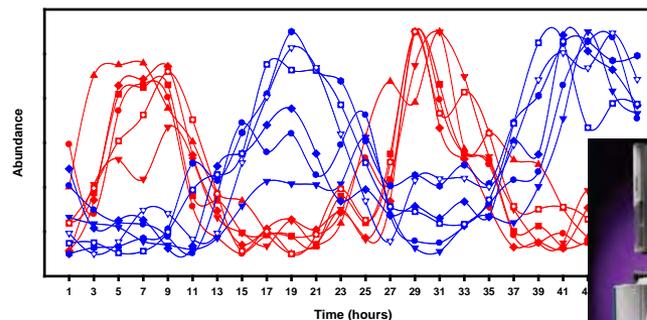


Capability/Need

- **Major expansion** of capabilities for global and targeted profiling of important metabolic pathways, fatty acids, and volatile molecules
- Triple-quadrupole mass spectrometer coupled with gas-and liquid-chromatograph (LC) separations
- Will be **integrated** with the 600-MHz LC-NMR platform, allowing **multi-modal characterization** of metabolite profiles and composition

Cyanothece metabolites display cyclic abundance patterns in diurnal time course experiments



Science/Users

- **Global metabolomics (lipidomics)** to define the dynamics of cellular metabolite (lipid) composition
- **Targeted metabolite analysis** for determining the structures of unknown but related molecules, using multiple reaction monitoring; parent, product or neutral-loss ion scanning modes
- Will provide a foundation for reconstruction of the metabolic pathways of cells and cellular communities
- Users will be systems biologists reconstructing intracellular networks, e.g., photosynthetic microorganisms for bioenergy insights

EMSL Strategy Alignment; Specifics

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