GRADUATE STUDENT POSITION

INVESTIGATING THE NEUROBIOLOGY OF THE REORIENTATION
FROM COCAINE TO SOCIAL INTERACTION
WITH A RABIES-deltaG-APPROACH

www.neurospin.at       www.zerniglab.at       Medical University Innsbruck

We are looking for a PhD student interested in investigating the neurobiology of the reorientation from cocaine to social interaction in the laboratory of Dr Gerald Zernig (please see below and www.zerniglab.at for publications). The successful applicant will become part of our Austrian Science Fund (FWF) - supported graduate program "Signal Processing in Neurons" (SPIN, www.neurospin.at), thus benefitting from a well-established cooperative network of neuroscientists from a broad range of subdisciplines.

By use of a rabies-deltaG-approach, we intend to identify the presynaptic partners of the D1- and D2-MSNs that are differentially affected by cocaine reward vs social interaction reward. The successful candidate will also receive support from Dr Francesco Ferraguti, a SPIN PI like Dr Zernig, and Enrica Paradiso, a SPIN graduate student.

The successful candidate will also receive support from Chinmaya Sadangi MSc who is currently pursuing a SPIN-associated dissertation in Dr Zernig's group. He is investigating changes in markers of social preference/avoidance and cocaine exposure, i.e., the density of stubby, thin, and mushroom spines and the expression of RAC1 and IKK. This project is supported by Dr Scott J Russo, Mount Sinai School of Medicine, New York, by Dr Regine Heilbronn, Charité, Berlin (AAV vector design and production), Drs Christoph Schwarzer (vector expression) and Dr Lars Klimaschewski (gene gun; both Dr Schwarzer and Dr Klimaschewski are also SPIN PIs).

Please apply at www.neurospin.at
Details can be found at:
http://neurospin.at/page.cfm?vpath=prospective-students

Recent publications by Dr Zernig's group (selection)

REVIEW: Zernig G, Kummer KK, Prast JM, 2013, Dyadic social interaction as an alternative reward to cocaine, Frontiers in Psychiatry 4, 100.


Fritz M, Klement S, R El Rawas, A Saria, G Zernig, 2011, Sigma1 receptor antagonist BD1047 enhances reversal of conditioned place preference from cocaine to social interaction, Pharmacology 87(1-2), 45-48.


Dear SPIN PIs,

please find enclosed a short description of my project. In our latest meeting, I was encouraged to ask for advice and input at the earliest possible stage. Any suggestions would be most welcome. Here is:

By use of a rabies-deltaG-approach, we intend to indentify the presynaptic partners of the D1- and D2-MSN that are differentially affected by cocaine reward vs social interaction reward.

Now, the rabies-dG approach identifies ALL the presynaptic partners of a chosen neuron population. I would like to restrict the spread of the rabies virus only to the presynaptic partners of **ACTIVATED** D1-MSNs or D2-MSNs. We have quantified the neuronal activation by EGR1 expression; I think that cFos expression would also work well. Do you have any idea how we could link EGR1 expression to rabies virus expression in D1-MSNs or D2-MSNs? Do you know of a transgenic mouse line that would allow that? Or link cFos expression? Or any other, even more selective indicator of neuronal activation than EGR1 or cFos are? Again, any suggestion/comment/advice is most welcome.

Have a nice weekend!

Gerald
We are looking for a PhD student interested in investigating the neurobiology of social interaction as an alternative reward to cocaine (Fritz et al 2011 Addict Biol 16,273 or Zernig et al 2013 Front Psychiatry 4,100) in the group of Dr Gerald Zernig who also has a strong interest in the role of cholinergic interneurons in reward (Crespo et al 2006 J Neurosci 26, 6004).

The candidate must hold a master's degree. Knowledge of neurobiological methods will be favored. The successful candidate will also be part of our SPIN graduate program, benefitting from a well-established cooperative network of neuroscientists from a broad range of subdisciplines (www.neurospin.at).

We propose to investigate changes in markers of social preference/avoidance and cocaine exposure, i.e., the density of stubby, thin, and mushroom spines and the expression of RAC1 and IKK. The candidate will benefit from NeuronStudio training in the lab of Dr Scott J Russo, Mount Sinai School of Medicine, New York, and will receive support from Dr Regine Heilbronn, Charité, Berlin (AAV vector design and production), Dr Christoph Schwarzer (vector expression) and Dr Lars Klimaschewski (gene gun).

Contract details

A salary according to the guidelines of the Austrian Science Fund (www.fwf.ac.at) is guaranteed for 2 years, with an additional 6 months' stipend available from the Innsbruck Medical University. Every effort is being made to extend the financial support. We are flexible about the employment start date (between 01 February 2014 and 01 September 2014).

Further web information on the Zernig lab

psychiatrie.uki.at/page.cfm?vpath=psychiatrie-ii/forschung/praeclinische-suchtforschung

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