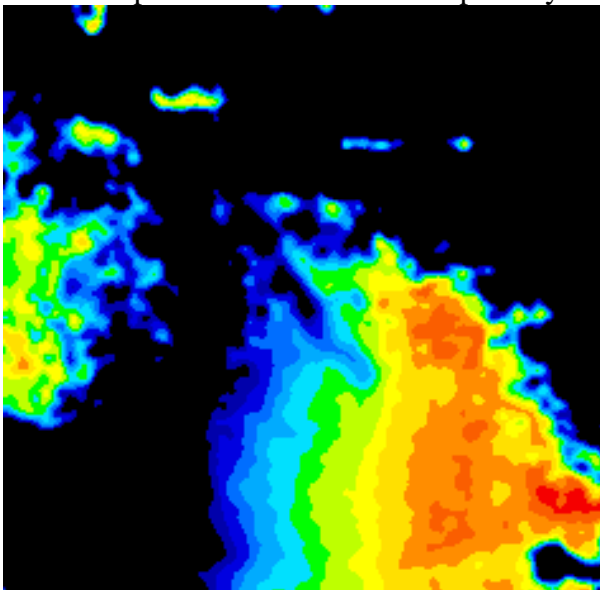


**Report on practical placement in University of Helsinki**  
*Sergey Tugin, master student of Saint Petersburg State University*

I had a practice in University of Helsinki, Helsinki, Finland. It was in “Functional and Morphological Plasticity of Tripartite Synapse” lab headed by Doctor Leonard Khirug. My practice started in August 2011, continued 3 months and was supported by BioN (funded by Tempus EU).

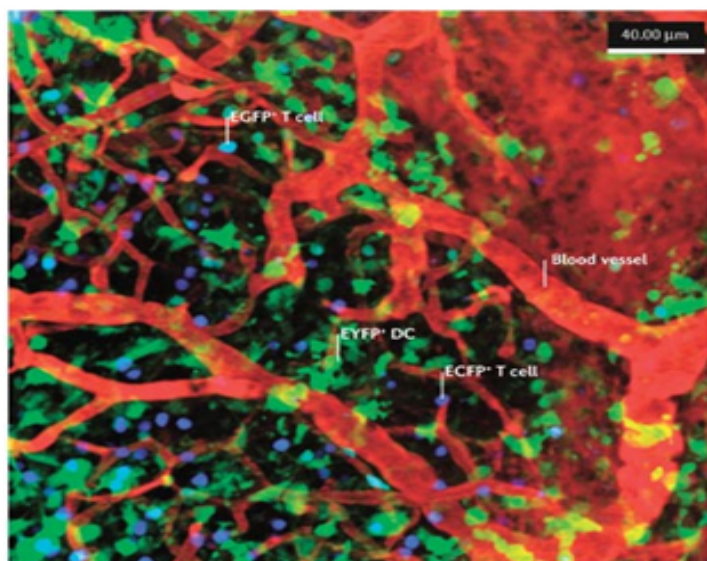
Main objects of study in the laboratory are mice and rats. I took part in 2 research projects: intrinsic optical imaging and two photons microscopy. First method which I learned was surgery. For both kinds of experiments a researcher should create a hole in animal’s skull bone, after it put a translucent matter and cover for glass. It is very hard to do this surgery and not to destroy brain or matters. Except surgery on animal I studied work with drugs. I calculated the dose of anesthesia and injected it in rodents. I learned how to work with different kinds of anesthesia: intraperitoneal, aeriform, anesthesia through caudal artery.

Intrinsic optical imaging was my main study platform. Anaesthetic animals were put under camera which recorded blood pressure in brain while visual stimuli were presented for animals. As a result experimenter saw a field in primary visual cortex.



Picture 1. Screenshot from the video file demonstrated visual cortex of mouse in time presented vertical lines for animal.

Two photons microscopy is a fluorescence imaging technique that allows imaging of living tissue up to a very high depth that is up to about one millimeter. It has not only height space



resolution but also a height temporal resolution- 2 seconds for 1 scan. I learned how to work with it and to analyse data.

Picture 2. Example of result two photons microscopy. In different color painted Blood vessels, EGFP T-cell, EYFP T-cell and EYFP by fluorescent Protein.