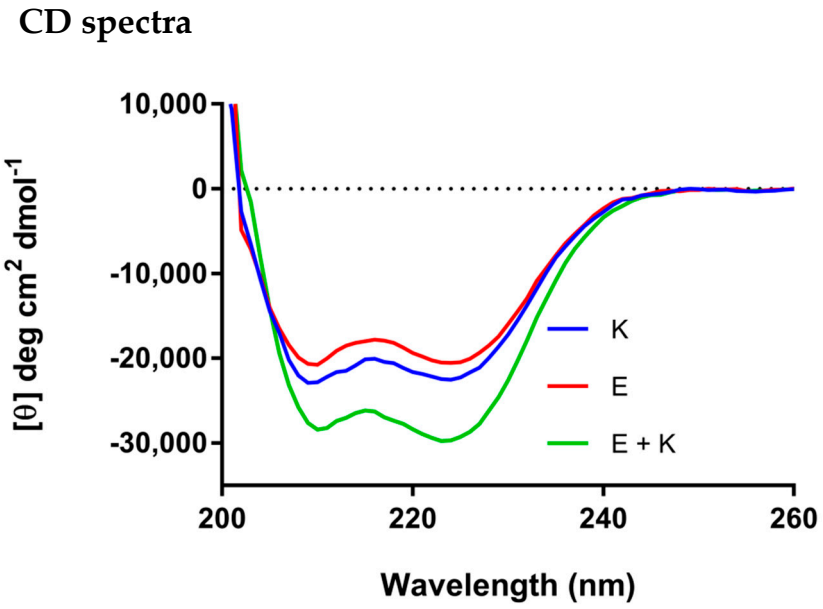


Figure S1: CD structures of the coiled-coil forming peptides E; $(EIAALEK)_4GW$ and K; $(KIAALKE)_4GW$ without liposomes. Conditions: [2.5 μM] peptide, PBS pH 7.4, 25 °C.

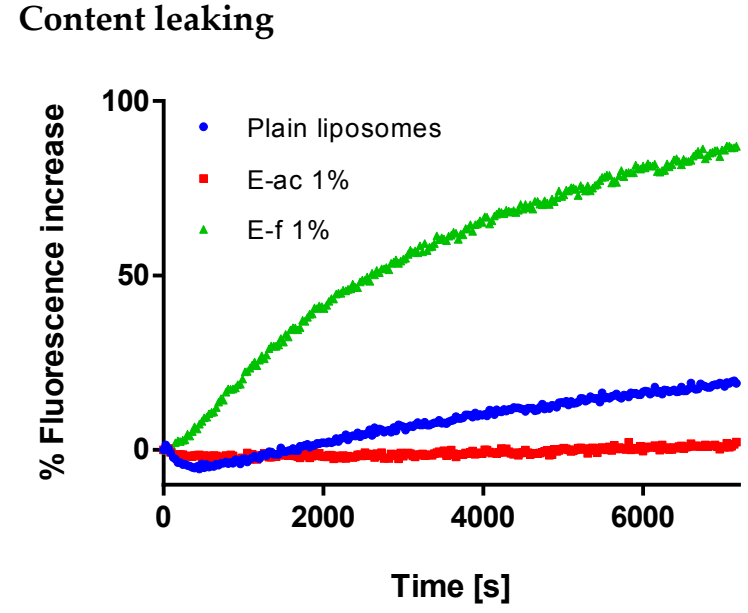


Figure S2: Leaking of sulforhodamine B from liposomes used in content mixing experiments. Liposomes [0.1 mM], comprise DOPC:DOPE:Cholesterol (50:25:25 mol%), with 20 mM Sulforhodamine B, (AcCPE, and fCPE functionalised liposomes), or 10 mM (plain liposomes) in PBS, pH 7.4.

