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National Center for Toxicological Research
"Taking Public Health Risks Seriously"

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NCTR Quarter Page

NCTR Participates in FDA's 9th Annual Science Forum

FDA Science: *Protecting the Public Health* was the theme for the 2003 FDA Science Forum held April 24-25, 2003, in Washington D.C. The Science Forum is FDA's key scientific meeting to communicate and promote emerging issues related to scientific development and associated regulatory concerns. It is designed to bring FDA scientists together with representatives from other components of DHHS, industry, academia, government agencies, consumer and patient advocacy groups, Congress, and international constituents. The eight presentations (listed below) by NCTR scientists reflect the cutting-edge research being conducted at the NCTR.

Assessment of Neurotoxicity: Application of Neuroimaging Techniques
Development of a Toxicoinformatics Integrated System at NCTR
Effects of Exposure to Estrogens at Various Life Stages on Reproductive Endpoints and Cancer
Evaluating Genotoxic Risk Using Tk Knockout Mouse Model
Subpopulation Based Model for Cryptosporidium Outbreaks
Unified Approach for Cancer and Non-cancer Risk Assessment
Cancer Susceptibility, Early Detection
Introduction to Bioinformatics

Employees Recognized for Excellence

By Jeannette Coleman

Celebrating *Excellence* was the theme of NCTR's FDA Honor Awards Ceremony held May 30, 2003, to honor 73 NCTR employees and two consultants. Pete Attwood, former NCTR Deputy Director for Management, spoke on "*Continuing Excellence in the Midst of Uncertain Change.*"

The Jefferson Laboratories Award Ceremony celebrated outstanding service by honoring approximately 160 NCTR and ARL (Arkansas Regional Laboratory) employees on June 13, 2003. The Directors, Dan Casciano Ph.D. (NCTR) and David Smith Ph.D. (ARL), presented 29 employees with the Career Service Recognition Award representing 560 years of government service.



Pete Attwood, challenging honorees to continue with excellence in the midst of change.
Photo/Virginia Taylor

NCTR and ARL Co-hosts Counter-Terrorism Workshop

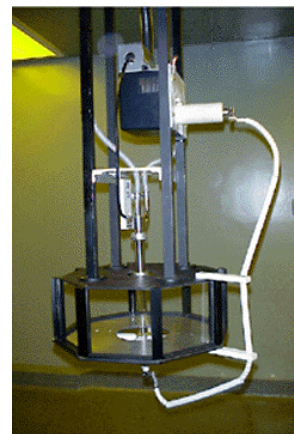
On April 2-3, 2003, Arkansas Regional Laboratory (ARL) and NCTR co-hosted a workshop for state laboratory representatives from fifteen states interested in learning about FDA laboratory capabilities related to counter-terrorism activities. Topics discussed included the NCTR BioSafety Level 3 (BSL-3) laboratory upgrade, due to be completed in early 2004, that will provide a laboratory capable of high containment biological research on bioterror agents by NCTR and ARL scientists, and surge capacity within the state of Arkansas in case of a bioterrorist attack; and the scientific expertise, technology and instrumentation available within the Jefferson Laboratories to continue to develop rapid methods for identifying biological warfare agents.

The FDA Southwest Regional Director, Dennis Baker, noted in a letter to NCTR Director Daniel Casciano Ph.D. "*We genuinely are appreciative of the assistance of your staff...They truly made a difference in making this workshop a success and a good experience for our guests.*"

Center for Phototoxicology

Did you know that one out of seven people will develop some form of cancer in their lifetime and that the incidence of the most common cancer, skin cancer, is increasing each year and that the most serious form of skin cancer (melanoma) is increasing by 3% a year?

NCTR is home to only one of two phototoxicology laboratories in the world with the capacity to expose large numbers of animals to simulated solar light. Research in the Center for Phototoxicology is focused on addressing the potentially hazardous effects of sunlight with products used by the public and is developing animal models that will contribute to more accurate evaluation of the risk of skin cancer in humans.



NCTR's simulated solar light: capable of simulating most any light to which humans are exposed to help determine the impact of this light on the toxicity of drugs and chemicals.

NCTR Receives Awards for Saving Energy

By Priscella Sullivan and Bruce Rice

Saving energy, and thus money, is a goal of NCTR and the Department of Energy's Federal Energy Management Program (FEMP). A team consisting of Ed Hensley, Ted Kozak, Marcia Park, Rudy Rieple, and Priscella Sullivan did just that. By working with Entergy Arkansas, Inc., they retrofitted NCTR facilities with high efficiency lighting and installed additional power factor correction capacitors. The Department of Energy and the Department of

Health and Human Services recognized this achievement and awarded them the prestigious Energy and Water Management Awards.

