Supplemental Figure captions

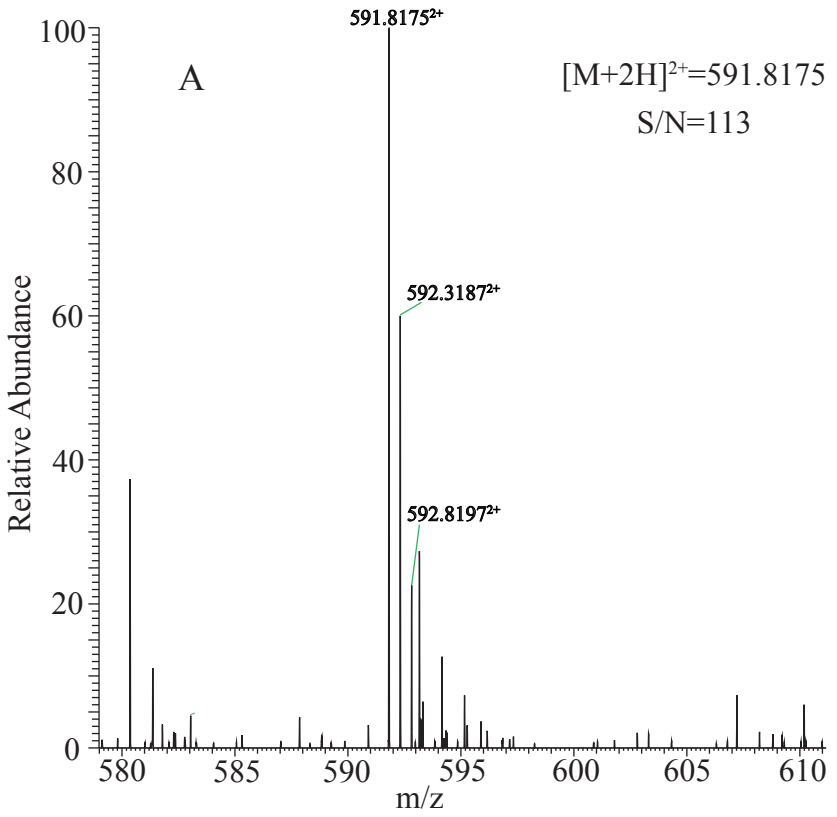
Supplemental Figure 1. Characteristic peaks from bovine gelatin by nanoACQUITY UPLC system and LTQ-Orbitrap Velos mass spectrometer. A. peptide ^{465}EGPVGL*PGIDGR^{476} with *m/z* of 591.8175^{2+}; B. peptide ^{1068}IGQPGAVGPAGIR^{1080} with *m/z* of 596.8519^{2+}; C. peptide ^{574}GI*PGEFGL*PGPAGAR^{588} with *m/z* of 714.3778^{2+}; D. peptide ^{1069}GETGPAGPAGPIGPVGAR^{1086} with *m/z* of 780.9209^{2+}; E. peptide ^{795}TG*P*PGPSGISGPPGP*PG*PAGK^{815} with *m/z* of 923.4639^{2+}; F. peptide ^{451}GEPG*PTGIQGP*PGPAGEEGK^{470} with *m/z* of 932.4507^{2+}. S/N is indicated in each spectrum.

