I am currently in the second year of the Interdepartmental Master's in Molecular Medicine – Specialty Neurobiology, of the Medical School of Athens, Greece. I am doing my Master's thesis research in the laboratory of Dr. Kostantinos Vekrellis in the Biomedical Research Foundation of the Academy of Athens. Our laboratory focuses on Parkinson's Disease and we are very interested in investigating the non-conventional secretion components/mechanisms of the disease-related α-synuclein (α-syn) and their effects on neuronal homeostasis.

Our laboratory showed that α-syn is physiologically secreted *in vivo (Emmanouilidou et al., 2011)*. Our first objective is to determine the secretion topology, for which we established novel, compartmentalized primary cultures. Our second objective is to uncover the mechanisms that underlie this non-classical secretion. It was shown that α-syn can also be secreted in association with exosomes *(Emmanouilidou et al., 2010)*. Exosomes are small vesicles which are constitutively secreted by cells, including primary neurons, and can be detected in human biological fluids. Their biological significance in neurodegeneration is of outmost scientific interest, as they have been proposed to act as vehicles of cytosolic amyloid propagation *(Aguzzi and Rajendran, 2009)*. In order to expand my understanding on exosome-mediated secretion of cytosolic proteins and acquire technical skills and data that would allow me to continue and complement my thesis research, I joined for four months the laboratory of Professor Lawrence Rajendran in the Division of Psychiatry Research of University of Zurich, in collaboration.

I was trained in isolating exosomal fractions from cell culture media and later on, from human biological fluids. We used a model for mimicking protein-misfolding conditions *in vitro* and analyzed by Western Blotting how the exosome secretion profile changes, in selected cytosolic candidates. In order to quantitatively determine whole proteomic profile alterations under disease-mimicking conditions, we performed Stable Isotope Labeling of Aminoacids in cell Culture (SILAC) –based quantitative proteomics. For the determination of the number and size distribution of exosomes obtained under these conditions we also used nanoparticle tracking analysis. I worked with several cell lines and conditions in order to study alterations in the exosome size, morphology and content, which we realized is indeed very dynamic. Additionally, I was trained in performing plasmid transfections in order to express amyloidogenic proteins into cells so as to assess their fate and potential secretion via exosomes. Moreover, in collaboration with a student-colleague in the host laboratory, I had the opportunity to progress in data mining and perform a computational, bioinformatic analysis of existing exosome proteomics data, which revealed potential levels of exosome content selectivity.

I thoroughly enjoyed my work and inspiring scientific environment during this stay. I obtained very interesting data by collaborating with other students, which substantially increased my understanding on the field and resulted in two oral presentations. Most importantly, I recently came back to my home laboratory and cannot wait to start my next experiments. I will be using the knowledge I obtained in order to advance my project and contribute with new ideas and techniques.

I would like to acknowledge our host, collaborating laboratory for generously sharing knowledge and techniques and especially Professor L. Rajendran for always being there for scientific advice and supporting all aspects of my effort. I am also grateful to NENS for financially supporting this very prolific stay- thank you!