Electronic Supplementary Material (ESI) for Analyst

Supporting material I

Capillary zone electrophoresis-multiple reaction monitoring from 100 pg of RAW 264.7 cell lysate digest

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S-Table 1 MRM transitions for six bovine tryptic digest exponential molar mixture analysis.

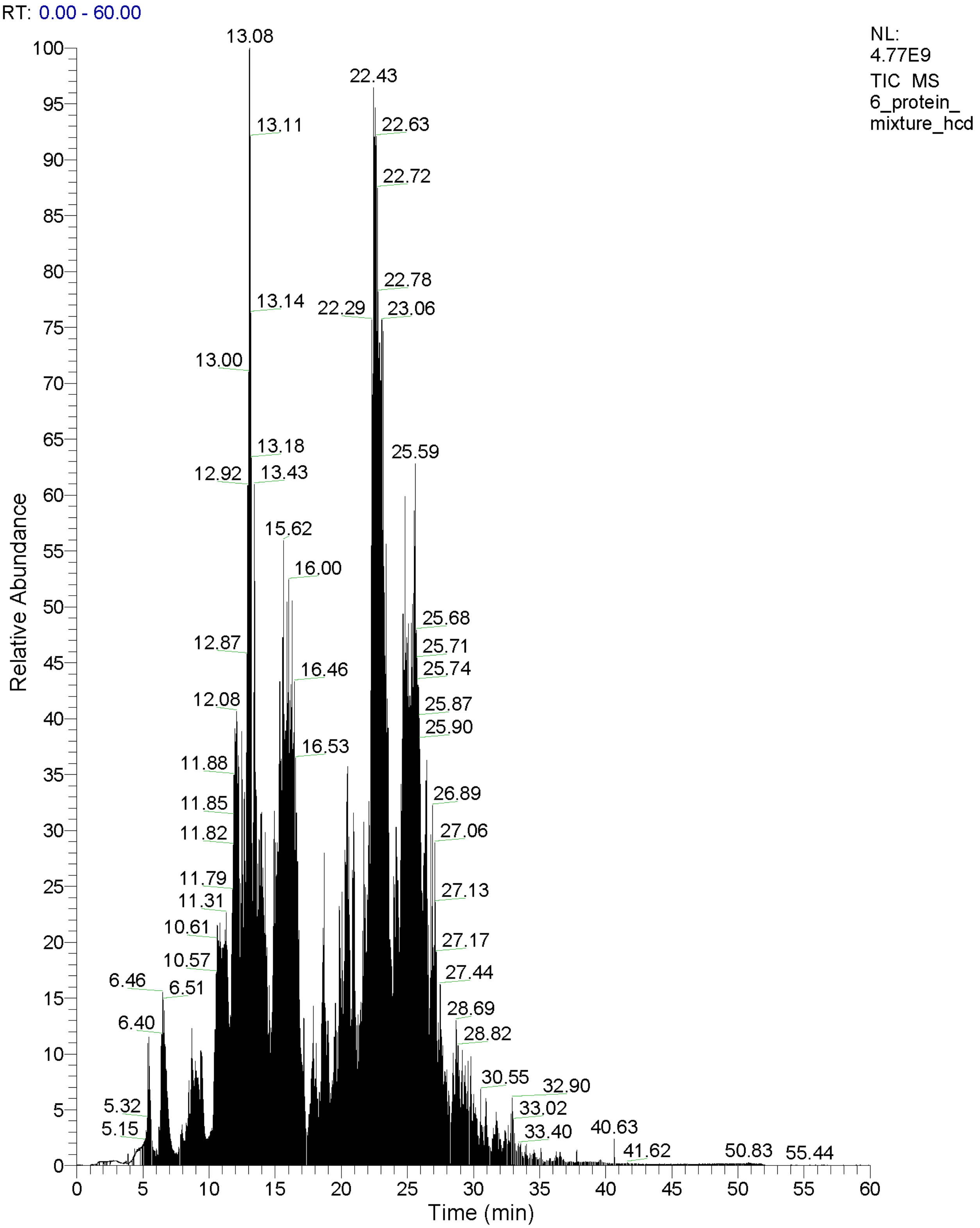
Q1	Q3	dwell Time (ms)	description_peptide sequence.peptide charge	collision energy (eV)
772.09	977.02	30	Beta-lacto_VYVEELKPTPEGDLEILLQ[Dea]K.3	42.604
772.09	1026.55	30	Beta-lacto_VYVEELKPTPEGDLEILLQ[Dea]K.3	42.604
772.09	912.5	30	Beta-lacto_VYVEELKPTPEGDLEILLQ[Dea]K.3	42.604
778.92	857.45	30	Beta-lacto_ASDISLLDAQSAPLR.2	39.272
778.92	970.53	30	Beta-lacto_ASDISLLDAQSAPLR.2	39.272
778.92	742.42	30	Beta-lacto_ASDISLLDAQSAPLR.2	39.272
814.93	858.43	30	Beta-lacto_AASDISLLDAQ[Dea]SAPLR.2	40.857
814.93	971.52	30	Beta-lacto_AASDISLLDAQ[Dea]SAPLR.2	40.857
814.93	1084.6	30	Beta-lacto_AASDISLLDAQ[Dea]SAPLR.2	40.857
743.4	742.42	30	Beta-lacto_SDISLLDAQSAPLR.2	37.71
743.4	857.45	30	Beta-lacto_SDISLLDAQSAPLR.2	37.71
743.4	970.53	30	Beta-lacto_SDISLLDAQSAPLR.2	37.71
600.68	920.49	30	Carbonic anhydrase_IVLKEPISVSSQQMLK.3	34.034
600.68	1007.52	30	Carbonic anhydrase_IVLKEPISVSSQQMLK.3	34.034
413.55	691.37	30	Carbonic anhydrase_YAAELHLVHW.3	24.677