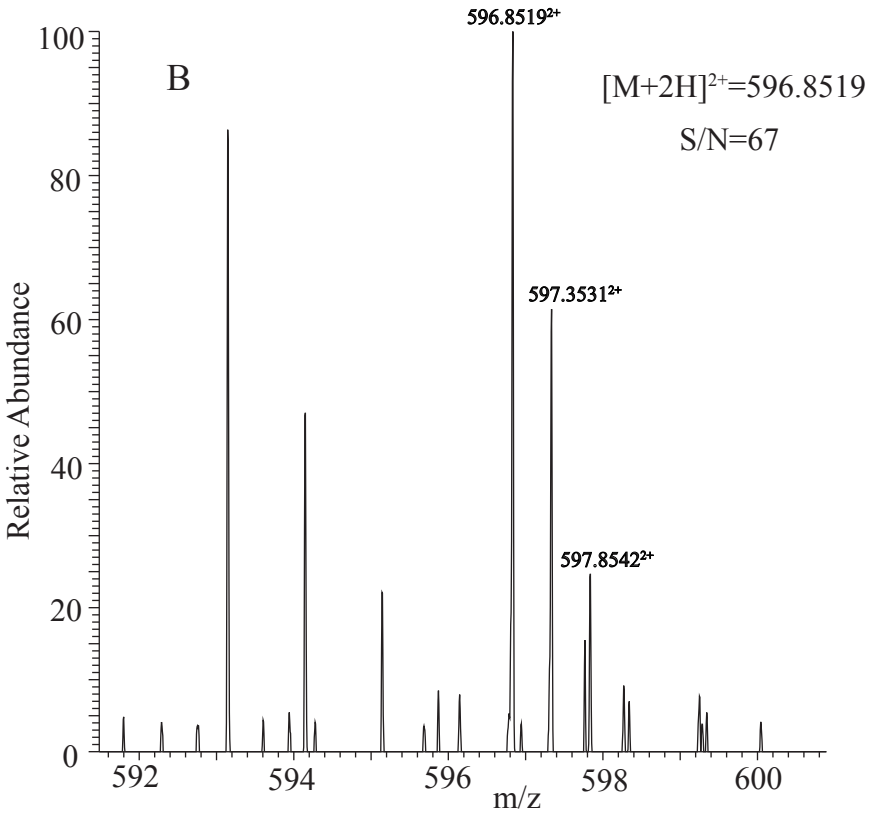
Supplemental Figure 2. Reproducibility of the method for the peptide ^{451}GEPG*PTGVQGP*PGPAGEEGK^{470} with *m/z* of 925.4421^{2+} from porcine gelatin at various ^{18}O/^{16}O mixing ratios. A. 20:1; B. 5:1; C. 1:1; D. 1:5.

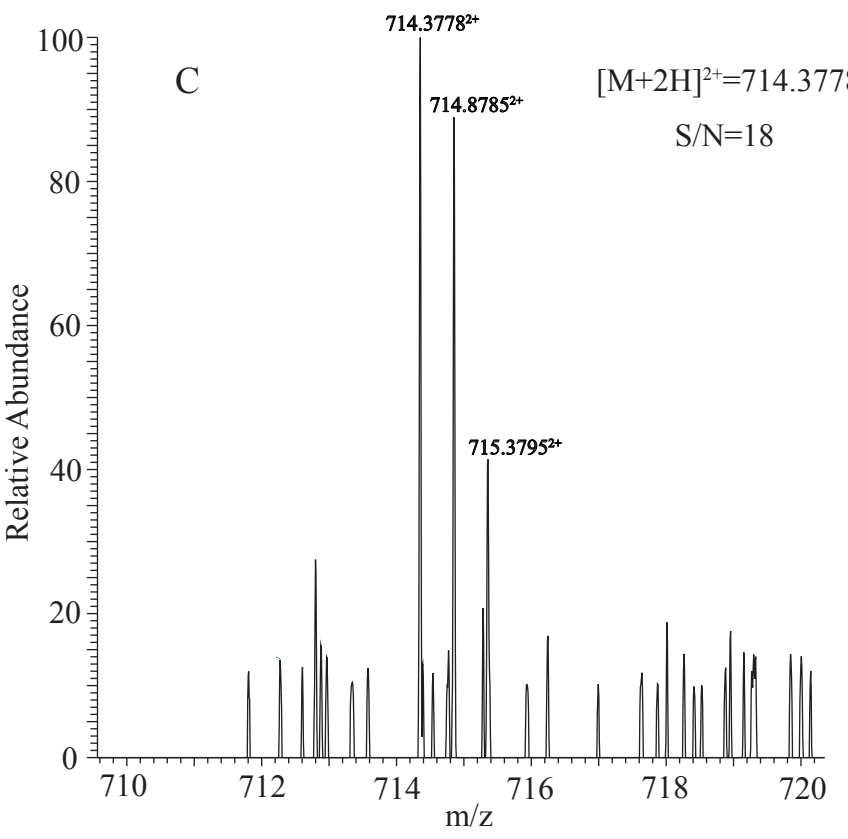
Supplemental Figure 3. Reproducibility of characteristic peaks of gelatin from three replicates of film samples. A. the unique peptide ^{592}GP*PGESGAAGPTGPIGSR^{609} with *m/z* of 790.8971^{2+} from bovine gelatin; B. the unique peptide ^{51}GEPG*PTGVQGP*PGPA GEEGK^{470} with *m/z* of 925.4421^{2+} from porcine gelatin. The film samples were prepare by mixing 1:1 weight ratio of bovine and porcine

