INSTRUMENT DEMONSTRATION SUMMARY

Topic: Synapt G2-S*i* – lipid imaging using ion mobility
Time: Wednesday 3:00 pm

Background

Instrumental advances and the commercialization of an instrument that couples ion mobility with mass spectrometry (IM-MS) have allowed for more widespread use of this platform for imaging MS. The additional dimension of the gas phase separation that the ion mobility cell provides may enhance ion classification and allow for the separation of target analytes from MALDI matrix background or other interfering biological species present in tissues. By selectively reconstructing images based on correlated mobility drift times and mass-to-charge ratios, it is possible to differentiate between isobaric species as long as they differ significantly in their gas-phase conformation. This workshop will highlight the use of IM-MS strategies for imaging various analytes from tissue. Time will be spent outlining important instrumental conditions vital for tuning the instrument.

Highlights

- Introduction to the instrumentation and software
- Tuning for ion mobility separation and mass spectrometric analysis
- Setting up imaging parameters with the HDI software
- Masslynx, Driftscope, and HDImaging analysis

Summary

In this workshop, we will be going over the basics of IM-MS and the advantages of combining it with imaging mass spectrometry. Paramount to this goal will be careful tuning of the ion mobility drift cell to optimize separation of biologically relevant species from the MALDI matrix background. Tissue sections were obtained from both fresh-frozen and FFPE tissues and coated with matrix. From here, lipid and peptide distributions will be determined. The data will be interpreted using the three Waters software tools: Masslynx, Driftscope, and HDImaging.