Liposome Size Distributions

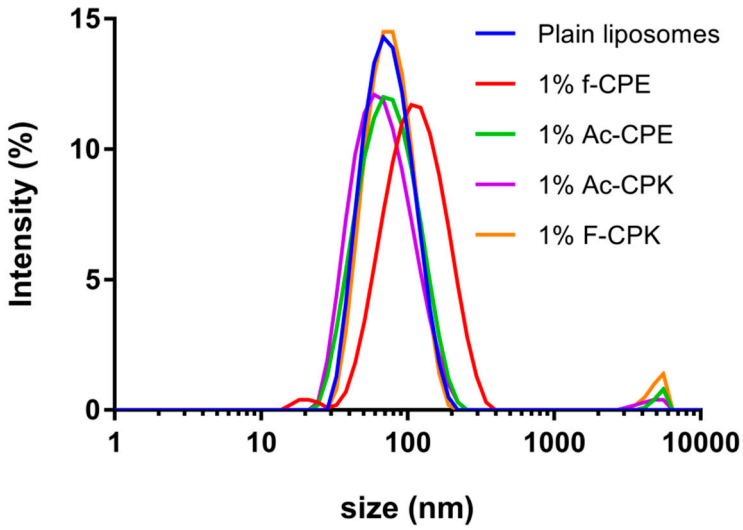
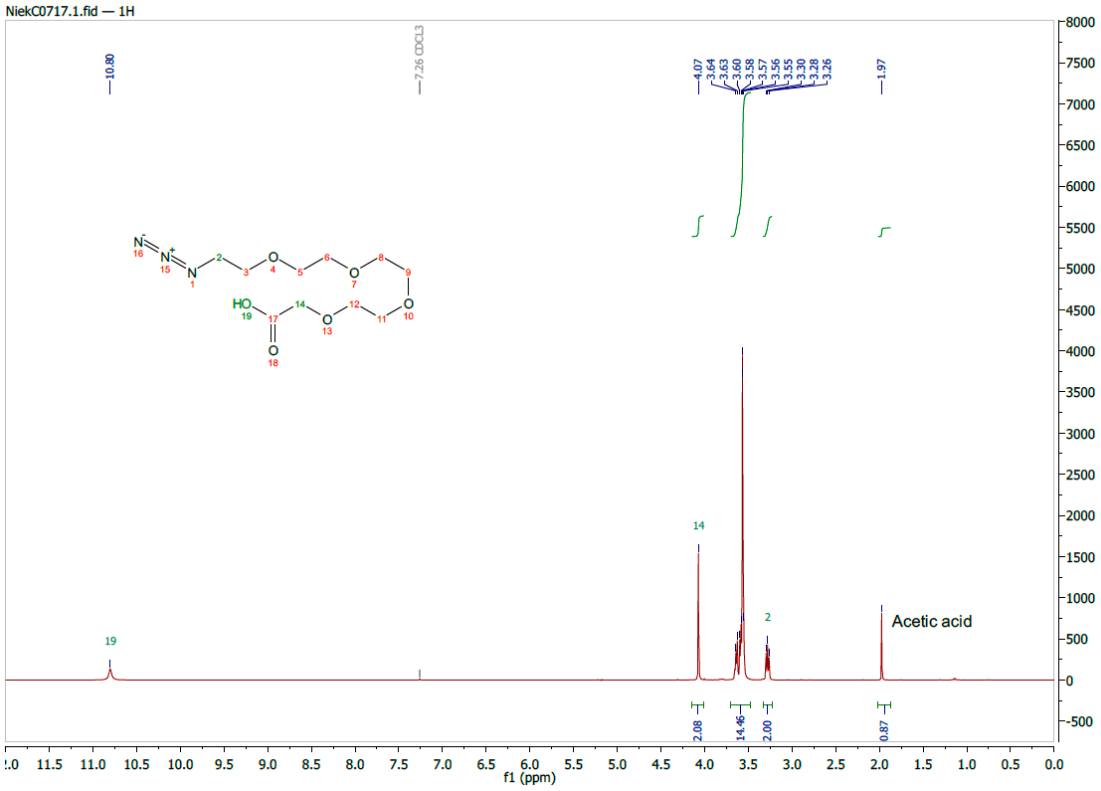


Figure S3: Size distribution by intensity of liposomes used in fusion experiments as measured using DLS. liposomes [0.5 mM], comprising DOPC:DOPE:Cholesterol (50:25:25 mol%) with 1% of the respective lipopeptide; f-CPE (Red), Ac-CPE (Green), f-CPK (yellow) and Ac-CPK (purple) in PBS at pH 7.4. Liposomes were subsequently diluted from 0.5 mM to the appropriate concentrations for CD, fluorescence, or lipid- and content-mixing experiments.

NMR spectra of N_3-PEG_4-COOH



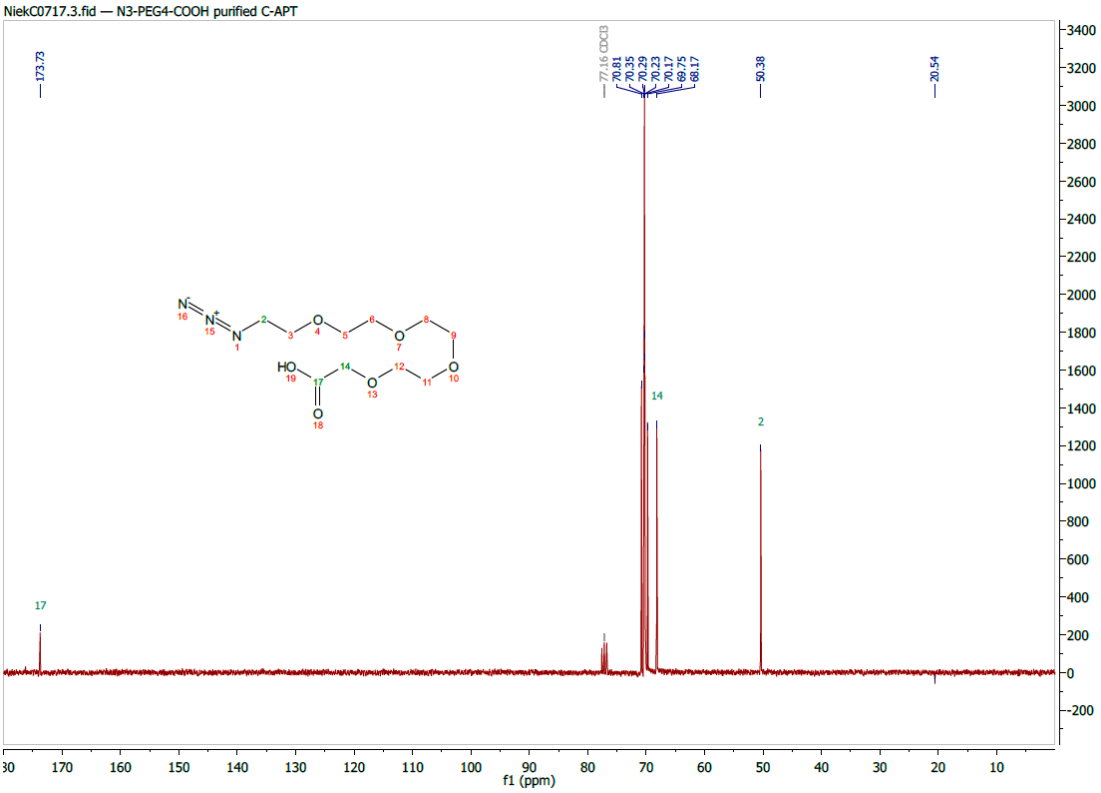


Figure S4: Proton (top) and carbon (bottom) NMR spectra of the N3-PEG4-COOH linker. Both spectra were recorded using $CDCl_3$ as solvent.

