

OF3 Using IMS to Separate Precursors From Species of Different Charges in Tandem MS Analyses

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Ion Mobility, charge, separation

Using Ion Mobility to separate charge states to improve tryptic peptide detection

Complex biological mixtures exhibit a wide dynamic range and most peptides are in the lowest order of magnitude detectable. Singly charged noise in the MS spectrum can hinder automated precursor identification. IMS separates by Drift Time and m/z giving increases in S/N of low level species, as they separate from noise. Data was generated using Synapt HDMS incorporating a travelling wave ion mobility stage. Tryptic digests were either separated by nanoscale UPLC or directly infused. The system processes and displays a specific band of the m/z versus drift time plot and species within this region are possible candidates. Ion intensity used to select precursor ions for tandem MS interrogation. These selected precursors were isolated by the quadrupole and, whilst maintaining ion mobility separation, were subjected to CID fragmentation elevating the collision energy either before or after the IMS device.

We will show data from injections of <100amol on column, the level where TOF only survey identification is hindered by the presence of background ions.