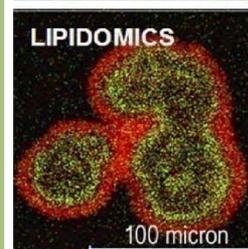
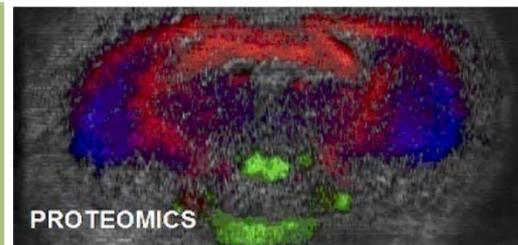


Capability/Need

- Establishes new imaging mass spectrometry (Imaging MS) capability at EMSL consisting of:
 - Hybrid system will combine C60 SIMS/MALDI-FTICR MS with existing 9.4-Tesla magnet; 20 Hz acquisition speed at a resolution over 40,000 FWHM with sub ppm mass measurement accuracy for complex sample characterization
 - Will **extend/strengthen** Cell Isolation and Systems Analysis capability in EMSL.



Applications Utilizing Imaging Mass Spectrometry of Biomolecules



Ionoptika
C60 source

Science/Users

- Imaging MS capability will enabled the spatial analysis and localization of proteins, peptides, lipids, metabolites
- Applications include cell biology, microbial communities, biosynthetic pathways, plant and animal tissue profiling with high specificity
- Imaging MS has the potential to bridge between high-resolution structures obtained by X-ray crystallography and cyro-electron microscopy and ultrastructure visualized by conventional light microscopy
- Will support EMSL Scientific Partner Project (Bruker Daltonics)

EMSL Strategy Alignment; Specifics

- Science themes: Biological Interactions and Dynamics; Geochemistry/Biogeochemistry and Subsurface Science
- Cross-cutting challenges: Static-Dynamics; Unprecedented Resolution; Predict Biological Function; Linking Theory/Experiment
- EMSL capability area: Mass Spectrometry
- Anticipated availability: December 2010
- Technical POC: Ljiljana Paša-Tolić