

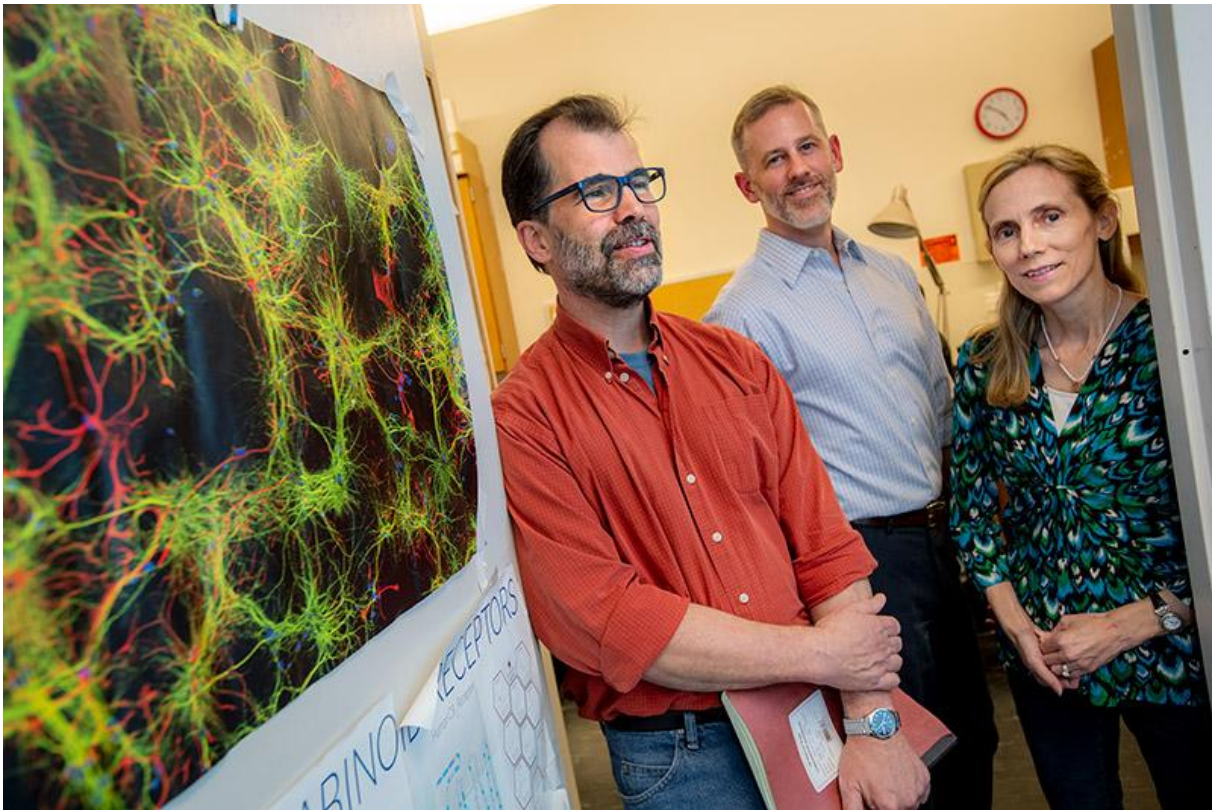
Tulane researcher studying link between stress and mental health disease

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Tulane neuroscience professor Jeffrey Tasker is teaming up with Laura Harrison, a research assistant professor in the Department of Cellular and Molecular Biology, and Matthew Watson, a PhD student in Neuroscience, in a study on how stress affects the brain. (Photo by Paula Burch-Celentano)

A Tulane neuroscience professor has won a \$2.1 million grant to study the effects of stress on the brain and how severe stress contributes to the development of mental health disorders.

The five-year grant from the National Institutes of Health will allow [Jeffrey Tasker](#) and his team in the Cell & Molecular Biology Department and the [Tulane Brain Institute](#) to explore how stress signals can lead to changes in brain circuitry, brain chemistry and behavior.

“Stress contributes significantly to the incidence of mental illness, playing a major role especially in the progression of depression and anxiety disorders,” said Tasker, the Catherine and Hunter Pierson Chair in Neuroscience.

“What I hope comes from our research is a better understanding of the changes in brain circuits caused by severe stress that can cause or contribute to chronic mental health disorders.”

Tulane researcher Jeffrey Tasker

One of the main stress signals is noradrenaline, which alerts the body to the stressful conditions and triggers the fight-or-flight physiological response to stress.

“The fight-or-flight response is the sympathetic nervous system response that causes one to fight to defend oneself or to take flight to get away,” Tasker said “This is the natural response to severe stress that we all experience.”

Corticosteroid is another main stress hormone, which marshals the body’s resources necessary to tend to the stressful conditions and to bring the body back to a state of physiological balance following the stress, Tasker said.

He said the study will focus on the cellular and neural circuit mechanisms that are engaged in the brain under conditions of physical and psychological stress, and how disruptions of these mechanisms can lead to mental health disease.

Tasker will be teaming up with Laura Harrison, a research assistant professor in the Department of Cellular and Molecular Biology, and Matthew Watson, a PhD student in Neuroscience. He credited three former PhD students — Zhiying Jiang, Chun Chen and Grant Weiss — with doing the groundwork that led to the grant.

“What I hope comes from our research is a better understanding of the changes in brain circuits caused by severe stress that can cause or contribute to chronic mental health disorders,” Tasker said.

“We will identify and characterize some these changes in brain circuitry caused by stress and determine their psychological and behavioral consequences in the short and long term.”