SUPPORTING INFORMATION

Mass spectral charting of neuropeptidomic expression in the stomatogastric ganglion at multiple developmental stages of the lobster *Homarus americanus*

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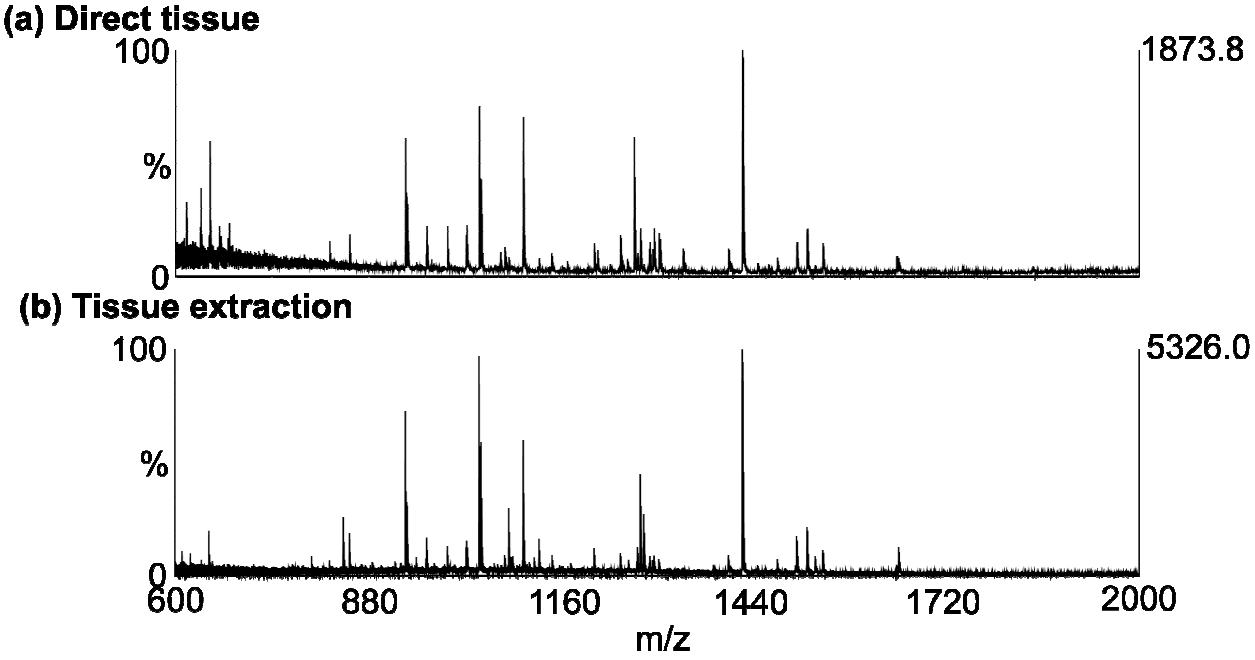
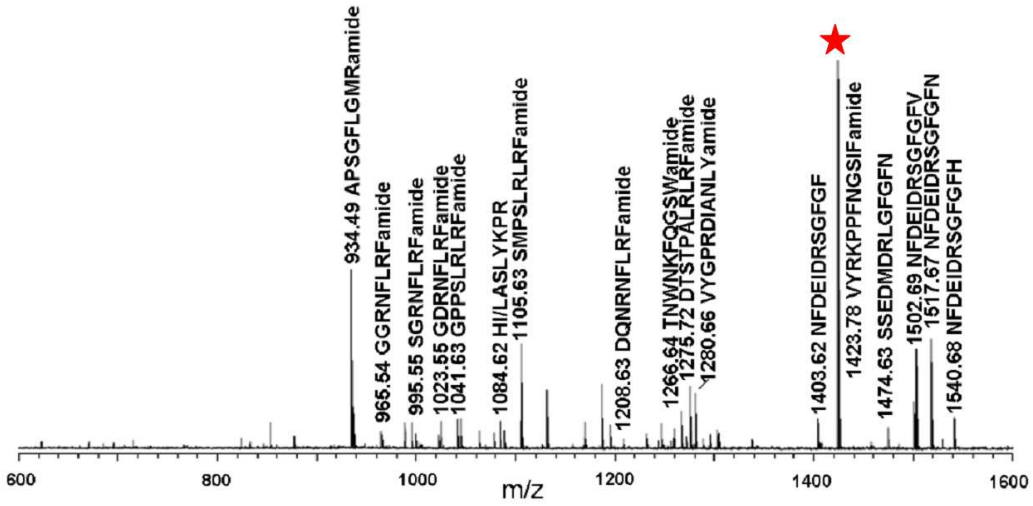
Supporting Figure S1



