

# ***“Conference on Metabolic Profiling Session: Application to Toxicology”***

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## ***“Application to Toxicology”***

**Chair: Dr. Raymond W. Tennant**  
**Director, National Center for Toxicogenomics**

**Speakers:**  
**Dr. Donald Robertson**  
**Pfizer Global Research & Development**

**Dr. Robert Plumb**  
**Waters Corporation**

**Dr. Susan Sumner**  
**Paradigm Genetics, Inc.**

**Dr. Hector C. Keun**  
**Imperial College, University of London**



NCT

National Center  
for Toxicogenomics

## *Why have an NCT?*

**The rapid development of genomic technologies provides an unprecedented opportunity to address highly intractable problems of toxicology and environmental health.**

- **The value of surrogate models for prediction of human health risk**
- **Identify biomarkers of incipient adverse effects**
- **Harness the results of diverse research efforts for the collective benefit**
- **Provide a rational basis for risk assessment**
- **Facilitate the identification of specific susceptibility polymorphisms**

## *What are the Goals of the NCT?*

**Apply gene expression technology to toxicology.**

- **Identify signature patterns of exposure**
- **Identify signature patterns of specific adverse effects (acute toxicity)**
- **Identify biomarkers of toxicity**

**Apply gene expression technology to:**

- **Facilitate discovery toxicology**
- **Facilitate hypothesis based studies**

**Apply gene expression data to the development of a knowledge base of Chemical Effects in Biological Systems (CEBS)**

# *A Strategy for Toxicogenomics*

## *Short-term Goals*

### *Predictive Assays*

- Signature patterns of exposure
- Signature patterns of adverse effects
- Proteomic analysis
- Biomarker identification

## *Long-term Goals*

### *Knowledge Base*

- Gene expression database
- Analysis tools (informatics)
- Query tools
- Relational interfaces and annotation

## *Partnerships in Knowledge Base Development*

**Coordinated Planning, Common Database Standards**

