

NCTR Center for Toxicoinformatics – A Bioinformatics Resource for Genomics, Proteomics, Metabolomics, and Predictive Toxicology

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Modern toxicology has focused on understanding biological mechanisms involved in the expression of toxicity. Advanced technologies such as genomics and proteomics offer new approaches for investigating disease and toxicity at the molecular level, and for discovery of corresponding biomarkers. Data from the new experimental platforms are both huge in number and noisy in content. Extraction of useful knowledge requires bioinformatics for data management and analysis. The U.S. Food and Drug Administration (FDA) National Center for Toxicological Research (NCTR) Center for Toxicoinformatics (CTI) provides an informatics infrastructure and data analysis capability available within the FDA and to the public. CTI expertise spans across computational chemistry, molecular modeling, simulation and scientific programming, bioinformatics, chemoinformatics, software engineering, scientific visualization, and Internet technology. The poster illustrates CTI capabilities by addressing several bioinformatics issues associated with the “omics” researches: (1) How to develop a validated database that will be a rich resource for data mining and experiment comparison; (2) How to make the public data readily available to in-house research; (3) How to visualize and analyze the massive information for knowledge extraction; and, (4) How to integrate different types of “omics” data for answering more complex biological questions. The CTI mission is to conduct collaborative research, and we invite you to contact us.

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