46673	2761.475042	3.01	770.417039	1239.64463 LK[325.13]SK	*K[325.13]ATVELLNR	0.111	0.002994	sp P0ABT2 DPS_ECOLI	0 sp P0ABT2 DPS_ECOLI	0
3667.823908	3667.824896	0.269	2314.16343	602.255418 TPLK[325.13]SYPLDHNVQDHHLK	*MVR	0	151	sp P0ABT2 DPS_ECOLI	0 sp P0A6Y8 DNAK_ECOLI	0
3913.131342	3913.142523	2.857	770.417833	2391.310844 *LVK[325.13]SK	AVQLGGVALGTTQVINSK[325.13]TPLK	5.65	0.01087	sp P0ABT2 DPS_ECOLI	0 sp P0ABT2 DPS_ECOLI	0
4382.364679	4382.341986	5.178	1239.64775	2391.31186 *K[325.13]ATVELLNR	AVQLGGVALGTTQVINSK[325.13]TPLK	0.953	0	sp P0ABT2 DPS_ECOLI	0 sp P0ABT2 DPS_ECOLI	0
3274.683038	3274.704046	6.415	669.346117	1853.93186 *AVK[325.13]JR	VGEVEIVGK[325.13]ETQK	0.838	0	sp P0A87 FLHC_ECOLI	0 sp P0A6N1 EFU1_ECOLI	0
3680.882501	3680.914251	8.626	1722.8165	1206.66094 GEHK[325.13]NISVTEVHAR	*SLPPSIK[325.13]R	0	102	sp P0ABZ6 SURA_ECOLI	0 sp P76349 YEEI_ECOLI	0
6413.258769	6413.262565	0.592	2189.06211	1170.0404 GQK[325.13]M[147.04]VK	ILLINPTSDAVGNAVK[325.13]MANQANIPVITLDR	13.7	0	sp P0ABZ6 SURA_ECOLI	0 sp P02925 RBSB_ECOLI	0
2962.497553	2962.50849	3.692	930.393785	1280.6987 *nMSNNR	K[325.13]IIQEQLGVK	22.2	0	sp P0AC38 ASPA_ECOLI	1 sp P0A6A8 ACP_ECOLI	0
4377.103571	4377.141302	8.62	1333.57927	2292.11924 *MSK[325.13]C[160.03]NDLR	AQVAQAJGK[325.13]PSSEVSM[147.04]JIHAR	10.4	0	sp P0AC38 ASPA_ECOLI	0 sp P0AB1 OSME_ECOLI	0
3319.649286	3319.662054	3.846	810.387926	1757.8563 *K[325.13]HATR	WLGGMLTNWK[325.13]TVR	21.8	0	sp P0ACB4 HEMG_ECOLI	6 sp P0A7V0 R52_ECOLI	0
3341.706354	3341.683294	6.901	1883.93467	706.366624 M[147.04]YSDLPK[325.13]VLHTLAGK	*LK[325.13]LH	0.006897	16.4	sp P0ACC7 GLMU_ECOLI	0 sp P00393 DHNA_ECOLI	0
2541.306329	2541.306341	0.005	940.490344	849.410922 ALK[325.13]DAVK	*MPFK[325.13]K	0.01094	158	sp P0ACF0 DBHA_ECOLI	0 sp P71244 WCAM_ECOLI	0
3316.60882	3314.62348	6.444	1467.73325	1081.47112 IAAGADISK[325.13]AAAAGR	*MTIEYTK	0	8.5	sp P0ACF4 DBHB_ECOLI	0 sp P33129 HTRE_ECOLI	0
3744.738714	3744.738714	9.811	2025.88237	662.291978 *ASVVLVELAK[325.13]EYSSYNGC[160.03]R	M[147.04]GLK	36.6	0.03269	sp P0ACQ7 TDC4_ECOLI	0 sp P10443 DP03A_ECOLI	0
3395.813335	3395.81475	0.417	1410.71079	1233.69748 *NPQVAAMLK[325.13]JNK	TPPAVLLK[325.13]K	0.87	0	sp P0AC6 UIDR_ECOLI	0 sp P0A7J7 R11_ECOLI	0
4152.260309	4152.28681	6.382	2349.25009	1051.60515 SANK[325.13]GM[147.04]PILLTALGTIEHR	*VAVIK[325.13]AVR	0.03699	0.562	sp P0ACZ8 CUSR_ECOLI	0 sp P0A7K2 RL7_ECOLI	0
5179.517051	5179.517051	5.3	1239.64775	1757.8563 *K[325.13]HATR	FGQGEAAPVVAAPAPAPEVQTK[325.13]HFTLK	1.33	0	sp P0ACC7 GLMU_ECOLI	0 sp P00393 DHNA_ECOLI	0
4307.219171	4307.232611	3.12	2276.13022	1279.68384 AQAQAJGK[325.13]PSSEVSMIHAR	*WLEK[325.13]APVIK	0	3.614	sp P0AD61 KPYK1_ECOLI	0 sp P0AD61 KPYK1_ECOLI	92
3391.626398	3391.643988	5.186	915.383836	1742.8373 *M[147.04]HEK[325.13]JR	LDAPLVVATQQGK[325.13]SAR	2.696	0	sp P0AD61 KPYK1_ECOLI	92 sp P0AD61 KPYK1_ECOLI	0