413.55	804.45	30	Carbonic anhydrase_YAAELHLVHW.3	24.677
413.55	933.49	30	Carbonic anhydrase_YAAELHLVHW.3	24.677
700.63	707.28	30	Carbonic anhydrase_MVNN[Dea]GHSFNVEYDDSQDK.3	39.031
700.63	870.35	30	Carbonic anhydrase_MVNN[Dea]GHSFNVEYDDSQDK.3	39.031
562.66	620.3	30	Carbonic anhydrase_PALKPLALVYGEATSR.3	32.133
562.66	783.36	30	Carbonic anhydrase_PALKPLALVYGEATSR.3	32.133
562.66	882.43	30	Carbonic anhydrase_PALKPLALVYGEATSR.3	32.133
587.32	871.5	30	Alpha-S1-casein_HQGLPQEVLNENLLR.3	33.366
587.32	970.57	30	Alpha-S1-casein_HQGLPQEVLNENLLR.3	33.366
587.65	872.48	30	Alpha-S1-casein_HQGLPQEVLNEN[Dea]LLR.3	33.382
587.65	971.55	30	Alpha-S1-casein_HQGLPQEVLNEN[Dea]LLR.3	33.382
745.88	889.45	30	Alpha-S1-casein_HQGLPQEVLNENL.2	37.819
745.88	1002.54	30	Alpha-S1-casein_HQGLPQEVLNENL.2	37.819
748.39	787.41	30	Glutamate dehydrogen_IIAEGAN[Dea]GPTTPEADKIFLER.3	41.419
748.39	844.92	30	Glutamate dehydrogen_IIAEGAN[Dea]GPTTPEADKIFLER.3	41.419
748.39	908.95	30	Glutamate dehydrogen_IIAEGAN[Dea]GPTTPEADKIFLER.3	41.419
610.31	576.31	30	Glutamate dehydrogen_C[CAM]AVVDVPFGGAK.2	31.854
610.31	675.38	30	Glutamate dehydrogen_C[CAM]AVVDVPFGGAK.2	31.854
610.31	790.41	30	Glutamate dehydrogen_C[CAM]AVVDVPFGGAK.2	31.854
471.26	484.32	30	Lactoperox_DGGIDPLVR.2	25.735
471.26	599.35	30	Lactoperox_DGGIDPLVR.2	25.735

