

Can a skin patch thwart cocaine overdoses?

There are nicotine patches to help quit smoking, and then there's this: patches of actual skin, genetically engineered to produce an enzyme that digests cocaine, and, when transplanted onto mice, arms them against otherwise-lethal doses of the drug. A study on the skin-patch strategy, which the authors hope could one day lead to a means of treating addiction and preventing overdoses in humans, appears [September 17] in [Nature Biomedical Engineering](#).

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Humans naturally make an enzyme, butyrylcholinesterase, that breaks down cocaine, but the research team wanted something more powerful for their skin grafts. So they used an enhanced form of the protein that another group had [designed](#), which has 4,400 times the cocaine-hydrolyzing activity as the original. The University of Chicago researchers used CRISPR to insert a gene for the souped-up protein into skin epidermal stem cells from mice, seeded the cells onto circular, 1-centimeter-across patches of scaffolding, and then transplanted the tissue onto mice addicted to cocaine.

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[A] likely issue with translating the treatment to humans is that if patients “do not get high from cocaine, they probably will go take something else,” says [Jianguo Cheng](#), a physician and pain management researcher at Cleveland Clinic who was not involved in the study. “For the science aspect it’s really impressive and encouraging.”

Read full, original post: [Gene-Edited Skin Patch Prevents Cocaine Overdose in Mice](#)