

NENS Stipend Report

Home institution: Center for Neurogenomics and Cognitive Research (CNCR), VU University, Amsterdam, the Netherlands

Host institution: Department of Pharmacology, University of Oxford, Oxford, UK

Supervisors: Dr. Alexander F. Jeans, Prof. Nigel J. Emptage

Master student: Fran van Heusden

Period: February till May 2015

I am very grateful to have received the NENS stipend to help fund my training stay at the group of Professor Nigel Emptage at the Department of Pharmacology at the University of Oxford. During my training stay, I studied presynaptic function using pH-sensitive fluorescent tags and calcium reporters. Using these techniques, the effect of the Alzheimer's disease protein amyloid beta on presynaptic function can be investigated.

During my training stay I gained in-depth knowledge of various techniques. In order to investigate presynaptic function in dissociated cultures, I had to learn how to prepare hippocampal cultures. I also obtained experience in neuronal transfection with various reporter proteins, such as SypHy and GCaMP. Importantly, I learned how to design and conduct imaging experiments with state-of-the art imaging equipment. I have conducted several live cell-imaging experiments, looking at the effect of various manipulations on presynaptic neurotransmitter release and calcium levels. I optimized the experimental protocol for these experiments and I learned how to trouble-shoot. Furthermore, I gained experience in the analysis of imaging data.

In addition to having gained experience in novel laboratory techniques, I also improved my critical thinking and communication skills by working with very talented and skilled researchers and by reporting my findings in the form of a research article.

The live cell imaging skills I acquired during my training stay – designing and conducting experiments, using pharmacological and genetic manipulations, analyzing data – will allow me to set up advanced imaging experiments at my home institution. Furthermore, the skills I gained during my stay in the Emptage laboratory will greatly aid me in my future career, and they will be invaluable when doing my PhD.

Sincerely,

Fran van Heusden