

One night without sleep boosts dopamine levels in the brain. Could this finding lead to a potential depression cure?

Researchers from Northwestern University in Chicago [deprived mice of sleep](#) for a short period of time, then observed their behaviors and brain activity. They found that the mice's brains released more dopamine—a neurotransmitter and hormone involved in pleasure—during sleep loss.

What's more, they discovered that the mice's brains re-wired themselves, with neurons in the brain's prefrontal cortex forming synapses to receive the dopamine. The findings could help researchers understand how mood transitions naturally occur and how fast-acting antidepressants like ketamine work, [researchers say](#). Their findings were published [November 2] [in the journal *Neuron*](#).

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Not all mice behave the same after brief sleep deprivation, just as not everyone responds the same to antidepressants, [Yevgenia Kozorovitskiy, an associate professor of neurobiology at Northwestern University] says. For instance, mice that tended to be aggressive or hypersexual before sleep deprivation were more so [with sleep deprivation](#).

That's because different brains have different dopamine pathways. And as scientists are learning, not all dopamine neurons function the same way, with their location in the brain apparently making a difference.

[**This is an excerpt. Read the full article here**](#)