Dear ISN Secretariat,

0n 2013, I was awarded a Travelling Fellowship by the ISN–CAEN 1A to visit another laboratory. For this purpose I have been kindly hosted by Dr. Philip Barker from McGill University in Montreal from 10-06 to 10-10-2014.

During my short stay I have studied the role of calpain during and after neuronal hyperactivation protocol. Recent findings indicate that the mechanisms which drive reshaping of the nervous system are aberrantly activated in neurodegenerative diseases. Epilepsy is a neurodegenerative disease that affects between 1 and 2% of the world population, characterized by recurrent seizures. This causes permanent neurological damage, resulting in cognitive dysfunction and other serious neurological conditions. There are several *Status Epilepticus* models (SE), ranging from *in vivo* to *in vitro* models. In this study, we used an *in vitro* model of SE in which hippocampal (hippocampi were obtained from E18-embrionic day 18- mice pups) bulk cultures and pure samples of processes undergoing degeneration, were analyzed to reveal whether calpain activation induce biochemical and morphological changes in axons after excitotoxicity. We found that followed a neuronal hiperactivation, calpain activity is increased first in processes fraction (axons and dendrites) and then, in soma fraction. To measured calpain activity we used the degradation pattern of principal calpain substrates:βIII Tubuline, α -spectrin, NF-M, procaspase 3 and TrkB receptor. The degradation rates of these proteins were faster in the processes domain. So, the main outcome of these experiments is that the calpain protease has a principal role in neurodegeneration after a SE.

During my time at Barker´s lab, I had the opportunity to exchange ideas and work with a group of very gifted scientists. The time I spent there I learnt some useful skills like the use confocal microscopy, cultures neurons in filter insert to study what biochemical issues happen in the processes domain different from the soma domain, and improve others like Western blot, Inmunocytochemistry, give talks (during my time there I gave 3 talks in 3 lab meetings). Marvelously, I also had the chance to obtain very good results and will help me to complete my phD thesis. But, I feel that not only I have learned scientific stuffs but also I can say I have met group of people that turned to be very keen and good friends.

Moreover, I already presented a poster entitled: *Calpain Protease Mediate The Axonal Degeneration Induced By A Model Of Status Epilepticus In Vitro*, at the 9th IBRO World Congress On Neuroscience, 7-11/07/15, Rio de Janeiro, Brazil. Also, we have already written a paper manuscript that soon will be send it to get publish.

This short stay will definitely impact my phD career in a positive way: I feel more confidence to discuss and communicate my scientific ideas, and give talks to scientific audience.

Therefore, I would like to thank your organization for this unique opportunity and strongly encourage future phD students to go on such experience during their PhD career. On my personal opinion, this opportunity was very helpful and a keystone for my doctoral training.

To sum up, this was a great professional and personal experience and therefore I am to a great extent grateful to the ISN-CAEN.

Best wishes,

Víctor Danelon.