New compounds may treat both alcohol and cigarette addictions

November 3 2010

Researchers at the Ernest Gallo Clinic and Research Center at the University of California, San Francisco, and Pfizer Inc., have determined that two new compounds may be effective in treating both alcohol and nicotine dependence at the same time.

In a paper published in the November 3, 2010 issue of *Neuropsychopharmacology*, the researchers showed that alcohol consumption in rodents was significantly decreased by two compounds that target neuronal nicotinic acetylcholine receptor (nAChR) subtype {alpha}3{beta}4*.

nAChRs are proteins found in the brain and broader central nervous system that mediate the effects of substances such as nicotine. Recent human genetic studies have shown that the genes encoding the {alpha}3{beta}4* subtype are of significant importance for susceptibility to both alcohol and nicotine dependence.

"The problem has been translating these important genetic findings into more effective medications for people," said co-senior author Selena E. Bartlett, PhD, director of the Preclinical Development group at the Gallo Center. The lead author of the study is Susmita Chatterjee, PhD, of the Gallo Center.

The work was done in collaboration with scientists led by co-senior author Hans Rollema, PhD, in the Neuroscience Research Unit at Pfizer Inc.

One of the new compounds, CP-601932, has been shown in a clinical study to be safe in humans, notes Bartlett. She recommends a clinical study to evaluate the compound's efficacy and potential benefits in treating both alcohol and nicotine dependence.

The other compound is PF-4575180. Both were developed by Pfizer.

"Alcohol and nicotine addiction are often treated as separate disorders," Bartlett says, "despite the fact that 60 to 80 percent of heavy drinkers smoke tobacco. There are very few effective strategies for treating these disorders separately, let alone together. Our data suggest that by targeting specific nAChR subtypes, it may be possible to treat both alcohol and nicotine dependence with one medication."

Significantly, while the compounds had a significant effect on the rodents' alcohol consumption, their intake of sucrose was not affected. "This indicates that unlike currently approved alcohol abuse medications, the compounds do not interfere with the brain's natural reward system in a larger way," says Bartlett.

Provided by University of California - San Francisco