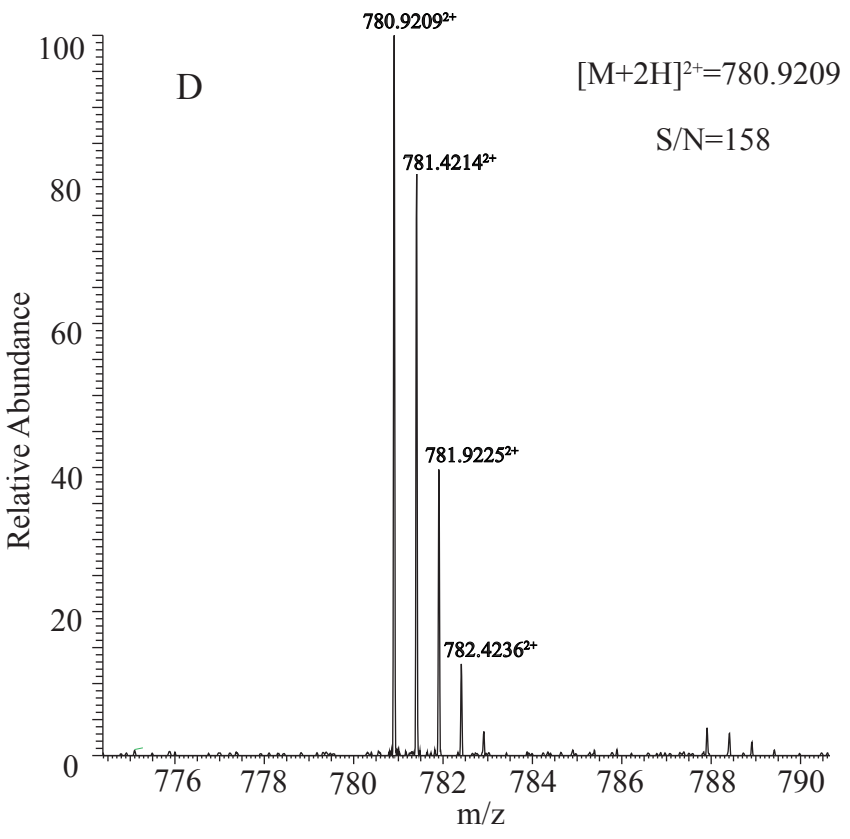
gelatin with glycerol and sorbitol. Glycerol and sorbitol were added at the concentration of 15% (w/w) of total gelatin, respectively. The characteristic peaks for bovine and porcine gelatins were detected by nanoACQUITY UPLC system and LTQ-Orbitrap Velos mass spectrometer. Relative standard deviation (RSD) was calculated based on the monoisotopic peak area.

