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Marijuana-like brain chemicals work as antidepressant

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American and Italian researchers have found that boosting the amounts of a marijuana-like brain transmitter called anandamide produces antidepressant effects in test rats.

Led by Daniele Piomelli, the Louise Turner Arnold Chair in Neurosciences and director of the Center for Drug Discovery at the University of California, Irvine, the researchers used a drug they created, called URB597, which blocks anandamide degradation in the brain, thereby increasing the levels of this chemical.

“These findings raise the hope that the mood-elevating properties of marijuana can be harnessed to treat depression,” Piomelli said. “Marijuana itself has shown no clinical use for depression. However, specific drugs that amplify the actions of natural marijuana-like transmitters in the brain are showing great promise.”

The researchers administered URB597 to chronically stressed rats which showed behaviors similar to those seen in depressed human patients. After five weeks of treatment, the stressed rats treated with the drug were behaving similarly to a comparison group of unstressed animals. The study appears in the Nov. 15 issue of Biological Psychiatry.

URB597 works by inhibiting FAAH, an enzyme in the body that breaks down anandamide. Dubbed “the bliss molecule” for its similarities to the active ingredient in marijuana, anandamide is a neurotransmitter that is part of the brain’s endocannabinoid system and it has been shown in

studies by Piomelli and others to play analgesic, anti-anxiety and antidepressant roles. It also is involved in regulating feeding and obesity. Blocking FAAH activity boosts the effects of anandamide without producing the “high” seen with marijuana.

Piomelli and colleagues at the Universities of Urbino and Parma in Italy created URB597. A patent was issued in 2007. The European pharmaceutical company Organon holds the license to the patent and will begin clinical studies on the drug in 2008, according to Piomelli.

Source: University of California - Irvine

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