3951.970026	3951.98432	3.617	1199.57976	2000.9852 K[325.13]DISSANLR	GNIMK[325.13]FTEGAFK	0.463	0	sp P0AD61 KPYK1_ECOLI	0 sp P08200 IDH_ECOLI	0
3953.969415	3951.966986	1.081	1200.58208	2001.98227 K[325.13]DISSANLR	*SDWM[147.04]EMEK[325.13]QR	0.03636	278	sp P0AD3 NLPD_ECOLI	0 sp P0A741 R5F_ECOLI	0
2859.315485	2859.309271	2.173	774.332811	1333.57761 K[325.13]GMSR	*MAGMAIDGK[325.13]DK	0.01876	0.49	sp P0AB1 OSME_ECOLI	0 sp P0AFD6 NUOI_ECOLI	0
4307.219171	4307.232611	3.12	2276.13022	1279.68384 AQAQAJGK[325.13]PSSEVSMIHAR	*WLEK[325.13]APVIK	0	53	sp P0AD35 YFDO_ECOLI	0 sp P24218 INTD_ECOLI	0
3391.626398	3391.643988	5.186	915.383836	1742.8373 *M[147.04]HEK[325.13]JR	VALYGDYLMK[325.13]DK	0.625	0	sp P0AD61 KPYK1_ECOLI	1 sp P09373 PFLB_ECOLI	0
3951.970026	3951.98432	3.617	1199.57976	2000.9852 K[325.13]DISSANLR	*SLK[325.13]EDAEFL					

2795.445551	2795.448675	1.118	759.391099	1284.64939 *FIK[325.13]R	FVK[325.13]HPIYKG	0.0606	0 sp POAG63 RS17_ECOLI	0 sp POAG63 RS17_ECOLI	0
4229.067133	4229.074333	1.703	969.514268	2508.1478 K[325.13]GAIVTAK	*TSLGSLDDHTGAFGESEK[325.13]YAAR	0	4.224 sp POAG67 RS1_ECOLI	0 *sp P28629 ADIA_ECOLI	0
4472.061334	4273.099601	8.173	969.514574	2551.1417 K[325.13]GAIVTAK	*NDG[325.13]HLLFQOC[160.03]PVC[160.03]AEK[325.13]YK	0	52.93 sp POAG67 RS1_ECOLI	0 *sp P24188 YCEA_ECOLI	0
4229.07504	4231.085	0.771	969.516025	2508.15395 K[325.13]GAIVTAK	*WOSLSIFGC[160.03]FLC[160.03]K[325.13]M[147.04]TLFR	0	15.17 sp POAG67 RS1_ECOLI	0 *sp P77607 YAGL_ECOLI	0
3794.879694	3796.930853	11.715	2430.19248	613.282152 VTAVDAK[325.13]GATVELADGVEGYLR	*K[325.13]JNR	0	62.98 sp POAG67 RS1_ECOLI	0 sp POAG67 RS1_ECOLI	24
2390.264825	2390.27265	3.273	969.514316	669.345442 K[325.13]GAIVTAK	*K[325.13]GIR	0	33.2 sp POAG67 RS1_ECOLI	0 sp P35340 AHPF_ECOLI	0
3512.872551	3512.872551	0.121	1039.55571	1721.91135 VIK[325.13]LDQK	*MVK[325.13]NPDIVAGVAALK	0	52.1 sp POAG67 RS1_ECOLI	0 sp POABQ0 COABC_ECOLI	0
4229.068231	4229.106146	8.965	969.515611	2508.14756 K[325.13]GAIVTAK	*M[147.04]LQEELC[160.03]SVVEASGASLEK[325.13]GR	0	13.4 sp POAG67 RS1_ECOLI	0 sp P76508 YFDL_ECOLI	0
2334.202264	2334.206976	2.018	613.282945	969.514255 K[325.13]JNR	K[325.13]GAIVTAK	1.336	0 sp POAG67 RS1_ECOLI	24 sp POAG67 RS1_ECOLI	0
3459.606256	3459.590033	4.689	613.281908	2094.91928 K[325.13]NLR	ANPWQQFAETHNK[325.13]GDR	0.0985	0 sp POAG67 RS1_ECOLI	0 sp POAG67 RS1_ECOLI	0
3166.597589	3165.60932	4.764	1378.6677	1036.52481 K[325.13]GLDPEQQPK	IYAAFK[325.13]JK	16.8	0.01804 sp POAG80 UGPB_ECOLI	0 sp POAFG8 ODP1_ECOLI	0
3688.945245	3688.991644	12.578	1885.97837	1051.56182 M[147.04]SEK[325.13]LQVFTLLGSLR	*K[325.13]LVATAPP	0	0.534 sp POAG66 VIEF_ECOLI	0 sp P76043 YCIQ_ECOLI	0
2985.57403	2985.584417	3.479	2985.584417	656.337938 GIQPGHIIHK[325.13]PGK	*K[325.13]JSI	0	43.8 sp POAGE9 SUCD_ECOLI	0 sp P43533 FLGN_ECOLI	0