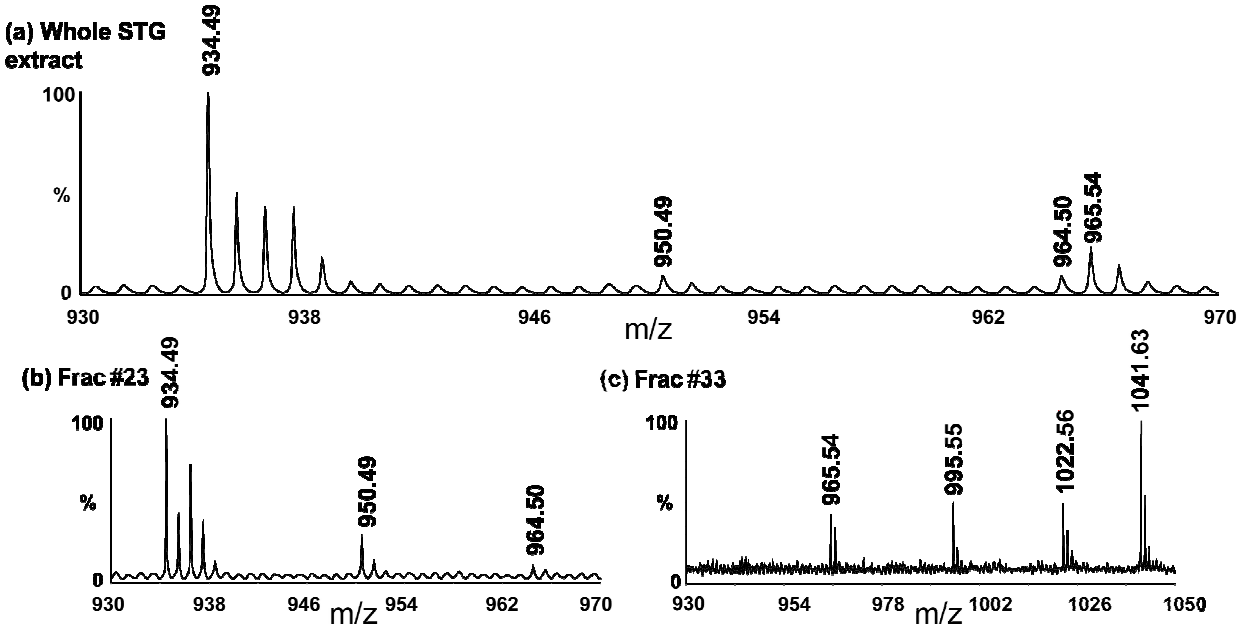
Supporting Figure S1 : Entire mass range analysis of (a) a single adult STG by direct tissue analysis and (b) tissue extract of 15 pooled adult STGs using MALDI TOF/TOF MS. Most neuropeptides have masses between *m/z* 900-1600. The right axis shows the absolute intensity of the spectrum.

