

Researchers identify networks of neurons in the brain that are disrupted in psychiatric disease

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Studying the networks of connections in the brains of people affected by schizophrenia, bipolar disease or depression has allowed Dr. Peter Williamson, from Western University, to gain a better understanding of the biological basis of these important diseases. Dr. Williamson and colleagues have shown that different networks, found specifically in humans, are disrupted in different psychiatric diseases. These results were presented at the 2013 Canadian Neuroscience Meeting, the annual meeting of the Canadian Association for Neuroscience - Association Canadienne des Neurosciences (CAN-ACN).

Previously, researchers had attempted to use [genetic approaches](#) to help explain the biological basis of [neuropsychiatric diseases](#), but genetics can only explain a small percentage of cases. Today researchers have begun using new imaging techniques to study connections in the brains of living patients, and this approach is revealing important differences between patients suffering from schizophrenia, bipolar disorder, and depression, and persons not affected by these disorders.

Schizophrenia and bipolar disorder are uniquely human diseases. Though some animal models exist for these diseases, animals cannot experience these diseases as we do, since they lack our language capacities, and the ability to represent feelings and ideas, their own and those of others, across time. These specifically human capabilities are encoded in specifically human neural networks, such as an emotional encoding

network, found to be disrupted in mood disorders, such as depression and [bipolar disorder](#), and the directed effort network which fails in schizophrenia.

Concluding quote from Dr. Williamson: "We are not likely to understand the extremely complex interactions between the hundreds of genes and environmental events that underlie [neuropsychiatric disorders](#) in our lifetimes. The challenge of our time is to find the final common pathways of these disorders"

More information: www.can-acn.org/meeting2013

Provided by Canadian Association for Neuroscience

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