3441.85174	3440.823675	7.183	1577.83493	1112.61174 GIQPGHIIHK[325.13]PGK	*LNLK[325.13]TR	0	4 sp POAGE9 SUCD_ECOLI	0 sp P39321 YTFN_ECOLI	1
3740.80816	3740.819525	3.038	1433.65464	1555.74846 *IWMETTK[325.13]GGSK	LGETGDAIAK[325.13]QTR	0.652	0 sp POAGM0 YHHT_ECOLI	0 sp P64581 YQID_ECOLI	0
2938.405389	2938.405706	0.108	1492.67136	694.328964 GOAHWEGDIK[325.13]R	*K[325.13]HGR	0	7.824 sp POCOL2 OSMC_ECOLI	0 sp P00968 CARB_ECOLI	1
2938.406122	2939.417425	2.707	1492.67179	694.329088 GOAHWEGDIK[325.13]R	*YK[325.13]GK	0	32.69 sp POCOL2 OSMC_ECOLI	0 *sp POADA3 NLPD_ECOLI	1
2938.406244	2939.416204	2.25	1492.67209	694.329088 GOAHWEGDIK[325.13]R	*K[325.13]GYK	0	9.093 sp POCOL2 OSMC_ECOLI	0 *sp P76190 YDHO_ECOLI	1
3769.918268	3769.921944	2.885	1039.55571	1721.91135 VIK[325.13]LDQK	VLC[160.03]VTALGHTEAEAQK[325.13]R	32.9	0 sp POCOL2 OSMC_ECOLI	1 sp P15640 PUR2_ECOLI	0
3598.726617	3599.744329	3.991	998.451097	1848.87046 *MVGK[325.13]DPR	NLTQMV/EYGQVK[325.13]R	2.835	0 sp POCOV0 DEGP_ECOLI	0 sp POCOV0 DEGP_ECOLI	0
2987.424921	2987.420355	1.528	893.376329	1342.64353 *DGK[325.13]SYK	LNTSNNTK[325.13]VR	0.0689	0.04341 sp P10100 RLPA_ECOLI	0 sp P10100 RLPA_ECOLI	0
4272.095195	4273.091972	1.539	1996.00034	1542.68974 GGGK[325.13]LAVENTLASIDVGAK	*YELM[147.04]QEKG[325.13]SK	0.03473	1.155 sp P10908 UGPQ_ECOLI	0 sp POABM9 CCMH_ECOLI	0
4177.070856	4178.09931	6.01	1502.77654	1922.188926 *IWAPDK[325.13]HLGR	EGAELAFTYQNDK[325.13]LK	1.547	0 sp P11458 NADA_ECOLI	0 sp POAEK4 FABI_ECOLI	0
4478.185466	4480.203802	2.598	660.31279	3066.46761 GK[325.13]TR	*VC[160.03]LHNIAVTL[C160.03]NWVWPMTVSPLK[325.13]SR	0.03739	3.414 sp P10306 FECA_ECOLI	2 *sp P76192 YDHV_ECOLI	0
3634.843486	3635.879095	8.875	1441.71921	1441.71921 *C[160.03]VIELDIK[325.13]GK	IWIENLSK[325.13]DK	0.5005	0.04505 sp P14294 TOP3_ECOLI	0 sp P30863 DKGB_ECOLI	0
3478.777399	3479.773392	0.76	1441.71762	1285.65471 *C[160.03]VIELDIK[325.13]GK	YPOATIK[325.13]LR	0.5926	0 sp P14294 TOP3_ECOLI	0 sp P31463 YIDZ_ECOLI	0
3634.843242	3635.864447	4.912	1441.71909	1441.71909 C[160.03]VIELDIK[325.13]GK	*C[160.03]VIELDIK[325.13]GK	0.03378	1.639 sp P14294 TOP3_ECOLI	0 sp P14294 TOP3_ECOLI	0
3634.839824	3635.875433	8.875	1441.71738	1441.71738 C[160.03]VIELDIK[325.13]GK	*IWIENLSK[325.13]DK	0.02206	5.154 sp P14294 TOP3_ECOLI	0 *sp P30863 DKGB_ECOLI	0
3224.627618	3226.652777	5.724	1441.71689	1031.50566 C[160.03]VIELDIK[325.13]GK	AK[325.13]QAVYR	1.865	0 sp P14294 TOP3_ECOLI	0 sp POAEH5 ELAB_ECOLI	0
3748.877299	3749.905462	6.619	1441.71994	1555.75226 C[160.03]VIELDIK[325.13]GK	LGETGDAIAK[325.13]QTR	1.298	0 sp P14294 TOP3_ECOLI	0 sp P64581 YQD_ECOLI	0
3934.019878	3935.092399	17.583	1349.65512	2049.04818 *MTHK[325.13]K	*TLYAINGGVDEK[325.13]LK	0.03378	1.865 sp P14376 RCSC_ECOLI	0 *sp P42632 TDCE_ECOLI	0
4273.192072	4273.216986	5.83	1812.9166	1708.87041 *ELIDAGK[325.13]ELPQYIK	AK[325.13]AEAQVIEQANK	4.49	0 sp P1407 FUMB_ECOLI	0 sp POABA0 ATPF_ECOLI	0
