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## Glutamate transporter 1: Potential target for the treatment of alcohol dependence

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Evidence indicates that many aspects of alcohol and drug dependence involve alterations in glutamate transmission in central reward brain regions. Studies have demonstrated that drugs of abuse, including alcohol and cocaine, alter glutamate transport. Extracellular glutamate is regulated by a number of glutamate transporters in various brain regions. Of these transporters, glutamate transporter (GLT1) is a key player in the removal of most of the extracellular glutamate. In this presentation the author will discuss the uses of compounds that activate and upregulate GLT1 levels and consequently reduced alcohol consumption in alcohol-preferring (P) rats. It was recently found that ceftriaxone, an FDA-approved drug known to elevate GLT1 expression, attenuates cue-induced cocaine relapse. Also it was found that P rats treated with ceftriaxone showed a significant dose-dependent reduction in alcohol consumption and also the drug attenuated relapse-like alcohol-drinking behavior. In addition, the author will present findings related to a new compound GPI-10, which is neuroimmunophilin derivative that has therapeutic effect in reducing alcohol intake in P rats. This presentation will provide information about the potential therapeutic role of GLT1 for the treatment of alcohol abuse and dependence.

### Biography

Youssef Sari is an Assistant Professor of Pharmacology. He received his Doctorate in Neuroscience from Pierre and Marie Curie University, Institute of Neuroscience (Paris, France) and subsequently held Postdoc and faculty research positions at Indiana University. He is currently holding a faculty position at the level of Assistant Professor of Pharmacology at the University of Toledo, College of Pharmacy and Pharmaceutical Sciences, Toledo, Ohio, USA. He is the PI of R01 grant project from NIH-NIAA; the project focuses on the role of glutamate transporter 1 (GLT1) in alcohol-drinking behavior using compounds that upregulate this transporter. He has patents for two compounds that may have potential uses for the treatment of alcohol dependence. He is also testing compounds for the treatment of diseases involving oxidative stress.

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