



PROTEOMICS AND METABOLOMICS FACILITY

Nebraska Center for Biotechnology

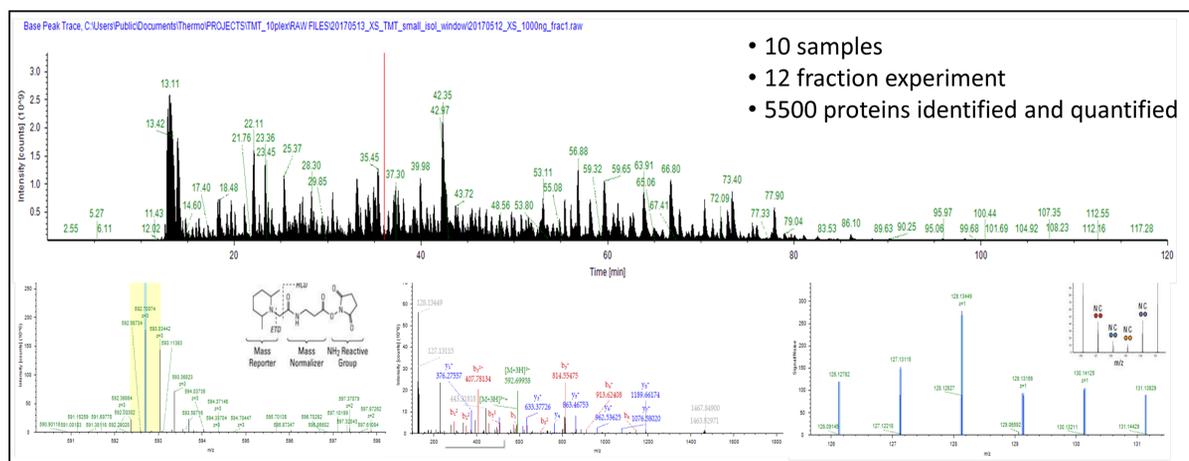
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PROTEOMICS SERVICES

- Proteomics of whole organisms, organs, organelles, tissues, cell pellets, pulldowns, complex or single protein mixes from solution or gels
- Quantification by label-free or multiplexed labeling (e.g. TMT)
- Post-translational modification characterization
- High resolution/high mass accuracy intact mass analysis
- Phosphoproteomics using TiO₂ enrichment

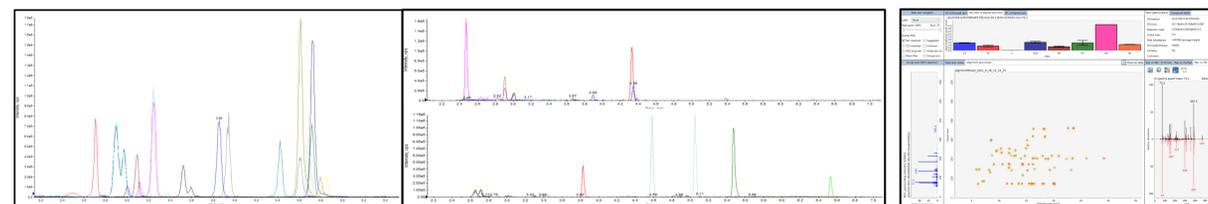


Base peak chromatogram of TMT-labeled peptides separated by a 2h LC-MS/MS run (top). Example of a TMT-labeled peptide identified and quantified using MS2 (bottom).

METABOLOMICS SERVICES

- Targeted metabolomics using HPLC, GC-MS or LC-MS includes:
 - Primary metabolites: free sugars (mono and disaccharides), amino acids, glycolysis/TCA/pentose phosphate pathways, polyamines, pyrimidine pathway, short chain fatty acids, FAME
 - Secondary metabolites: phytohormones, gibberellins, flavonoids, phenolic acids, carotenoids, alpha and beta acids, TCA/TCHA, bile acids, non-mevalonate pathway

See our website for a full list of compounds in each assay. The facility can help create a method for targeted analysis of compounds not included here.

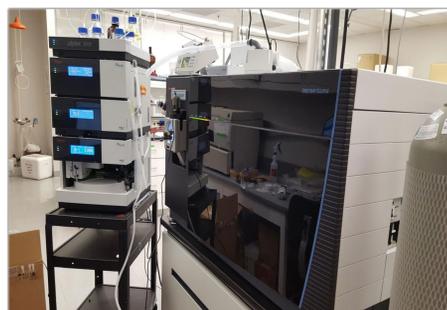


Analysis of amino acids in maize root exudate (left) and hormones in caterpillar salivary glands (right) using LC-MS/MS. Metabolite profiling of micro snails using GC-MS.

- Untargeted metabolomics of a wide range of small molecules:
 - Volatiles and carbon metabolism using GC-MS
 - Primary/Secondary metabolism with RP and HILIC-MS

INSTRUMENTATION

One-on-one training and self service are available on these:



Thermo Orbitrap Eclipse coupled to Dionex U3000 RSLCnano



Thermo QE-HF coupled to Thermo Vanquish H UHPLC



Sciex QTRAP 6500+ coupled to Shimadzu Nexera II UHPLC



Agilent 1290 Infinity II UPLC with DAD, ELSD and Fluorescence detectors



Agilent GC-MS 5977 equipped with headspace and SPME

The facility and instrumentation are supported by the Nebraska Research Initiative