

Supplementary Information

Compression Ratio Ion Mobility Programming (CRIMP) Accumulation and Compression of Billions of Ions for Ion Mobility-MS using Traveling Waves in Structures for Lossless Ion Manipulations (SLIM)

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Figure S-1. The timing scheme applied to control the ion accumulation and compression ($CR > 1$) events, and the pulse sequence and voltage profiles (TW1 and TW2) used during distinct periods. (TW1 is applied in ‘TT’ section and TW2 is used in ‘ST’ section, both TWs were controlled using the same digital TTL signal).

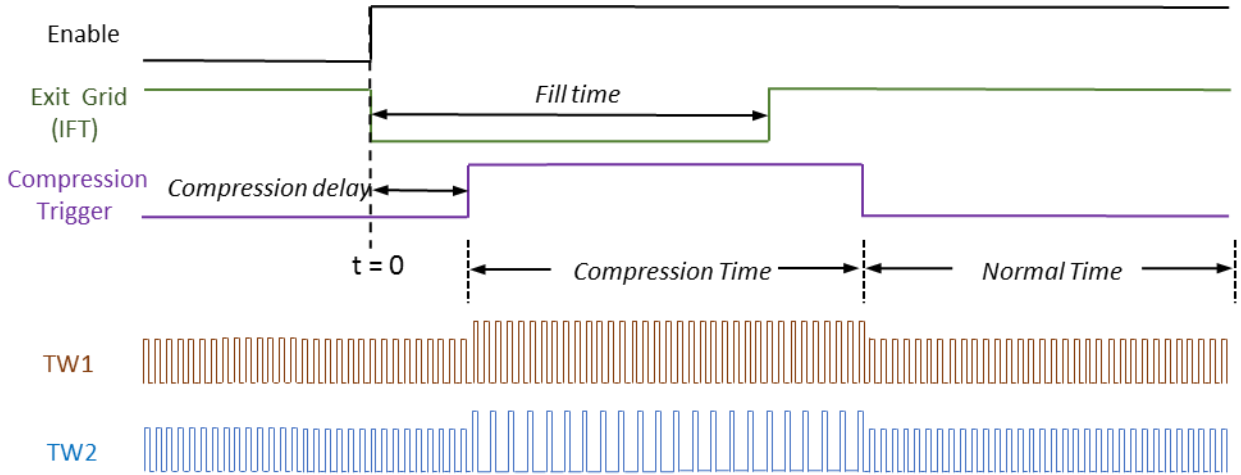


Figure S-2. Number of charges measured at the quadrupole with various parameters. (A) TW speed; (B) Guard bias; (C) TW1 sequence where 1 corresponds to a high (H) voltage, and 0 corresponds to a low (L) voltage on the respective TW electrode; (D) TW amplitude during ion filling; (E) TW amplitude during ion release; (F) rf amplitude at other optimized conditions: rf frequency was 822 kHz; the accumulation time was 5 s; Gap was 2.75 mm and at 2.50 Torr pressure.