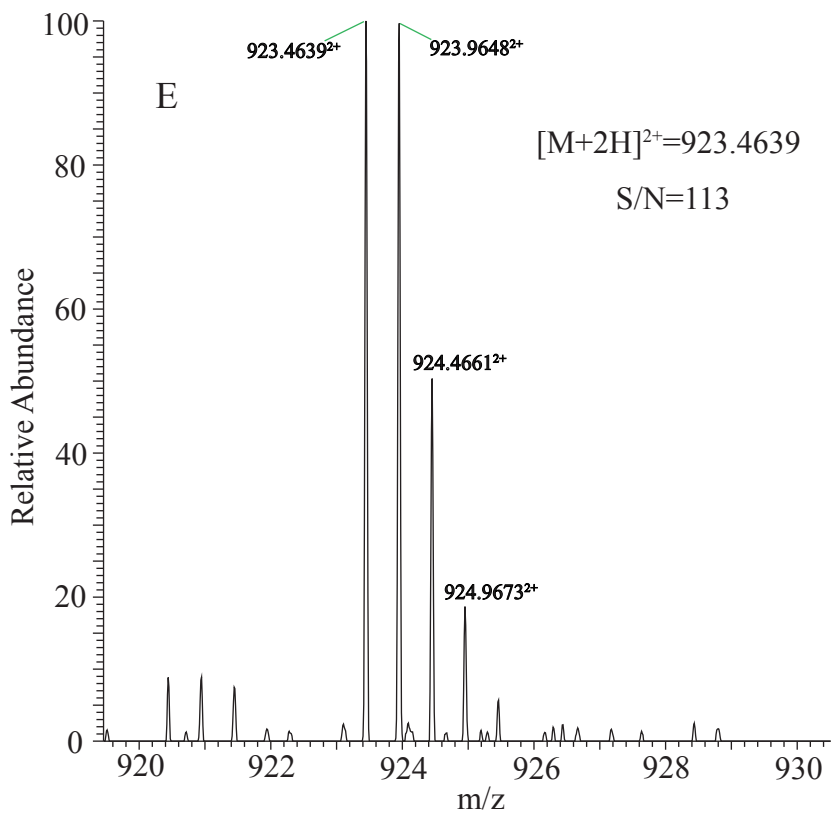
27

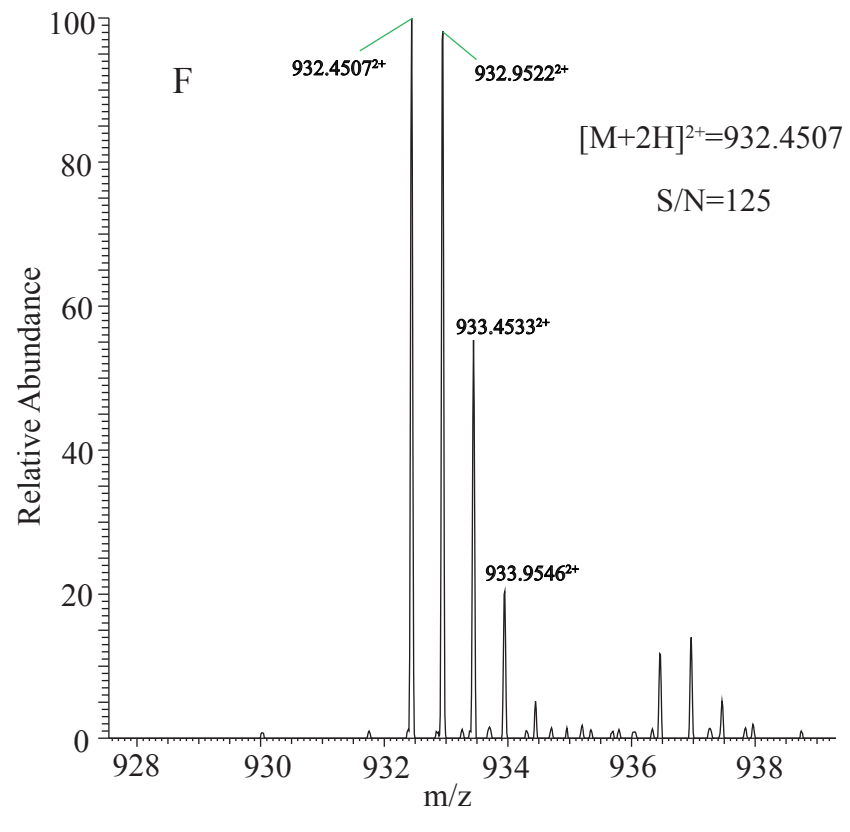






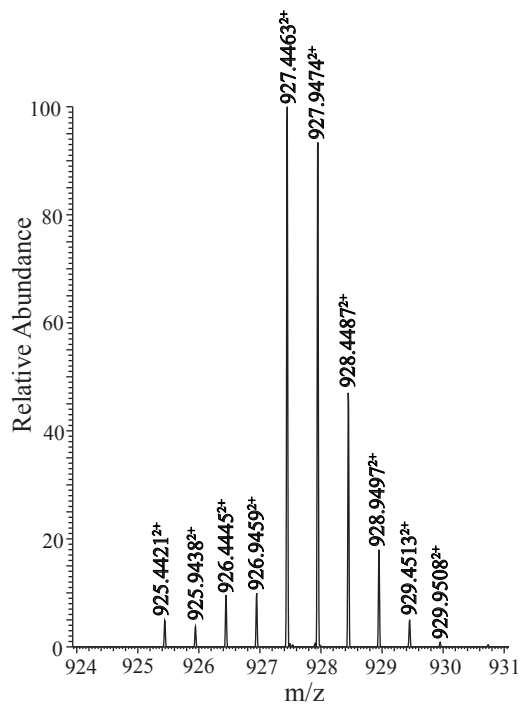


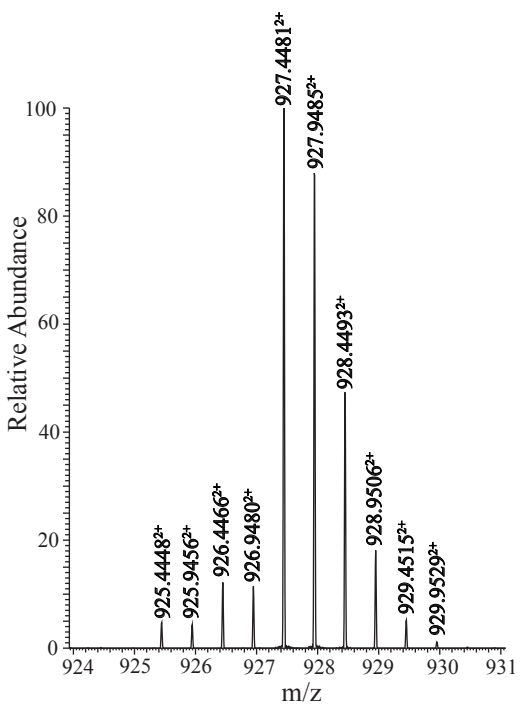


