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National Center for Toxicological Research
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NCTR Quarter Page

Workshop on Intramural Research

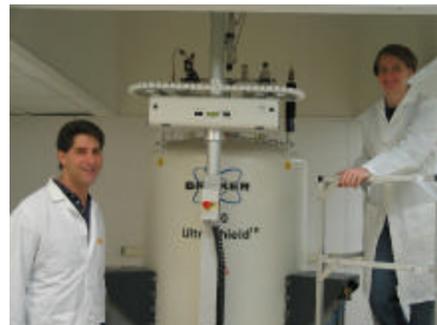
NCTR is meeting the challenges of budget reductions by encouraging scientists to work more collaboratively. To this end, NCTR hosted its first Workshop on Intramural Research on May 14, 2004. Its purposes were to familiarize newer staff with the range of research capability at NCTR, foster more collaboration, and encourage sharing of common equipment.

Directors of the seven Research Divisions (Microbiology, Chemistry, Genetic and Reproductive Toxicology, Biometry and Risk Assessment, Biochemical Toxicology, Molecular Epidemiology, and Neurotoxicology) and the five Centers of Excellence (Phototoxicology, Functional Genomics, Structural Genomics, Hepatotoxicology and Toxicoinformatics) gave half-hour presentations describing their ongoing and future research.

All speakers highlighted the latest techniques used in their respective research fields. While great variety was seen in the types of agents and biological models used, unifying themes were seen throughout the presentations. There was growing recognition of the relevance of the "omics" technologies (that is, genomics, proteomics, and metabonomics) to the more classical problems of toxicology as seen by the many collaborative projects between the NCTR Centers of Excellence and Research Divisions.

Metabonomics Research Program

The arrival of a Bruker 600 MHz NMR in the summer of 2003 marked the beginning of an intensive NMR-based metabonomics research program at NCTR. Metabonomics has been defined as the "metabolic response of living systems to drug toxicity or disease via multivariate statistical analysis". Recent advances in analytical chemistry technology have made it possible to quickly and accurately measure alterations in metabolite concentrations found in urine, serum, and tissues. Metabonomics investigates the relationship between endogenous metabolite levels and potential toxicities during chronic drug administration without the scientific bias associated with predetermined clinical chemistry measurements. Metabonomics research is primarily aimed at tracking temporal patterns of metabolites found in biofluids, but can also be directed at developing novel non-invasive biomarkers of disease and toxicity where none are evident. Metabonomics research will have important implications for medical, pharmaceutical, and regulatory agencies.



Richard Beger and Laura Schoenbachler load the auto sampler in front of the 600 MHz NMR.
Photo/Ashley Groves

NCTR Scientists Recognized

Congratulations to *Drs. James J. Chen*, Division of Biometry and Risk Assessment, for receiving the 2004 NCTR Scientific Achievement Award for "Excellence in Analytical Science" and *Merle G. Paule* for "Excellence in Laboratory Science."

Dr. Chen received the award for significant contributions toward the resolution of statistical issues associated with gene microarray data relative to regulatory review and decision making by FDA. *Dr. Paule* received his award for demonstrating the neurotoxic potential of agents that block sodium channels and NMDA receptors during development utilizing a nonhuman primate model of complex learning.

The American Association for Cancer Research (AACR) announced in its Spring 2004 AACR *News* issue that *Dr. Beverly Lyn-Cook* will assume the position as Chairperson of the Minorities in Cancer Research Council for the 2004 - 2005 term. The Council works to further the number and participation of minority scientists in cancer research and advocates for pertinent, effective legislation pertaining to science and public policy in consultation with the Food and Drug Administration's Science Policy and Legislative Affairs Committee.

