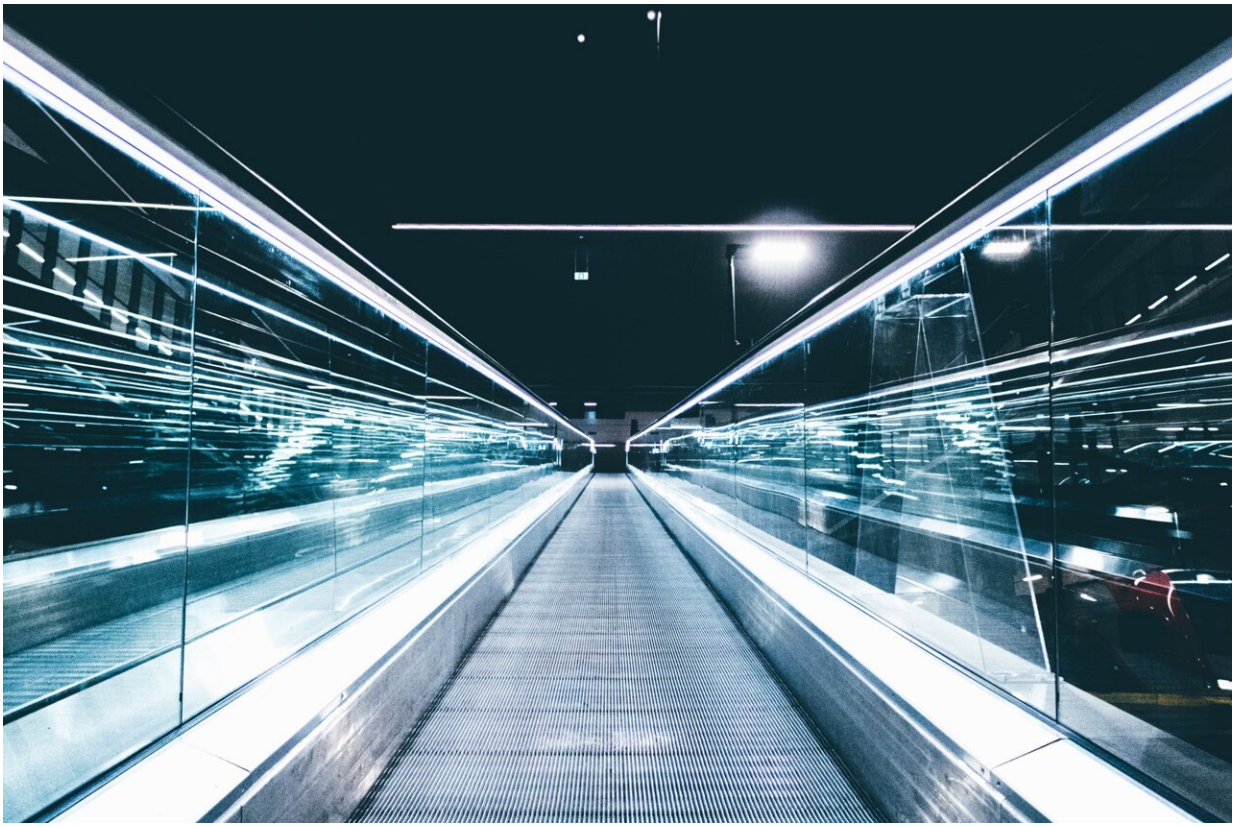
# Behavioral test shows promise in predicting future problems with alcohol

August 27 2012, by Bill Hathaway



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(Medical Xpress)—By administering a simple behavioral test, Yale researchers were able to predict which mice would later exhibit alcoholism-related behaviors such as the inability to stop seeking alcohol

and a tendency to relapse, the scientists report in the Aug. 26 issue of the journal *Nature Neuroscience*.

The findings suggest that a similar test for people might be able to identify individuals who are at high risk of developing alcohol problems before they begin drinking.

"We are trying to understand the neurobiology underlying familial risk for alcoholism," said Jane Taylor, the Charles B.G. Murphy Professor of Psychiatry and professor of psychology at the Yale School of Medicine and senior author of the study. "What is encouraging about this study is that we have identified both a behavioral indicator and a molecule that explains that risk."

Many high school- and college-aged students abuse alcohol during their school years, but only a minority end up dependent upon alcohol later in life. While there is a clear genetic risk for alcoholism, not all children of alcoholics become dependent. Scientists have been busy trying to find ways to predict which adolescents are at greatest risk before drinking begins.

In a classic Pavlovian experiment, the Yale team found mice that reacted the most to a food cue also exhibited greater alcoholism-related behaviors. Importantly, the mice did not differ in other food-seeking behaviors. The researchers also identified a role for neural cell adhesion molecule (NCAM) and its modified form, PSA-NCAM, known to be involved in brain plasticity. Mice with low levels of PSA-NCAM in an area of the prefrontal cortex seemed unable to control their alcohol-seeking behavior, while the reward-seeking behavior of mice with higher levels of the molecule was more flexible and less indicative of addiction.

"This would make sense since alcoholism is associated with a lack of neurobiological and behavioral plasticity," Taylor said. "The brains of

alcoholics seem to get stuck in the same patterns of activity."

Provided by Yale University

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