LC-MS of purified peptides

Peptide name	Calculated mass (Da)	Measured mass (Da)
AcCPE	$[M + 2H^+]^{2+}$ 1891.61 $[M + 2H^+$-cholesterol$]^{2+}$ 1706.85 $[M + 3H^+]^{3+}$ 1261.41	1890.21 1705.24 1260.77
fCPE	$[M + 2H^+]^{2+}$ 1891.61 $[M + 2H^+$-cholesterol$]^{2+}$ 1706.85 $[M + 3H^+]^{3+}$ 1261.41	1890,00 1705.94 1272.24
AcCPK	$[M + 2H^+]^{2+}$ 1889.74 $[M + 2H$-cholesterol$^+]^{2+}$ 1705.135 $[M + 3H^+]^{3+}$ 1260.16 $[M + 3H^+$-cholesterol$]^{3+}$ 1137.38	1887.90 1702.94 1257.96 1135.10
fCPK	$[M + 2H^+]^{2+}$ 1889.74 $[M + 2H$-cholesterol$^+]^{2+}$ 1705.135 $[M + 3H^+]^{3+}$ 1260.16 $[M + 3H^+$-cholesterol$]^{3+}$ 1137.38	1887.50 1703.36 1257.77 1134.50
AcCPK-GW	$[M + 2H^+]^{2+}$ 2010.29 $[M + 2H$-cholesterol$^+]^{2+}$ 1826.13 $[M + 3H^+]^{3+}$ 1340.52	2010.63 1824.69 1339.51
fCPK-GW	$[M + 2H^+]^{2+}$ 2010.29 $[M + 3H^+]^{3+}$ 1340.52	2010.14 1339.30
E_4GW	$[M + 2H^+]^{2+}$ 1661.41 $[M + 3H^+]^{3+}$ 1107.94	1660.33 1106.59
K_4GW	$[M + 2H^+ + 4$ TFA$]^{2+}$ 1887.50 $[M + 2H^+ + 3$ TFA$]^{2+}$ 1830.50 $[M + 3H^+ + 2$ TFA$]^{3+}$ 1182.67 $[M + 3H^+ +$ TFA$]^{3+}$ 1144.68	1886.13 1829.33 1182.27 1144.60

Table S1: Overview of the calculated masses of all peptides used in this project, and the masses found by LCMS.

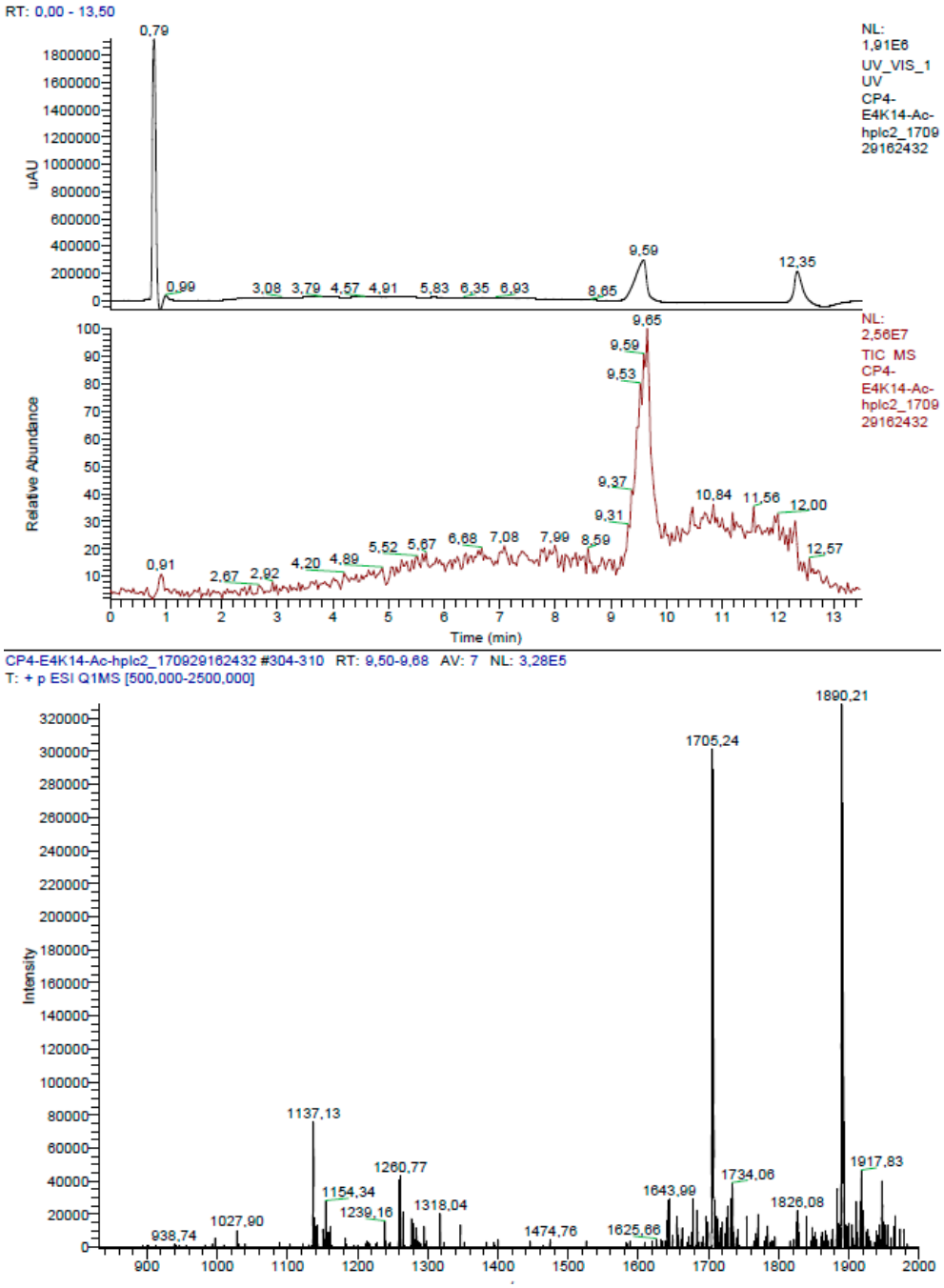


Figure S5: LCMS spectrum of purified peptide AcCPE.

