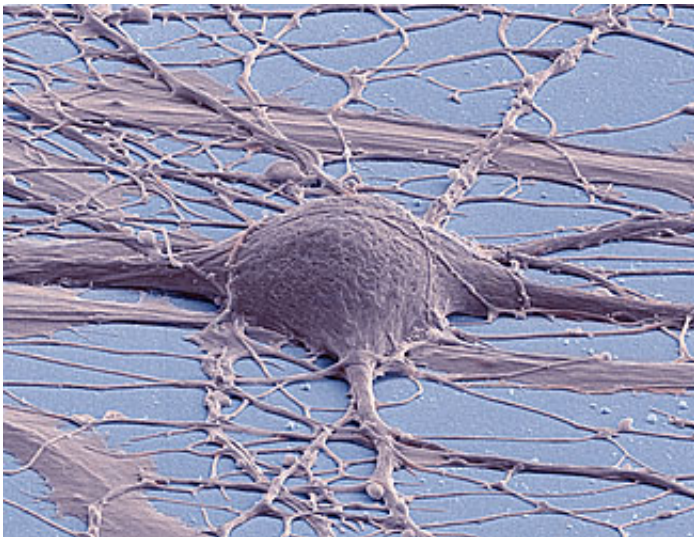


# Activating dopamine neurons could turn off binge-like eating behavior

August 8 2016

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This is a scanning electron micrograph (false color) of a human induced pluripotent stem cell-derived neuron. Credit: Thomas Deerinck, UC San Diego

While binge eating affects about 10 percent of adults in the United States, the neurobiological basis of the disease is unclear. Researchers at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine and Texas Children's Hospital found that certain neural circuits have the ability to inhibit binge-like eating behavior in mice. Their report appears today in the journal *Biological Psychiatry*.

"Human literature suggests that dysfunction of the serotonin system or dopamine system in the brain may be associated with developing binge-

like [eating behavior](#)," said Dr. Yong Xu, associate professor of pediatrics at Baylor and senior author of the paper. "However, mechanistically, there's no direct evidence to show how this system affects behavior."

In this study, Xu and colleagues identified a neural circuit where a group of serotonin neurons project to and activate [dopamine neurons](#). They showed that activation of this circuit can inhibit binge-like eating behavior in mice.

In addition, since there are 14 potential receptors that can mediate complex effects of serotonin in the body, Xu and colleagues identified a specific receptor that is important in binge-like eating behavior. They determined that the serotonin 2C receptor, which is expressed by dopamine neurons, is important in suppressing binge eating.

Xu noted that an FDA-approved drug, a serotonin 2C agonist, is currently being used as a treatment for overweight and obese adults and could potentially be repurposed to suppress [binge eating](#) in adults.

Provided by Baylor College of Medicine

Citation: Activating dopamine neurons could turn off binge-like eating behavior (2016, August 8) retrieved 9 April 2024 from <https://medicalxpress.com/news/2016-08-dopamine-neurons-binge-like-behavior.html>

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