

Colloquium

Prof. Wolfgang Hauber

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Tuesday, 19. June 2012, 18:00 hours, GA 04/187

Host: Prof. Oliver T. Wolf
Department of Cognitive Psychology

All interested students, scientists, and scholars are cordially invited to this talk of the IKN colloquium.

Goal-directed action in rats: Neural and neurochemical substrates

Goal-directed action critically depends on learning processes through which actions and their consequences are encoded and on motivational mechanisms that influence choice between actions and action initiation. In my talk, I will address the involvement of cortico-basal ganglia circuitry in goal-directed action in rats including the role of the neurotransmitter dopamine. It appears that functions of the dorsal and ventral striatum and related cortical areas in goal-directed action can be in part dissociated. The ventral striatum, i.e. the nucleus accumbens, and dopamine signaling in this region plays a critical role in choosing between competing courses of action based on the expected costs and the relative values of their consequences. Furthermore, dopamine in the nucleus accumbens mediates motivational effects on goal-directed action. By contrast, the dorsal striatum is necessary for the acquisition of goal-directed action and dopamine-dependent interactions between hippocampal formation and dorsal striatum play an important role in detecting the causal status of an action. Thus, control of goal-directed action seems to involve numerous independent but interacting cortico-basal networks that are modulated by dopamine in multiple ways.