Genetic Research Helps Scientists Understand Alcohol Use

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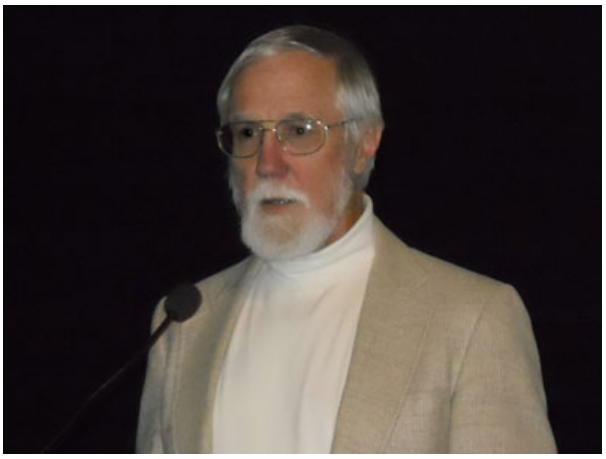

John C. Crabbe

A rat, a mouse, and a vole walked into a bar…

It isn't just a bad joke: According to John Crabbe, who delivered the 16th Annual Mark Keller Honorary Lecture at the National Institute of Health on October 25, rodents can teach us a lot about the way humans behave when they consume alcohol.

Crabbe, who serves as Director of the Portland Alcohol Research Center, was honored for pinpointing genes and neurobiological factors that shape the way mammals respond to alcohol. Breeding mice that are resistant or susceptible to the negative results of alcohol use allowed Crabbe to study interactions among genes, environmental factors, and alcohol-related behaviors.

During his award lecture, Crabbe spoke about rodent research that has advanced our understanding of alcohol dependence in humans, including the identification of *Mpdz*. The gene was first identified in mice, but it has also been associated with severe alcohol withdrawal symptoms in humans.

Mice can't teach us everything there is to know about behavior and alcohol, Crabbe acknowledged. He joked that the effect of alcohol on work performance is an obvious example of an issue that can't be addressed in rodents. Yet he pointed out that when scientists think in terms of "competing rewards" — that is, whether individual mice choose alcohol over other available rewards — mice may be surprisingly useful for studying the effects of alcohol on social and recreational activities that are important to quality of life.

In the future, Crabbe hopes that scientists who work with rodents will seize the opportunity to investigate under-researched topics, such as the connection between alcohol use and personality traits like impulsivity, which can be measured relatively easily in mice.

He also hopes to see an increase in the number of long-term studies. “We’ve been avoiding long-term studies in this field for a long time,” Crabbe says. “We have to stop doing that because [alcoholism] is a long-term, chronic, relapsing disease.”