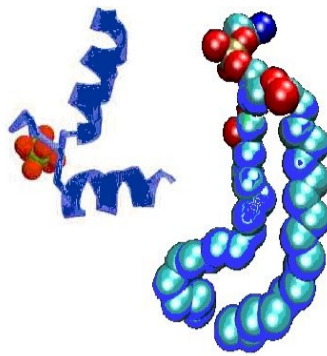


FUNCTIONAL GENOMICS CONSORTIUM



www.ksu.edu/functionalgenomics/

Fall 2008 Workshop

Oct. 14

Flint Hills Room

K-State Student Union

Metabolomics

Proteomics

Lipidomics

Glycomics

Protein Structure

Related Bioinformatics

FEATURED SPEAKER:

DR. G. A. NAGANA GOWDA

Research Scientist in Analytical
Chemistry Division at Purdue
University

[http://www.chem.purdue.edu/raftery/
people/nagana.html](http://www.chem.purdue.edu/raftery/people/nagana.html)

Dr. Gowda's research focuses on the development and application of advanced analytical methods to metabolite profiling using biological samples and identification of natural products. He has developed and applied many NMR techniques for structural analysis of molecules in pure form or complex mixtures. His current research investigations are focused on detecting multiple biomarkers for early disease diagnosis and better understanding of the underlying biochemistry in health and disease. One of his important contributions to this area includes identification by NMR of major human bile metabolites and development of analytical methods for their single-step analysis; its applications have led to some new insights into biosynthetic patterns of bile acids.

Tuesday, October 14

8:45 Registration & coffee

Flint Hills

9:00 **Dr. Ruth Welti**

Utilizing the Kansas Lipidomics Research Center

Flint Hills

9:50 **Dr. John Tomich**

Utilizing the Proteomics Biotechnology Center

Flint Hills

10:40 - Coffee & Danish

Flint Hills

11:00 **Dr. Om Prakash**

Utilizing the KSU Biomolecular NMR Research Facility

Flint Hills

12:00 - 1:00 Lunch on your own

1:30 - 3:00 **Dr. G. A. Nagana Gowda**

NMR spectroscopy based metabolomics and its multidisciplinary research applications

Flint Hills

Metabolic profiling also known as 'metabolomics' or 'metabonomics' deals with quantitative detection of a large number of metabolites in biological samples such as biofluids, tissue and cells from humans, animals or plants. This presentation discusses the advantages of NMR spectroscopy over other methods for multiple metabolite analysis. Practical aspects of various NMR methods will be discussed, and some applications of metabolite analysis will be presented. The details of sample requirements, sample preparation, data acquisition, data analysis and data interpretation will be provided.

Wednesday, October 15

9:00 - 10:30 **Dr. G. A. Nagana Gowda**
Informal question and answer session about
NMR & MS approaches to metabolomics

**Chalmers 36
(Cancer Center)**

2:30 - 3:30 **Dr. Chien-An "Andy" Hu**

Refreshments served before the seminar in Ackert Room 225
Novel BH3-only lipid-binding proteins in apoptosis and autophagy

Ackert 232

4:00 - 5:00 **Dr. G. A. Nagana Gowda**

Refreshments served before the seminar in Chalmers Room 168
NMR spectroscopy based metabolomics for disease diagnostics

Ackert 120

The emerging field of 'metabolomics,' in which a large number of small molecule metabolites from body fluid or tissue samples are detected quantitatively in a single step, promises immense potential for early diagnosis, therapy monitoring and for understanding the pathogenesis of many diseases. Metabolomics methods are mostly focused on the information rich analytical techniques of nuclear magnetic resonance (NMR) spectroscopy and mass spectrometry (MS). Analysis of the data from these high-resolution methods provides a powerful platform for translational and clinical research, and diagnostic applications. Results of some of our recent investigations of NMR spectroscopy methods and applications of multiple metabolite profiling approach for disease diagnosis as well as for understanding the underlying biochemistry will be presented.