

Effects of in Vitro Ethanol and Chronic Ethanol Consumption on the Release of Excitatory Amino Acids in the Rat Hippocampus

César Sepúlveda, Gonzalo Bustos, Katia Gysling, Mario Seguel, Rodrigo Labarca

Abstract

In CA1-CA3 hippocampal slices, in vitro ethanol (EtOH) (10-100 mM) evoked, as a function of EtOH concentration, a differential release of aspartate (Asp) and glutamate (Glu). Omission of Ca²⁺ ions from the superfusion media completely abolished the EtOH-induced release of Asp but not that of Glu. In addition, at 20 mM, EtOH enhanced K⁺-evoked release only of Asp. Finally, delayed changes were observed on NMDA-evoked release of [3H]noradrenaline (NA) in the dentate gyrus (DG) after withdrawal from EtOH for 30 days.

Keywords: Ethanol; Glutamate release; Aspartate release; Hippocampus; [3H]Noradrenaline release