In Vitro Models
of Human Toxicity Pathways

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Sponsor: *In Vitro* and Alternative Methods Specialty Section

Endorsed by: Risk Assessment Specialty Section
                   Regulatory and Safety Evaluation Specialty Section

A New Focus in Toxicology: Human Toxicity Pathways

NRC, 2007

Science, Feb 15, 2008

Human experience 1–3 studies/year	Standard rodent toxicological tests 10–100/year	Alternative animal models 100–10,000/year	Biochemical- and cell-based *in vitro* assays ≥10,000/day

Legacy data

Prioritize

Predict

Knowledge

Computational toxicology

Critical toxicity pathways
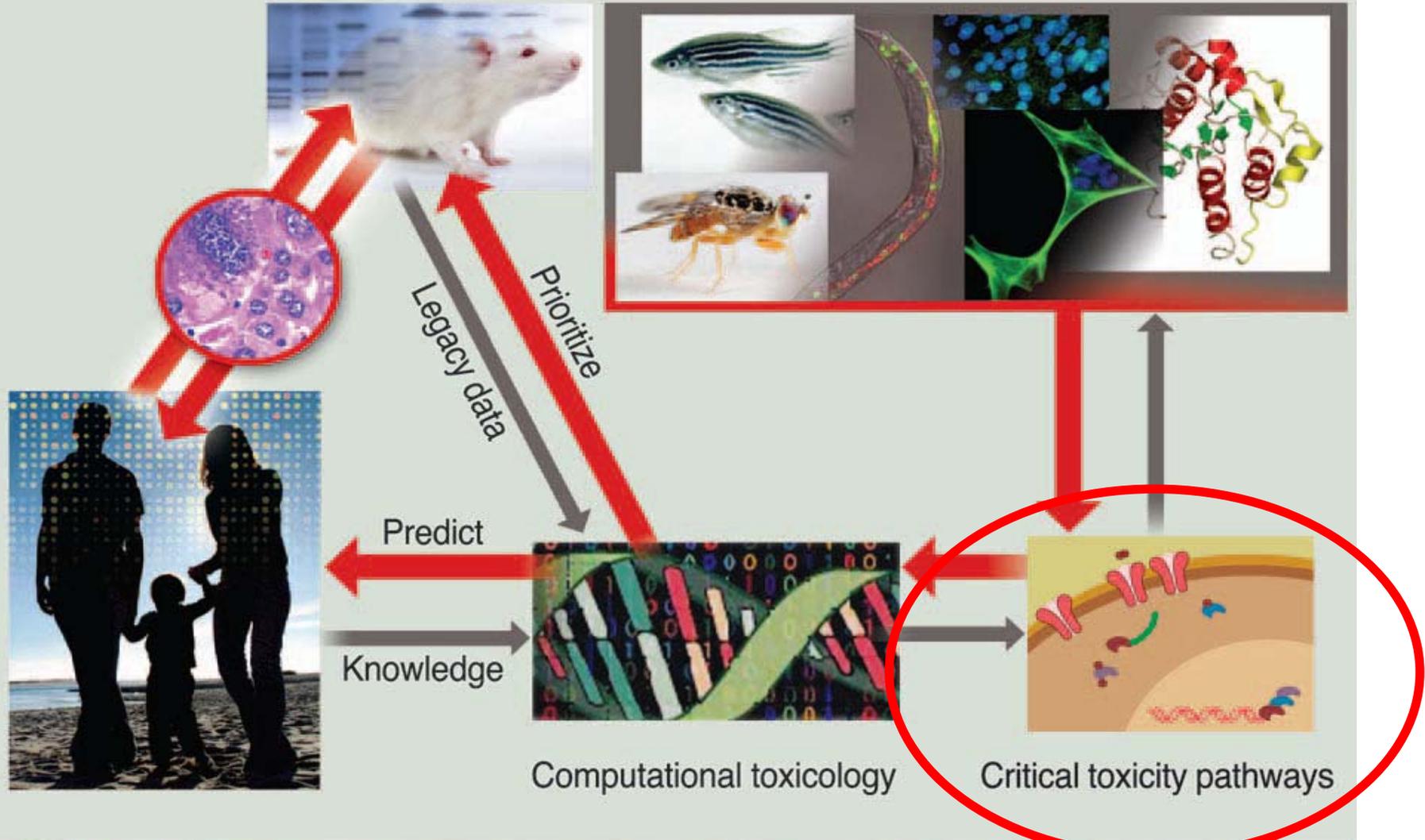
High-throughput molecular mechanisms

Immediate human relevance

ToxCast Data Analysis Summit
EPA RTP campus, May 14-15, 2009

- Hosted by EPA's National Center for Computational Toxicology

- Modeling of ToxCast data to generate predictive signatures

- Derivation of significant toxicity pathways

- Committed to stakeholder involvement and public release of data and results

- ToxCast summit website- http://www.epa.gov/ncct/toxcast/summit.html
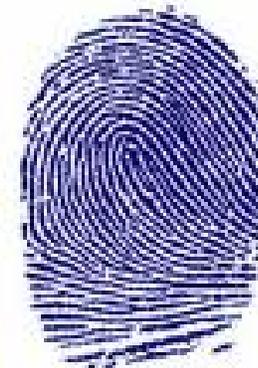
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Evaluation of the ToxCast Suite of Cellular and Molecular Assays for Prediction of *In Vivo* Toxicity
     Keith Houck, U.S. EPA, Research Triangle Park, NC

Use of Nuclear Reporter Assays to Investigate Species Differences in Toxicity
     Richard Peffer, Syngenta Crop Protection Inc., Greensboro, NC

Towards New *In Vitro* Toxicology Strategies for Decision Making: Acute Toxicity as a Case Study
     Gladys Ouedraogo, L'Oreal, Aulnay sous bois, France

Three-Dimensional Human Cellular and Metabolizing Enzyme Microarrays for High-Throughput Toxicity Screening
     Jonathan Dordick, Rensselaer Polytechnic Institute, Troy, NY

Microscale Liver Models for Drug Development and Toxicity Screening
     Sangeeta Bhatia, MIT, Cambridge, MA