Due to the continuous success in energy saving by this team and many others, NCTR has been selected as the Department of Energy's FEMP 2004 Greening America Showcase, an honor reserved for outstanding and exemplary leaders in energy, water and renewable resource saving initiatives.



Bruce Rice, Marcia Park, Rudy Rieple, Priscella Sullivan, and Ted Kozak, recipients of the Light Renovation Project Award. Not pictured: Ed Hensley. Photo/Danny Tucker

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., Using Simulated 2D 13C-13C NMR Spectral Data to Model a Diverse Set of Estrogens, *J. Medicinal Chemistry*
- Binienda, Z.K., Neuroprotective Effects of L-carnitine in Induced Mitochondrial Dysfunction, *Annals of the New York Academy of Sciences*
- Buzatu, D.A., Predicting Toxic Equivalence Factors from 13C NMR Spectra for Dioxins, Furans and PCBs Using Linear and Non-Linear Pattern Recognition Methods, *Environmental Chemistry & Toxicology*
- Delongchamp, R.R., A Statistical Approach in Using cDNA Array Analysis to Finding Modest, 2-fold or Less, Changes in Gene Expression in Several Brain Regions After Neurotoxic Insult, *Annals of the New York Academy of Sciences*
- Dobrovolsky, V.N., Pms2-deficiency Results in Increased Mutation in the Hprt Gene but not the TK Gene of TK+/- Transgenic Mice, *Mutagenesis*
- Guozheng, G., Radiation-Inducible Genes are Modulated by Manganese-Containing Superoxide Dismutase, *Journal of Molecular and Cellular Biology*
- Hope, B.T., Acute Administration of Cocaine Regulates the Phosphorylation of Serine -19, -31, and -40 of Tyrosine Hydroxylase, *Journal of Neurochemistry*
- Hsueh, H., Comparison of Methods for Estimating the Number of True Null Hypotheses in Multiplicity Testing, *J. of Biopharmaceutical Statistics*
- Knapp, G.W., Quantitation of Aberrant Interlocus T-Cell Receptor Rearrangements in Mouse Thymocytes and The Effect of Herbicide 2,4-Dichlorophenoxyacetic Acid, *Environmental and Molecular Mutagenesis*
- Mannila, M., Supercritical Fluid Extraction of Bioactive Components from St. John's Wort (*Hypericum perforatum* L.) and Ginkgo Biloba, *Separation and Processes Using Supercritical Carbon Dioxide*
- Moore, M., Trp 53 Sequence Analysis of L5178Y Cell Line Derivatives, *Environmental and Molecular Mutagenesis*
- Naaz, A., The Soy Isoflavone Genistein Inhibits Post-ovariectomy Fat Increases in Mice, *Endocrinology*
- Paule, M.G., Chronic Exposure to NMDA Receptor and Sodium Channel Blockers During Development in Monkeys and Rats: Long-term Effects on Cognitive Function, *Annals of the New York Academy of Sciences*
- Ramirez, L., Effects of S-adenosyl-L-methionine on the Micronucleus Frequency Induced by Sodium Arsenite in Cultured Human Lymphocytes, *Mutation Research*
- Santamaria, A.D., Protective Effects of the Antioxidant Selenium on Quinolinic Acid-induced Neurotoxicity in Rats: *In vitro* and *in vivo* Studies, *Journal of Neurochemistry*
- Scallet, A.C., Pathophysiology of Transmissible Spongiform Encephalopathies, *Current Medicinal Chemistry - Immunology, Endocrine and Metabolic Agents*
- Scallet, A.C., 3-Nitropropionic Acid Inhibition of Succinate Dehydrogenase (Complex II) Activity in Cultured Chinese Hamster Ovary cells: Antagonism by l-carnitine, *Annals of the New York Academy of Sciences*
- Slotkin, T.A., Long-lasting CNS Effects of a Short-term Chemical Knockout of Ornithine Decarboxylase During Development: Nicotine Cholinergic Receptor Upregulation and Subtle Macromolecular Changes in Adulthood, *Brain Research*
- Twaddle, N.C., Determination using LC-ES/MS/MS of Ethinylestradiol Serum Pharmacokinetics in Adult Sprague-Dawley Rats, *J. Chrom. B*
- Walker, J.D., QSARs for Endocrine Disruption Priority Setting Database 2: The Integrated 4-Phase Model, *QSAR Comb. Science*
- Ye, X., Identification and Detection of Transmissible Spongiform Encephalopathies, *Current Medicinal Chemistry - Immunology, Endocrine and Metabolic Agents*

On-Line Research Information

Regulatory Research Perspectives: Impact on Public Health, an on-line newsletter that provides a vehicle for FDA scientists to communicate important scientific information, and *NCTR's FY 2002-2003 Research Accomplishments and Plans* are available from NCTR's web site at <http://www.fda.gov/nctr/science/science.htm>.

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