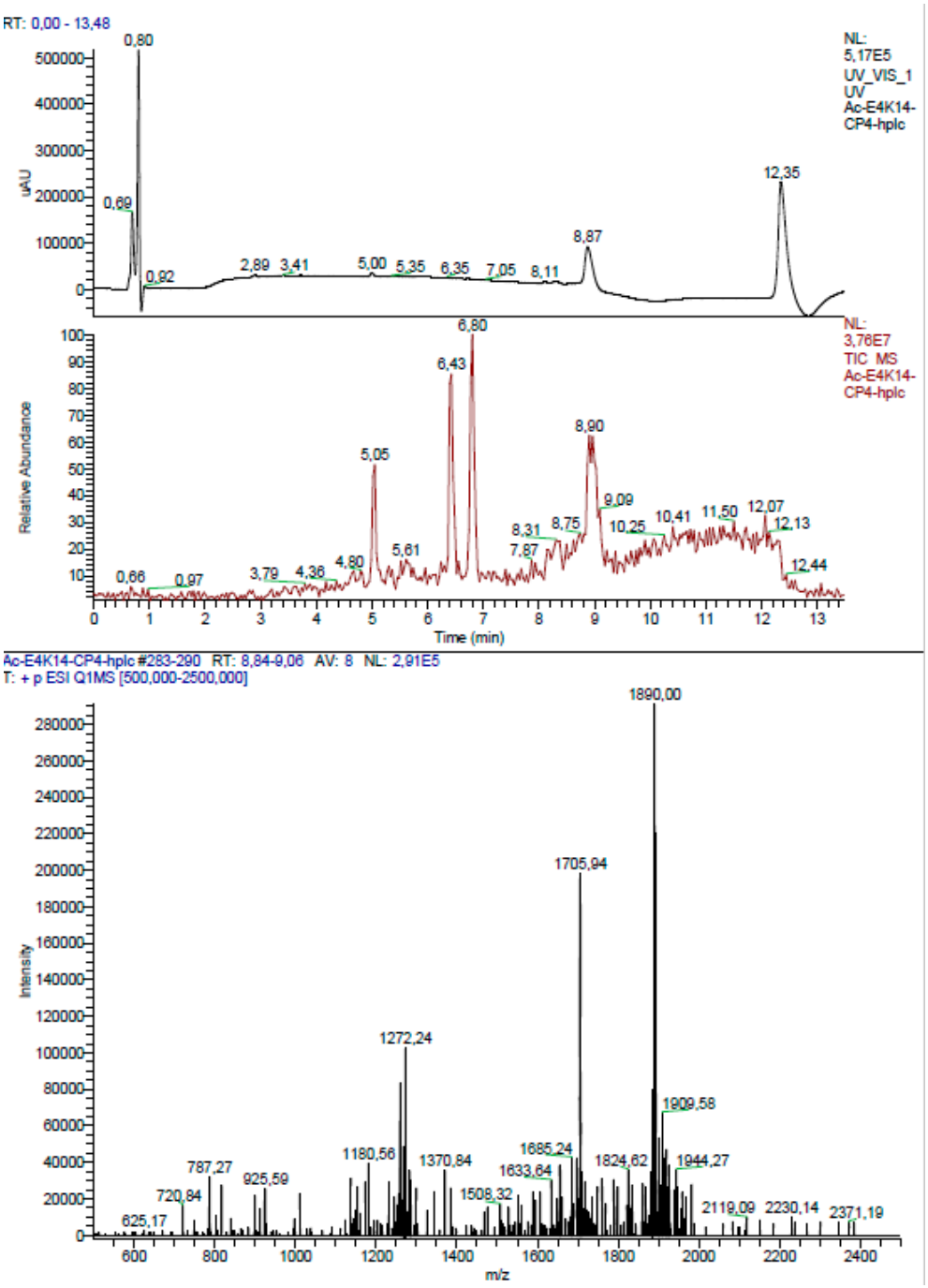


Figure S6: LCMS spectrum of purified peptide fCPE.

