

## JAE-INTRO 2019 EN EL IBFG

La Dra. Henar Valdivieso (<https://ibfg.usal-csic.es/henar-valdivieso.html>) ofrece la posibilidad de optar a una beca JAE-INTRO (<http://www.csic.es/programa-jae>) en el IBFG . El trabajo a realizar corresponde a la siguiente “Expresión de interés”.

### **Exomer: a hub where protein transport and signal transduction connect**

Alterations in protein trafficking are related to human disease. Thus, defects in the trafficking of Sortilin are related to neurological disorders, such as Alzheimer’s and Parkinson’s disease. Also, defects in the trafficking of mannose 6-phosphate receptors are related to cardiac hyperplasia and cancer. Similarly, cystic fibrosis and several rare diseases are produced by abnormal protein transport. Therefore, understanding the mechanisms involved in protein transport can help to understand the nature of those diseases, and to advance in their treatment. This transport, which is a complex and not well-understood process, requires the participation of several protein adaptors and coats, and involves different membranous compartments such as the Golgi, endosomes and lysosomes. Golgi and endosomes are, additionally, required to maintain cell ionic and pH homeostasis. Finally, endosomes and lysosomes act as platforms where proteins that participate in signal transduction are assembled. Yeasts have proven to be useful models to study different aspects of protein transport, eukaryotic cell homeostasis and signal transduction. The study of different aspects of yeast protein transport has been recently recognized with the Nobel Prizes in Physiology or Medicine awarded to R. Schekman (2013) and to Y. Ohsumi (2016).

Exomer is a protein complex, with characteristics of vesicle coat/protein adaptor required for efficient intracellular protein trafficking. Additionally, exomer mutants are sensitive to saline stress. Our previous results suggest that this is related to abnormal responses of the cell integrity and the TOR signaling pathways. In this JAE Intro research project, the student will use several Microbiology, Genetics and Cell Biology techniques to advance in the characterization of these defects, and to get useful information to establish the role of exomer as a hub where these signaling routes connect, and where they both connect with the protein transport routes. If required, the results may be presented as a Final Master Thesis (FMT).

