Program the Master's degree in Biology:

X Neurosciences and Neurobiology
☐ Immunology, Microbiology, Infectious Diseases
☐ Integrative Structural Biology
☐ Physiology, Epigenetics, Development, Differentiation

Title of the project:

Energy metabolism as a regulator of axonal transport in health and Huntington’s disease

Objectives (up to 3 lines):

The objectives of the project are to understand the role of the huntingtin protein in the regulation of intracellular dynamics in neurons and its relation to energy metabolism.

Abstract (up to 10 lines):

Huntington’s disease (HD) is caused by the abnormal polyglutamine expansion in the N-terminus of huntingtin (HTT), a large protein of 350kDa. Over the past years, we proposed that HTT acts as a scaffold for the molecular motors and through this function, regulates the efficiency of vesicular transport along microtubules in neurons. Huntingtin also scaffolds glycolytic enzymes that provide energy for axonal transport. Here we propose to study the sources of energy for axonal transport in response to neuronal activity and the role of HTT in this mechanism in both normal and Huntington’s disease conditions.

Methods (up to 3 lines):

Techniques used will include molecular biology, biochemistry, primary cultures, state of the art live-imaging microscopy and the development and use of new microfluidic devices to study intracellular dynamics in connected neuronal networks.

Up to 3 relevant publications of the team:


Requested domains of expertise (up to 5 keywords):

Cell biology, neurobiology, imaging techniques, microscopy, microfluidics.