

Polish Children's Fund
Visit at the Nencki Institute of Experimental Biology
6-9.03.2012

Coordinator dr hab. Anna Wasik phone no 58 92 227

ONE-DAY WORKSHOPS

BEHAVIOURAL STUDIES OF COGNITIVE PROCESSES

LABORATORY OF NEUROPSYCHOLOGY

Head: prof. E. Szeląg

Workshop tutors: Prof. Małgorzata Węsierska, Weronika Duda, Joanna M. Sadowska

Workshop for 2 people

6.03.2012 (Tuesday) 9.00-17.00

The purpose of this course is to present research on working memory, attention processes and executive function using Allothetic Place Avoidance Alternation Task Method. This method will be presented as video presentations and as the Place Avoidance set-up.

The role of brain structures will be discussed on the example of selected areas of brain damage. To this end, the histological procedure will be presented to listeners.

HOW TO SEE SINGLE PROTEIN MOLECULE AT WORK: RECORDING ACTIVITY OF MECHANOSENSITIVE CHANNELS FROM BACTERIA.

LABORATORY OF PHYSIOLOGY OF CELL MOVEMENTS

Head – prof. Stanisław Fabczak

Workshop tutor: dr Piotr Koprowski

Workshop for 2 people = 4 people altogether

6.03.2012 (Tuesday) 10.00-15.00

8.03.2012 (Thursday) 10.00-15.00

We will start with a mini-lecture during which the subject of electrophysiology, ion and mechanosensitive channels will be presented. The patch-clamp equipment will be presented in the next experimental part during which the activity of mechanosensitive channels will be recorded. The participants will have a hands on experience with bacteria micromanipulation and recording by their own.

DIFFERENCES AND SIMILARITIES – INSIGHT INTO MAMMALIAN BRAIN

LABORATORY OF NEUROBIOLOGY OF DEVELOPMENT AND EVOLUTION

Head: prof. Krzysztof Turlejski

Workshop tutors: dr hab. Ruzanna Djavadian, dr Katarzyna Bartkowska, mgr Monika Gajerska

Workshop for 2-3 people

7.03.2012 (Wednesday) 9.00-16.00

Presentation of species that are used in our laboratory as model animals: Laboratory mouse (*Mus musculus*), Brazilian opossum (*Monodelphis domestica*), Common shrew (*Sorex araneus*), Laboratory rat (*Rattus norvegicus*).

Presentation of different histological stains made on the opossum brain: Nissl stain, Timm stain, myelin stain, acetylcholinesterase stain, calcium binding proteins stain, glia stain (GFAP protein).

Sectioning brains (cutting on the kriostat). Sections of the fixed brains will be cut on a cryostat. During this part of workshop visitors will prepare coronal, sagittal and horizontal sections from a mouse brain.

Histological stains – Nissl staining

Visitors will perform the Nissl staining protocol on brain sections of various species (i.e. mouse, rat, opossum, shrew, hedgehog and mole) from our library of sections and compare results.

CONFOCAL MICROSCOPY: IMAGING TECHNIQUES AND COMPUTER DATA ANALYSIS

LABORATORY OF CONFOCAL MICROSCOPY

Head: prof. Wanda Kłopocka

Workshop tutors: mgr Aleksandra Ławrynowicz, mgr Jarosław Korczyński, mgr Artur Wolny

Workshop for 7 people

9.03.2012 (Friday) 9.00-13.00

Participants will be familiarized with the basics of fluorescence microscopy placed in our Laboratory as well as with methods of samples preparation for this kind of microscopes.

Participants can individually, using our confocal microscopes and fixed specimens, adjust settings of the microscope and acquire images from the region of interest.

At the end participants become acquainted with the newest software for microscope data analysis and they can carry out digital processing of captured images.

MITOCHONDRIAL MEMBRANE POTENTIAL – HOW MITOCHONDRIA PROCESS THE ENERGY?

LABORATORY OF BIOENERGETICS AND BIOMEMBRANES

Head: prof. Jerzy Duszyński

Workshop tutors: dr hab. Joanna Szczepanowska, Dominika Malińska, Małgorzata Bejtka

Workshop for 7 people

9.03.2011 (Friday) 9.00-13.00

1. Electrochemical potential across the inner mitochondrial membrane – What is it? How is it made? What is it for? Presentation.
2. Sample preparation for measurements of mitochondrial membrane potential in cultured cells.
3. Measurements of mitochondrial membrane potential in Laser Scanning Cytometer (LSC) and analysis of the results.

TWO-DAYS WORKSHOPS

HOW TO MEASURE CONCENTRATION OF CALCIUM AND PHOSPHORUM IONS IN MINERALIZING CELL?

LABORATORY OF BIOCHEMISTRY OF LIPIDS

Head - Prof. dr hab. Sławomir Pikuła

Workshop tutors: dr Agnieszka Strzelecka-Kiliszek, Łukasz Bożycki

2-days workshop for 8 peoples

08.03.2012 (Thursday) 9.00-16.00

09.03.2012 (Friday) 9.00-13.00

The main task of the workshop is to analyze concentration of calcium and phosphorus ions in mineralizing human osteoblastic hFOB1.19 and osteosarcoma Saos-2 cells, which are able to mineralize producing extracellular matrix vesicles. Cell cultures will be performed in control and stimulating for mineralization conditions (in the presence of ascorbic acid and beta-glycerophosphate). Cells will be observed under inverted microscope. Then, the supernatant will be collected to measure phosphate by ammonium molybdate but cells will be stained by alizarin red to measure calcium minerals. As a next step cell cultures will be destained with cetylpyridine to measure calcium ions spectrophotometrically.