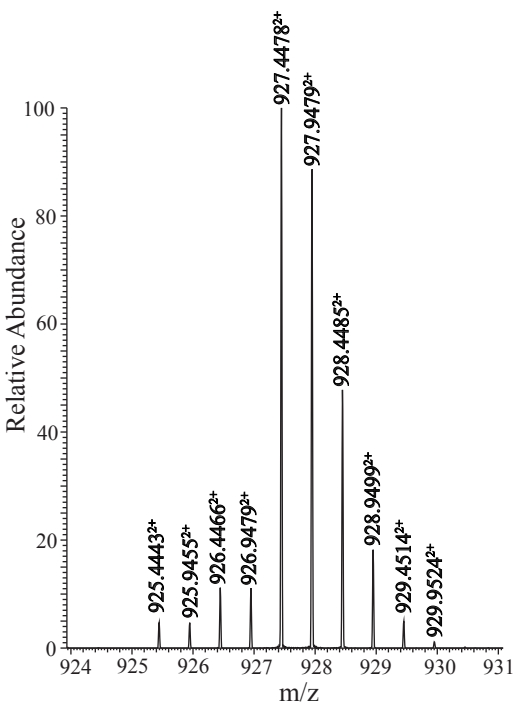


Supplemental Figure 1

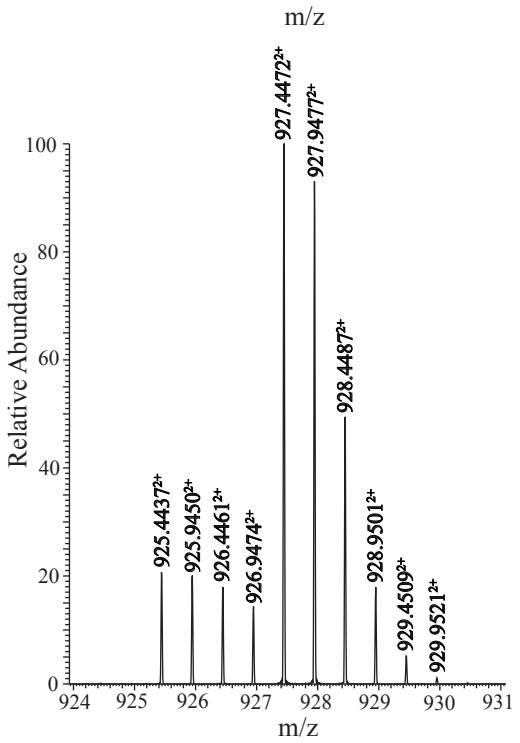
A
$^{18}O/^{16}O$
=20:1

