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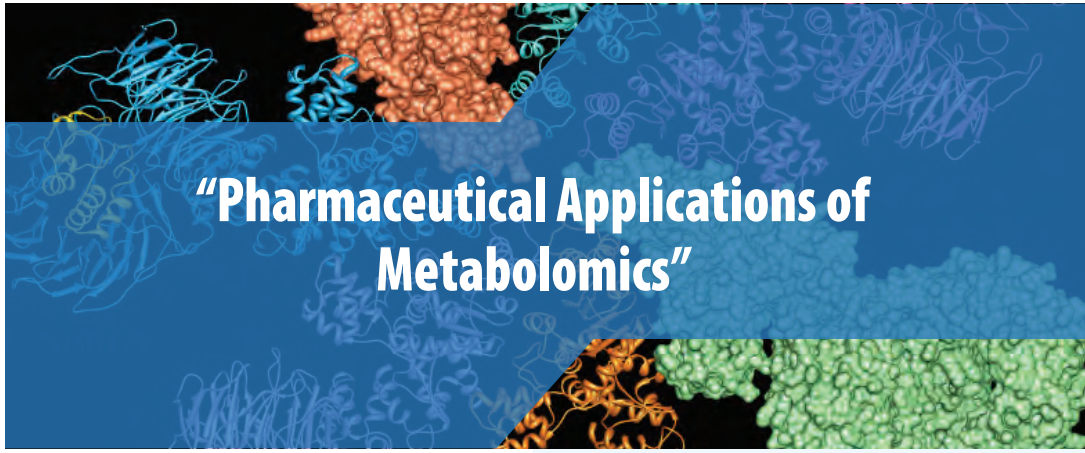
Department of Chemical and Biological Engineering
310 Furnas Hall
University at Buffalo
The State University of New York
Buffalo, NY 14260-4200

The University at Buffalo Department of
Chemical and Biological Engineering
presents

The 16th Annual Graduate Student Research Symposium



"Pharmaceutical Applications of Metabolomics"

Michael D. Reily

Research Fellow

Applied and Investigational Metabolomics
Bristol-Myers Squibb Co.

Friday, October 18
Center for the Arts, 1st floor
UB Amherst Campus

Student Lectures 1:00pm
Keynote Presentation 2:00pm
Screening Room

Student Reception and Poster Competition 3:30pm
Atrium

CBE Student-Alumni Mixer
5:30PM (RSVP cbe-chair@buffalo.edu)

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The UB Department of Chemical and Biological Engineering Graduate Student Research Symposium

Over the years the UB CBE Graduate Student Research Symposium has evolved into an exciting, comprehensive event that showcases the high quality, multidisciplinary research that is conducted in our department, and spans diverse areas such as molecular engineering of novel materials, nanotechnology, bioengineering, and molecular modeling.

Every year our faculty and graduate students welcome the opportunity to present their work to their peers from CBE, other UB departments, our alumni, and representatives from local business. The Symposium has grown in ambition and scale, featuring over 60 posters, two lectures from senior graduate students, and a keynote lecture from an accomplished colleague in industry. This year we are particularly pleased to welcome Dr. Michael D. Reily from Bristol-Myers Squibb Co. We are also pleased to announce that this year our Symposium will be followed by a reception to honor our alumni and guests.

JOIN US FOR OUR FIRST ANNUAL
CBE STUDENT/ALUMNI MIXER
5:30-7pm Center for the Arts Atrium

• Meet Michael D. Reily • Learn what's new • Connect with your colleagues •

• Wine • beer • soft drinks • snacks •
(rsvp cbe-chair@buffalo.edu or call 716-645-1174)

www.cbe.buffalo.edu

The UB Department of Chemical and Biological Engineering

This Symposium is a collaborative effort supported in part by the CBE Graduate Student Association, the UB CBE Advisory Board, our graduate student speakers, CBE faculty, and various colleagues in and around UB who serve as judges for the all-important student poster competition. Many thanks to all our graduate students who work so hard on their research, and for their excellent poster and oral presentations during the symposium. Ultimately, this Symposium is a showcase for the excellence that we strive for in our scholarship and graduate education. We look forward to many more years of this celebration of our research accomplishments.

Pharmaceutical Applications in Metabolomics

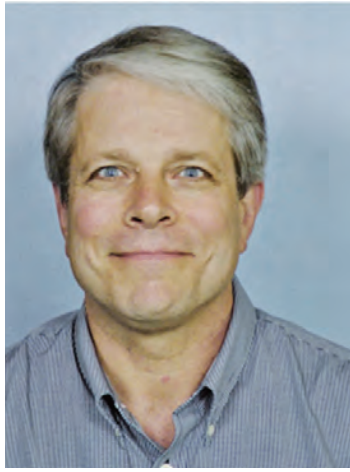
Michael D. Reily

Research Fellow
Applied and Investigational Metabolomics
Bristol-Myers Squibb Co.

Abstract

The metabolome, or the total compliment of small molecules in a living system that includes endogenous and introduced species, reflects the overall global biochemical state of an organism. Changes in the functional genome, transcriptome and proteome are closely tied to changes in the metabolome. Metabolomics (or metabonomics) is the comprehensive measurement of the metabolome and how it changes in response to external stressors. In Pharmaceutical R&D, this information can be used to deduce the relationship between a perturbation (such as disease or pharmacological intervention to disease) and the affected biochemical pathways, yielding mechanistic information and biomarkers that report upon the perturbation. These biomarkers can in turn inform and accelerate the discovery of safe and efficacious drugs. This talk will provide a background on the technology and present several examples of how it has been employed in mainstream pharmaceutical R&D.

About Michael D. Reily:



Michael D. Reily, Ph.D. joined Bristol-Myers Squibb in September of 2007 as a Research Fellow in Bioanalytical and Discovery Analytical Sciences. He currently manages the Discovery Analytical Sciences NMR group and is co-leader of the Applied and Investigative Metabolomics (AIM) matrix team. Dr. Reily received his Bachelor of Science Degree in Chemistry from the University of West Florida in Pensacola and his Ph.D. in Bioinorganic Chemistry from Emory University in 1986. During his graduate work, Dr. Reily became interested in the application of high resolution NMR spectroscopy to answer structural questions about biomolecular interactions with drugs, and he pursued this interest in postdoctoral with John Markley in the Biochemistry Department at the University of Wisconsin, Madison. In 1988, he came to Ann Arbor to the then Parke-Davis Pharmaceutical Research Division of Warner-Lambert Company and has applied NMR spectroscopy to drug discovery and development in areas of medicinal chemistry, protein and nucleic acid structure determination and metabolite structure elucidation. His most recent career focus has been on the application of NMR and mass spectrometry-based metabolomics to study mechanistic toxicology and pharmacology and identify associated biomarkers. Dr. Reily is a member of the American Chemical Society and is author or co-author on over 80 peer-reviewed journal articles and book chapters.

CBE is proud to present our 2013 PhD candidate speakers:

- **Maoshih Liang** "Engineering biomimetic microenvironment for vascular grafts"
- **Kaustubh Rane** "Using Monte Carlo simulation to understand the bulk and interfacial behaviors of ionic fluids"