

Controlling our brain's perception of emotional events

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Research performed by Nicole Lauzon and Dr. Steven Laviolette of the Schulich School of Medicine & Dentistry at The University of Western Ontario has found key processes in the brain that control the emotional significance of our experiences and how we form memories of them. A lack of proper brain function in this area is what lies beneath such conditions as Schizophrenia and Post-Traumatic Stress Disorder (PTSD). In people who suffer from these conditions emotional experiences can become distorted, causing the person to 'lose touch' with reality. The findings have been published online by *The Journal of Neuroscience*.

Lauzon, a Doctoral graduate student in the Laviolette laboratory, discovered that specific receptors for the neurotransmitter dopamine can control how the brain processes emotionally significant information as well as memories for those experiences. Using a rodent model of emotional learning and memory formation, the researchers found by increasing the activity of a specific dopamine receptor in a region of the brain called the pre-frontal cortex, it was able to transform a normally insignificant emotional experience into a very strong emotional memory. In contrast, when a different subtype of the dopamine system was activated, it was able to block the ability to recall an emotionally charged experience.

"Our findings have profound implications for understanding how specific [brain](#) receptors can control the magnitude of emotional experience and memory formation," says Laviolette.

"Targeting these receptor systems pharmacologically may offer new therapeutic treatments for controlling the emotional [perception](#) and memory deficits observed in psychiatric disorders such as Schizophrenia and PTSD." Laviolette is a professor in the Department of Anatomy & Cell Biology and a National Alliance for Research on Schizophrenia and Depression (NARSAD) Young Investigator.

According to the National Institute of Mental Health, over 280,000 Canadians suffer from Schizophrenia, and approximately 51 million people worldwide.

About eight per cent of the population will have PTSD symptoms at some point in their lives according to the National Center for Post-Traumatic Stress Disorder in the United States.

Source: University of Western Ontario

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