NCTR Awards Excellence/Celebrates Spring

The annual NCTR Awards Ceremonies were held at the Harbor Oaks Restaurant on June 9, 2004 in Pine Bluff, Arkansas and onsite at NCTR on June 18, 2004. NCTR Federal employees were recognized at the June 9th ceremony for their dedicated service to the FDA and NCTR with the receipt of FDA Length of Service Recognition, Commissioner's Special Citation, Commissioner's Administrative Management, Commissioner's Special Recognition, FDA Outstanding Service, FDA Group Recognition, and FDA Leveraging/Collaboration Awards. On June 18, 2004, government and contract employees were awarded career service, NCTR Director's, NCTR Director's Special Commendations, NCTR Director's Distinguished Service, NCTR Scientific Achievement, and Quality of Work Life, NCTR Employee of the Year and NCTR Outstanding Service Awards. Following the ceremony, the entire staff and their families relaxed a bit and enjoyed SpringFest (i.e., picnic lunch, golf, volleyball, pool, ping pong, basketball, run/walk, & bocce ball competitions, and a children's booth with face painting, etc.).

Recent Publications

NCTR conducts research designed to protect the public's health. Results from some of these research projects have recently been accepted for publication in nationally recognized scientific journals.

Beger, R., Models of Steroid Binding Based on the Minimum Deviation of Structurally Assigned ¹³ C NMR Spectra Analysis (Midsasa), <i>J. Chem Comp Inf.</i>
Binienda, Z.K., Neuroprotective Effect of L-Carnitine in the 3-NPA-Evoked Neurotoxicity, <i>Neuroscience Letters.</i>
Brown, A.T., Cigarette Smoke Increases Intimal Hyperplasia and Homocysteine in a Rat Carotid Endarterectomy, <i>J Surg Res.</i>
Hong, H., Multi-Class Decision Forest - A Novel Pattern Recognition Method for Multi-Class Classification in Microarray Data Analysis, <i>DNA and Cell Biology.</i>
Kim, S., Analysis of two-dimensional protein expression in <i>Mycobacterium Vanbaalenii</i> PYR-1 induced by polycyclic aromatic hydrocarbons.
Kim, Y., Evidence for the Existence of PAH-Quinone Reductase and Catechol-O-Methyltransferase in <i>Mycobacterium Vanbaalenii</i> PYR-1, <i>Journal of Industrial Microbiology and Biotechnology.</i>
Lee, H., Developmental Changes in Expression And Subcellular Localization of the DNA Repair Glycosylase, M YH, in the Rat Brain, <i>Journal of Neurochemistry.</i>
Moon, H., A Weight-Adjusted Peto's Test When Cause of Death is Not Assigned, <i>Environmental and Ecological Statistics.</i>
Nitcheva, D.K., Multiplicity-Adjusted Inferences in Risk Assessment: Benchmark Analysis with Quantal Response Data, <i>Biometrics.</i>
Pereira, F., Lack of Hydroxyl Radical Generation Upon Central Administration of Methamphetamine in Rat Caudate Nucleus: A Microdialysis Study, <i>Neurotoxicity Research.</i>
Tan, Y., Multi-Class Tumor Classification by Discriminant Partial Least Squares Using Microarray Gene Expression Data; Assessing the Robustness of Gene Selection and the Quality of Classification Models, <i>Computational Biology and Chemistry.</i>
Virmani, A., Role of Mitochondrial Dysfunction in Neurotoxicity of MPP ⁺ : Partial Protection of PC12 Cells by Acetyl-L-Carnitine, <i>Annals of the New York Academy of Sciences.</i>
Wang, C., Blockade of N-Methyl-d-Aspartate Receptors by Phencyclidine Causes the Loss of Corticostriatal Neurons, <i>Neuroscience.</i>
Zhang, W., Neuroprotective Effect of Dextromethorphan in the MPTP Parkinson's Disease Model: Role of NADPH Oxidase, <i>FASEB Journal.</i>

CONTACT INFORMATION:

The NCTR Quarter Page is published four times a year by the Division of Planning and Resource Management at the National Center for Toxicological Research.

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