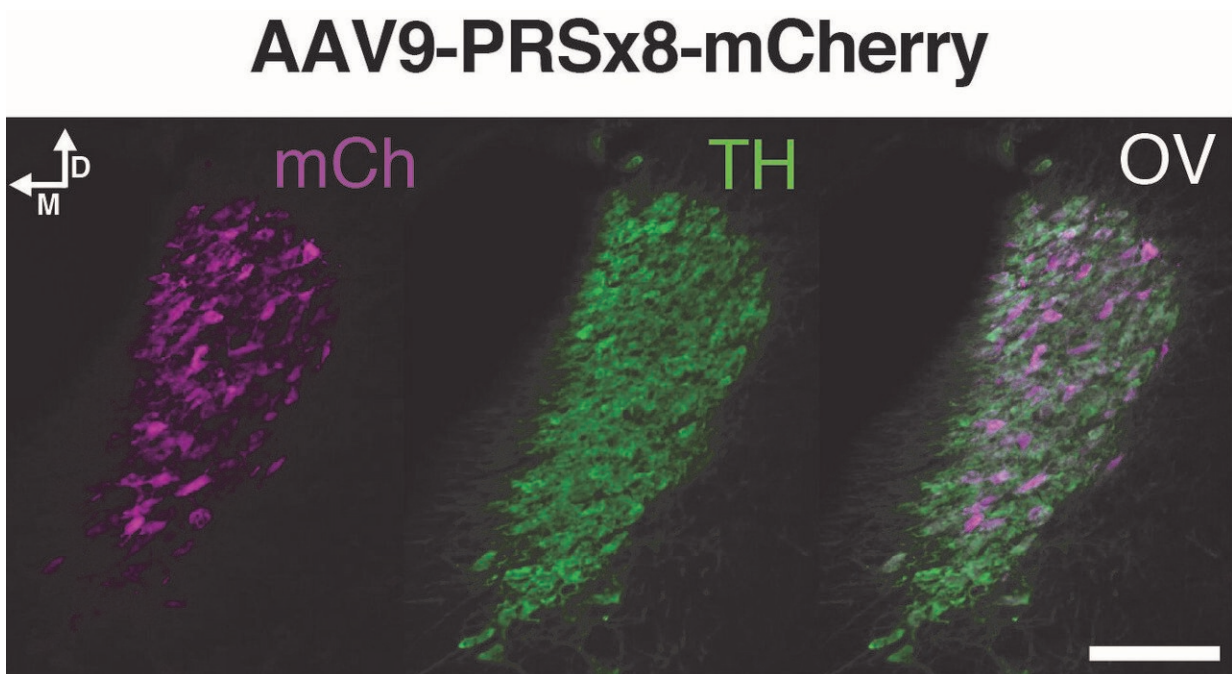


# New study advances treatment options for PTSD

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Control viral expression is restricted to the locus coeruleus.

Immunohistochemical localization (OV, overlay) of the blank mCherry control virus (mCh, purple) in tyrosine hydroxylase-positive neurons (TH, green) in the LC. Scale bar = 100 um. Credit: Stephen Maren/Texas A&M University

Stephen Maren, University Distinguished Professor in the Department of Psychological & Brain Sciences, recently published significant research on the psychological and neural basis of Post-Traumatic Stress Disorder

(PTSD).

Published in *Proceedings of the National Academy of Sciences* of the United States of America (PNAS), one of the most-cited [scientific journals](#) in the world, the study looked at the areas of the [brain](#) that regulate emotion, including ceasing fear once danger has passed. Other factors, such as stress, can cause extinguished emotions of fear to relapse, which poses an issue for those with PTSD.

"Fear relapse represents a significant problem for individuals suffering from stress- and trauma-related disorders such as [posttraumatic stress disorder](#)," according to the study.

Maren's study examined the neurons in the brain that cause fear relapse, and the influence of stress on these fear-reducing regions of the brain. The data reveals new insight into the pathophysiology of PTSD, and may be able to help predict and prevent fear relapse with treatments that reduce the effects of stress on the brain.

"The work shows that stress increases the activity of fear-promoting regions of the prefrontal cortex, while at the same time reducing activity in neighboring fear-reducing regions," Maren said. "This shift in [brain activity](#) could be mimicked by increasing the activity of neurons that release the fight-or-flight neurotransmitter, norepinephrine. This finding paves the way for new treatments that reduce fear and its relapse after therapy."

**More information:** Thomas F. Giustino et al, Locus coeruleus toggles reciprocal prefrontal firing to reinstate fear, *Proceedings of the National Academy of Sciences* (2019). [DOI: 10.1073/pnas.1814278116](https://doi.org/10.1073/pnas.1814278116)

Provided by Texas A&M University

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