



STudent REseArch Mobility Programme (STREAM) Project proposal

Host University:
Universität Zurich

Field (drop-down list):
Health and welfare

Specified field, subject:
Psychiatry, Neuroscience, Addiction

Research project title:
The effect of psychosocial and craving-induced stress on transcriptomics in cocaine users: a longitudinal approach

Possible starting month(s):

Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										

Possible duration in months:

1	2	3	4	5	6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Exact starting and end dates will be discussed between the supervisor and the student

Suitable for students in: Bachelor level Master level

Prerequisites:

The project requires good knowledge in neurobiology and molecular genetics, as well as some methodological basis in molecular biology and data analysis.

Restrictions:

NONE

Description (maximum 2,000 characters):

Research project may be adapted according to the student profile and the period/timeline

It is assumed that an increased susceptibility to stress plays an important role in the development, preservation, and relapse of cocaine addiction. However, previous research applying laboratory stress paradigms to cocaine users exclusively investigated hormonal responses but so far neglected potential changes in the expression of stress-related genes. It is furthermore unclear how alterations of the stress axis and stress-related genes change over time and if these changes are e.g., reversible after prolonged abstinence. We therefore investigate the effects of psychosocial stress (Trier Social Stress Test, TSST) and drug craving-related stress on peripheral expression of stress-related genes (levels of mRNA in blood) in 50 regular cocaine users and 40 matched healthy controls at baseline and at a 4-months follow-up. We expect to find broad changes in the expression of stress-related genes in cocaine users, which are malleable over time depending on changes of cocaine consumption. Currently we offer a project involving the isolation of RNA from blood samples up to assessment of transcriptomics results with the clinical data.



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The Master candidate will learn to isolate blood DNA and RNA, reverse transcribe RNA and run real-time RT-PCR techniques following by data analysis using several software, such as CFX, LinReg, qBASE, SPSS etc.. The candidate will have the chance to assess the associations between clinical data and transcriptomics and learn some statistical methods following by interpret scientifically the obtained results.

**Faculty and/or Department:**

Department of Child and Adolescent Psychiatry and Psychotherapy,
University Hospital of Psychiatry Zurich (PUK),

Contact person, including position:

Prof. Edna Grünblatt

Contact email:

edna.gruenblatt@kjpd.uzh.ch

Deadline for nomination to reach host university:

Ongoing

Notification of admission given by the end of:

Within 4 weeks

Additional information:

Motivation and high interest in neurodevelopmental psychiatric research and cellular modeling, with interest in individual development into independence.



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