Internship project Master 2 Recherche
Year 2016/2017

Laboratory: Grenoble Institut des Neurosciences - GIN
Team: Intracellular Dynamics and Neurodegeneration

Name and status of scientist in charge of the project: Frédéric Saudou, PU1-PH
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Specialty MASTER:
☒ Neurosciences and Neurobiology
☐ Immunology, Microbiology, Infectious Diseases
☐ Integrative Structural Biology
☐ Physiology Epigenetics Development Differentiation

Title of project:
Huntington's disease and the role of huntingtin in the dynamics of endoplasmic reticulum

Objectives (3 lines max):
The objectives of the project are to understand the role of the huntingtin protein in the regulation of the endoplasmic reticulum dynamics and to study it's dysfunction in disease

Abstract (10 lines max):
Huntington’s disease is caused by the abnormal polyglutamine expansion in the N-ter part of huntingtin (HTT), a large protein of 350kDa. Over the past years, we proposed that HTT acts a scaffold for the molecular motors and through this function, regulates the efficiency and directionality of vesicular transport along microtubules in neurons. We recently extended the function of HTT as a scaffold for dynamin1 that regulates intracellular dynamics of the endoplasmic reticulum (ER). In particular, we found that HTT proteolysis induce ER dilation. We want to understand how HTT regulates ER dynamics and how this function serves to maintain the functioning of neuronal connections and synapses.

Methods (3 lines max):
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.

Relevant publications of the team (3 max):

Requested domains of expertise (few keywords):
Cell biology, neurobiology, imaging techniques, microscopy, microfluidics.