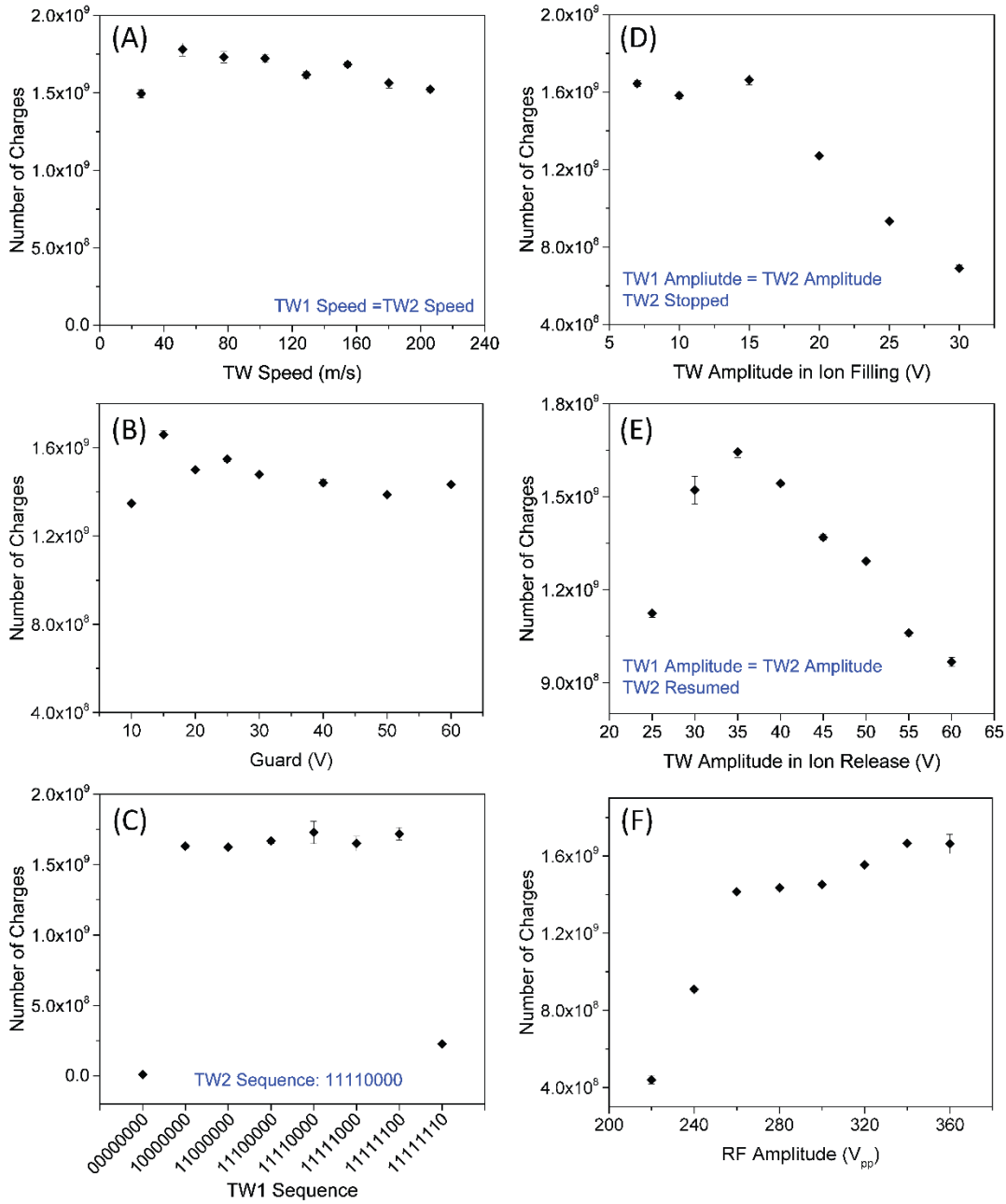


Figure S-3. Mass spectrum obtained for ESI of 50% methanol solution in trapping mode. Accumulation time was 1000 ms and compression ratio was 200, the sample infusion rate was 60 nL/min and TOF acquisition time was 50 s.

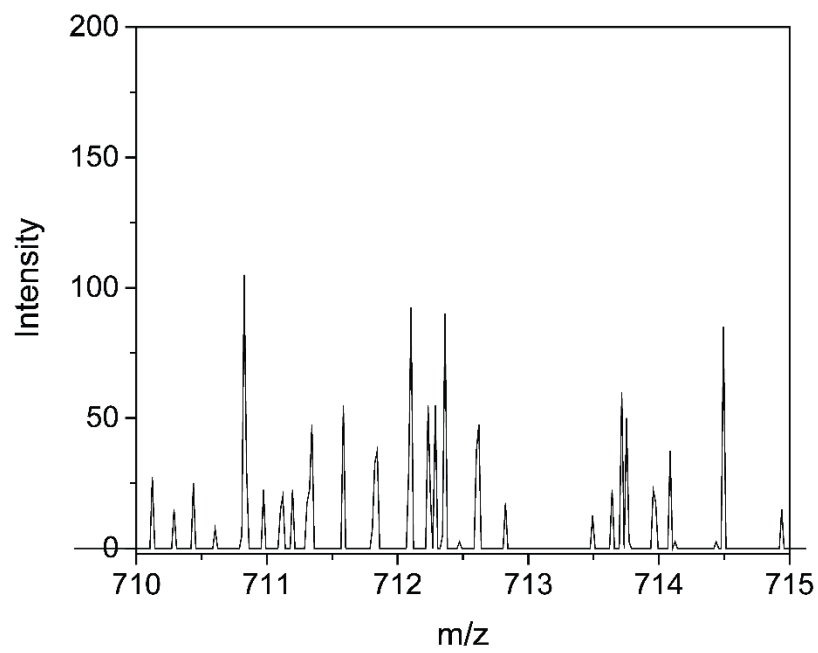


Figure S-4. Monoisotopic $[M+4H]^{4+}$ peak intensity of melittin as a function of concentrations. The inset shows the intensity of in the concentration range of 1 – 100 pM. Accumulation time was 1 s and compression ratio was 200.

