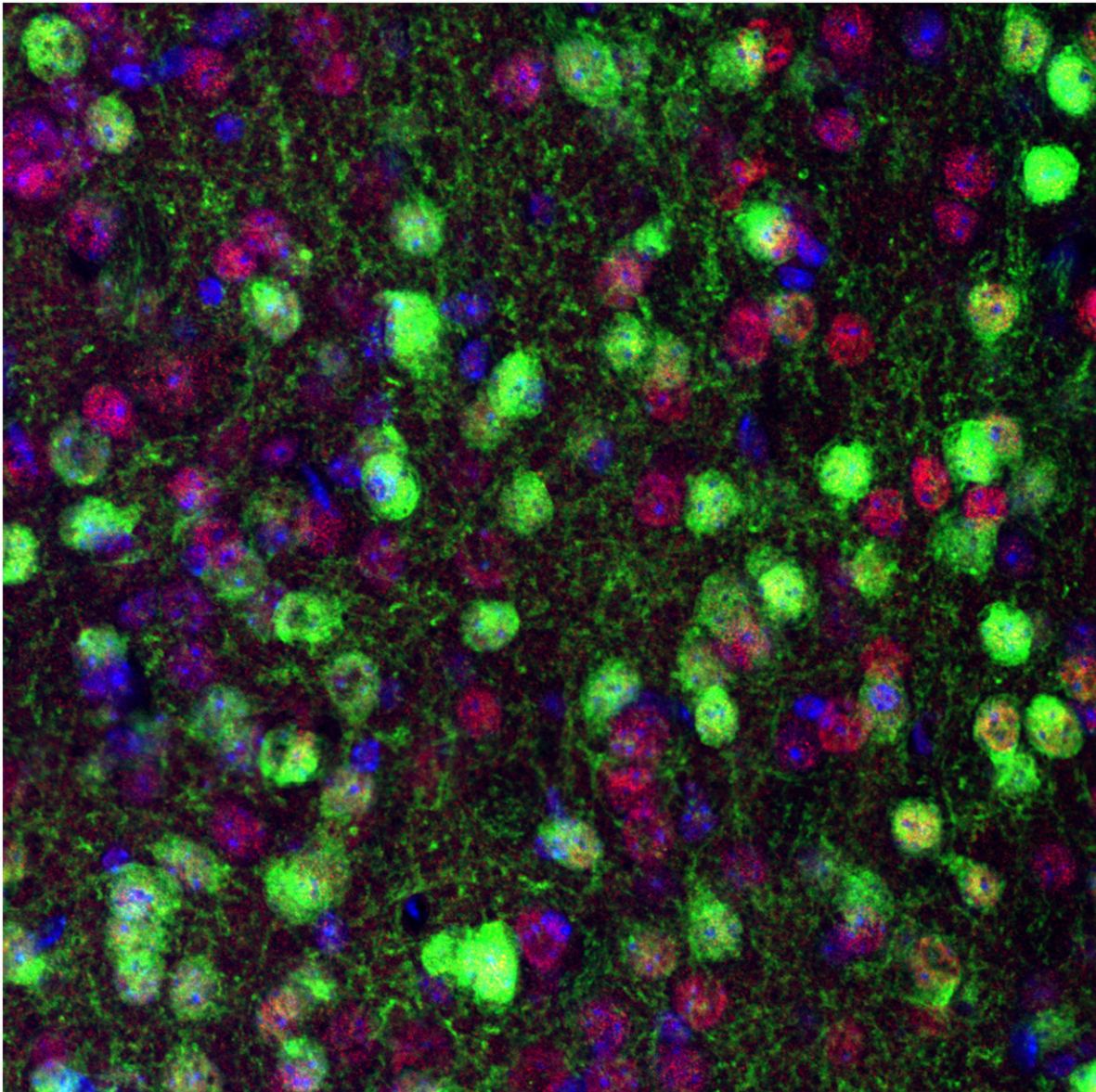


What makes aggressive mice so violent

June 11 2018



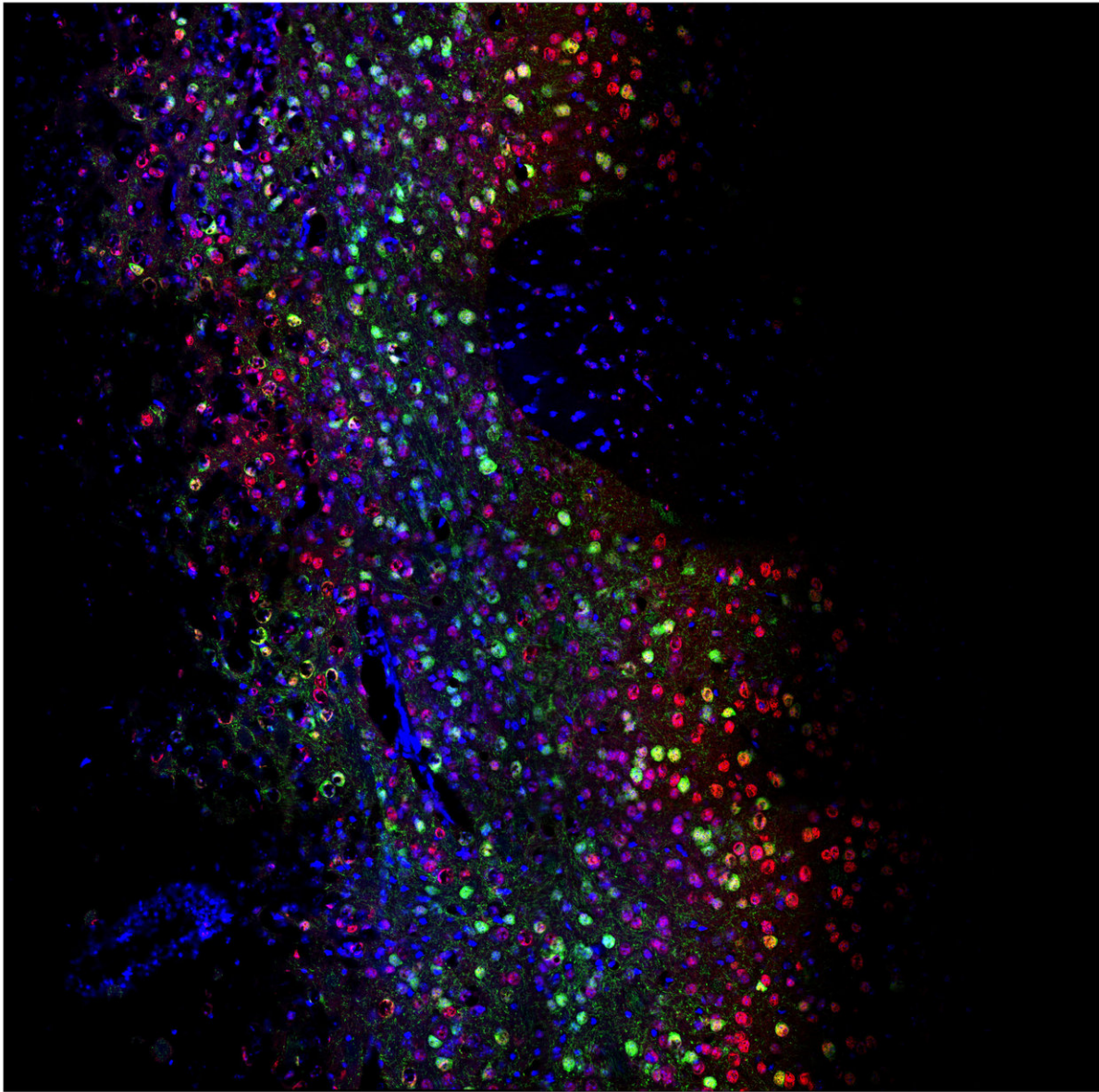
D2-MSN (labeled with eGFP), FosB (Red), and DAPI stained nuclei (Blue).

Aggressive behavior and the motivation to act aggressively have distinct molecular bases, according to a study of male mice published in *JNeurosci*. This finding suggests the possibility of reducing aggression by targeting a protein associated with addiction in a reward region of the brain. Credit: Hossein Aleyasin

Aggressive behavior and the motivation to act aggressively have distinct molecular bases, according to a study of male mice published in *JNeurosci*. This finding suggests the possibility of reducing aggression by targeting a protein associated with addiction in a reward region of the brain.

Despite sharing core features with [drug addiction](#), the mechanisms underlying aggression are far less understood. One shared mechanism may involve a transcription factor, Δ FosB, which builds up in the [nucleus accumbens](#) (NAc) in response to many different rewarding experiences, including sex and exercise.