Supporting Figure S2



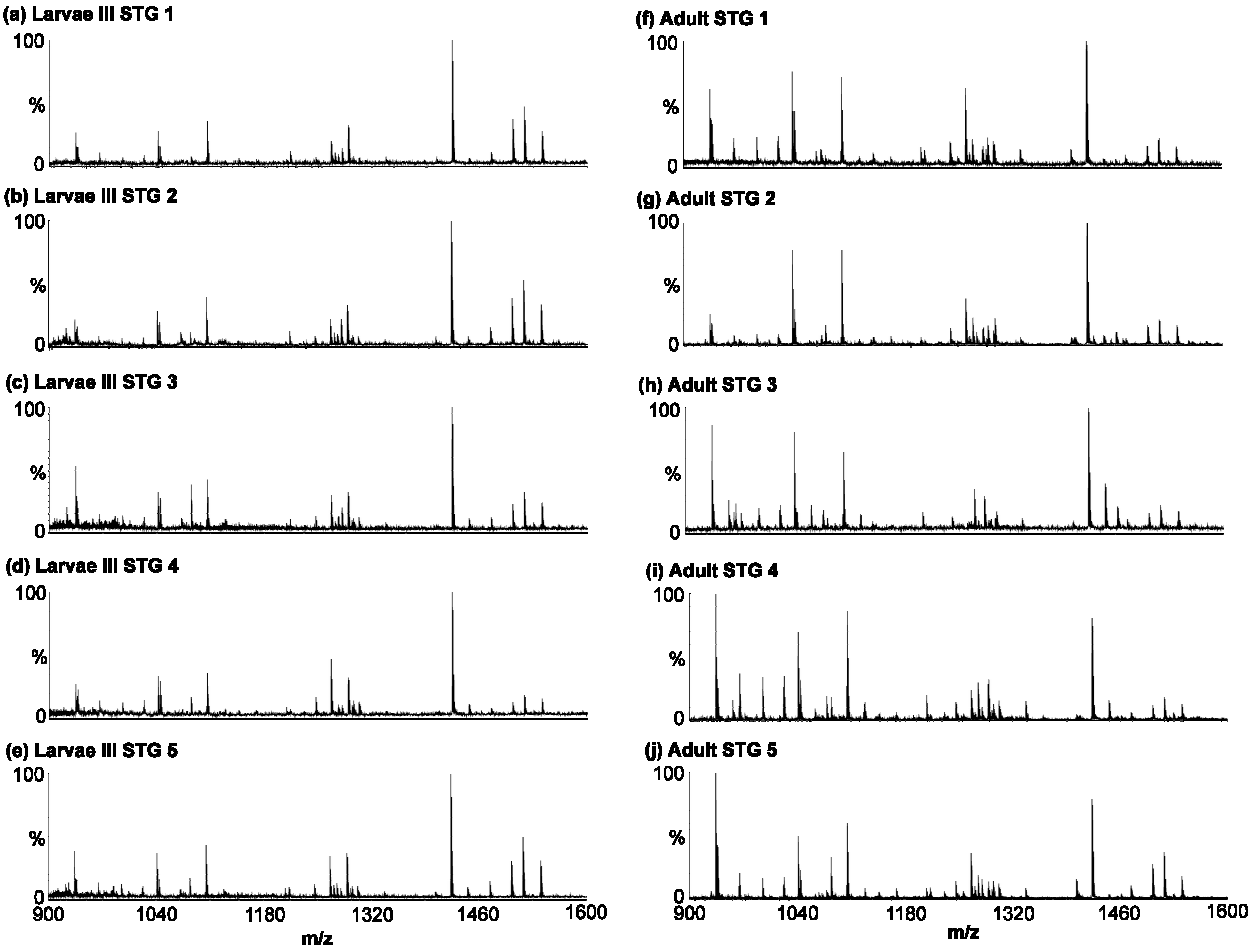
Supporting Figure S2 : FT direct tissue analysis of the STG of American lobster. As shown, peak *m/z* 1423.78 is the most intense peak in the spectrum. The highest signal response of VYRKPPFNGSIFamide in MALDI MS measurement might be due to the presence of multiple basic residues in its sequence.

Supporting Figure S3 :



