

Neuropharmacological investigations of GABA_{A/C} receptors and ligands

Topics for investigation

The ability of ligands for GABA receptors to selectively interact with synaptic or extrasynaptic GABA neurotransmission in different brain structures is essential for their in vivo pharmacological profile. We study model compounds with affinity for the ionotropic GABA receptors involved. Functional selectivity depends on the interaction between ligands and receptor but also (especially for orthosteric ligands) on the interplay with the local GABA concentration profile. To investigate and understand these mechanisms, it is important to take kinetic aspects into account.

Relevant main methods for master projects

Patch-clamp electrophysiology applied to recombinant receptors to measure time-resolved activity of the ligand gated ion channels.

Kinetic (computer) modelling of ligand-receptor interactions and drug application to analyze and interpret the experimental data as well as to suggest further relevant experiments..