2261.136849	2261.14057	1.646	615.286851	894.444932 SGK[325.13]K	*K[325.13]GVHT	0.02794	3.85 sp P15032 RECE_ECOLI	0 sp POAA80 GARP_ECOLI	0
3388.734186	3388.750433	4.794	1984.02744	653.301683 FM[147.04]LQDQLGVVSPGLK[325.13]R	*K[325.13]VNP	0.03962	4.19 sp P15078 CSTA_ECOLI	0 sp POADU5 YGIW_ECOLI	0
6510.214458	6512.29943	12.023	1196.61675	4562.19263 ITAK[325.13]QNVR	*M[147.04]SDQLQM[147.04]TDGM[147.04]HIVEALK[325.13]QNNIDTIYGVVGPVT	0	3.9 sp P15639 PUR9_ECOLI	0 sp POAFIO OXC_ECOLI	0
3298.755548	3298.80293	14.361	1245.66123	1285.68987 VYSAK[325.13]AGIK	*TTLK[325.13]JSAR	0	12.1 sp P15639 PUR9_ECOLI	0 sp P16678 PHNK_ECOLI	0
2090.095711	2090.102972	3.474	669.345323	669.345323 VAK[325.13]R	*VAK[325.13]R	0.007286	0.343 sp P16916 RHS4_ECOLI	0 sp P16916 RHS4_ECOLI	0
2146.159493	2146.165472	2.788	669.345811	725.408617 VAK[325.13]R	*IIK[325.13]R	0.03842	0.435 sp P16916 RHS4_ECOLI	0 sp P76071 INSH5_ECOLI	0
3235.676789	3235.676789	0.4	3666685	1797.90647 *VVK[325.13]K	GVHEGHVAEEVIAGK[325.13]K	4.2	0 sp P16916 RHS4_ECOLI	0 sp POA9P0 DLHD_ECOLI	0
2887.447273	2887.45307	2.007	1123.5689	1012.47333 *DK[325.13]LDVPIK	QDGGK[325.13]ALK	16.3	0.03597 sp P18775 DMSA_ECOLI	0 sp P32141 VHT_ECOLI	0
2292.152229	2292.1518	0.187	741.365465	799.3817 LK[325.13]ER	*TGF[325.13]AAR	0.02921	0.000027 sp P19323 FHFL_ECOLI	0 sp POA7KE RL19_ECOLI	0
3064.599298	3064.614203	4.863	1218.62619	1094.56804 *AHELGLK[325.13]PR	M[147.04]PKPGILK	2.12	0.02568 sp P1151 FADA_ECOLI	0 sp POAB43 YCGL_ECOLI	0
3362.637079	3362.650335	3.942	699.345445	1911.88657 *K[325.13]DK	STK[325.13]QQEATQPDVDIR	0.261	0 sp P21177 FADB_ECOLI	0 sp P76116 YNCE_ECOLI	0
2605.337715	2605.35224	5.575	999.491258	854.441392 *VEGNK[325.13]VR	K[325.13]				

2953.481805	2953.433294	16.425	767.401475	1434.67527 *AVK[325.13]PR	ANNVGELEK[325.13]HK	4.475	0.02428 sp P37690 YIBP_ECOLI	0 sp POAG27 YIBN_ECOLI	0
2744.315593	2746.37017	17.446	1183.55344	809.357089 *DSLASK[325.13]AHR	K[325.13]YGDK	2.661	0.02326 sp P37747 GLF_ECOLI	0 sp P37747 GLF_ECOLI	0
3815.930853	3815.930514	9.742	1854.89182	1210.60015 VPSYTASK[325.13]SGVM[147.04]GVTR	*MTK[325.13]QPPIAK	0.01766	20.9 sp P37769 DUDC_ECOLI	0 sp P33228 RECT_ECOLI	0
3895.937494	3895.935014	3.246	2189.06821	955.464422 *GIYLVNLDEK[325.13]IDMDNLK	GEK[325.13]VQAK	1.85	0.00365 sp P39265 ALSB_ECOLI	0 sp P02925 RBSB_ECOLI	1
4297.161066	4297.155951	1.19	2189.06333	1356.69267 *GIYLVNLDEK[325.13]IDMDNLK	VQAK[325.13]YPVDLK	3.41	0.005405 sp P39265 ALSB_ECOLI	0 sp P02925 RBSB_ECOLI	0
6429.242412	6429.262931	3.192	2189.06113	1348.76722 *GIYLVNLDEK[325.13]IDMDNLK	ILLINPTSDAVGNAV[325.13]M[147.04]ANQANIPVITLDR	1.13	0 sp P39265 ALSB_ECOLI	0 sp P02925 RBSB_ECOLI	0
2911.415826	2911.393499	7.669	942.50343	1217.50742 *K[325.13]ALTISK	NDVDSSEK[325.13]JK	0.0677	0 sp P39276 VJDL_ECOLI	5 sp POABT2 DPS_ECOLI	0