405.87	714.38	30	Lactoperox_LIC[CAM]DN[Dea]THITK.3	24.294
405.87	829.41	30	Lactoperox_LIC[CAM]DN[Dea]THITK.3	24.294
405.87	989.44	30	Lactoperox_LIC[CAM]DN[Dea]THITK.3	24.294
577.31	625.37	30	Lactoperox_ASEQILLATAH.2	30.402
577.31	738.45	30	Lactoperox_ASEQILLATAH.2	30.402
577.31	995.55	30	Lactoperox_ASEQILLATAH.2	30.402
582.32	595.31	30	Serum albumin_LVNELTEFAK.2	30.622
582.32	708.39	30	Serum albumin_LVNELTEFAK.2	30.622
582.32	837.44	30	Serum albumin_LVNELTEFAK.2	30.622
582.32	951.48	30	Serum albumin_LVNELTEFAK.2	30.622

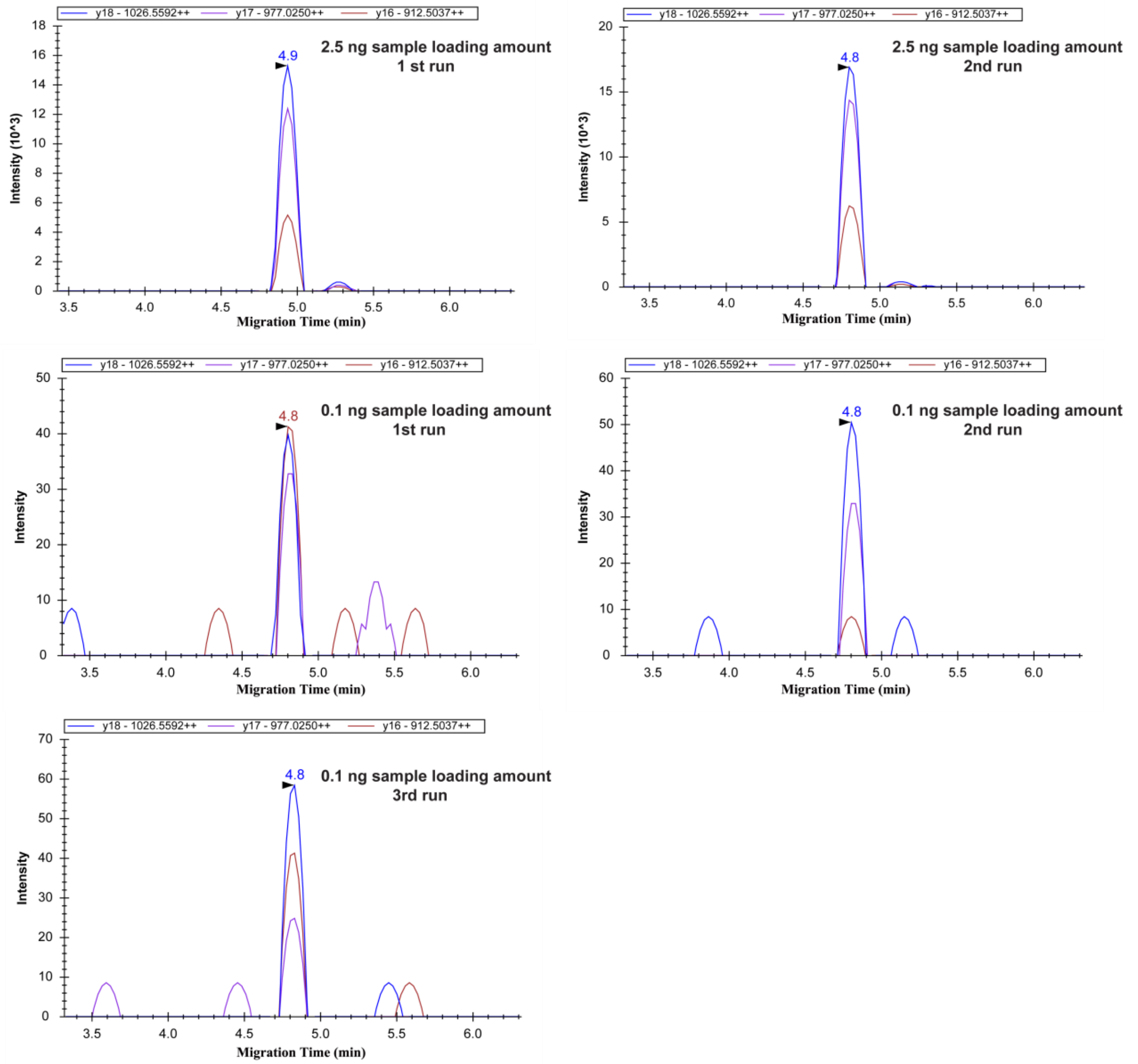
S-Table 2 Information of the six bovine tryptic digest exponential molar mixture*