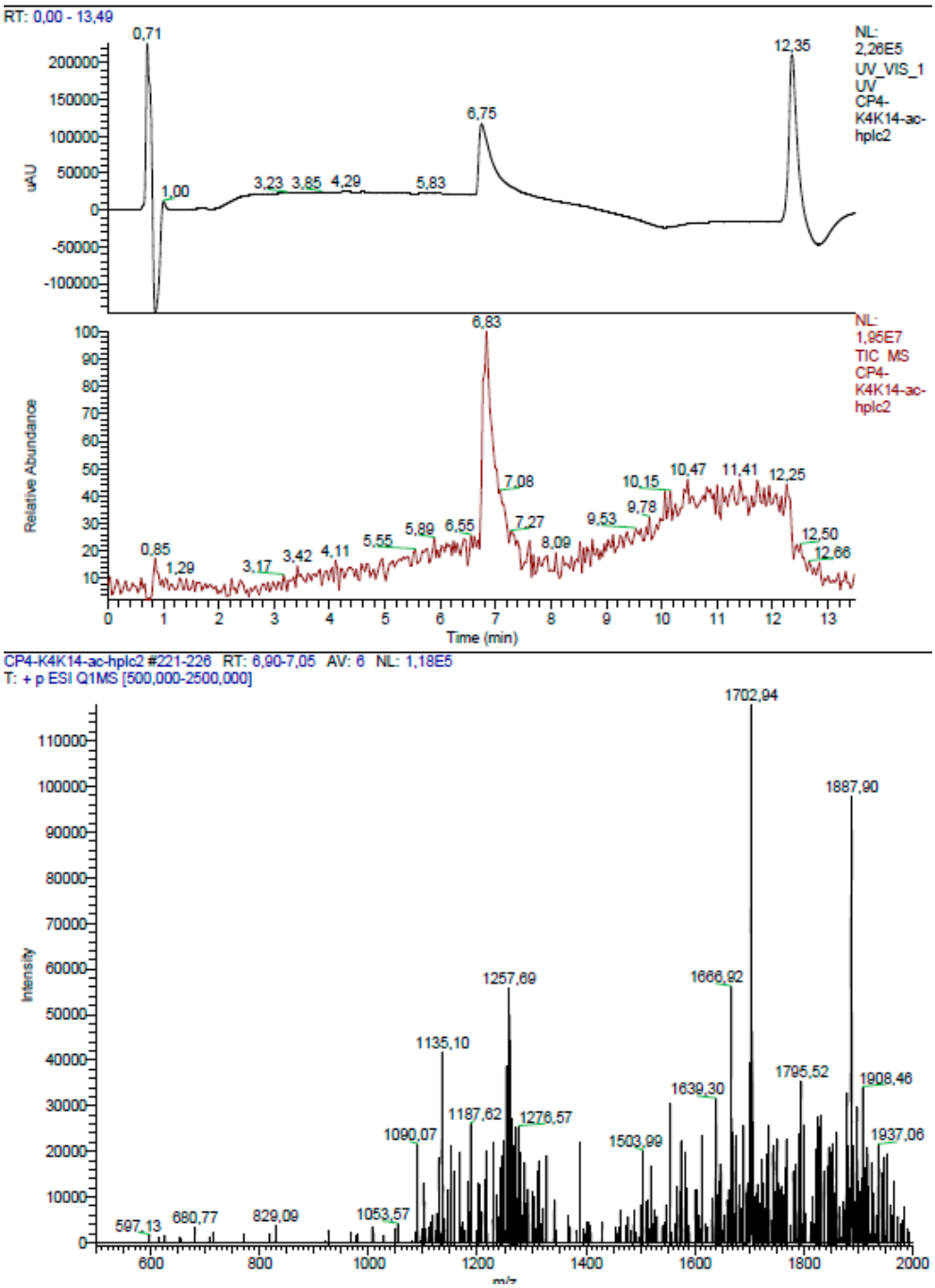


Figure S7: LCMS spectrum of purified peptide AcCPK.