3056.587213	3056.594183	2.28	942.503221	1362.67893 *K[325.13]ALTISK	SK[325.13]ATNNLYTR	0.0917	0 sp P39276 VJDL_ECOLI	0 sp POABT2 DPS_ECOLI	0
4085.220697	4085.222601	0.466	942.503526	2391.31211 *K[325.13]ALTISK	AVQLGGVALGTTQVINSK[325.13]TPLK	0.923	0.007614 sp P39276 VJDL_ECOLI	0 sp POABT2 DPS_ECOLI	0
3478.779596	3479.793158	2.935	1441.71836	1285.65618 VQSTSK[325.13]TAPQAK	*SQLEEIIK[325.13]K	0.03378	0.8983 sp P39279 YJFO_ECOLI	0 *sp P37903 USPF_ECOLI	0
3108.648676	3106.601507	13.027	857.462633	1499.78094 *AK[325.13]AVAAK	MIEQIEK[325.13]VAIK	78.8	0.02568 sp P39297 YJFO_ECOLI	0 sp P38035 RTER_ECOLI	0
3931.027094	3931.020208	1.751	943.510118	2236.11191 *NIK[325.13]TIR	GM[147.04]INK[325.13]M[147.04]SADLLIVPFIDK	5.6	0.03911 sp P39404 BGU_ECOLI	0 sp POAA88 USPD_ECOLI	0
3187.671014	3187.723089	16.336	994.510118	1441.75583 *ATAK[325.13]JR	FGK[325.13]VINNINGK	1.41	0 sp P39405 SLP_ECOLI	3 sp P37194 SLP_ECOLI	0
4181.253473	4180.268744	4.454	2378.24424	1051.60411 *GGLDVGSSLTLPHTK[325.13]GK	VAVIK[325.13]AVR	14.5	0.01587 sp P39406 RSMC_ECOLI	0 sp PA07K2 RJLZ_ECOLI	0
4021.929071	4021.936956	1.961	715.314439	2555.20957 *ESK[325.13]R	STFQQLPGTVK[325.13]PDQFHSQTR	2.755	0 sp P39874 YBEM_ECOLI	1 sp POAFG3 ODO1_ECOLI	0
3074.660652	3073.700872	14.175	1132.61186	1174.64433 *M[147.04]SK[325.13]VLVLK	LK[325.13]ALAHPTK	94	0.04195 sp P39407 AZOR_ECOLI	0 sp P19768 INSJ_ECOLI	0
2981.449227	2980.420111	8.645	988.421312	1225.62346 *NMEIASNK	K[325.13]TAVEAAIAR	4.83	0.04389 sp P42628 YHAO_ECOLI	1 sp P76111 RNFCECOLI	0
3306.662531	3306.670111	2.292	773.344896	1781.91257 *DAK[325.13]NK	VINQLTGLLAGMAK[325.13]GR	1.03	0 sp P42640 YHBX_ECOLI	0 sp POA9P0 DLDH_ECOLI	0
2090.108099	2090.108099	6.277	669.344957	669.344957 IKG[325.13]R	*IGK[325.13]R	0.01826	0.461 sp P43676 PTB_ECOLI	1 sp P43676 PTB_ECOLI	0
2447.249017	2447.260443	4.669	669.345323	1026.49863 *IGK[325.13]R	K[325.13]LLDEGR	0.488	0 sp P43676 PTB_ECOLI	0 sp POA6N1 EFTU_ECOLI	0
4750.217706	4751.274115	11.17	1218.57598	2780.23667 GK[325.13]VVVMGM[147.04]GK	*FFSIDGTK[325.13]LPDAVEEAIEAM[147.04]EK	0.04876	23.38 sp P45395 KDSD_ECOLI	0 *sp P31120 GLMM_ECOLI	0
2836.469063	2836.468695	0.13	1014.50084	1070.56316 VK[325.13]SSAQAK	*LPFNK[325.13]VR	0	8.09 sp P45523 FKBA_ECOLI	0 sp P43340 YCAK_ECOLI	0
2906.452826	2906.452826	5.986	1140.56792	1014.49724 *EQEK[325.13]LGK	VK[325.13]SSAQAK	1.59	0.03752 sp P45523 FKBA_ECOLI	0 sp P45523 FKBA_ECOLI	0
3410.595392	3410.603949	2.509	1232.53215	1426.65814 AAFK[325.13]INDDK	*MSLHSPGK[325.13]AFR	0.002994	2.83 sp P45523 FKBA_ECOLI	0 sp P75741 PRPB_ECOLI	0
3548.872125	3550.897758	5.335	1770.96601	1026.50102 *MPLLPALK[325.13]SYLSK	K[325.13]LLDEGR	96.65	0 sp P45537 YHFK_ECOLI	0 sp PA06N1 EFTU_ECOLI	0
4392.159479	4392.188665	6.645	1770.96457	1869.78984 *MPLLPALK[325.13]SYLSK	ETQK[325.13]STC[160.03]TGVEMFR	352	0 sp P45537 YHFK_ECOLI	0 sp PA06N1 EFTU_ECOLI	0
