

National study to identify genetic variants in schizophrenia

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The Medical College of Georgia is part of a large national study examining the genes of 10,000 patients with schizophrenia and 10,000 healthy individuals in an effort to pinpoint variations that can improve disease diagnosis and treatment.

Blood samples taken from each group will enable a sophisticated whole genome study to sort out genetic variations that convey individual risk for the disease that affects about 1 percent of the population.

Schizophrenia's hallmark symptoms of hallucinations and the inability to manage basic functions, such as maintaining a job and/or personal relationships, typically arise early in adulthood.

"It's a devastating disease for which we have effective therapy but we have challenges as well," said Dr. Peter F. Buckley, a schizophrenia expert and chair of the Department of Psychiatry and Health Behavior in the MCG School of Medicine. "We hope this study moves us closer to unraveling the genetics of schizophrenia and, ultimately, that enables us to do a better job diagnosing and treating our [patients](#)."

While the study may not directly benefit participants, it enables a large-scale assessment of whether [genetic](#) variations that surfaced in a previous study of 3,391 individuals with schizophrenia and 3,181 controls continue to hold up and allow more detailed study of the variants, including their frequency, Dr. Buckley says.

The University of Southern California in Los Angeles led scientific

teams that demonstrated some genes were missing and others over-expressed in three of the 23 chromosome pairs that comprise the human genome in a study published online in Nature July 30, 2008. The variations they found in chromosomes 22, 15 and 1 were rare but conveyed significant risk of schizophrenia. The Broad Institute, of Harvard Medical School and the Massachusetts Institute of Technology, performed the whole genome scans that enabled the findings. USC is coordinating the \$10 million National Institute of Mental Health-funded follow up study which includes MCG.

MCG, which follows about 200 patients with [schizophrenia](#), will enroll about 500 patients and 500 controls over the next five years as part of the study. A number of other mental health facilities in Georgia will help meet the enrollment target including:

- Serenity Community Mental Health Center, which serves Richmond, Columbia, McDuffie, Wilkes, Warren and Taliaferro Counties
- Ogeechee Behavioral Health Services, which serves Burke, Emanuel, Glascock, Jefferson, Jenkins and Screven Counties.
- Northwest Georgia Regional Hospital in Rome, which serves 31 counties.
- Highland Rivers Center in Dalton, which serves Bartow, Cherokee, Fannin, Floyd, Gilmer, Gordon, Murray, Paulding, Pickens, Polk and Whitfield Counties.

"We are grateful that the already busy staffs at these centers want to help in this quest to better understand this disease so that ultimately we can all do a better job for our patients," Dr. Buckley says.

Serenity and Ogeechee already were helping recruit for another MCG study to determine whether injectable medications versus pills can help with the significant problem of patients not taking their medication and relapsing. Dr. Thomas Muller, clinical director at the Rome hospital and former psychiatry residency director at MCG, as well as Dr. Ujwal Siddam Reddy, medical director at Highland Rivers Center and former chief resident in psychiatry at MCG, expressed interest in bringing research, including innovative therapies, to their part of the state as well.

Standardized checklists will ensure consistency in the patients and controls enrolled in the study. Also, the large number of enrollees at multiple sites will enable adequate representation from key ethnic and racial groups including whites, blacks and Latinos.

Anonymous [blood samples](#) drawn from participants also will be banked at an NIMH genetics repository at Rutgers University to contribute to the larger issue of understanding the genetics of mental illness. MCG will keep samples as well for a planned adjunct study on whether levels of brain-derived neurotrophic factor, a factor that helps optimize brain formation and function, provide clues about whether patients are headed toward relapse. MCG researchers began measuring factor levels in patients' blood last year to pursue the apparent correlation between a drop in the level and decreased responsiveness to drug treatment.

Other study sites include Cedars-Sinai Medical Center, Los Angeles; State University of New York Upstate, Syracuse; State University of New York at Stony Brook, Stony Brook; University of California, Los Angeles; University of North Carolina at Chapel Hill, Chapel Hill; and Wright State University, Dayton, Ohio.

Source: Medical College of Georgia

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