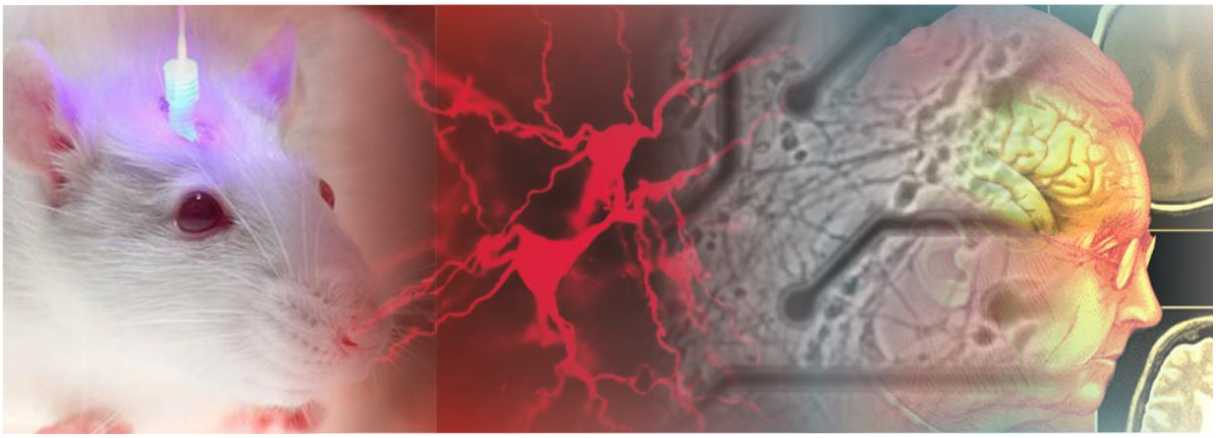

First announcement: "Current approaches in neurological disorder research: from animal models to human brain on the chip" a course by Prof. Dirk Schubert

We cordially invite you to participate in „Current approaches in neurological disorder research: from animal models to human brain on the chip" course which will take place from **04 – 08 December 2023** at the Nencki Institute of Experimental Biology (hall 1, first floor).

The lecture will be conducted by Prof. Dirk Schubert from Radboud University Medical Centre, Dept. of Cognitive Neuroscience, Nijmegen, The Netherlands.

Participants: 30-50

Language: English

Student profile: Master and PhD Students/postdocs from various disciplines (biology, chemistry, physics, medicine)

Stipends: **FENS** and **IBRO-PERC** provide up to **5 stipends** of **750 EUR for Master and/or PhD students** interested in attending this course. Through these stipends FENS and IBRO-PERC aim to encourage and promote international experience of students (students that are currently residing or studying in Poland are not eligible for a FENS and IBRO-PERC stipend for this course).

Stipend application and course registration will take place September 7 - October 15. Results will be announced by October 22nd, 2023.

Registration to the course: phdoffice@warsaw4phd.eu

Deadline: October 22nd, 2023

Within Warsaw4PhD school the course will count for **2 ECTS** as "Advanced methods of biology"

Program of the course:

1. Ex vivo techniques for testing neurological networks

What techniques are currently golden standard in investigating neuronal network structure and function ex vivo? In the lecture the students will get an overview about how to assess single neuron structure and function up to neuronal population activity

2. Inhibitory/excitatory networks

Current research implies that distorted balance between excitation and inhibition is playing a key role in most neurodevelopmental and neurodegenerative disorders. After 1st introducing the wealth of different classes of excitatory and inhibitory neurons and their specific network integration, during a workgroup the students will work on simple model circuits in order to understand synaptic integration in basic excitatory/inhibitory networks.

3. Animal models for neurodevelopmental disorders

Today science can design animal models for many specific mutations, disorders and research readouts. During this lecture the students will get an overview of a selection of state-of-the-art genetic approaches that allow disease as well as cell type specific neuronal manipulation in translational research.

4. Cellular correlates of mind and memory in vivo

New approaches allow the monitoring and replaying memory in living animals on cellular level. In this interactive lecture the students will learn and discuss about how to use such animal models in fundamental research on memory and in understanding neurological disorders.

5. Human brain on the chip

How to investigate complex mental disorders and treatment strategies in animal models if the genetic etiology is often hardly comparable with the individual patient. Human derived pluripotent stem cells and the so called “human brain on a chip” approaches allow new ways for investigating gene-cellular phenotype correlation and provide a testing platform for patient specific drug testing. During the interactive lecture and using example disorders the

student will learn the pros and cons about 2-dimensional neuronal cultures of human iNeurons and brain organoids.

6: Student presentations

The study aims will be tested by students' presentations and graphical abstracts. Groups of ca. 4 students will chose one recent paper (list of relevant articles will be provided) which they will present during a 15 min Powerpoint presentation. All students need to present and the presentation will be graded, including an individual grade for the performance. Every group will also produce a short graphical abstract of their paper, which will produce a grade that will be combined with the grade for the presentation.

Timetable available **here**