

ADDICTION**LEARNING****MEMORY****Diploma (doctoral) thesis****Diplomarbeit (Dissertation)**

Which changes in the cholinergic system in the nucleus accumbens take place during the transition from occasional to chronic drug use (drug dependence)

Recently, we could show that muscarinic and nicotinic acetylcholine receptor activation in the nucleus accumbens core is necessary for the acquisition of drug reinforcement (Crespo et al. 2006, J. Neurosci. 26, 6004-6010). This neuronal circuit is preferentially activated by drugs of abuse as compared to the physiological reinforcer food (Crespo et al. 2008, Neuropsychopharmacology, in press). We are now proceeding to determine which changes occur in the accumbal cholinergic system during the transition from occasional to chronic drug use (drug dependence).

Experimental methods: Animal behavior, in vivo microdialysis, LC/MS/MS

Advantages: Excellent publication trail, high-level publication very likely

Disadvantages: Intensive training necessary, required level of commitment at least 12 months of experimental work at 40+ hours per week

Level: Diploma thesis (Diplomarbeit: Mag.phil / Mag.rer.nat) can be extended to doctoral thesis

Requirements: Successful attendance of the relevant lectures by Prof.Saria (1 semester) and Prof.Zernig (2 semesters)

Salary: FWF-Forschungsbeihilfe für DiplomandInnen = EUR 440 per month

Relevant publications from our lab

- J. A. Crespo, K. Sturm, A. Saria, and G. Zernig. Activation of muscarinic and nicotinic acetylcholine receptors in the nucleus accumbens core is necessary for the acquisition of drug reinforcement. *J Neurosci* 26 (22):6004-6010, 2006.
- J. A. Crespo, P. Stöckl, K. Zorn, A. Saria and G. Zernig. Nucleus accumbens core acetylcholine is preferentially activated during drug- vs food reinforcement acquisition. *Neuropsychopharmacology*, in press, 2008.

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