2007 Spring Symposium Review

By Lida Antonian

The GETA spring symposium was held at the Alumni House at UC Berkeley on March 10, 2007. The meeting was co-sponsored by the Northern California Chapter of the Society for Risk Analysis (NCCSRA) and was well attended by scientists mostly from government and academic laboratories. There were four expert speakers at the symposium.

The symposium topic was "Genetics and Environmental Risk Factors for Autistic Spectral Disorders." Four experts provided different perspectives on Autism, ranging from epidemiological and clinical to environmental and genetic research; in addition the speakers also discussed effective and proven approaches for academic and social development of children with Asperger's and other neurocognitive disorders.

Dr. Antonio Hardan presented "Developmental Abnormalities in Brain Structures in Autism Spectrum Disorders." He is Assistant Professor of Psychiatry in the Department of Psychiatry and Behavioral Sciences at Stanford University. He is also Director of the Autism and Developmental Disabilities clinic at Stanford University. Dr. Hardan described morphometric alterations in autistic children involving several brain structures including cerebellum, hippocampus, amygdala, and corpus callosum. The most replicated finding was related to increased cerebral volume which was consistent with head circumference studies observing increased head size and macrocephaly in autism. Brain size alterations appear to be the consequence of grey and white matter enlargement and seem to be more evident in children than in adults with autism. Brain enlargement may be a biologic marker for this disorder.

Dr. Joachim Hallmayer presented "Autism is a Complex Genetic Disorder." Dr. Hallmayer is Associate Professor of Psychiatry in the Department of Psychiatry and Behavioral Sciences at Stanford University. He is principal investigator on a multi-center project, the Autism Genome Project at more than 20 University centers that are facilitating the discovery of genes that contributes to autism. This study is the largest study ever conducted, in terms of both researchers and research subjects. Over 1,400 families with more than one affected family member participated. Two types of data were combined to determine which chromosomal regions might be involved in the development of autism: linkage analysis, which tests whether specific genetic markers are located near a putative autism susceptibility gene; and chromosomal copy number variation, in which subtle chromosomal abnormalities among affected individuals are tracked.

Dr. Hallmayer detailed that autism is a complex genetic disorder and most likely influenced by a combination of mutations in single genes, deletions and duplications, and by more common alleles. He stated that identifying candidate autism susceptibility genes will allow us to better understand how these genes interact with environmental factors to influence early brain development. It is likely that a number of autism genes will be identified in the next couple of years. His presentation is posted on the GETA website.

Dr. Irva Hertz-Picciotto presented "Environmental Risk Factors and Genetics of Autistic Spectral Disorders." She is a Professor at UC Davis Department of Public Health Sciences; she

directs several large studies funded by the NIH (National Institutes of Health) on environmental hazards to immune and neurobehavioral development in young children. One of these is the CHARGE study (Childhood Autism Risk from Genetics and the Environment), which is examining the interaction between genetic susceptibility and environmental agents in relation to the development of autism.

Dr. Kathryn Stewart presented "Education of Students on the Neurocognitive Spectrum-Using Theory to Inform Program Development: A Look at Orion Academy." She is a clinical psychologist and the founder and Executive Director of Orion Academy. Dr. Stewart presented the unique approach of engaging students with Asperger's and other Neurocognitive Learning Disability (NLD) into a college preparatory high school curriculum. Her presentation is posted on the GETA website.