

Tulane wins grant for depression study

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Benjamin Hall, an assistant professor of cell and molecular biology and neuroscience at Tulane University, has won a \$1.8 million grant that will enable him and his research team to explore questions that could eventually lead to new treatments for chronic depression.

The five-year grant from the National Institute of Mental Health means Hall can purchase new lab equipment and employ additional researchers to study the role of the NMDA receptor in the treatment of depression. The NMDA receptor plays a critical role in the transmission of information between neurons.

The drug ketamine, which interferes with the NMDA receptor, produces rapid antidepressant actions in treatment-resistant patients. However, because of its hallucinatory side effects, ketamine has not been approved for treatment of depression.

Typical antidepressant therapies, such as the SSRIs (compounds that increase serotonin levels in the brain), can take several weeks to work, placing patients with the most severe cases at risk for suicide or attempted suicide, Hall said.

“Our ability to treat chronic depression has been limited by the fact that standard therapies have long delay, or are completely ineffective, in providing antidepressant action,” he said.

Ketamine's ability to cause rapid antidepressant actions by inhibiting the NMDA receptor is exciting, Hall said. But knowing the exact mechanisms underlying these effects could aid in the development of antidepressants that do not produce its unwanted side effects.

Hall's experiments will test a hypothesis that points to the GluN2B gene, an NMDA receptor subunit. The experiments will better define the role of GluN2B-containing NMDA receptors in regulating excitatory synapse function and despair behavior, while clarifying how inhibiting NMDA produces its rapid antidepressant effects.

“Understanding these cellular mechanisms is critical for guiding future pharmaceutical intervention while minimizing side effects” Hall said.