Dopamine release in the nucleus accumbens (shell) of two lines of rats selectively bred to prefer or avoid ethanol

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Lower tissue levels of dopamine and 5-hydroxytryptamine (5-HT) have been found in the nucleus accumbens of alcohol-naïve rats selectively bred to prefer ethanol than in rats bred to avoid it. These findings have led to the hypothesis that differences in the dopamine and 5-HT tone may be linked to ethanol preference. In the present study we used the in vivo microdialysis technique to determine the actual extracellular levels of dopamine, its metabolites 3,4-dihydroxyphenyl acetaldehyde (DOPALD), 3,4-dihydroxyphenylacetic acid (DOPAC), homovanillic acid (HVA) and 5-HT and 5-hydroxyindolacetic acid (5-HIAA) in the shell of nucleus accumbens of rat lines selectively bred as either high-ethanol (UChB) or low-ethanol (UChA) drinkers. Basal extracellular levels of dopamine, DOPALD, DOPAC and HVA were lower in the shell of nucleus accumbens of ethanol-naïve UChB than in UChA rats. In agreement, when perfused with 100 ?M d-amphetamine or 100 mM KCl lower dopamine increases were observed in nucl