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

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# NCTR Quarter Page

## NCTR Welcomed Tommy Thompson, Secretary of Department of Health and Human Services

On Friday, July 19, 2002, Tommy Thompson, Secretary of Health and Human Services, visited the Jefferson Laboratories of the Food and Drug Administration (FDA) for an overview of the programs and a tour of the facilities. This was the first visit of a Secretary to the campus. Accompanying the Secretary was U.S. Senator Tim Hutchison. The Secretary and Senator were given a tour of the Phototoxicology Laboratory



Photo/Danny Tucker

(one of only two in the country) where Dr. Paul Howard explained the ongoing research with cosmetics and dietary supplements and demonstrated the experimental setup, which emulates varying degrees of sunlight exposure to a test animal. Dr. Carl Cerniglia explained the Microbiology Division's research on food

safety and antimicrobial resistance. Dr. Bill Slikker described NCTR's neurobehavioral studies using a cross-species operant test battery developed by Center scientists. The tour ended with Dr. Jim Fuscoe, Center of Functional Genomics, demonstrating the new robotic equipment used to produce microarrays to study gene changes due to adverse health events.

### SAB Met August 8-9

The Science Advisory Board (SAB) to the NCTR advises NCTR's Director in establishing, implementing and evaluating the NCTR's research programs and provides an extra-agency review to ensure that the research programs at NCTR are scientifically sound and pertinent to FDA regulatory needs.

The presentations centered around NCTR's newly developed Centers for Excellence —



Structural Genomics, Functional Genomics, Toxicoinformatics, and Phototoxicology.

These centers will use data derived from new technologies (genomics, proteomics, and metabonomics) to develop new regulatory standards.

### Center for Structural Genomics

Did you know that black women under 50 are twice as likely to develop breast cancer as white women and that black men have the highest incidence and mortality rates of prostate cancer in the world? NCTR has created a new Center for Excellence to study these issues.



The Center for Structural Genomics will conduct studies to identify genes that predispose people to cancer, identify genes that reduce the effectiveness of cancer treatment, and define markers to detect moderate elevations of risk resulting from exposures to cancer-causing agents (including dietary supplements, over-the-counter medications, foods, drugs, and pesticides) among susceptible individuals.

*"I think this was probably some of the most exciting research I've heard of since I've been coming." Nancy Gillett, D.V.M., Ph.D., SAB member since 2000.*

## 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.

Ang, Catharina, "Determination of St. John's Wort Components in Dietary Supplements and Functional Foods by Liquid Chromatography", *J. AOAC International*

Chen, Tao, "Mutations induced by alpha-hydroxytamoxifen in the lacI and cII genes of Big Blue transgenic rats", *Carcinogenesis*

Dobrovolsky, Vasily, "Analysis of *in vivo* mutation in the Hprt and Tk genes of mouse lymphocytes", *Methods in Molecular Biology, Vol. "Molecular Toxicology Protocols", Humana Press*

Fuscoe, James, "Simultaneous Quantification of t(14;18) and Hprt Exon 2/3 Deletions In Human Lymphocytes", *Methods in Molecular Biology*

Gough, Bobby, "Comparative effects of substituted amphetamines (PMA, MDMA, and METH) on monoamines in rat caudate. A microdialysis study", *Annals of the New York Academy of Sciences*

Heflich, Robert, Editorial, *Environmental & Molecular Mutagenesis*

Imam, Syed, "Methamphetamine-induced dopaminergic neurotoxicity and production of peroxynitrite are potentiated in nerve growth factor differentiated pheochromocytoma 12 cells", *Annals of the New York Academy of Sciences*

Jakab, Robert, "Parvalbumin neuron circuits and microglia in three dopamine-poor cortical regions remain sensitive to amphetamine exposure in the absence of hyperthermia, seizure and stroke", *Brain Research*

Moody, Joanna, "Biotransformation of mirtazapine by *Cunninghamella elegans*", *Drug Metabolism and Disposition*

Parsons, Barbara, "ACB-PCR Detection of rare base substitution", *Methods in Molecular Biology, Molecular Toxicology Protocols*

Poirier, Lionel, "The Effects of Diet, Genetics and Chemicals on Toxicity and Aberrant DNA Methylation: an Introduction", *Journal of Nutrition*

Poirier, Lionel, "Trans-HHS Workshop: Diet, DNA Methylation Processes and Health", *The Journal of Nutrition*

Shvartsburg, Alexandre, "Isomer-Resolved Ion Spectroscopy", *Physical Review Letters*

Virmani, Ashraf, "The protective role of L-carnitine against neurotoxicity evoked by drug of abuse, methamphetamine, could be related to mitochondrial dysfunction", *Annals of the New York Academy of Sciences*

Wang, Rong Fu, "Development of a membrane-array method for the detection of human intestinal bacteria in fecal samples", *Molecular and Cellular Probes*

### CONTACT INFORMATION:

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

FOR MORE INFORMATION ABOUT NCTR CONTACT DR. DAN CASCIANO, NCTR DIRECTOR AT DCASCIANO@NCTR.FDA.GOV OR [870] 543-7517.



DHHS/FDA/NCTR  
3900 NCTR Drive  
Jefferson, AR 72079

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