"Molecular and cellular mechanisms involved in neuron delamination and migration"

Alsina lab, Universitat Pompeu Fabra/Parc de Recerca Biomèdica de Barcelona

We are seeking a highly motivated and competitive student to start a PhD by January 2017 to study the molecular and cellular mechanisms governing neuronal migration and delamination. Salary for a year is guaranteed (January 2017 to December 2017).

Sensory neurons of the head are derived from specialized neurogenic epithelia. There, after the initial steps of their differentiation, neuronal progenitors exit from the sensory epithelium to form the sensory ganglia in a process of epithelial-mesenchymal transition (EMT), also happening during tumour metastasis. Some of the events underlying EMT are the change of cell adhesion properties, breakage of the basal lamina, acquisition of migratory capacities, cellular remodelling events and generation of cellular forces. Finally, sensory neurons must follow guidance cues that allocate them into appropriate positions into the head. The project aims at investigating the signals that direct neurons to migrate and the cellular remodelling events underlying the delamination and migration of zebrafish inner ear sensory neurons. We use the zebrafish as model organism because its transparency and thus feasibility of cellular process feasibility and easiness of genetic and pharmacological manipulations. Our laboratory has more than 15 years of experience studying inner ear neurogenesis and recent data using supraresolution 4D imaging and biomechanical manipulations by microsurgery experiments indicate that the inner ear epithelial cells suffer complex remodelling events (Hoijman et al., Nature Commun 2015). We have been able to follow in vivo neurons delaminating, communicating between each other's and migrating in a coordinate manner. The project will provide novel cues that can be extended to cancer process and general mechanism of cellular migration.

The Alsina´s lab (https://www.upf.edu/web/alsina_lab) at Developmental Biology Unit, Universitat Pompeu Fabra is located at the Barcelona Biomedical Research Park (www.prbb.org) with excellent research facilities in supraresolution imaging, genomic and computational technologies and a large research community in the fields of developmental biology, systems biology and computational biology. For list of recent publications see: https://www.upf.edu/web/alsina_lab/publications

The PhD fellow will use state-of-the-art techniques in zebrafish and acquire knowledge in sophisticated imaging microscopy, zebrafish transgenesis, Crispr, gene expression analysis and laser cut experiments.

Applicants must have a Bsc in the biomedical sciences field and a master degree and have a competitive CV to apply for predoctoral fellowships. Experience in zebrafish research and/or live imaging is welcome.

Send CV, transcript of records and letter of motivation to berta.alsina@upf.edu