

December 2007

Dear Researcher,

Greetings from the Purdue Metabolomics Profiling Facility!

This eNewsletter update will be coming to you on a regular basis to inform the research community of capabilities in the MPF. If you have any questions or comments, please contact Bruce Cooper (brcooper@purdue.edu) 4-6282.

New Rates for Purdue Fiscal Year 2007-2008

May as well start with the bad news...for the facility to meet expenses, a rate increase is necessary. The cost for an MPF share increased from \$5227 to \$6000. The scope of activity for a share remains the same: three weeks of dedicated instrument time plus one week of dedicated MPF expert time. Please consider this rate in your plans and include this number for grant applications.

Staff Presentations

To showcase MPF capabilities and service, we would like to make a short presentation in your departmental staff meetings. The 10 – 15 minute presentation will describe the facility and services to investigators on campus. Examples of successful collaborations will be shown. If interested, please contact Bruce.

Recent Highlights from the MPF

- ***Ganoderic Acid Evaluation*** - With Jiri Adamec (BBC), we utilized LC/MS and developed quantitative conditions to identify a ganoderic acid series in mushrooms. These compounds are under investigation as cancer therapies. A protocol was also developed to evaluate GAs in rat plasma collected over 24 hours after ingestion. The adsorption profile of the GAs was determined while simultaneously monitoring for related metabolites. Future work will expand to rat tissue evaluations.
- ***Glycolysis & TCA Cycle Metabolite Detection*** - With Barry Pittendrigh's group (Entomology), we developed a GC/MS and GCxGC/MS approach for the identification of glycolytic and TCA cycle compounds in larvae fly guts. The metabolites that were

either up or down regulated were consistent with previously collected genomics data.

- ***Catechin Dimer Detection in vivo*** – With Mario Ferruzzi's group (Food Science) we continue to evaluate catechin auto-oxidation dimers. Having demonstrated catechin dimer formation during simulate digestion in vitro we are now attempting to demonstrate intestinal absorption in vivo. Dimers generated by pH-induced auto-oxidation of catechin reactants were incubated on highly differentiated Caco-2 cell monolayers for 3 h. LC/MS/MS analysis of the cell extracts showed absorption into the cells. These results suggest that catechin auto-oxidation dimers may be absorbed by human intestinal epithelial cells.
- ***Non-targeted Biomarker Evaluation*** - GCxGC/MS analyses with Dan Raftery's group (Chemistry) is aimed at identification of potential cancer biomarkers in serum. A single run can generate thousands of chromatographic peaks. Bindley-developed GCxGC peak alignment and comparative analysis algorithms enabled a comparison of GCxGC/MS peak information across large numbers of samples. A PCA evaluation resulted in statistical separation of cancer versus control samples. Identification of the significant molecular species is underway. Future plans include validation of these findings with a large sample set.