Protein description	Qty (fmole)	MW (kDa)
Beta Lactoglobulin	500,000	18.3
Lactoperoxidase	50,000	79.8
Carbonic Anhydrase	5,000	29.2
Glutamate Dehydrogenase	500	55.5
Alpha Casein	50	23.6
Serum Albumin	5	69.3

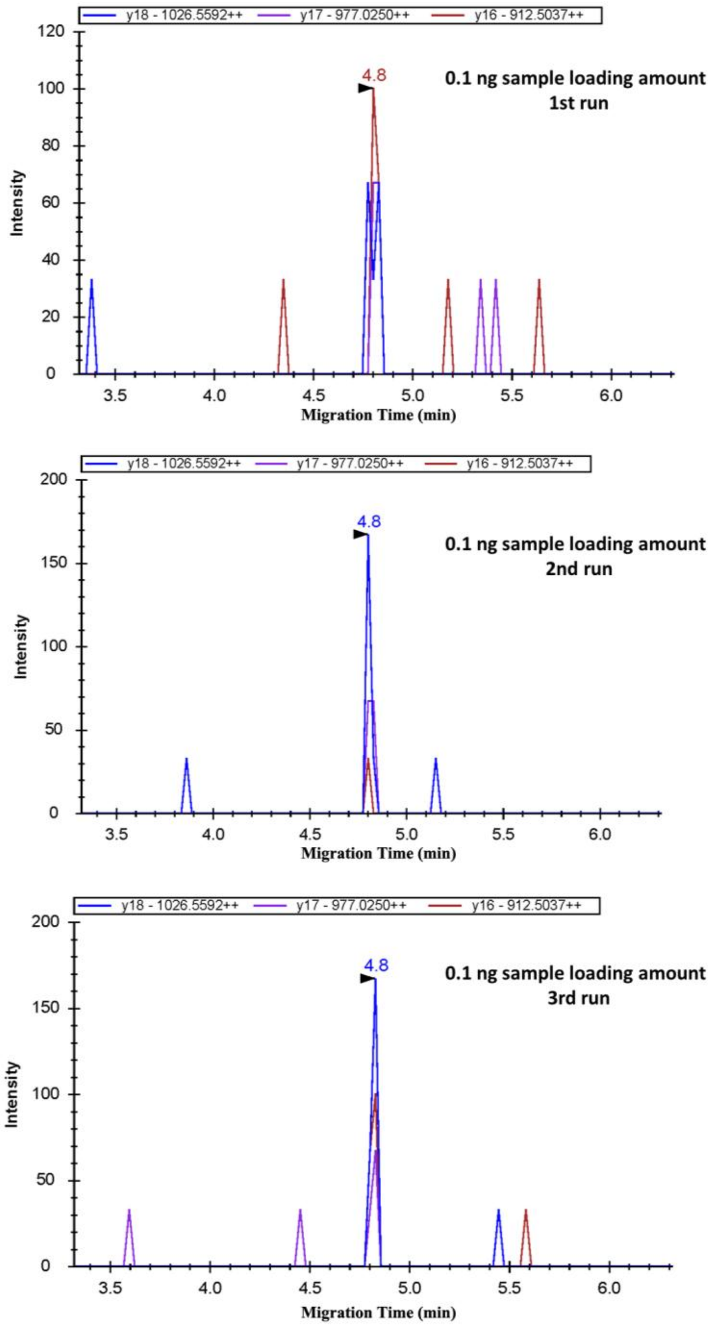
*The information was obtained from the website of Bruker-Michrom Inc. The protein amounts listed in the table were the amounts in one vial.



