

REPORT for the TRAINING STAY
(31 JAN 2011 – 04 MAR 2011, Trieste, Italy)

HOME LAB:

Master programme in Neurobiology,
Cell biology group
A. I. Virtanen Institute for Molecular Sciences,
Faculty of Health Sciences,
University of Eastern Finland
Supervisor: Pr. Rashid Giniatullin

HOST LAB:

Master programme in Neuroscience,
Laboratory of Biophysics and Cellular Neurobiology,
BRAIN Center for Neuroscience,
Department of Life Science,
University of Trieste
Supervisor: Dr. Marina Sciancalepore

During my training stay in Trieste it was assigned the task to start a complete new study, aimed at investigating the possible changes in electrical membrane properties of skeletal myoblasts in culture, mediated by reactive oxygen species. The study was undertaken because recent investigations on the effects of H_2O_2 in skeletal myotube electrical membrane properties.

I practiced in:

- patch clamp recording in skeletal myoblasts in current-clamp and voltage-clamp mode. I got preliminary data related to the effect of H_2O_2 100 μ M on K^+ conductances;

-perform analysis including graphic presentation and statistical analysis using Clampfit and Origin (fig.1);

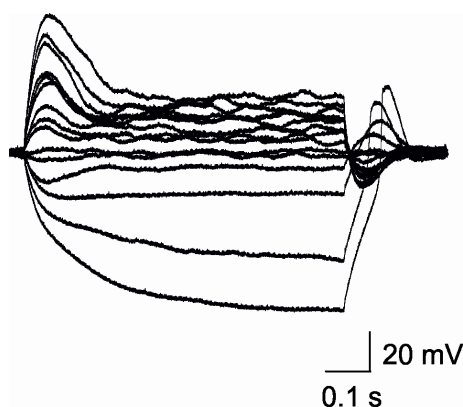


Fig.1. Depolarizing and hyperpolarizing 4pA steps in current clamp.

-the amphotericin-perforated patch-clamp technique (amphotericin in concentration 300 μ M/ml) to study the effects of hydrogen peroxide on ionic currents in single myoblasts in order to compare the results with those obtained with conventional whole-cell recordings, in which the cytoplasm is dialysed with the pipette solution. The eventual dependence of the effects on the recording methods could suggest the involvement of second messenger (fig.2).

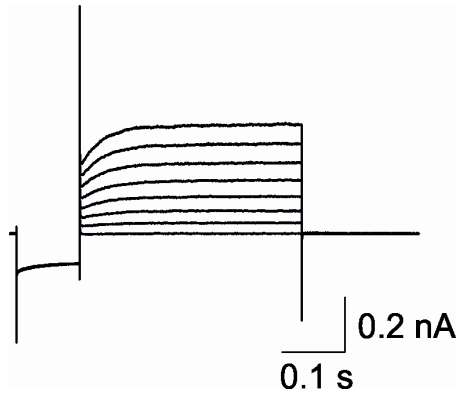


Fig.2. Traces indicating K^+ conductances in perforated patch clamp (amphotericin in concentration 300 μ M/ml).

Also I actively participated in the lab life. I was reading relevant scientific literature, and used it to critically evaluate and improve my experimental work. I participated to the Neuroscience Research Group meeting in the Laboratory of Biophysics and Cellular Neurobiology at the *BRAIN Center for Neuroscience* and Department of Life Science at the University of Trieste where Dr. Marina Sciancalepore coordinate the Electrophysiological Unit. I had the occasion to meet the teachers and students of the Master in Neuroscience and to discuss with them their Neuroscience Program (fig.3).



Fig.3. Me, doing experiments, in the Laboratory of Biophysics and Cellular Neurobiology at the *BRAIN Center for Neuroscience* and Department of Life Science at the University of Trieste.

The methodological experience I received in the Trieste lab will allow me to bring the new techniques, such as current clamp and perforated patch clamp, into our Kuopio lab and finish my master thesis. These both techniques could give new possibilities in studying the action of ROS in pain transduction and migraine pain development.

This training stay was very important for my professional skills and extremely interesting as life experience. I would like to say thank you to NENS committee for such possibility.

Nataliia Petrenko