Medical Genetics

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Overview

The Department of medical Genetics, with several research subdivisions, continues its long-term goals of elucidating genetic aspects and potential treatments of schizophrenia, bipolar disorder, Huntington's Disease (HD), suicidality and several other neuropsychiatric, and other medical disorders. One focus has concerned identifying and characterizing risk to psychiatric disorders, as exemplified by the a three decade-long study of individuals at genetic high risk to schizophrenia in which several early predictors to adulthood schizophrenia have been identified. The focus on risk was extended in 2003 to clinical high-risk studies, with the start of a prodromal research program that has enrolled more than 30 young people identified as at elevated risk to psychosis. Another concentration has concerned the search for and functional elucidation of genes underlying psychiatric disorders. Significant advances in this regard have included finding of the gene or gene region for HD, retinosis pigmentosa and several medical disorders with behavior and components among their symptoms.

Current Research

A potentially highly significant development during the reporting period was the funding supporting association of G72 and NRG1 with bipolar disorder, coupled with new evidence for association and linkage of GRIN2A, GRIN2B, and RGS4. A first round genome-wide scan supports linkage at chromosomal regions 2p, 4q, 7q, 13q and 17q. This work is currently being followed up. In the Cognitive Electrophysiology Lab, which has been concerned with a cognitive event-related potentials in normal development, aging, Mild Cognitive Impairment,

and Alzheimer's Disease, new work using event-related functional imaging in an endeavor to localize brain regions involved in a variety of cognitive processes is expected to significantly increase information on these several populations, as well as ultimately to help clarify the roles played by brain-genes. The Center of Prevention and Evaluation (COPE) continues to evaluate symptom trajectories, neural changes biomarkers for psychosis risk, and exposures to stress and drug use. Several research projects headed by junior investigators are ongoing at COPE. Work on Huntington's Disease continues under the leadership of Dr. Nancy Wexler. In the New York High-Risk Project, longitudinal data on symptoms, personality, and other characteristics are being examined for their ability to predict the occurrence and outcome of the schizophrenia prodrome or a prodrome-like phase that fails to progress to psychosis.

Clinical Services
Drs. David Printz and R. Anna Seckinger oversee provision of clinical care to at-risk teens and young adults who participate in COPE.

Education and Training.
COPE provides clinical and research training to medical students, interns, psychiatrists, psychologists, and social workers. Visiting fellows from other countries participate in COPE so that they may start prodromal research programs in their home countries.

Awards/Honors:
Drs. Malaspina and Corcoran received the APIRE/Kempf Research Award from APA.

Dr. Corcoran was named the Florence Irving Assistant Professor of Psychiatry at Columbia University.

Dr. Scott Schobel received a Collegium Internationale Psychopharmacologium (CINP) Young Investigator Awardee.

Highlights
Progress in gene mapping for bipolar disorder was advanced by Dr. Miron Baron and colleagues, who found in a large pedigree sample that dense SNP's genotyping supports previous association findings in G72 and NRG1 and provides new evidence of association and linkage of GR1N2A, GRIN2B, and RGS4. These genes show evidence of interaction via a common molecular pathway, suggesting a role for this pathway in the disease susceptibility.