2015 PLENARY SPEAKERS

Plenary Session I – Sunday, June 21, 2015
Dr. Ting-Kai Li Lectureship
RSA’s 2015 Distinguished Researcher Awardee – to be determined

Plenary Session II – Monday, June 22, 2015

Garret D. Stuber, Ph.D.
Assistant Professor of Psychiatry and Cell Biology and Physiology
University of North Carolina at Chapel Hill

Dr. Stuber received his BS in Psychology with a minor in Chemistry from the University of Washington in 2000. He then completed his Ph.D. in Neurobiology at the University of North Carolina at Chapel Hill in 2005 where he studied rapid dopamine dynamics during cocaine self-administration with Drs. R. Mark Wightman and Regina Carelli. For his postdoctoral work, Dr. Stuber joined the lab of Dr. Antonello Bonci, then at the Ernest Gallo Clinic and Research Center and the University of California, San Francisco, where he studied how excitatory synaptic transmission in the ventral tegmental area is altered following reward-related learning. While still at the Gallo Center Dr. Stuber began collaborating with members of the Deisseroth lab at Stanford University to adopt optogenetic techniques to study reward related behaviors. Dr. Stuber started his own lab in 2010 in Departments of Psychiatry and Cell Biology and Physiology at the University of North Carolina at Chapel Hill. The Stuber lab’s research focuses on the synaptic and neural circuit mechanisms that underlie adaptive and maladaptive behavioral states that mediate reward-related as well as stress and anxiety-related behaviors. To accomplish this, the laboratory employs multiple cutting-edge techniques both in vivo and in vitro. The Stuber lab’s ultimate research goal is to delineate the functional neurocircuit architecture that orchestrates precise behavioral states.

Dissecting the neural circuits that mediate motivated behavior

In order to survive and effectively navigate an ever-changing and unpredictable environment, organisms must readily adapt their behavior to seek out needed resources, while simultaneously avoiding life-threatening situations. These opposing processes are controlled by neural circuitry that is readily engaged by both environmental and physiological factors to promote behavioral output. The work of my lab studies the precise neural circuits that control both reward and aversive-related behavioral responses. By utilizing optogenetic and other circuit mapping tools, we aim to delineate the precise functional synaptic connections between molecularly distinct neuronal populations that are critical for the generation of these critical behavioral states. A holistic understanding of the interconnected neural circuit elements that mediate diverse motivational behaviors will likely provide important insight into a variety of complex neurological and neuropsychiatric illnesses such as drug and alcohol addiction, anxiety, depression, and eating disorders.
Scott L. Friedman MD

Dr. Friedman is Chief of Liver Diseases, Fishberg Professor of Medicine and Dean for Therapeutic Discovery at the Icahn School of Medicine at Mount Sinai. He has performed pioneering research into the underlying causes of hepatic fibrosis. His work in hepatic fibrosis over 30 years has contributed significantly to the emergence of fibrosis as an exciting new therapeutic area in hepatology. He was a Senior Fulbright Scholar at the Weizmann Institute of Science in Israel in 1995, and has mentored over 75 postdoctoral fellows and students. In 2003 Dr. Friedman won the International Hans Popper Award and in 2009 was President of the Am Assn for the Study of Liver Diseases.

Treatment of Hepatic Fibrosis

The increasing evidence that fibrosis is a dynamic and reversible process, the clarification of the underlying sources and mediators of fibrosis progression, and advances in non-invasively assessing fibrosis have generated enthusiasm towards developing effective anti-fibrotic drugs, although none are approved yet.

There are several therapeutic target classes in developing anti-fibrotic agents:

- **Eliminate the cause of injury and their mediators**
- **Attenuate hepatocyte injury – ‘Hepatoprotectants’**
- **Reduce inflammation and the immune response**
- **Target specific signaling – receptor-ligand interaction, intracellular signaling**
- **Reduce fibrogenesis, inhibit matrix synthesis**
- **Resolve fibrosis by**
  - Increasing scar matrix degradation
  - Stimulating apoptosis or reversion of stellate cells
  - Bone marrow or cell transplantation

**especially relevant to alcoholic liver diseases**
LARA RAY, PH.D.

Dr. Lara Ray received her PhD in Clinical Psychology from the University of Colorado at Boulder. During her graduate degree she completed interdisciplinary training in behavioral genetics and neuroscience. Dr. Ray completed a predoctoral clinical internship at Brown University Medical School where she stayed for a postdoctoral fellowship at the Brown University Center for Alcohol and Addiction Studies. After her postdoctoral fellowship, Dr. Ray joined the faculty at the UCLA Clinical Psychology Program where she is currently an Associate Professor. Dr. Ray has an active program of research on clinical neuroscience of addiction. Her laboratory combines experimental psychopharmacology with behavioral genetic and neuroimaging methods to ascertain the mechanisms underlying addictive disorders in humans and applying these insights to treatment development.

A RESEARCH AGENDA ON THE CLINICAL NEUROSCIENCE OF ALCOHOLISM

Alcoholism is a chronic relapsing condition affecting millions of individuals worldwide. While advances to the understanding of alcoholism as a brain disorder have been made, translating these insights into more effective interventions poses many challenges. This lecture will present a framework for a research program in clinical neuroscience of alcoholism. The goal of this research program is to advance neurobiological models of alcoholism etiology and progression to clinical populations and to develop treatments that can effectively target these vulnerabilities.
Dr. MacKillop trained as a clinical psychologist at the State University of New York at Binghamton and Brown University Clinical Psychology Training Consortium. He is currently the Peter Boris Chair in Addictions Research, Director of the Peter Boris Centre for Addictions Research, and Professor of Psychiatry and Behavioural Neurosciences at McMaster University. His program of research focuses on the application of behavioral economics and neuroeconomics to understanding alcohol use disorders and has generated over 140 peer-reviewed publications and other works to date.

**PRESENTATION:** Dr. MacKillop will provide an introduction to the application of behavioral economics and neuroeconomics to understanding alcohol use disorders (AUDs), emphasizing empirical contributions from his laboratory. In particular, Dr. MacKillop will review two forms of decision making that are implicated in AUDs, impulsive delay discounting and elevated alcohol demand. The first, delay discounting, refers to individual preferences for small immediate rewards at the expense of larger delayed reward, and the second, alcohol demand, refers to preferences for alcohol across escalating levels of price. The presentation will detail the methods used to ascertain both types of preferences and representative behavioral and brain imaging findings to date. Throughout, a theme will be the translational validity of these characteristics.