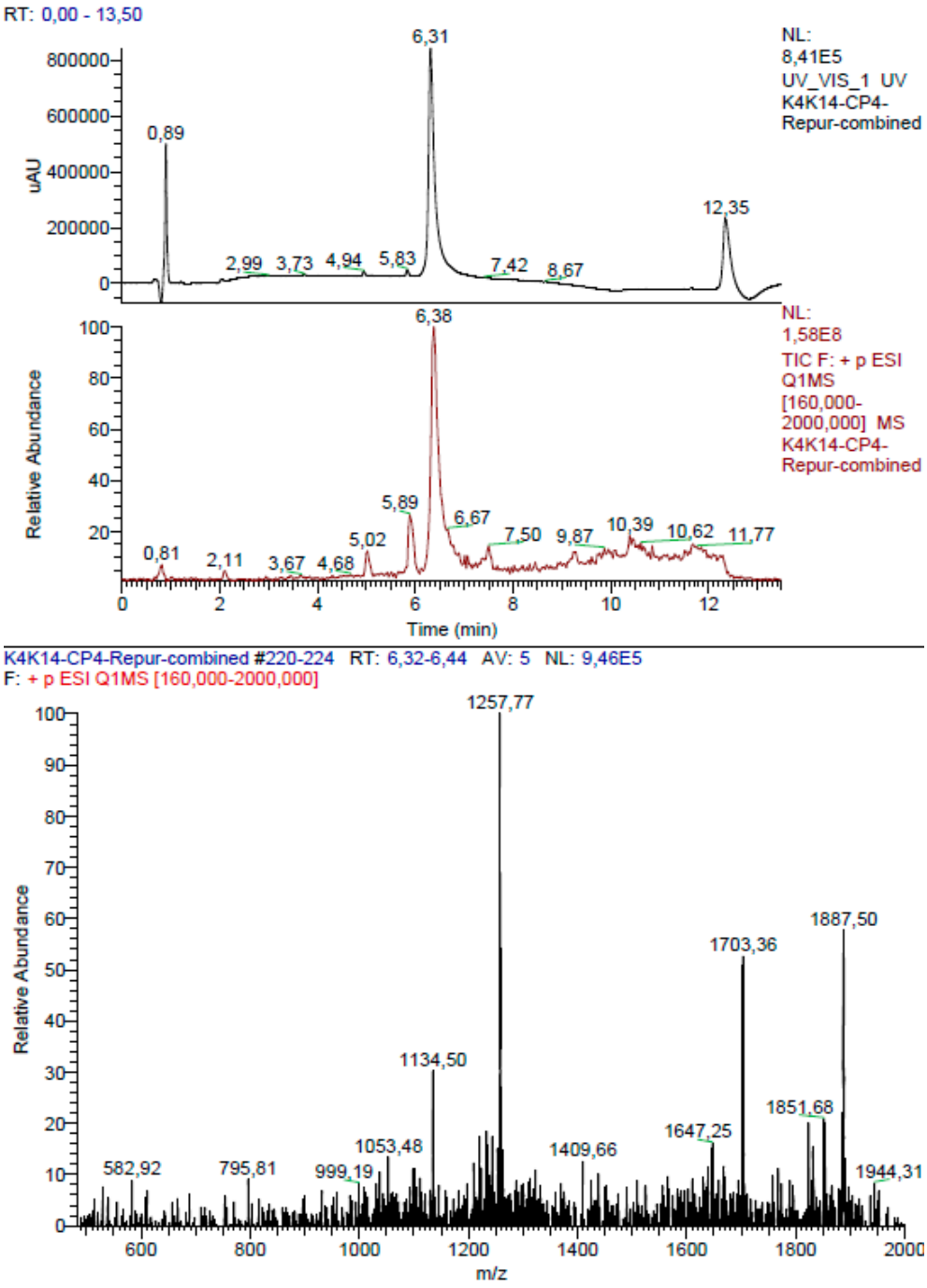


Figure S8: LCMS spectrum of purified peptide fCPK.

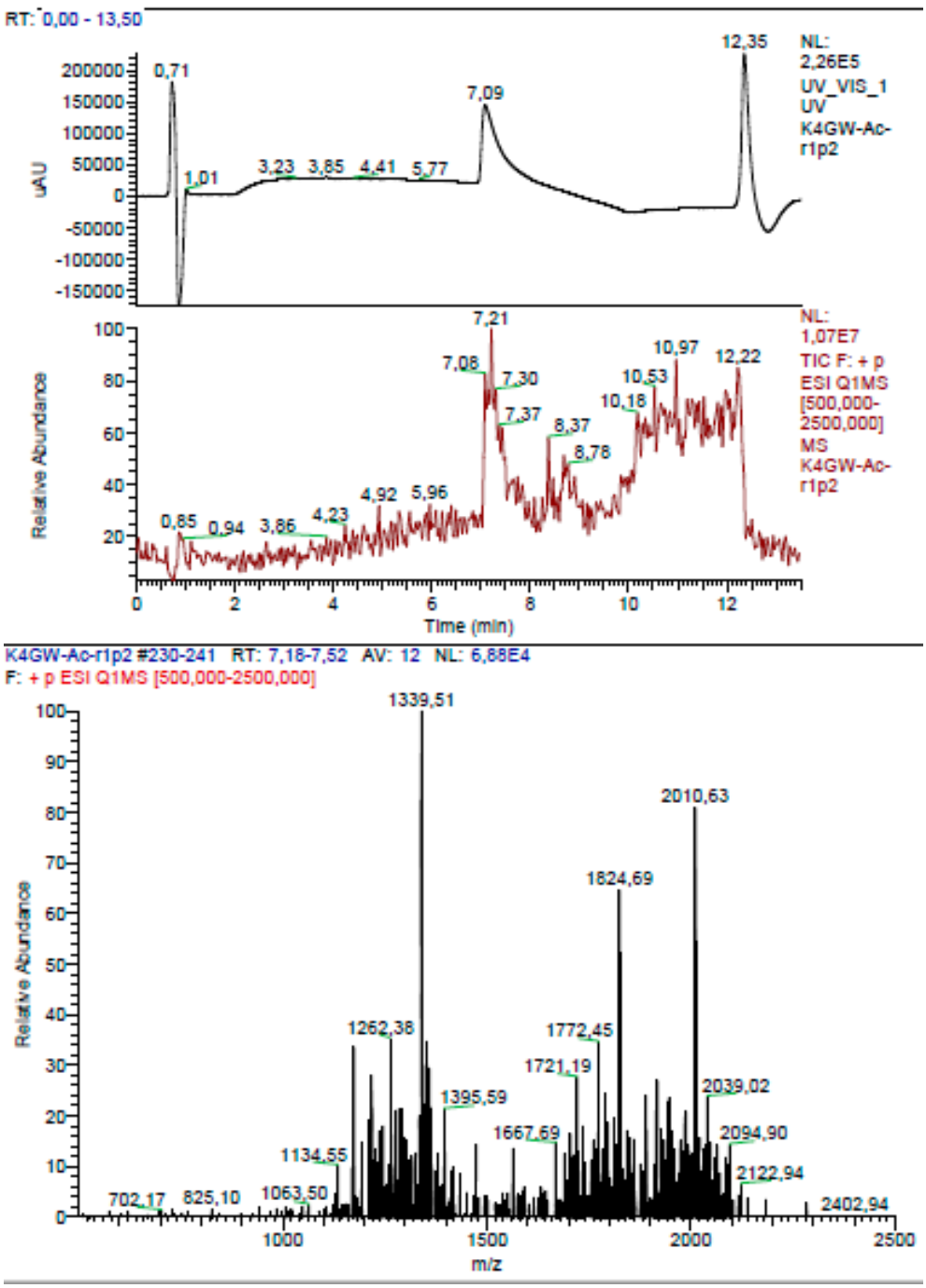


Figure S9: LCMS spectrum of purified peptide AcCPK-GW.

