

Data Analysis for Biological SIMS Research

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Biological analysis using SIMS has increased in recent years along with the capabilities of SIMS instruments. The spectral quality, in terms of mass resolution and mass accuracy, has improved¹⁻³ which in turn facilitate computational based analysis and directly impact peak identification/assignment. Complementing the spectrometer improvements, ion beam developments, specifically the introduction of gas cluster ion beams (GCIBs)⁴ has greatly improved the ability to detect intact biomolecules. Hence, our expectations from a biological SIMS experiment have changed significantly. As have the challenges and so, and also the opportunities, for exploiting the information that is sometimes quite well hidden in the increasingly complex SIMS data.

This presentation will discuss these challenges and opportunities with reference to studies of cultured cells and tissue section samples including data reduction, classification and spectral interpretation.

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