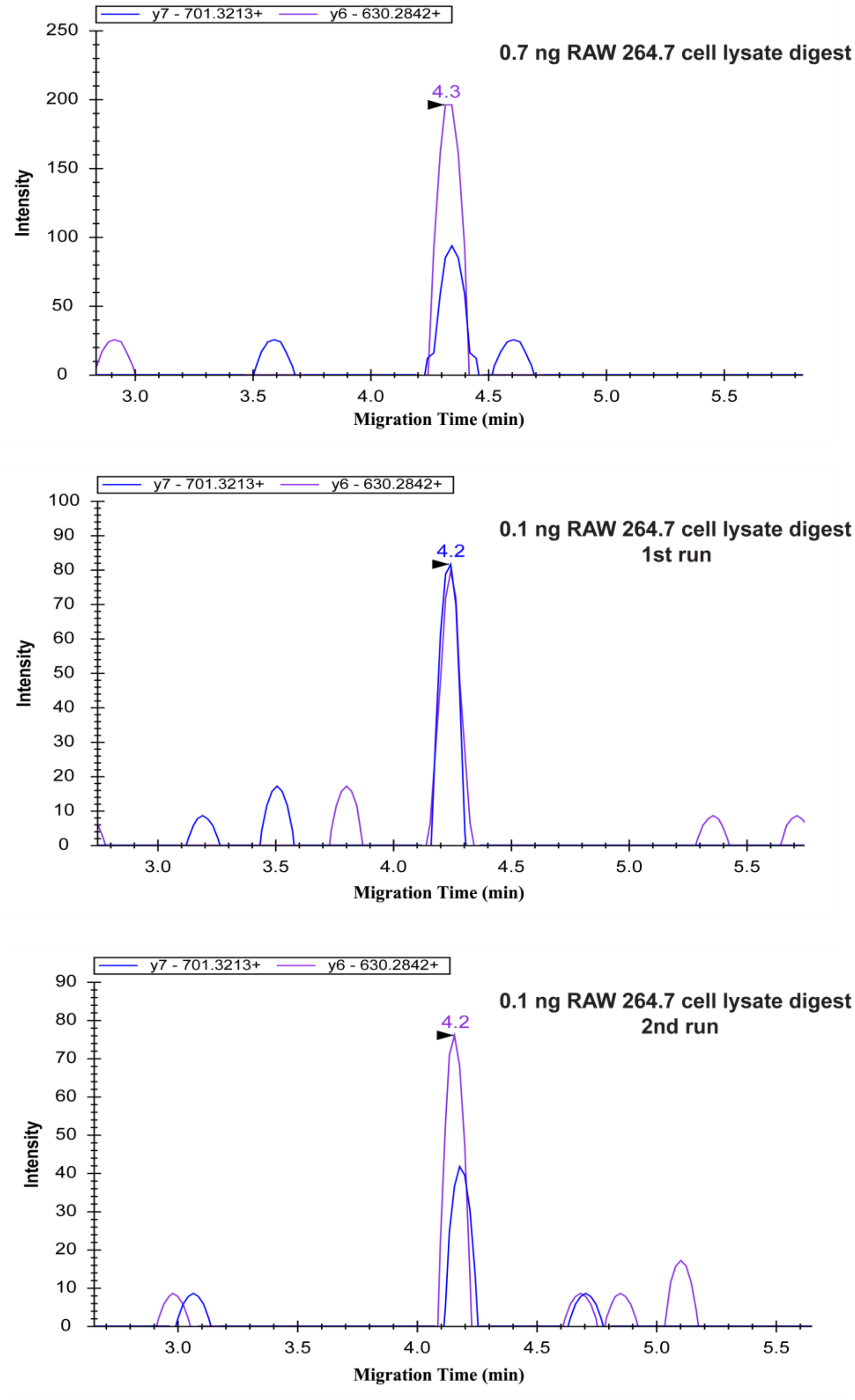
S-Figure 1 Total ion current chromatogram of the six-protein-digest mixture after analyzsis by UPLC-ESI-MS/MS (LTQ-Orbitrap Velos).