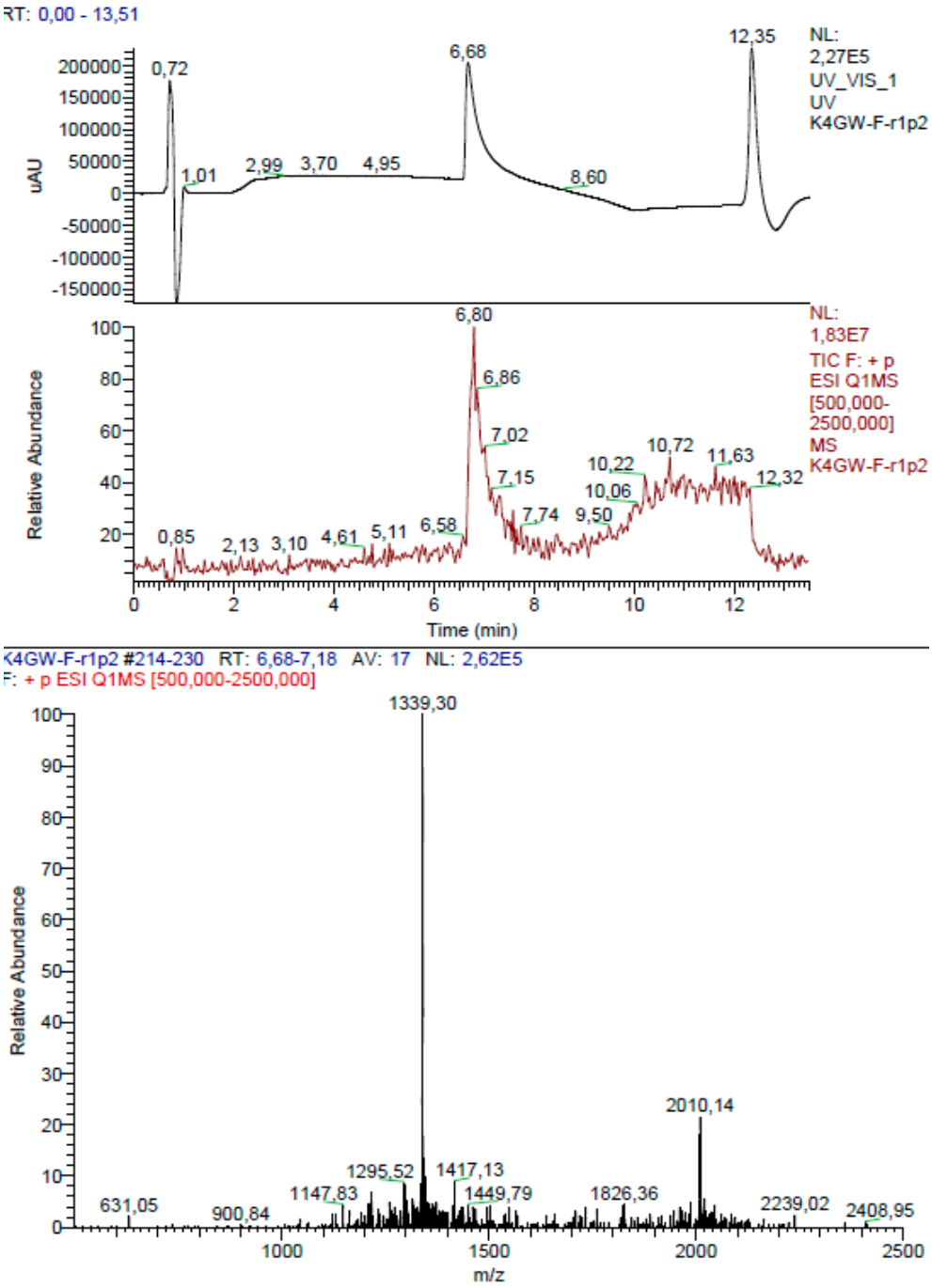


Figure S10: LCMS spectrum of purified peptide fCPK-GW

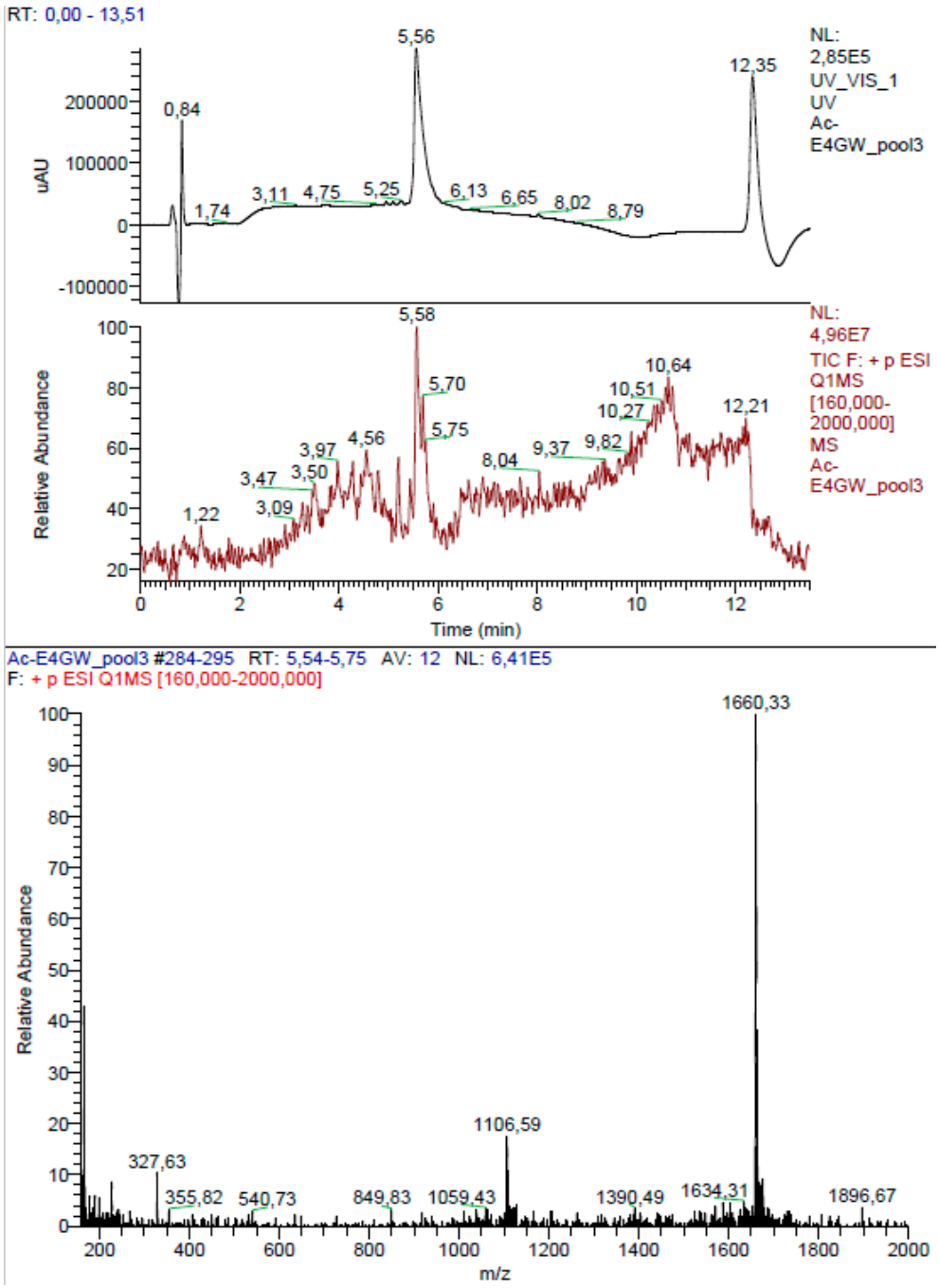


