# Wiki-based Data Management System for Toxicogenomics

#### Summary

We are developing a data management system to enable systems-based toxicology at the U.S. EPA. This is built upon the WikiLIMS<sup>™</sup> platform and is capable of housing not just genomics data but also a wide variety of toxicology data and associated experimental design information. This promotes the joint analysis of gene expression and toxicology endpoints enriching for genes associated with the outcomes of interest. A brief discussion of the system and a case study using the system will be discussed.

# Why consider proposal

This represents both a novel solution for comprehensive data management as well as a cost effective solution to archiving and analysis of gene expression data. The system is flexible to allow for an infinite number of experimental designs and data types. By storing all data in a common storage system, this system promotes integrated analysis of the data. Built upon an open-source platform (MediaWiki), this system also represents an extremely cost effective solution to data management.

## What the audience will gain

The audience will gain an understanding of the power of this system as well as the limitations. From the case study, the audience will see first-hand how the system can facilitate the systemsbased analysis of toxicogenomics data.

## Bio

Stephen Edwards is a Systems Biologist within the National Health and Environmental Effects Research Laboratory (NHEERL) in Research Triangle Park, N.C. NHEERL is the focal point for toxicological, clinical, epidemiological, and biogeographic research within EPA. Dr. Edwards is spearheading the development of a systems approach, integrating relationships and interactions at all levels of a biological system from the sub-cellular to whole organism to connect the effects of environmental pollutants to human health. The goal behind these efforts is to improve the scientific underpinnings of the Agency's risk assessments. With a combination of experimental and computational experience, Dr. Edwards also serves as a liaison with the EPA's National Center for Computational Toxicology (NCCT).