

FDA-approved drug might prevent relapse in male alcoholics

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Mifepristone, a drug approved by the U.S. Food and Drug Administration for terminating early pregnancy, might prove effective in preventing stress-induced relapse in recovering male alcoholics, based on findings in rats reported by researchers at the Ernest Gallo Clinic and Research Center at UCSF.

Mifepristone was originally marketed under the name RU-486. It blocks the activity of [progesterone](#) and cortisol, hormones that, in the brain, are thought to play a role in promoting alcoholism as well as relapse.

“It’s well-known that stress can lead to relapse in people who are trying not to drink,” said senior author Selena E. Bartlett, PhD, director of medications development at the Gallo Center. “Until now, we have had very few interventions that showed potential as possible treatments.”

In an experiment reported online Nov. 2, 2011 in [Neuropsychopharmacology](#), Bartlett and her research team trained a group of male rats to drink either an alcohol solution or a sucrose solution on demand by pressing a lever. The rats were then conditioned not to press the lever to seek the reward of a drink – a process “sort of like rehabilitation in humans,” according to Bartlett.

After this period of forced abstinence, the rats were given yohimbine, a compound known to induce stress and relapse-like behavior in rodents.

“We wanted to see if the stressed rats would press the lever again, much

as a stressed alcoholic in recovery might reach for a drink,” said Bartlett.

Some of the rats were given injections of mifepristone before being given yohimbine. Those animals were significantly less likely to press the lever for a drink when compared with rats not given mifepristone.

In order to pinpoint exactly where the mifepristone was acting in the rats’ brains, Bartlett and her team repeated the experiment – but this time, before administering yohimbine, they infused mifepristone directly into the central nucleus of the amygdala, a brain structure known to play a role in [stress](#), anxiety and anxiety disorders. This brain region has been shown to be a critical area for the control of fear responses, as well as the center of individual emotional experience.

The researchers found that the mifepristone infusions discouraged lever-pressing behavior in the rats trained to drink [alcohol](#), but not in the [rats](#) trained to drink sucrose solution.

“This was a very unexpected finding, but very exciting,” said Bartlett. “Identifying the area of the brain where mifepristone acts to discourage alcoholic relapse opens up the possibility of creating new compounds that are even more specific in their action.”

Currently, Bartlett and her team are working to determine which hormone mifepristone specifically blocks in discouraging relapse: cortisol or progesterone. “We are working to obtain funding to enable testing of this medication in male alcoholics,” she said.

Provided by University of California, San Francisco

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