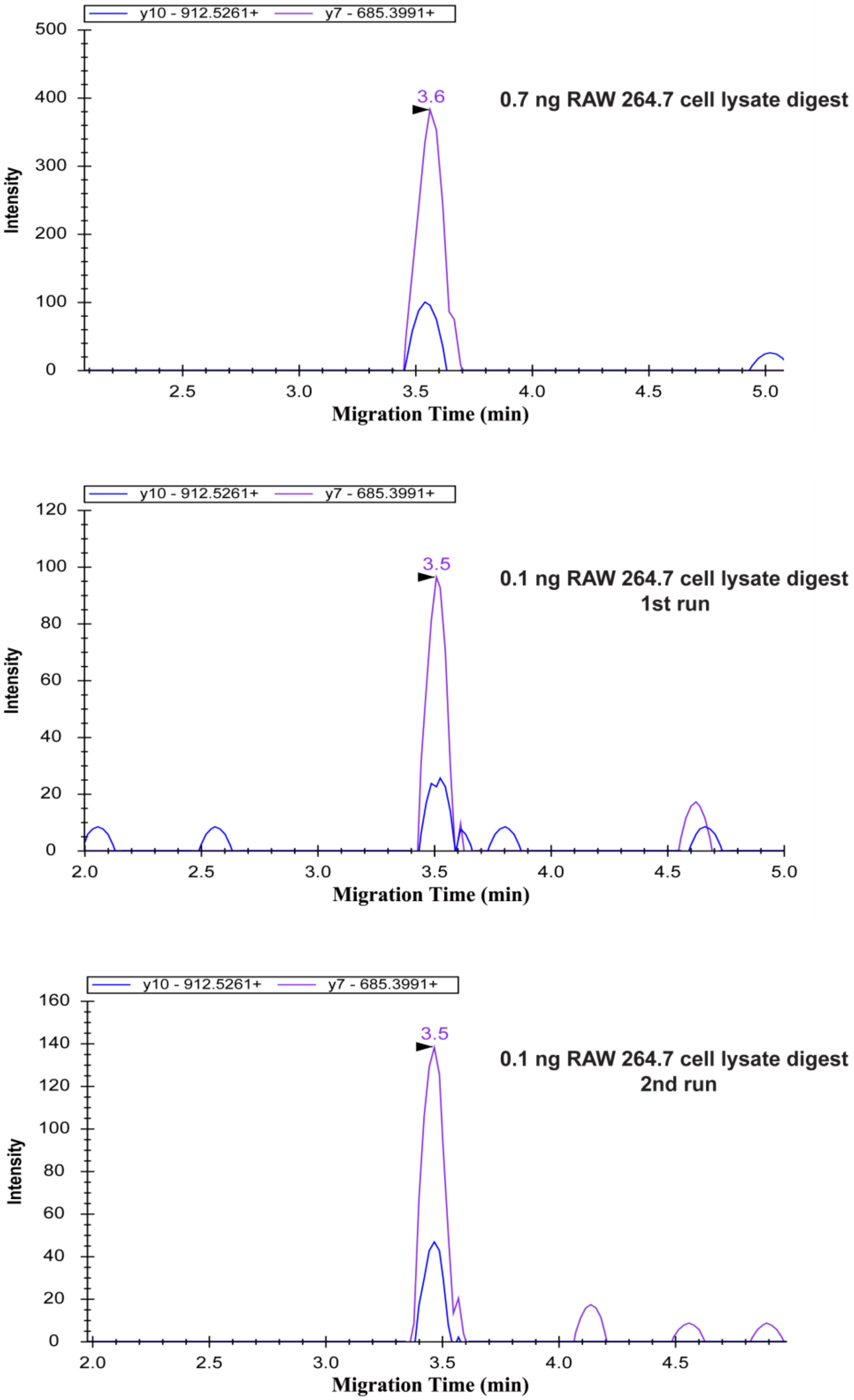
S-Figure 2 CZE-MRM results of beta lactoglobulin (VYVEELKPTPEGDLEILLQ[Dea]K) for 2.5 ng and 100 pg loading amounts of the six bovine tryptic digest exponential molar mixture. Savitzky-Golay smoothing was applied for all the transitions.



