2010 Summer Symposium Review

by Ryan Weidling

The Genetic and Environmental Toxicology Association's Summer 2010 afternoon symposium was held at the Elihu M. Harris Building on July 20, 2010. The afternoon topic was "Epigenomics and Human Health", and several speakers presented epigenetic research, from the evolution of DNA methylation to its interface with human health.

Dr. Luoping Zhang, associate adjunct professor at the University of California, Berkeley, School of Public Health, presented an overview of epigenomic research and environmental health. She discussed the paradigm of chemical-gene-disease interactions and presented research on DNA methylation changes in subjects exposed to low-dose benzene. Dr. Zhang's presentation provided a foundation for how epigenomic methods are being used to investigate environment-gene-disease relationships and how much more there is to learn.

Dr. Daniel Zilberman, assistant professor in the University of California, Berkeley, Department of Plant and Microbial Biology, gave a talk on the evolution of eukaryotic DNA methylation. He discussed what is known about the patterns and roles of DNA methylation across diverse groups of organisms, from plants to mammals. Dr. Zilberman's presented an evolutionary genetic foundation for the role of DNA methylation in organisms and subsequently how this emerging research might relate to human health.

Dr. Janine L Salle, professor in the Department of Medical Microbiology and Immunology at the University of California, Davis, School of Medicine, presented on the interface of genetic and environmental risk factors in autism-spectrum disorders. She discussed her laboratory's animal research on the interactions of MeCP2, a gene which codes for a methylated DNA binding protein, and organic pollutants in neurodevelopment. Dr. LaSalle demonstrated the use of epigenomic technologies in the investigation of autism spectral disorder pathogenesis.

The GETA summer 2010 afternoon symposium illustrated cutting-edge areas of research at the junction of environmental exposures, epigenomics, and disease in human populations. This research holds promise for shedding light on an additional layer of interaction between exposures and disease outcomes in human populations.

Dr. Jeff Wong, Deputy Director, Science, Pollution Prevention, and Technology Development Department of Toxic Substances Control, presented on California's Green Chemistry Initiative. His discussion included an introduction to DTC's mission and goals, followed by a discussion of the discomforting data gaps on the toxicity of nanotechnology, and the vision of the California Green Chemistry Initiative. Dr. Wong's introduction to the Green Chemistry Initiative showed the urgent work that needs to be done and the exciting steps that are being taken to protect future generations and the environment.

The GETA fall 2009 afternoon symposium provided a sobering look at some of the stresses facing our environment today, where they may lead us, and most importantly, at urgent ways to prevent these frightening glimpses of our potential collective future.