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## **The Hamner Institutes for Health Sciences Extends Partnership with EPA ToxCast Program**

*New Studies Will Define Key 'Toxicity Pathways' and Generate Data to Support  
Novel Risk Assessment Tools*

RESEARCH TRIANGLE PARK, N.C. – The Hamner Institutes for Health Sciences (The Hamner) has expanded its collaboration with the U.S. Environmental Protection Agency's (EPA) National Center for Computational Toxicology (NCCT). Building upon a five-year memorandum of understanding (MOU), The Hamner has agreed to conduct two additional studies for the EPA ToxCast™ program. The results from this program will be used to determine if *in vitro* assays can be used to forecast the toxic effects of chemicals and better characterize human health risks. If the results are predictive, the ToxCast™ program will provide a quicker and more efficient way to assess the toxicity of environmental chemicals as compared to traditional animal-based testing.

The first of the new studies will perform a high data content imaging screen to examine eleven integrated, *in vitro* cell response markers using a subset of the ToxCast™ Phase I chemicals. This approach will identify a set of medium throughput, integrated cell responses that could serve as the basis for defining key 'toxicity pathways'. The second study will develop data to support a computational systems biology description of activation and cellular responses for human toxicity pathways. This type of information will guide dose response and risk assessments from *in vitro* test results.

The goal of these projects is to provide the tools for pathway mapping and computational systems biology modeling and to identify the types of data that will be needed for dose response evaluations for human toxicity pathways. The two projects will be pursued over the next 2 years. The Hamner research team will be led by Drs. Melvin E. Andersen, Russell S. Thomas, and Harvey J. Clewell.

The results from these studies will be integrated into the ToxCast™ program with the ultimate goal of understanding whether the effects observed in the high-throughput biochemical and cellular assays combined with computational modeling of how chemicals move through the human body may be observed at relevant human doses. The integration of these approaches represents the first critical step in incorporating the recommendations of the National Academy of Sciences report for "Toxicity Testing in the 21st Century."

### **Related Links:**

[www.thehamner.org](http://www.thehamner.org)

[www.epa.gov](http://www.epa.gov)

**Quotes:**

“The Hamner has an unprecedented opportunity to work with the EPA ToxCast™ program to develop new risk assessment tools,” said Mel Andersen, Director of The Hamner Program in Chemical Safety Sciences. “These studies will incorporate modern biology more fully into chemical risk/safety assessment, increase the relevance of testing and risk assessment procedures, and contribute to the advancement of methodologies used for toxicity testing and the tools used for interpreting these data.”

“The Hamner is excited to extend its collaboration with the EPA,” said Dr. William Greenlee, Chief Executive Officer of The Hamner. “This opportunity will allow us to build upon our successful partnership focused on developing improved predictive models for evaluating health outcomes to exposure to environmental chemicals.”

**About the Hamner Institutes for Health Sciences:**

The Hamner Institutes for Health Sciences is a nonprofit research organization strategically located on a 56-acre campus in the heart of Research Triangle Park, North Carolina. For 35 years, scientists at The Hamner have conducted preeminent research in environmental health sciences and chemical risk assessment. Built upon an integrated systems-biology platform, The Hamner has broadened its mission to include translational research in biopharmaceutical safety, metabolic disorders, and oncology. The site also includes an Accelerator, which houses emerging companies and provides opportunities to develop collaborative research and educational programs with academia, industry, and government. The Hamner model for translational research and technology development integrates innovative science with business development while capitalizing on academic and industry partnerships. The Hamner supports the discovery of new, safer drugs and formation of new companies, which leads to research-based public health policy and enhanced economic development. For more information, visit [www.thehamner.org](http://www.thehamner.org) or call (919) 558-1200.

**Keywords:**

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