2555.277887	2555.283636	2.25	1042.53562	761.337205 LK[325.13]ODLAR	*K[325.13]FDR	0.03955	234 sp P45543 FRDL_ECOLI	0 sp P33643 RUDL_ECOLI	0
2436.185175	2436.187201	0.832	711.318712	973.461398 DPK[325.13]R	*K[325.13]M[147.04]VIDR	0	0.496 sp P45804 YHGE_ECOLI	0 sp P13669 MNGR_ECOLI	0
3030.573785	3028.520697	15.317	1422.75583	840.413499 LEK[325.13]LAAQDPLK	*MPK[325.13]LR	0.01245	12.35 sp P45523 FKBA_ECOLI	0 sp P37666 GHRB_ECOLI	1
4147.072199	4146.07099	5.161	1143.52192	2236.09554 K[325.13]ASISGVQR	*QYQQVIDNYPK[325.13]LSATLR	0.04077	6.69 sp P46889 FTSK_ECOLI	0 sp P39285 YJEP_ECOLI	1
2592.370918	2592.334906	13.892	843.456712	997.509141 *LISGK[325.13]K	LTQPGK[325.13]R	12.4	0.02792 sp P52134 YPJUK_ECOLI	0 sp P75966 RUE_ECOLI	0
4129.992242	4129.997101	1.806	1514.74304	1863.84409 *TALAM[147.04]TQK[325.13]AAIGK	QTFAQK[325.13]AQAFEQDR	0.821	0 sp P52598 YBHU_ECOLI	0 sp POAEU7 SKP_ECOLI	0
4375.15368	4375.155462	0.407	2905.41538	702.333848 QFAMSFAFSGALPLWLNEK[325.13]WIVK	*K[325.13]MPK	0	54 sp P52645 YDBH_ECOLI	0 sp P45769 YHDZ_ECOLI	0
3942.035136	3944.043205	0.347	1419.66477	1770.9653 HIGGGHK[325.13]QAYR	*IIQLK[325.13]LEQOQALM[147.04]K	0	259.5 sp P60422 RL2_ECOLI	0 sp P63284 CLPB_ECOLI	0
3144.561151	3145.580267	5.014	73.48984	1514.66623 *VDFK[325.13]R	HIGGGHK[325.13]QAYR	0.7052	0 sp P60422 RL2_ECOLI	0 sp P60422 RL2_ECOLI	0
3072.463556	3073.444281	7.364	1419.66635	901.392137 HIGGGHK[325.13]QAYR	*NSK[325.13]SGGR	0.02941	15.17 sp P60422 RL2_ECOLI	0 sp P60422 RL2_ECOLI	0
3782.924052	3783.892753	9.159	1594.84885	1436.67014 HVVK[325.13]VVNPFLHK	*AANFASFDK[325.13]LR	0	43.78 sp P60422 RL2_ECOLI	0 sp Q46833 YGH_ECOLI	0
3118.560419	3117.594183	11.905	973.48389	1377.66758 VDFK[325.13]R	*TVFPNM[147.04][325.13]LSK	0.01468	3.51 sp P60422 RL2_ECOLI	0 sp P76159 LYSQ_ECOLI	0
3666.814067	3666.833929	5.417	1419.6655	1495.7435 HIGGGHK[325.13]QAYR	K[325.13]VGVNQNTTHQK	0	0.241 sp P60422 RL2_ECOLI	0 sp P30859 ARTI_ECOLI	0
3795.923198	3795.941351	4.782	1419.6677	1624.85004 HIGGGHK[325.13]QAYR	*SK[325.13]AEVYHIIQLK	0	1.73 sp P60422 RL2_ECOLI	0 sp P52123 YFJH_ECOLI	0
3971.11375	3971.140373	6.704	1594.85642	1624.85227 HVVK[325.13]VVNPFLHK	*MLD[325.13]IOPPLAAALR	0	1.52 sp P60422 RL2_ECOLI	0 sp P77658 YNAE_ECOLI	0
4310.20397	4310.212103	1.929	973.489549	2585.30918 VDFK[325.13]R	*ELAEK[325.13]AQPPTTMLQALGMLPK	0.00813	11.5 sp P60422 RL2_ECOLI	0 sp P80142 ILVB_ECOLI	0
3587.855402	3587.878388	19.935	1041.55547	1794.89487 MIGLVGK[325.13]K	*[147.04]VIATVK[325.13]GDVHDIGK	0	2.376 sp P60438 RL3_ECOLI	0 sp P13009 METH_ECOLI	0
3649.861749	3650.880072	4.102	1031.50603</						

3054.528131	3054.54389	5.159	1631.80967	671.313402 *FM[147.04]DK[325.13]PLSASAILK	K[325.13]EAK	3.07	0.02054	sp P76542 INTZ_ECOLI	0	sp POADY1 PPID_ECOLI	0
2105.093575	2105.099554	2.84	612.323106	741.365404 K[325.13]LR	*EIK[325.13]R	0.03407	0.482	sp P76542 INTZ_ECOLI	0	sp POA9H3 LDCI_ECOLI	0