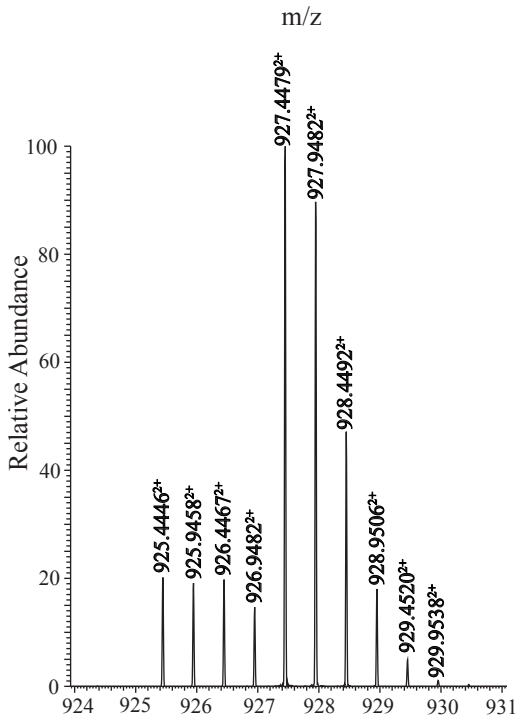


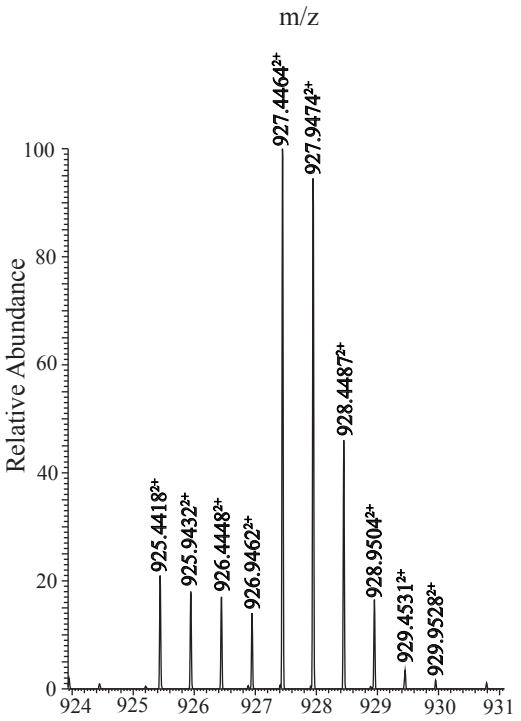




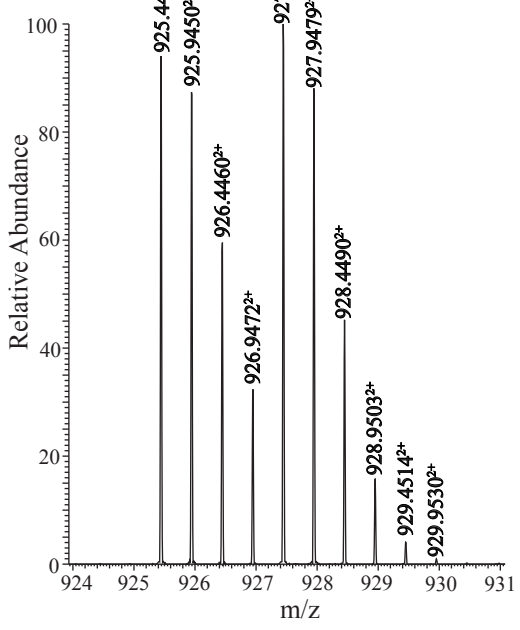
B
$^{18}O/^{16}O$
=5:1

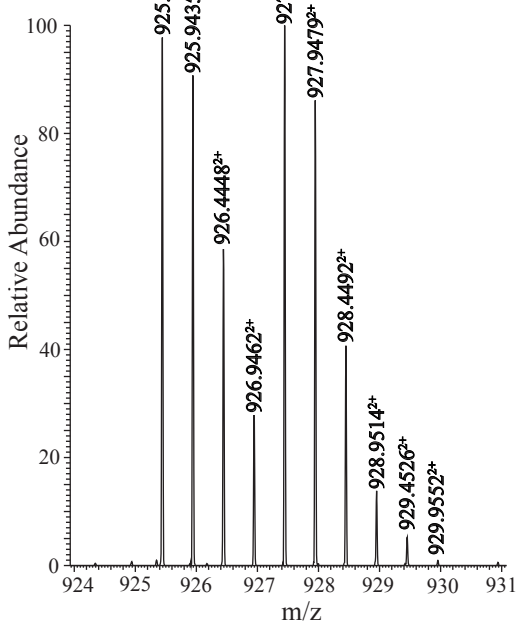


