



PHD POSITION AT UNIVERSITAT POMPEU FABRA (BARCELONA)

UNDERSTANDING THE ROLE OF TIME IN THE PRODUCTION OF THE NEURONAL DIVERSITY IN THE EMBRYONIC BRAIN

Our aim is to understand how neuronal diversity is generated during embryonic development and to provide a holistic view of how cell fate decisions are taken in the brain. During brain development, progenitor cells balance proliferation and differentiation to generate an enormous diversity of neurons in the correct numbers and proportions. Addressing this has been technically challenging to date; no *in vitro* system can recapitulate this *in vivo* process, which involves an orchestrated extraordinary displacement of neurons from their birth site and complex tissue morphogenetic movements upon time. We will now incorporate time as the missing yet crucial factor to understand how the different neuronal subtypes are provided to refine the final number of neurons within the hindbrain functional circuits.

The fellow will work in Pujades' lab (<https://pujadeslab.upf.edu>) at Department of Medicine and Life Sciences (<https://www.upf.edu/web/biomed>) of the Universitat Pompeu Fabra, which is located within the PRBB, a vibrant research park harboring several research institutions. For knowing more about the lab work see some of our recent publications:

Engel-Pizcueta, C, Hevia, CF, Livet, J, Pujades, C. *her9* regulates stemness properties in hindbrain boundary cells. *Development* Dec 4:dev.203164, 2024

Belmonte-Mateos*, C, Meister*, L and Pujades C. Hindbrain rhombomere centers harbor an heterogenous population of dividing progenitors relying on Notch-signaling. *Frontiers in Cell and Developmental Biology* 11:1268631, 2023

Espinosa-Medina, I, Feliciano, D, Belmonte-Mateos, C, Garcia-Marques, J, Foster, B, Pujades, C, Koyama, M, Lee, T. TEMPO enables sequential genetic labeling and manipulation of vertebrate cell lineages. *Neuron* 111, 1-17, 2023

Blanc, M, Dalmaso, G, Udina, F, Pujades, C. A dynamic and expandable Digital 3D-Atlas MAKER for monitoring the temporal changes in tissue growth during hindbrain morphogenesis; *eLife* 11:e78300, 2022

Hevia, CF, Engel-Pizcueta, C, Udina, F, Pujades C. The neurogenic fate of the hindbrain boundaries relies on Notch-dependent asymmetric cell divisions. *Cell Reports* Jun 7; 39(10): 110915, 2022

Belzunce I, Belmonte-Mateos C, Pujades C. The interplay of *atoh1* genes in the lower rhombic lip during hindbrain morphogenesis. *PLoS ONE* 3; 15(2): e0228225, 2020

CANDIDATE REQUIREMENTS AND OFFER

We are seeking for highly motivated candidates with completed Master studies related to Biomedicine and some research experience in a laboratory (if possible). Candidates are required to have a good command of the English language. Experience on developmental biology, imaging and computer skills will be an advantage.

We offer a PhD contract (FPI fellowship) with salaries aligned to Spanish/Catalan PhD fellowships. The candidate will integrate the International PhD Program in Biomedicine of the Department of Medicine and Life Sciences (UPF), which has been awarded with the María de Maeztu Unit of Excellence recognition (Ministry of Science, Innovation and Universities, Spain). Interested candidates are encouraged to contact Cristina Pujades for more information. To apply, send a letter of interest, CV and contact details of 2 referees to cristina.pujades@upf.edu

