Most powerful genetic study of psychosis to date

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(Medical Xpress) -- Two genome wide studies involving more than 50,000 participants have identified new genetic risk factors for schizophrenia and bipolar disorder. The research was conducted by over 250 scientists from more than 20 countries - one of the largest collaborative efforts in psychiatry to date.

The results of the Psychiatric Genome-Wide Association Study (GWAS) Consortium were published in two research papers in the October issue of *Nature Genetics.*

The schizophrenia study found a total of seven locations on the genome to be implicated in the disease, five of which had not been identified before. The bipolar GWAS study revealed four locations on the genome associated with the disorder, one of which has not been previously identified. Combining the findings from both studies revealed that three gene locations were involved in both disorders, confirming the genetic overlap between schizophrenia and bipolar disorder.

Schizophrenia and bipolar disorder are common and often devastating brain disorders. Some of the most prominent symptoms of schizophrenia are hallucinations and delusions. Bipolar disorder is characterized by severe, episodic mood swings. The conditions are known to be caused by a combination of genetic and environmental risk factors.

Professor David Collier from the Institute of Psychiatry at King's College London, who was involved in both studies says: 'Although we

have known that psychiatric disorders such as schizophrenia and bipolar disorder have a strong genetic basis, it has proven very difficult to identify the genetic risk factors involved. This is because the causes of these illnesses are highly complex, with many different genes and environmental factors involved. In order to try and solve this puzzle, hundreds of scientists researching schizophrenia have pooled their research results resulting in a major and unprecedented research cooperation, involving tens of thousands of volunteer patients.'

Prof Collier adds: 'These are the most powerful genetic studies of psychosis to date, and have enabled us to identify a host of new genetic risk factors. These include one gene, a 'micro RNA' which may be acting as a master regulator, influencing the biological pathways in the brain, which once perturbed lead to schizophrenia.

'Our findings are a significant advance in our knowledge of the underlying causes of psychosis - especially in relation to the development and function of the brain. Unravelling the biology of these disorders brings great hope for the development of new therapies - we can attempt to develop therapeutic drugs which target the molecules in the brain involved in the development of psychosis.'

IoP researchers at the MRC Social, Genetic and Developmental Psychiatry (SGDP) Centre who contributed to the bipolar GWAS study included Professor Anne Farmer, Professor Peter McGuffin, Dr Gerome Breen, Amanda Elkin and Richard Williamson and Professor David Collier who also contributed to the schizophrenia GWAS study.

The research was funded by over 40 US National Institutes of Health grants and a similar number of government grants from many countries involved, along with substantial private and foundation support.

More information:

Sklar, P. at el. 'Large-scale genome-wide association analysis of bipolar disorder identifies a new susceptibility locus near ODZ4', Nature Genetics (October 2011) doi:10.1038/ng.943

Gejman, P.V. et al. 'Genome-wide association study identifies five new schizophrenia loci', Nature Genetics (October 2011) doi:10.1038/ng.940