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NCTR Quarter Page

National Center for Toxicological Research

Legislators Visit NCTR

On February 13, Congressman Mike Ross (D-AR) hosted a meeting of the Arkansas delegation and key members of their staffs at NCTR with additional participation via video conferencing. The meeting was developed by the Alliance for Economic Development, an association for promoting business interests in Jefferson County and south Arkansas. The central topics for discussion were the broad range of research fields at NCTR and the role of translational research in the FDA regulatory process. The visitors also showed considerable interest in this federal laboratory's interactions with, and impact on, local universities as well as its potential for attracting high technology businesses into the State of Arkansas.



Vic Snyder Blanche Lincoln Mark Pryor Mike Ross

Economic Development Leaders Visit NCTR

Economic development leaders for southeast Arkansas and the State of Arkansas toured NCTR facilities on January 31. The Arkansas economy has been built upon agriculture and manufacturing industries; these leaders are seeking to attract more technology-based business to diversify the economy. NCTR staff told them how industry was using emerging technologies to develop innovative and more effective health products and how NCTR was developing the same technologies to ensure more economical and effective means for agency scientists to evaluate the safety of these products. The Commander of the Pine Bluff Arsenal also extended a special invitation to visit its facilities. Besides the state-of-the-art chemical demilitarization facility, several other commercial interests have co-located to the Arsenal in support of the Department of Defense and Homeland Security. FDA's Jefferson Laboratories and the neighboring Pine Bluff Arsenal are among the largest employers of southeast Arkansas.

FDA Translational Research—Building Bridges to Improve Public Health

Representatives of the Department of Pediatrics, University of Arkansas for Medical Sciences, and Arkansas Children's Hospital met with NCTR scientists January 6 to discuss current and future translational research. This exchange, the second in a series of joint meetings, is part of NCTR's translational research initiative to take research from the bench to the public health arena. The group toured NCTR facilities and discussed ongoing studies presented in 45 posters authored by participating scientists. Six posters focused on the response of humans and of an animal model to ketamine, a representative anesthetic agent that is undergoing extensive safety evaluation because of reported adverse effects on brain cells during early development. Several pharmacogenomic studies focused on human genetic polymorphisms of hepatic enzymes that determine individual response to drugs and other chemicals. Pharmacogenomic approaches to efficacy and toxicity are forming the framework and underpinnings for the practice of personalized medicine in the future. Several posters documented examples of the application of genomics, proteomics, and metabolomics to help solve human health problems.

Why Use Metabolomics?

Animals and humans show consistent metabolic changes in response to a toxic insult or as the result of disease at later stages. These changes are complex and ideal biomarkers (or early predictors) of potential response related to drug efficacy or toxicity have not been identified. Metabolomics provides a noninvasive method to identify metabolic patterns or biomarkers as early predictors of disease and toxicity.



Scientist identifies metabolic changes in urine.

Publications Recently Accepted in Nationally Recognized Scientific Journals

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- Tsai, C., and Chen, J.J., Kernel estimation for adjusted p-values in multiple testing, *Computational Statistics and Data Analysis*.
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