

# **Empowering Environmental Health Sciences Research with New Technologies**

A Conference on Omics Applications in the Environmental Health Sciences

December 4-6, 2006

William and Ida Friday Center for Continuing Education  
University of North Carolina at Chapel Hill

December 4, 2006

## **Symposium in Recognition of the Contributions of Raymond Tennant and the National Center for Toxicogenomics**

Moderator: Richard Paules, NIEHS

- 8:30-8:45     **Welcome and Opening Remarks**  
Samuel Wilson, MD  
Deputy Director NIEHS
- 8:45-9:30     **The Road of Toxicogenomics: Connecting Spots to Patients and the Impact of the NIEHS/NCT**  
Cynthia Afshari, PhD  
Amgen, Inc.
- 9:30-10:15    **An array of FDA efforts in toxicogenomics**  
Weida Tong, Ph.D.  
Director, Toxicoinformatics, National Center for Toxicological Research  
US Food and Drug Administration
- 10:15-10:45   Coffee break
- 10:45-11:30   **Phenotypic anchoring: Safe harbor for the NCT-TRC transcriptional voyage of discovery**  
Peter Spencer, PhD, FRCPath  
Director Center for Research on Occupational and Environmental Toxicology,  
Oregon Health and Science University
- 11:30-12:15   **TBD**  
Kenneth Olden, PhD  
Senior Investigator and former Director, NIEHS
- 12:15-1:15    Lunch

## **Grantee Presentations for the NIEHS Toxicogenomics Research Consortium**

Moderator: William A. Suk, NIEHS

- 1:15-1:45     **TRC Standardization Experiment #3 Report**  
Ivan Rusyn, UNC  
On Behalf of the full Consortium
- 1:45-2:15     **Differential Expression of Genes Following Exposure to Aflatoxin B1**  
John Essigmann, MIT
- 2:15-2:45     **Transcriptional Responses of DNA Repair Deficient Mice to Alkylating Agents**  
Lisiane Meira, MIT
- 2:45-3:15     **Liver MicroBioreactors: A New Tool for Toxicology**  
Sharon Karakattu, MIT
- 3:15-3:45     Coffee break
- 3:45-4:15     **EGFR Signaling Pathways in Breast Cancer**  
Katherine Hoadley, UNC
- 4:15-4:45     **Stereotypic human responses to environmental DNA damage**  
William Kaufmann, UNC
- 4:45-5:15     **Genetics of Innate Immunity**  
Scott Apler and Ivana Yang, NIEHS; Vance Fowler, Duke
- 5:15-5:45     **Retinoid effects upon vertebrate neural tube development**  
Elwood Linney, Duke
- 6:30-9:00     Conference Dinner
- From the three R's to the three C's: Complexity, Creativity and Collaboration**  
After Dinner Keynote Presentation  
Luis Nunes Amaral, PhD, Northwestern University

December 5, 2006

**Grantee Presentations for the NIEHS Toxicogenomics Research Consortium Continued**  
Moderator: David Balshaw, NIEHS

- 8:30-9:00     **Modulation of organophosphate toxicity by human PON1**  
Toby Cole, UW

- 9:00-9:30 **Response of Mammary Cells From Sensitive and Resistant Rat Strains to Carcinogens**  
Helmut Zarbl, UMDNJ
- 9:30-10:00 Coffee break
- 10:00-10:30 **DNA Alkylation In Neurodegenerative Disease And Cancer**  
Peter Spencer, OHSU
- 10:30-11:00 **Genotoxicants: Tools for Exploring Mechanisms of Chronic Brain Injury**  
Glen Kisby, OHSU
- 11:00-11:30 **Linking phenotype endpoints with genomics to identify signatures predictive of adverse health effects**  
Richard Paules, NIEHS
- 11:30-12:00 **Chemical Effects on Biological Systems Knowledgebase**  
Jennifer Fostel, NIEHS

12:00-1:30 Lunch

**Toxicogenomics Research Consortium – Collaborative STAR Projects**  
Moderator: Michael Humble, NIEHS

- 1:30 - 2:00 **Genomic profiling in nuclear receptor-mediated toxicity**  
Ivan Rusyn, UNC  
UNC, UW, PSU, NIEHS, MIT
- 2:00-2:30 **Toxicogenomics of Selenium Chemoprevention**  
Helmut Zarbl, MDNJ  
UW, Duke
- 2:30-3:00 **Analytic cytology enhancements to toxicogenomic analyses**  
Terry Kavanagh, UW  
UW, NIEHS, UNC
- 3:00-3:30 Coffee break
- 3:30-4:00 **Inter-species Comparative Genomic Responses to Environmental Stress**  
Jonathan Freedman, NIEHS  
Duke, UW, MIT
- 4:00-4:30 **Organic Solvent Neuropathy: Proteomics And Genomics**

Peter Spencer, OHSU  
OHSU, UW, NTP

4:30-5:00     **Chemical Effects on Biological Systems Knowledgebase**  
Jennifer Fostel, NIEHS

5:00-7:00     Poster Session and Vendor Presentations

## **December 6, 2006**

### **Presentations by grantees of the NIEHS Functional Proteomics Initiative**

Moderator: David Balshaw, NIEHS

8:30-9:00     **Proteomics of DEP-induced Oxidative Stress**  
Joseph Loo, UCLA

9:00-9:30     **Post-Translational Modification of MEKK4**  
Richard Vailancort, Arizona

9:30-10:00    **Adaptability of the Mitochondrial Proteome**  
Dan Bogenhagen, SUNY Stony Brook

10:00-10:30   Coffee break

10:30-11:00   **Quantitative Analysis of Membrane Proteins: Application to Characterizing Endothelial Cell Surface Proteins Induced by PCB Toxicity**  
Haining Zhu, UK

11:00-11:30   **Protein Chemistry Combined with Mass Spectrometry for Structural Proteomics**  
Christoph Borchers, University of Victoria, BC

11:30-12:00   **Shotgun Proteomic Strategies for Understanding the SUMO-mediated Response to Genotoxic Stress**  
James Wohlschlegel, UCLA

11:30-1:00     Lunch

### **Presentations by grantees of the NIEHS and NIAAA Metabolomics Initiative**

Moderator: Jose Velazquez, NIAAA

1:00-1:30     **Metabolomic and Toxicogenetic Study of Ethanol Toxicity**  
Ivan Rusyn, UNC

- 1:30-2:00     **Metabolomic Assessment of Estrogenic Endocrine Disruptor**  
Tim Zacharewski, Michigan State
- 2:00-2:30     **Metabolic alterations from acute exposure to second-hand smoke (SHS) in rat lung and blood plasma as determined by GC-TOF and FT-ICR mass spectrometry**  
Oliver Feihn, UC Davis
- 2:30-3:00     Coffee Break
- 3:00-3:30     **Metabolomic Approach to Pulmonary Inflammation Resulting from Air Pollution**  
Bruce Hammock, UC Davis
- 3:30-4:00     **Gamma-hydroxybutyrate and glutathione metabolism in the perfused rat liver**  
Henri Brunengraber, CWRU
- 4:00            Conference adjourns