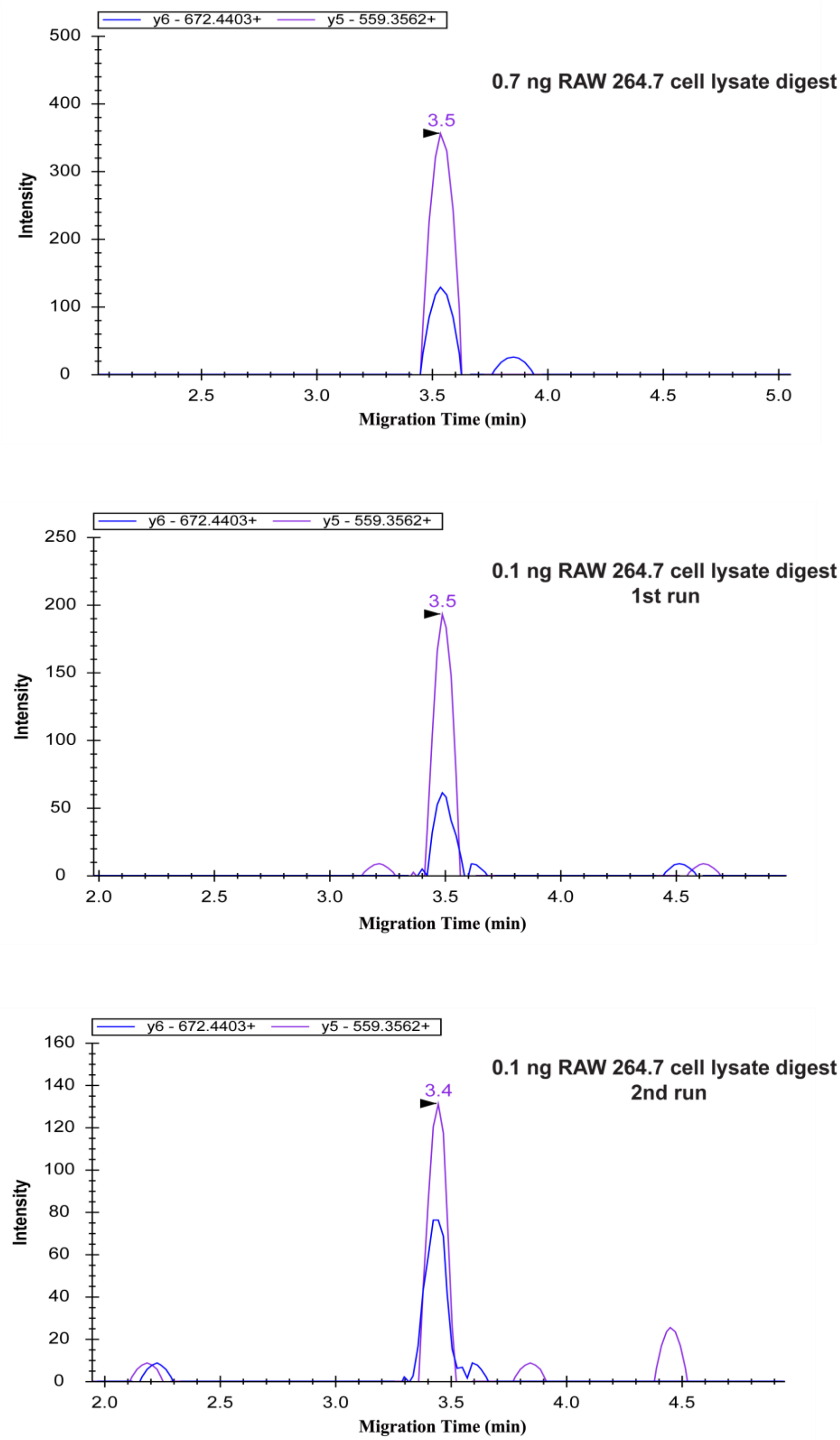
S-Figure 3 CZE-MRM analysis of beta lactoglobulin (VYVEELKPTPEGDLEILLQ[Dea]K) for 100 pg loading amount of the six bovine tryptic digest exponential molar mixture. No smoothing was applied for all the transitions.



S-Figure 4 CZE-MRM analysis of actin (AGFAGDDAPR) for two different loading amounts of the cell lysate digest (0.7 ng and 0.1 ng).



S-Figure 5 CZE-MRM results of elongation factor (IGGIGTVPVGR) for two different loading amounts of the cell lysate digest (0.7 ng and 0.1 ng).



S-Figure 6 CZE-MRM results of pyruvate kinase (APIIAVTR) for two different loading amounts of the cell lysate digest (0.7 ng and 0.1 ng).