2748.32972	2747.377874	18.747	1114.49431	866.430954 APK[325.13]NEETK	*THK[325.13]GVK	0.04689	687	sp P76543 YFFL_ECOLI	0	sp P32153 FRVX_ECOLI	0
3966.968927	3967.018744	12.558	1309.6198	1905.94406 *EWVNPNPK[325.13]K	FNLW[147.04]LETK[325.13]VTAVEAK	10.2	0.003546	sp P76550 YFFS_ECOLI	0	sp POA9PO LDLH_ECOLI	0
3770.914653	3771.918571	0.151	1812.91831	1206.59128 *MALNLTGEK[325.13]TPLTPK	AHK[325.13]DLDLAK	6.315	0	sp P76578 YFHM_ECOLI	0	sp POABA0 ATPF_ECOLI	0
2308.172723	2308.16889	1.661	615.286058	941.481604 *K[325.13]SGK	LASK[325.13]AQK	1.75	0.03046	sp P76578 YFHM_ECOLI	0	sp P40711 YAEJ_ECOLI	0
3352.738641	3352.754583	4.755	1959.0355	642.298082 *ALHQK[325.13]DLNLALQSAK	GK[325.13]GGK	3.95	0.02357	sp P77161 GLXR_ECOLI	0	sp P32057 WCAI_ECOLI	0
3199.625957	3199.641349	4.811	1451.67014	996.550754 *AGEK[325.13]TPPDALEK	I[325.13]ELAVK	26.85	0.007804	sp P77218 EUTD_ECOLI	0	sp POABG6 ODO2_ECOLI	0
4074.906352	4072.885931	3.369	1463.62925	1843.87264 *MTQDDAADK[325.13]AAK	M[147.04]DELA[325.13]LVGQSSVQK	154	0	sp P77304 TPPB_ECOLI	0	sp POABY2 FLIT_ECOLI	0
2236.169747	2236.171782	0.927	775.387681	709.377 YLK[325.13]R	*LPK[325.13]R	0.01459	0.559	sp P77334 GMRR_ECOLI	0	sp POA776 RPPH_ECOLI	1
4728.374078	4728.312689	12.983	2321.21787	1655.75119 LAIFWLVLFLC[160.03]WK[325.13]VLEK	*K[325.13]YVLOSSADMTR	0.04626	25.27	sp P77338 KEFA_ECOLI	0	*sp POA7B1 PPK_ECOLI	0
2372.171686	2372.183294	4.894	784.372545	836.394076 DGLK[325.13]R	*GHAK[325.13]AR	0.02941	26.2	sp P77354 YAFU_ECOLI	0	sp POA8H6 VIHL_ECOLI	0
3468.819269	3468.834173	4.297	1079.59941	1637.81479 *LPAK[325.13]VTPR	EAK[325.13]DLVESAPAALK	1.61	0	sp P77374 YNFE_ECOLI	0	sp POA7K2 RIZ7_ECOLI	0
3533.807306	3534.765326	12.828	1011.52715	1770.87504 I[325.13]LNEAK	*GVQLEDGPAAFK[325.13]TIK	0.006141	2.317	sp P77341 YFDZ_ECOLI	0	*sp P37765 RUB_ECOLI	0
2967.552118	2967.571234	6.442	1011.52538	1204.62168 *K[325.13]LNEAK	IIDLK[325.13]IHK	0.0331	0	sp P77341 YFDZ_ECOLI	0	sp P00452 RIR1_ECOLI	0
2728.448663	2728.457708	3.315	685.365282	1291.67832 *TLK[325.13]K	AVAK[325.13]HLLSEK	1.095	0	sp P77455 MAOC_ECOLI	5	sp P77455 MAOC_ECOLI	0
5589.790996	5589.787834	0.566	2595.22568	2243.16025 *C[160.03]NLLK[325.13]AVPDATINFDFAA[147.04]R	APVIVQFSNGGASFIAFK[325.13]GVK	0.872	0	sp P77468 SMFD_ECOLI	0	sp POAB71 ALF_ECOLI	0
3955.959894	3954.98925	8.27	2106.03623	1098.5186 *LAPSHVTAPFK[325.13]TVAEWR	K[325.13]AIEQDAK	0.841	0	sp P77546 YDVA_ECOLI	0	sp POAEE5 DGAL_ECOLI	0
2793.43354	2793.484564	18.265	1076.57012	949.458974 *K[325.13]GLTHPK	MLSK[325.13]FK	22.8	0.01781	sp P77608 MHPD_ECOLI	5	sp P23830 PSS_ECOLI	0
3472.704387	3472.732827	8.19	729.31804	1991.98128 *EIK[325.13]K	TK[325.13]PHNVGVTIGHVDHGK	0.0442	0	sp P77609 FLXA_ECOLI	1	sp POAGN1 EFTU_ECOLI	0
3488.71142	3488.734564	6.634	729.319566	1991.9874 *K[325.13]EIK	TK[325.13]PHNVGVTIGHVDHGK	0.626	0	sp P77609 FLXA_ECOLI	0	sp POAGN1 EFTU_ECOLI	0
