

COLLOQUIA IN PHYSIOLOGY AND VASCULAR BIOLOGY

Venue: Medical University Vienna, Center for Physiology and Pharmacology,
Institute of Pharmacology, Waehringstrasse 13a, 1090 Vienna, ""

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Friday 29.05.2015 10:00 s.t. **Wulf Haubensak** (host: H. Sitte)

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“Network designs for emotional state selection”

Wulf Haubensak (haubensak@imp.ac.at)

Abstract:

Emotions tag what is important and guide behaviors critical for survival: fear keeps us away from danger; reward-related emotions help to seize opportunities. But how are they wired in the brain? Fear and reward states assemble from distributed patterns of neural activity, encompassing many interconnected neural circuits each contributing different features (e. g. cognitive awareness, motor behavioral responses and learning). We have used circuit genetics, electrophysiology and imaging technologies in mice to deconstruct how local and global interactions drive behavioral decisions and learning in fear/reward networks. These combined efforts revealed limbic circuit motifs that integrate subcortical stress signals, top-down control from higher cortical association areas and experience into appetitive or aversive behavioral responses. We believe their design evolved for efficient response selection and behavioral flexibility in the face of threats and rewards. Interestingly, pharmacological studies indicate that these circuits are a major target of anxiolytic drugs.