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Hangover Headache

Editor's choice in neuroscience

By Hannah Waters | May 25, 2011



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The paper

C.R. Maxwell et al., "Acetate causes alcohol hangover headache in rats," *PLoS ONE*, 5:e15963, 2010. [Free F1000 Evaluation](#)

The finding

While many people get a headache after drinking alcohol, migraineurs have more severe headaches induced by fewer drinks. Using a rat model of migraines, Michael Oshinsky of Thomas Jefferson University and colleagues show that the headache is caused by an alcohol metabolite, acetate, and that the pain can



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be blocked by caffeine.

The inking

Researchers long assumed that the alcohol metabolite acetaldehyde caused alcohol-induced headaches, because disulfiram, a drug that blocks the breakdown of acetaldehyde to acetate in the bloodstream, causes headaches after a few drinks. However, acetaldehyde is metabolized quickly enough that it never reaches headache-causing levels without disulfiram, leading Oshinsky to question this hypothesis.

The metabolite

After sensitizing a pain circuit in the rats' brains, the researchers varied the concentrations of alcohol



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The cure

Acetate can cause pain through the accumulation of one of its metabolites, adenosine. When caffeine, an adenosine receptor antagonist, was administered after alcohol, pain was blocked—but only until the caffeine was broken down. Next up is to see if the same mechanism holds true in nonmigraine alcohol-induced headaches.

F1000 evaluators: **K. Hellman & P. Mason** (Univ of Chicago)

Tags

physiology, pharmacology, neuroscience, migraines, biochemistry and alcohol

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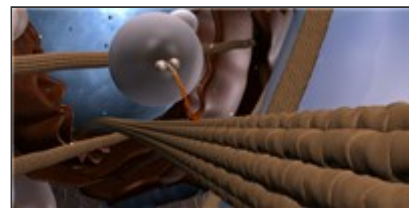
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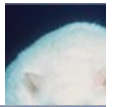
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