



Ruprecht-Karls-Universität Heidelberg
Medizinische Fakultät Mannheim
Dissertations-Kurzfassung

**Ethanol-Induced Alterations of Aminoacids measured by in Vivo
Microdialysis in Rats: A Meta-Analysis**

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Numerous microdialysis studies focus on the glutamatergic and GABAergic system as these neurotransmitters are keyplayers in the excitatory and inhibitory network of the central nervous system.

The main objective of the present study was to identify universally valid basal values for aminoacids, in particular glutamate and GABA measured by in vivo microdialysis. Therefore, a meta-analysis on already published datasets of in vivo microdialysis measurements was performed in order to evaluate basal aminoacid levels as well as the concentration-dependent effects of ethanol on the extracellular aminoacid levels within 18 distinct brain regions based on a neurocircuitry for modeling drug effects. Altogether 6570 adult rats were used in the experiments. Analysis of the basal values revealed hardly any significant differences concerning gender, strain and state of consciousness. If a significant difference occurred, values were considered separately. The acute administration of ethanol (i.v. at doses between 0.5 and 3.0 g/kg and local infusion at doses of 100-1000 mM) appeared to alter, mainly to increase the aminoacid levels in the rat brain. But the dose-dependent tendency is non-uniform and appears to depend on the topological localization of the brain region within the neurocircuitry.

Our results provide references for the design of further microdialysis experiments and in silico pharmacology on the neurotransmitter release and the ethanol-induced effects in the rat brain. Therefore a better comparability in those studies could be attained.