

# Potential new drug for cocaine addiction and overdose

September 15 2008

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Chemists have developed a substance that could help fight addictions and overdoses of cocaine. Credit: US Drug Enforcement Administration

Chemists are reporting development of what they term the most powerful substance ever discovered for eliminating cocaine from the body, an advance that could lead to the world's first effective medicine for fighting overdoses and addictions of the illicit drug. Their findings are scheduled for the Sept. 24 issue of the *Journal of the American Chemical Society*.

In the new study, Chang-Guo Zhan and colleagues point out no effective anti-cocaine medication currently exists for cocaine abuse. One of the most promising approaches focuses on substances that mimic butyrylcholinesterase (BChE), a natural blood protein that helps break down and inactivate the drug, researchers say. However, natural BChE is too weak and ineffective for medical use, the researchers note.

The researchers describe design and produce the most potent, stable BChE structure ever produced. In lab studies, that form of BChE broke down, or metabolized, cocaine 2,000 times faster than the body's natural version of BChE, the scientists say, noting that reducing levels of the drug in the blood is a key to fighting overdose in humans.

The substance also prevented convulsions and death when injected into mice that were given overdoses of cocaine, they note.

Article: "Most Efficient Cocaine Hydrolase Designed by Virtual Screening of Transition States"; [dx.doi.org/10.1021/ja803646t](https://doi.org/10.1021/ja803646t)

Source: American Chemical Society

Citation: Potential new drug for cocaine addiction and overdose (2008, September 15) retrieved 9 April 2024 from <https://phys.org/news/2008-09-potential-drug-cocaine-addiction-overdose.html>

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