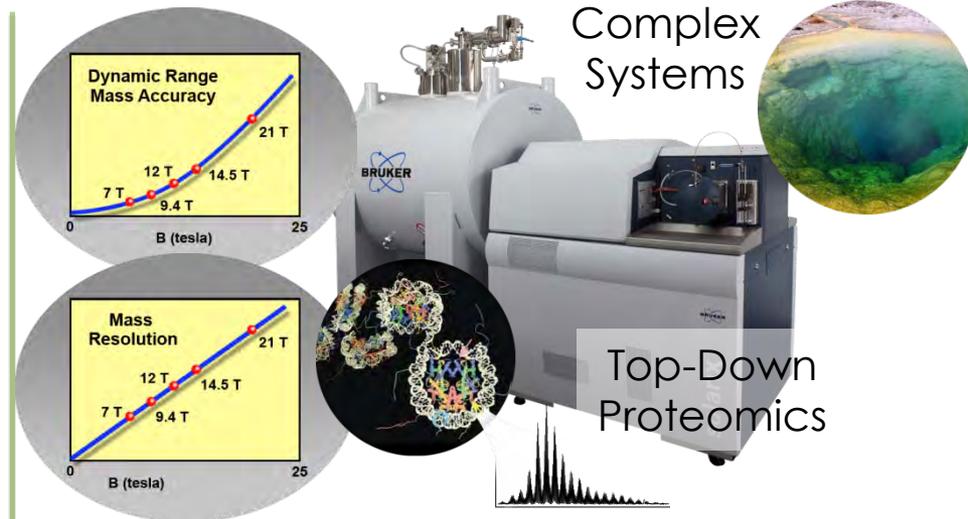


# High-Field Fourier Transform Ion Cyclotron Resonance Mass Spectrometry

## Capability/Need

- A 15-Tesla FT-ICR mass spectrometer offers the **highest mass resolving power and mass accuracy available** on any commercial mass spectrometer (**will be one of three worldwide**)
- A **key technology** for analyzing intact proteins
- Higher specificity for identifying metabolites and peptides from very complex mixtures (microbial communities; aerosols; DOM) in a high-throughput fashion
- **Upgraded** spectrometer for existing 12T FT-ICR mass spectrometry



## Science/Users

- Improved analysis of metaproteomics for establishing metabolic capacity of complex microbial communities.
- Top-down proteomics to understand how protein function is regulated by post-translational modifications.
- Analysis of extremely complex mixtures to deconvolve cellular networks.
- Users are systems biologists and the functional genomics community.

## EMSL Strategy Alignment; Specifics

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