**The Doctoral Program**

**ION CHANNELS AND TRANSPORTERS AS MOLECULAR DRUG TARGETS („MolTag“)**

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# $GABA_A$ receptors in health and disease


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## on: Thursday, October 19th 2017, 05:00 pm (17:00 Uhr)

## at: UZA 2, Althanstr. 14, 1090 Vienna, LECTURE HALL 6


**Abstract:.**

$GABA_A$ receptors mediate the majority of inhibitory neurotransmission in the CNS but additionally play an overlooked role in the periphery. $GABA_A$Rs belong to the transmitter-gated ion channel superfamily, which includes 5-HT3, nicotinic and glycine receptors. They are composed of five transmembrane crossing subunits, arranged to form a central anion-conducting pore, or channel. The subunits are drawn from a repertoire of 19 gene products belonging to distinct families including: α1-6; β1-3; γ1-3, δ, ε, θ, π and ρ1-3. In the adult mammalian brain this diversity underpins the expression of 20-30 major $GABA_A$R subtypes that are uniquely distributed and consequently influence particular behaviours. Not surprisingly, abnormal function of $GABA_A$ receptor-mediated inhibition has been implicated in the pathogenesis of many human neurological and psychiatric disorders that include epilepsy, insomnia, mood disorders and substance abuse. In this presentation, I will discuss our current understanding of the physiological, pathological and pharmacological significance of $GABA_A$ R diversity and the role of both environmental and genetic factors upon $GABA_A$R physiology and pathology with a specific emphasis on the role of early-life experiences on $GABA_A$R function and dysfunction.



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