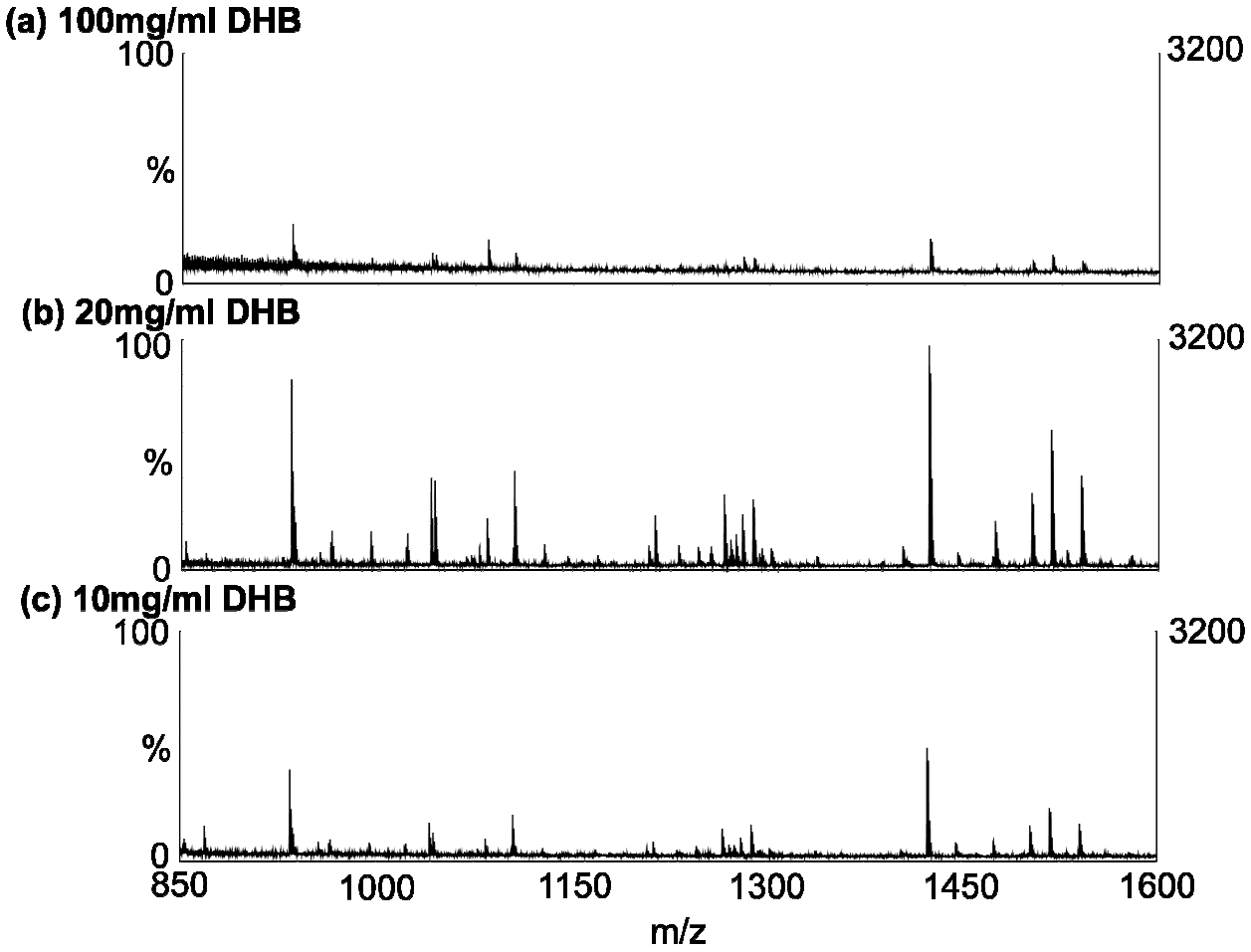
Supporting Figure S3 : Mass spectral analysis of CE separation and identification of three tachykinin peptides APSGFLGMRamide (*m/z* 934.49), APSGFLGM(O)Ramide (*m/z* 950.49) and TPSGFLGMRamide (*m/z* 964.5) in the adult STG extract. (a) The peak intensities for *m/z* 950.49 and *m/z* 964.50 are too low to be identified unambiguously as putative neuropeptide peaks. It is also noted that *m/z* 964.50 peak is detected together with *m/z* 965.54 peak (GGRNFLRFamide). After separation, in (b) fraction #23, peak abundances for *m/z* 950.49 and *m/z* 964.50 are increased, with the elimination of interfering *m/z* 965.54 peak. (c) In fraction #33, *m/z* 965.54 is eluted, together with other neuropeptide isoforms belonging to the FaRP family.

Supporting Figure S4 :



Supporting Figure S4 : Demonstration of spectral variability which is caused by sample preparation and animal individual variation. (a-e) Direct tissue analysis of STGs from five larvae III lobsters. (f-j) Direct tissue analysis of STGs from five adult lobsters.

Supporting Figure 5



Supporting Figure 5 : Comparisons of different concentrations of DHB for analyzing the STG of early stage lobster (stage V). The STGs were detected using (a) 100mg/ml DHB; (b) 20mg/ml DHB; and (c) 10mg/ml DHB. The y axis has been normalized to the same absolute intensity for each spectrum. 20mg/ml DHB could give the highest peak intensities for the sample. However, the matrix concentration does not affect the relative peak intensities of the peptides.