Tox21 Update

Background Material:

- Improving the Human Hazard Characterization of Chemicals: A Tox21 Update. Tice RR, Austin CP, Kavlock RJ, Bucher JR. *Environ Health Perspect* 121:756-65 (2013)
- Regulatory Forum Opinion Piece: Tox21 and Toxicologic Pathology. Bucher, JR *Tox Path* 41:125-127 (2013)
- Paradigm Shift in Toxicity Testing and Modeling. Sun H, Xia M, Austin CP, Huang R. *The AAPS Journal* 14: 473-480 (2012)
- Transforming Environmental Health Protection. Collins, FS, Gray, GM, Bucher, JR. *Science* 319:906-907 (2008)

In 2008, the NIEHS/NTP, the U.S. EPA's National Center for Computational Toxicology (NCCT), and the NHGRI/NIH Chemical Genomics Center (NCGC) entered into an agreement on *High Throughput Screening, Toxicity Pathway Profiling, and Biological Interpretation of Findings*. In 2010, the U.S. Food and Drug Administration (FDA) joined the collaboration known informally as Tox21. The partners agreed to develop a vision and devise an implementation strategy to shift the assessment of chemical hazards away from traditional experimental animal toxicology studies to one based on target specific, mechanism-based, biological observations largely obtained using *in vitro* assays. Dr. Tice will summarize the current status of Tox21, including efforts to expand the usefulness of *in vitro* and *in vivo* platforms for characterizing toxicity/disease pathways, facilitating cross-species extrapolation, prioritizing compounds for more extensive toxicological evaluation, and developing predictive models for biological response in humans.