CIC bioGUNE
MEMBER OF BASQUE RESEARCH
& TECHNOLOGY ALLIANCE

Ph.D. position in the Exosomes Laboratory

Exosomes in Alzheimer's Disease from a metabolic point of view

Scientific background and aim of the project

Exosomes are small vesicles that are released by cells and are involved in the inter-cellular communication. They contain a cargo that varies depending on the cell type and its biological state. Therefore, the exosomal cargo is considered as a source of reliable biomarkers that provide information about the biological state of the cell. Previous studies have suggested that exosomes derived from the central nervous system play an important role in the development and progression, as well as diagnosis and treatment of Alzheimer's disease.

The project aims to characterize exosomes in Alzheimer's disease in the context of metabolism. Recently, studies have described several metabolites associated with the development of Alzheimer's disease. We hypothesize that the metabolic changes during the disease are reflected by the exosomal cargo. Therefore, the metabolome of exosomes could be a tool to understand the changes in the metabolism of Alzheimer's patients and to discover new biomarkers of the disease. The first aim of the project is to characterize enzymes and metabolites present in exosomes derived from the central nervous system of Alzheimer's disease patients. The second aim is to investigate the role of exosomes in the propagation of the disease by analyzing the effect of Alzheimer's disease exosomes on the metabolome of neurons using an *in vitro* model.

What we offer

Our group has broad experience in the isolation and characterization of exosomes from different biofluids and cell lines, in normal and pathological conditions. Our laboratory is located at the CIC bioGUNE in Spain, which offers state-of-the-art facilities to conduct your project. Using patient samples and an *in vitro* model, you will learn to combine diverse techniques like qPCR, Western Blotting, confocal microscopy, and metabolomics to answer scientific questions. Furthermore, you will learn experimental design, data analysis and interpretation. You will work in a team, be involved in multi-disciplinary collaborations, and attend international meetings.

Profile of the candidate

The candidates should have experience with cellular and molecular biology techniques. They should be highly motivated and team-oriented with a strong interest in exosomes biology. Candidates must have very good written and spoken communication skills in English. Furthermore, they should have successfully concluded a master in life sciences or related disciplines.

Candidates should submit their CV and a cover/motivation letter if possible contact details of 2 references using the following form and indicating 42191 as reference.

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