

Aversion to acetaldehyde: Differences in low-alcohol-drinking (UChA) and high-alcohol-drinking (UChB) rats

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We have previously found the existence of a relation between activity of the brain mitochondrial aldehyde dehydrogenase (ALDH2) and consumption of ethanol in rats of the low-alcohol-drinking (UChA) and the high-alcohol-drinking (UChB) strains. The aim of the present study was to determine whether UChA and UChB rats also differed in sensitivity to the aversive effects of acetaldehyde (AcH). Aversion to AcH was studied by using a conditioned taste aversion (CTA) paradigm. Ethanol naive UChA and UChB rats were administered AcH intraperitoneally (50, 100, or 150 mg/kg) or saline and exposed to a banana-flavored solution during five conditioning trials. A strong dose-dependent CTA to AcH was found in UChA rats, whereas UChB rats did not show a CTA to any dose of AcH. At equal doses of AcH, cerebral venous blood AcH levels in UChA rats were consistently higher than in UChB rats, a finding that may reflect the previously observed differences in the activity of ALDH2 between these strains. How