3656.872553	3656.901312	7.864	729.319444	2176.14804 *K[325.13]EIK	TTLTAITTFLAK[325.13]TYGGAAR	0.457	0	sp P77609 FLXA_ECOLI	5	sp POAGN1 EFTU_ECOLI	0
4073.154521	4074.119499	9.421	1603.81858	1717.93088 INK[325.13]LLC[160.03]YLTNR	*K[325.13]VGVGIGGLGHMGIK	0.01504	20.38	sp P77657 YAGK_ECOLI	0	*sp P75691 YAHK_ECOLI	0
4664.337701	4665.367376	5.644	1080.5949	2832.33774 *VLAQK[325.13]AVR	TEGK[325.13]QSPFSFLVSLNPADVQPNAR	1.121	0	sp P77717 YBAV_ECOLI	0	sp P77717 YBAV_ECOLI	0
3450.679301	3451.665275	5.036	845.419847	1853.85439 K[325.13]TMIR	*FVK[325.13]NVDNSDSYLR	0	10.67	sp P77721 YDJF_ECOLI	0	*sp P76621 CSID_ECOLI	0
3849.937189	3849.956244	4.949	1793.89926	1288.63347 K[325.13]TYPQLTGFHYK	*MELK[325.13]ATTLGK	0.04755	22.1	sp P77783 YNFF_ECOLI	0	sp P15038 HELD_ECOLI	0
2537.304987	2535.274603	9.342	1125.57871	644.321824 *LWLDVK[325.13]R	K[325.13]ATK	18.4	0.02073	sp P77808 CINAL_ECOLI	2	sp P0A7Q1 RL35_ECOLI	1
3826.005351	3823.93305	17.155	1736.9166	1321.6843 TLK[325.13]DLDDQAALLAR	*GLFIK[325.13]GIYGR	0.04489	21.5	sp Q00037 TNPA_ECOLI	0	sp P07913 TDH_ECOLI	0
3565.740534	3565.749212	2.434	716.281663	2098.50381 MDVR	*SGSIGSAAK[325.13]ELGLTQPAVSK	0.01233	4.99	sp Q06067 ATOS_ECOLI	0	sp POACQ7 TDCA_ECOLI	1
2620.37513	2620.341497	12.835	926.485338	926.485334 *NK[325.13]LLSR	NK[325.13]LLR	4.6	0.0325	sp Q2EE59 TORI_ECOLI	0	sp Q2EE59 TORI_ECOLI	0
3953.103204	3953.118841	3.956	1563.87656	1637.82158 *QVLVAAAALK[325.13]ALR	EAK[325.13]DLVESAPAALK	7.47	0	sp Q46803 YGEW_ECOLI	0	sp P0A7K2 RL7_ECOLI	0
3347.785286	3345.763372	4.547	1097.60979	1498.77043 *ILTALEK[325.13]I	FGANSVLK[325.13]PEIK	0.662	0.01818	sp Q46814 XDH_ECOLI	0	sp P13035 GLPD_ECOLI	0
3603.807123	3604.856878	12.877	1953.98655	898.415514 GLTPK[325.13]MLTEANLNSLR	*SK[325.13]FYR	0	3.19	sp Q46851 YGHZ_ECOLI	0	sp P22523 MUKB_ECOLI	0
3066.502802	3066.519232	5.358	1620.76755	694.330186 HYLAPSDK[325.13]LDHK	*K[325.13]GYK	0.03145	3.88	sp Q47146 FADE_ECOLI	0	sp P76190 YDHO_ECOLI	0

Column Name	Definition
ms2 query mass	Sum of reporter mass, peptide 1 mass, and peptide 2 mass
ms2 prec mass	Observed precursor mass
ms2 ppm error	Relationship mass error between query mass and prec mass
ms2 mass1	Peptide mass 1
ms2 mass2	Peptide mass 2
ms3 pep1	Sequence identified for peptide 1
ms3 pep2	Sequence identified for peptide 2
ms3 fdr1	FDR/q-value at which peptide 1 was identified
ms3 fdr2	FDR/q-value at which peptide 2 was identified
ms3 prot1	Protein association for peptide 1 identified sequence
prot1 red	Number of proteins which could explain peptide 1 sequence identification
ms3 prot2	Protein association for peptide 2 identified sequence
prot2 red	Number of proteins which could explain peptide 2 sequence identification

* indicates identification made by accurate mass and fragment ion method