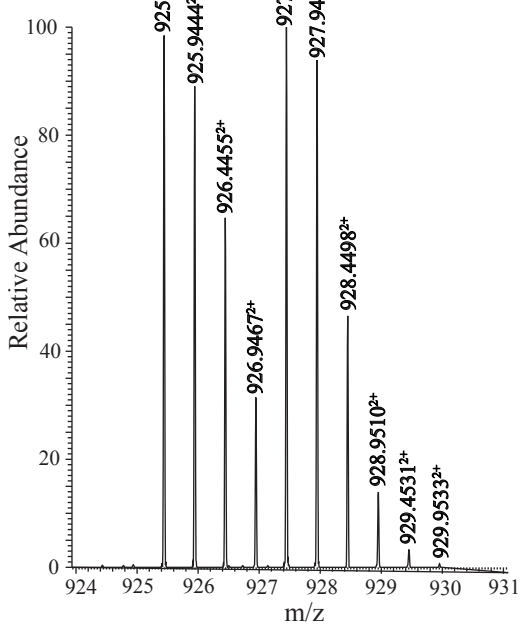




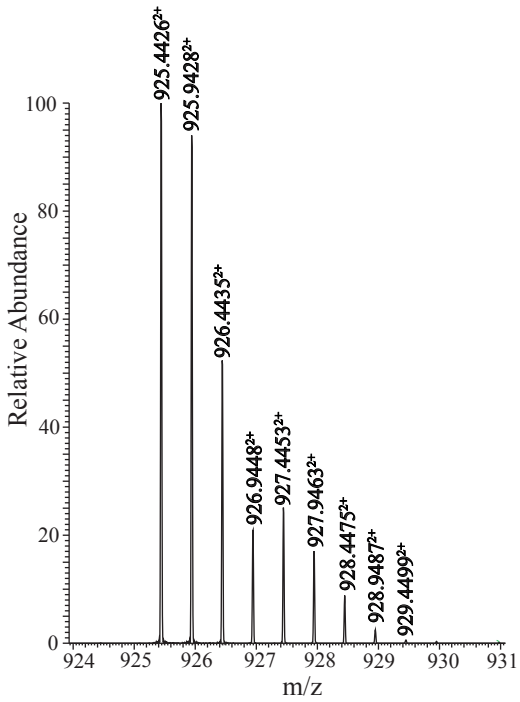
C
$^{18}O/^{16}O$
=1:1

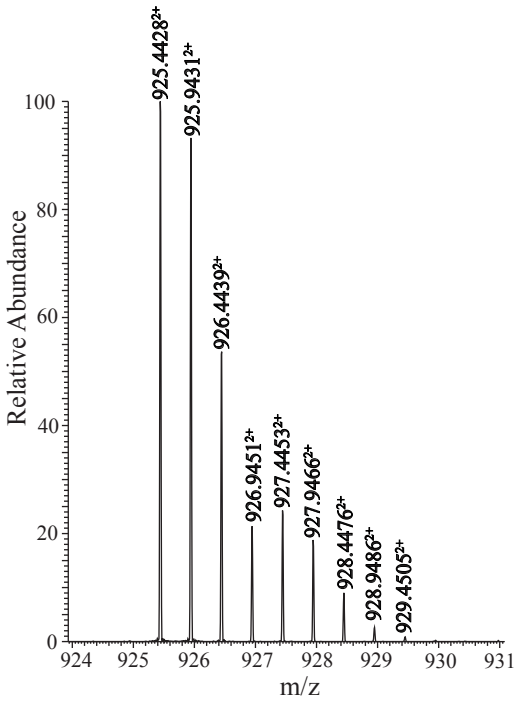


