



Einladung zum Vortrag von

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**„Chemists to a Chemical Synapse: Design,
Synthesis and Use of Imaging Probes and Experi-
mental Therapeutics in the Brain”**

I will provide a brief overview of the central interests of our research group, which include organic synthesis, C-H bond functionalization, molecular design, and neuroscience. The majority of the lecture will focus on describing the pursuit of two interconnected long-term goals: visualization and repair of synaptic function with chemical tools. First, I will describe how this overarching theme led us to the development of conceptually new imaging agents, termed fluorescent false neurotransmitters (or FFNs). FFN probes as fluorescent tracers of endogenous neurotransmitters enable microscopic imaging of neurotransmitter release from individual pre-synaptic sites and form the basis of experimental platforms that afford new insights into functional properties of synapses and effects of drugs. As a second topic, I will describe how three structurally distinct compounds (one synthetic pharmaceutical and two natural products) with remarkable clinical and preclinical activities led us to the opioid receptors and their signaling. An update on synthetic, pharmacological and behavioral projects will be provided. Throughout the lecture I will touch on the gaps in the current understanding of relationships between the different levels of complexity (from molecules to cells, circuits to organisms) in the context of drug and chemical probe development.

Mittwoch, 22. Juni 2016, 16:15
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