Département de psychiatrie
Centre de neurosciences psychiatriques
Site de Cery
CH-1008 Prilly - Lausanne

Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Friday, January 31st, 2014, 1:00 pm

"The CNS Receptor mGluR7 and its Functional Role in Emotion Circuitry and Behaviour"

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Bio-sketch: Peter J. Flor is Professor for Neurobiology and Animal Physiology at the University of Regensburg (Bavaria, Germany). He studied Molecular Biology and Biochemistry and received his MA and PhD degrees from the Universities of Colorado and Cologne, respectively. For over 17 years he worked in major pharmaceutical companies (e.g. Ciba-Geigy and Novartis) on the discovery and development of central nervous system (CNS) drugs acting at metabotropic glutamate (mGlu) receptors. His work in industry was instrumental for several currently ongoing clinical trials in the fields of Parkinson's disease, mental retardation and emotion disorders. After moving from industry back to academia he continues his research on mGlu receptors, focusing on the elucidation of their involvement in neuronal mechanisms underlying acute and chronic stress physiology.

Abstract: Understanding the complex interaction between stress and genetics that leads to the manifestation of disorders such as depression, anxiety, and substance abuse is one of the key areas of research in modern neuroscience. Growing evidence suggests that the glutamatergic system may be a relevant therapeutic target for such disorders. Glutamate is the neurotransmitter at the vast majority of excitatory synapses in the brain, and metabotropic glutamate receptor subtypes (mGlu1-mGlu8) act as important pre- and postsynaptic regulators of neurotransmission in the CNS, providing a mechanism by which fast synaptic responses through ligand-gated cation channels can be fine-tuned. The presynaptic mGlu7 receptor shows the highest evolutionary conservation within the family and it is thought to regulate neurotransmitter release. The mGlu7 receptor is also the most widely distributed of the presynaptic mGlu receptors and is present at a broad range of synapses that are postulated to be critical for both normal CNS function and a range of psychiatric and neurological disorders. The development of selective pharmacological and genetic tools has allowed for the unravelling of mGlu7 receptor functions in a host of physiological and behavioural processes. Knockout mice and siRNA knockdown has pointed to a role for the mGlu7 receptor in anxiety, extinction of fear and aversion learning, spatial memory and the hormonal response to stress. In addition, these studies are largely supported by pharmacological manipulation of the mGlu7 receptor using selective agonists and antagonists. Together, our studies suggest that the mGlu7 receptor is an innovative therapeutic target for stress-related disorders.

Selected Publications:

1. Blocking Metabotropic Glutamate Receptor Subtype 7 (mGlu7) via the Venus Flytrap Domain (VFTD) inhibits Amygdala Plasticity, Stress and Anxiety-related Behavior. *J. Biol. Chem.* 2014, under revision.

2. Adult siRNA-induced knockdown of mGlu7 receptors reduces anxiety in the mouse. *Neuropharmacology*. 2013, 72:66-73.

3. mGluR7 facilitates extinction of aversive memories and controls amygdala plasticity. *Mol. Psychiatry*. 2008, 13(10):970-9.

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