Scott Russo, Elizabeth Heller, and colleagues found that higher levels of Δ FosB in NAc neurons were associated with more intense behaviors by aggressive [mice](#) defending their home cage from an intruder. Overexpressing Δ FosB in aggressive mice also increased their dominance over an opponent when they faced each other in a narrow tube. While increased Δ FosB in dopamine D1 receptor expressing medium spiny neurons (D1-MSNs) was associated with increased aggression intensity, mice with increased Δ FosB in D2-MSNs showed less preference for an environment where they previously encountered an intruder. These results identify distinct roles of Δ FosB in two different NAc cell types that regulate [aggressive behavior](#) and its rewarding qualities.



D2-MSNs (labeled with eGFP), FosB stained nuclei (red), and DAPI stained nuclei. Separation of colors is an artifact caused by tilted coverslip.

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More information: Cell-type-specific role of Δ FosB in nucleus accumbens in modulating intermale aggression, *JNeurosci* (2018). [DOI: 10.1523/JNEUROSCI.0296-18.2018](https://doi.org/10.1523/JNEUROSCI.0296-18.2018)

Provided by Society for Neuroscience

Citation: What makes aggressive mice so violent (2018, June 11) retrieved 7 May 2024 from <https://medicalxpress.com/news/2018-06-aggressive-mice-violent.html>

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