Figure S11: LCMS spectrum of purified peptide E_4GW.

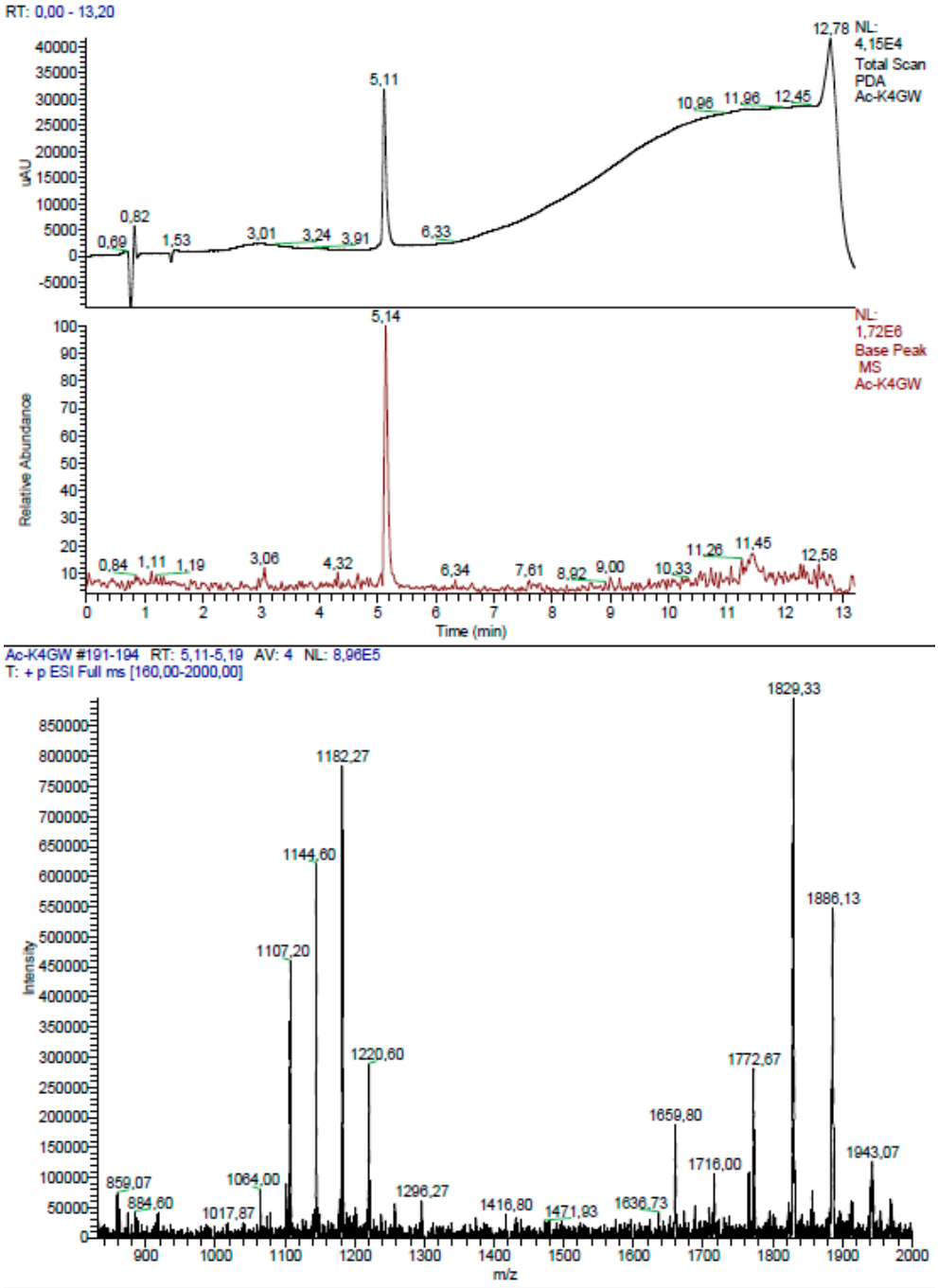


Figure S12: LCMS spectrum of purified peptide K_4GW.