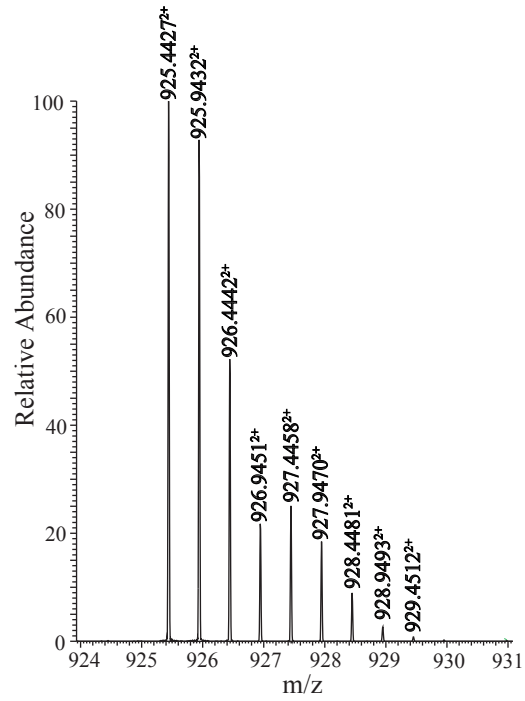




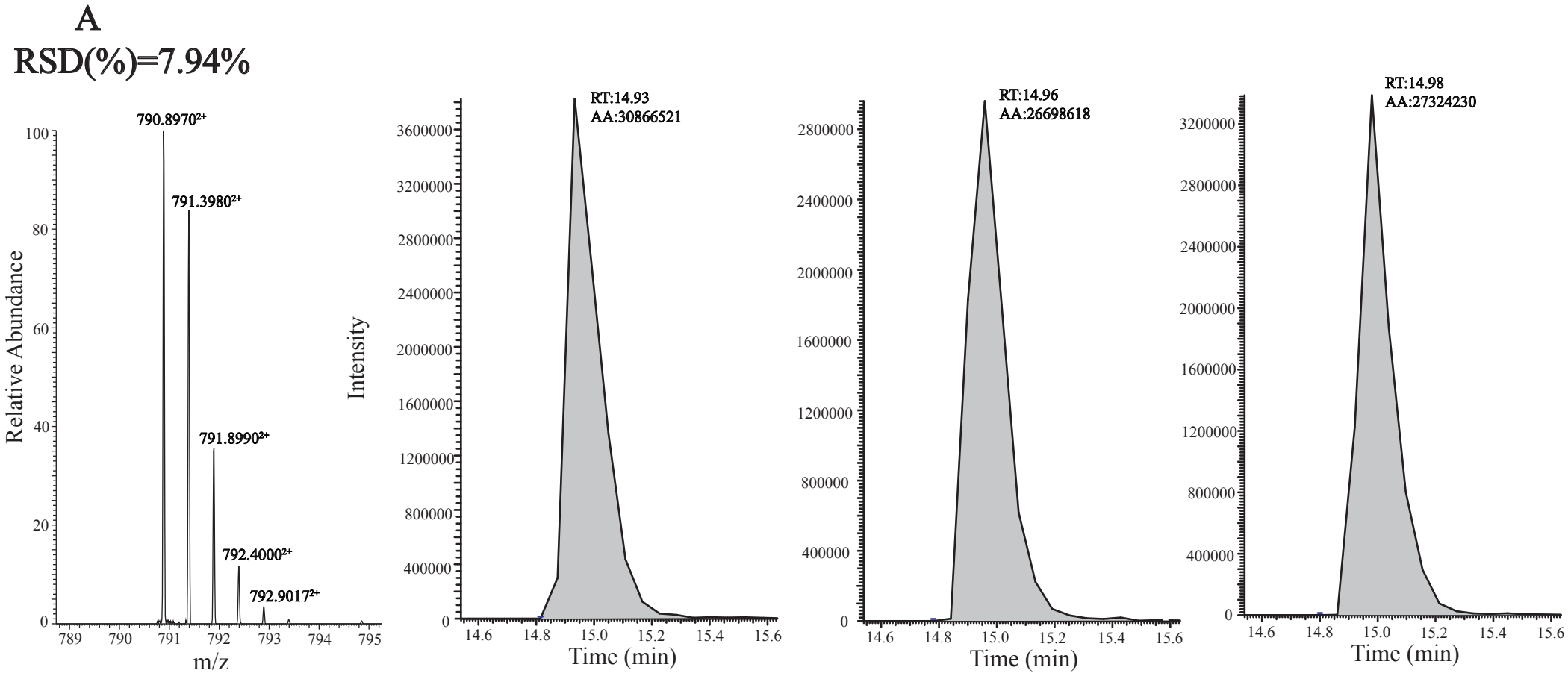
D
$^{18}O/^{16}O$
=1:5







Supplemental Figure 2



Supplemental Figure 3