

Oral presentation

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## Role of cGMP dependent protein kinases in the circadian system

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Several signal transduction pathways are involved in the resetting mechanism of the circadian clock. A role of cyclic GMP in this mechanism has been suggested. Pharmacological agents can upregulate cGMP and activate cGMP-dependent protein kinases (cGKs also known as PKGs) of the suprachiasmatic nuclei (SCN) in brain slice cultures. In mammals both cGK isoforms, cGKI and cGKII are expressed in the SCN indicating a role for these kinases in the resetting mechanism of the circadian clock. We present genetic evidence for these kinases that they play a role in this mechanism *in vivo*. For cGKI mutant mice it takes more time to adapt to new lighting conditions than for wild type animals but they finally adapt to a jet-lag. Interestingly, mice mutant in cGKII can not delay clock phase properly. This is accompanied by a reduced inducibility of the *Per2* gene in response to light.