

Macromolecular Ion Accelerator Mass Spectrometer

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In order to interpret the advantages to add second linear ion trap, we added four figures in the follows to explain our idea. Those four figures were captured form oscilloscope directly. The time scale of oscilloscope is shown as 100 μ s from Fig. 1 to 3. Time scale in figure 4 is 200 μ . Then signal channel impedance of oscilloscope was set 50 ohm. Low impedance represents ion distributions. When an ion packet was ejected out from an ion trap, the time spreads were between 100 to 200 μ s. For longer timing, it means the ion space distribution will longer than space between two electrodes of accelerator. The ion packet could not gain kinetic energy completely. This is why we added second linear ion trap to narrow down the ion packet.

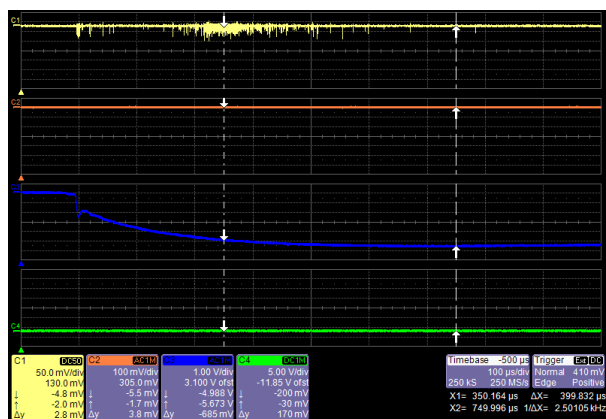


Fig. 1 The yellow color signal of cytochrome C was obtained by unstable ejected step frequency scan from 60kHz to 45kHz. The Ion trap was floated to 3000V.

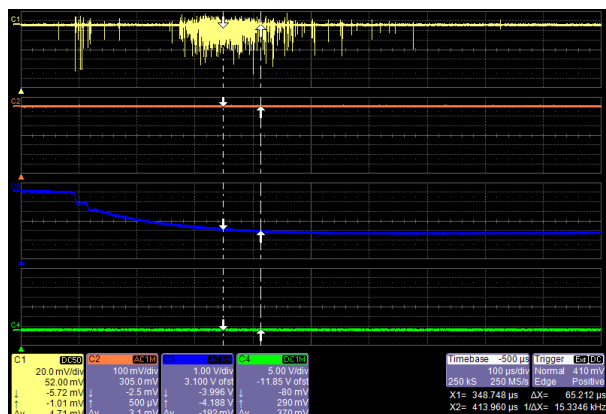


Fig. 2 The yellow color signal of Trypsin was obtained by unstable ejected step frequency scan from 60 kHz to 45 kHz. The Ion trap was floated to 3000V.

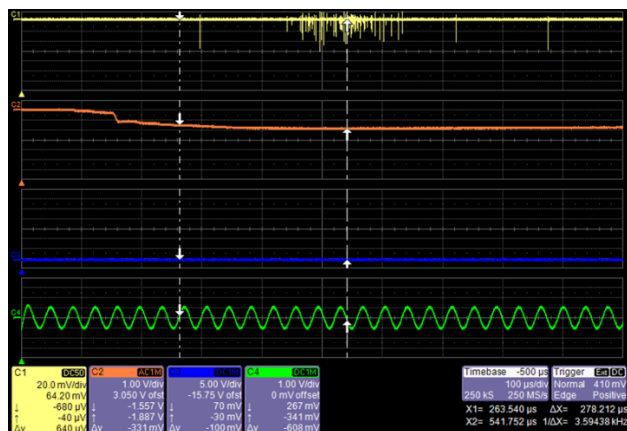


Fig. 3 The yellow color signal of BSA was obtained by unstable ejected step frequency scan from 45kHz to 27kHz. The Ion trap was floated to 3000V.

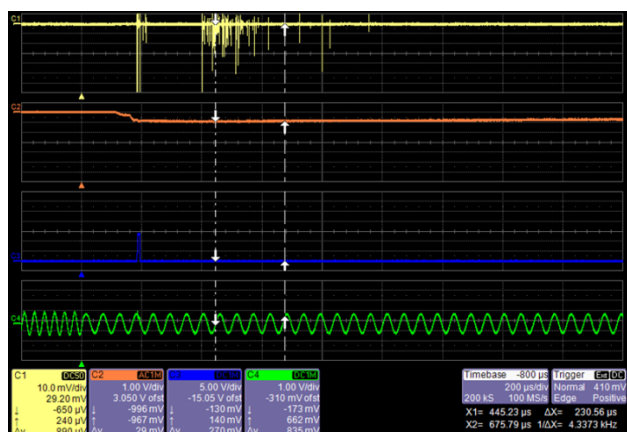


Fig. 4 The yellow color signal of IgG was obtained by unstable ejected step frequency scan from 30 kHz to 18 kHz. The Ion trap was floated to 3000V. Additional 18 kV of pulsed voltage will increase detection efficiency of IgG by a channeltron detector.