

## **Division for Toxicology Symposia at EB2010 Anaheim, April 24-28**

### **Symposium 1: Regulating the Regulators: Redox regulation and stress response proteins**

Co-Sponsor: Division for Drug Metabolism

Chair: Daret St. Clair

Cellular redox status (oxidizing/reducing conditions) is known to play several important roles in signaling of life and death processes. Transcription regulators are important targets of redox regulation that carry out the survival and death responses. However, increasing evidence suggests that cellular redox status is also regulated by the activity of transcription factors and modifiers such as NF- $\kappa$ B, p53 and SIRT. Hence, activation of these proteins and the subsequent alteration of cellular redox status are interrelated. In light of these new findings, we believed that a topic on the connections between cellular redox status and redox sensitive proteins is timely and should be of importance to many scientists attending ASPET meetings. Given that cellular redox status contributes to almost all aspects of biological function, and transcription regulatory proteins are critical for normal cellular functions, this proposed session will serve as an excellent platform to bring together two important fields: redox and transcription regulation.

#### **Introduction to the connections between cellular redox status and transcription responses**

Daret St. Clair, PhD  
Department of Toxicology  
University of Kentucky

#### **p53 regulates mitochondrial function**

Paul M. Hwang, MD, PhD  
Cardiology Branch  
National Heart, Lung, and Blood Institute  
NIH

#### **ROS and p53 modulators in cancer specific apoptosis**

Sam Lee, PhD  
Cutaneous Biology Research Laboratory  
Harvard Medical School

#### **SIRT3 is a mitochondrial tumor suppressor gene required for maintenance of mitochondrial integrity and oxidative metabolism during stress**

David Gius, MD, PhD  
Radiation Oncology Branch  
NIH

#### **Mitochondria: novel regulators of the Keap1/Nrf-2 antioxidant pathway**

Aimee Landar, PhD  
Center for Free Radical Biology  
University of Alabama-Birmingham

(Young Investigator Speaker)

**The bi-directional role of p53 on MnSOD expression**

Sanjit Dhar, PhD  
Graduate Center for Toxicology  
University of Kentucky  
(Young Investigator Speaker)

**Symposium 2: Role of mitochondria in pathogenesis of drug hepatotoxicity**

Co-Sponsor: Division for Drug Metabolism & Division for Integrative Systems,  
Translational and Clinical Pharmacology

Chair: Neil Kaplowitz

Mitochondria have attracted renewed interest because of their role in oxidative stress and as potential target to toxic drugs. Drugs that interfere with electron transport promote ROS production. Critical in handling this oxidative stress is the status of the mitochondrial defense and its compartmentation. The eventual exhaustion of this defense exposes the cytoplasm to ROS. The effect on sustained activation of signal transduction pathways may then lead to JNK targeting to mitochondria and cell death. The discussion of this area of research will bring attention to the importance of mitochondria as a primary and secondary target of hepatotoxic drugs. This will stimulate discussion and more work to advance the field of hepatotoxicity.

**Introduction**

Neil Kaplowitz, MD  
Division of Gastroenterology and Liver Diseases  
University of Southern California

**Compartmentation of oxidative stress defense in mitochondria:  
implications for drug toxicity**

*This talk will address the role of mitochondrial thioredoxin and GSH and its relation to other compartments*

Dean Jones, PhD  
Division of Ophthalmology  
Emory University School of Medicine

**Mitochondrial permeability transition**

*This talk will focus on the MPT, what regulates it and its contribution*

John LeMasters, MD, PhD  
Department of Biochemistry and Molecular Biology and Pharmaceutical Sciences  
Medical University of Southern Carolina

**Interplay of signal transduction and mitochondria in the acetaminophen model**

*This talk will address role of kinases (JNK, etc) in mediating oxidative stress induced necrosis*

Derick Han, PhD  
Division of Gastrointestinal and Liver Diseases

University of Southern California  
(Young Investigator Speaker)

**Threshold for mitochondrial participation in idiosyncratic DILI**

*This talk will address the SOD+/- in increasing or unmasking of drugs and mechanisms*

Urs Boelsterli, PhD  
Department of Pharmaceutical Sciences  
University of Connecticut School of Pharmacy

**Symposium 3: Div Tox-sponsored symposium: ABC transporters, their role in physiology, toxicology and cancer**

Chair: John Schuetz

**Details are being finalized.**