

Less addictive form of buprenorphine may help curb cocaine relapse

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The drug buprenorphine reduces relapse in patients with opioid addiction, and some emerging evidence indicates it may also help treat

cocaine addiction. However, the treatment itself comes with a risk of addiction and, thus, is not FDA approved to treat cocaine addiction. New research performed in mice suggests that chemical modifications to buprenorphine can improve its effectiveness to treat cocaine addiction while minimizing abuse potential.

"Our research aims to balance the many different biological activities of buprenorphine to make it better at treating cocaine [addiction](#)," said researcher Keith Olson, Ph.D., a postdoctoral fellow at the University of Michigan in Ann Arbor. "We hope this work can eventually help treat addiction without the abuse potential of buprenorphine."

Dr. Olson was scheduled to present this research at the American Society for Pharmacology and Experimental Therapeutics [annual meeting](#) in San Diego this month. Though the meeting, to be held in conjunction with the 2020 Experimental Biology conference, was canceled in response to the COVID-19 outbreak, the research team's abstract was published in this month's issue of *The FASEB Journal*.

Buprenorphine has several biological targets, including the nociceptin receptors, which have been shown to be involved in reward and addiction to multiple drugs in animal models. The benefits of nociceptin activity are counteracted by buprenorphine's activity at mu opioid receptors involved in addiction to classical opiates. However, for buprenorphine the addiction effects are weaker than stronger opioids like heroin and methadone.

In the new work, the researchers used a mouse model of cocaine relapse to compare the effectiveness of buprenorphine and a related analog known as BU10119. They found that the new compound is better at activating the same nociceptin receptors as buprenorphine and worse at activating mu opioid receptors. These two differences corresponded to modest improvements in preventing cocaine relapse in the mouse model

and minimized addiction potential, respectively.

"Our studies show that BU10119 is a promising lead for treating [cocaine addiction](#)," said Dr. Olson. "The new compound has better effectiveness and lower abuse potential compared to buprenorphine."

Next, the researchers plan to characterize BU10119 in more sophisticated animal models to better test its potential to treat addiction with reduced abuse potential.

Provided by Experimental Biology

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