MARIE SKŁODOWSKA-CURIE INDIVIDUAL FELLOWSHIPS 2020

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

NMS | NOVA Medical School
Research Unit: CEDOC

RESEARCH GROUP AND URL

Proliferation and Fate Regulation of Stem Cells
URL: http://cedoc.unl.pt/proliferation-and-fate-regulation-of-stem-cells-3/

SUPERVISOR (NAME AND E-MAIL)

Catarina Homem
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SHORT CV OF THE SUPERVISOR

Catarina Homem is a Principal Investigator at the Center for Chronic Diseases (CEDOC)/NOVA Medical School at the Nova University Lisbon, Portugal. Her main research interests are on how stem cell fate and proliferation are temporally and metabolically regulated during animal development. Her lab uses *Drosophila melanogaster* as a model organism.
Catarina Homem did her PhD at the University of North Carolina at Chapel Hill, USA, her Postdoc in the Institute of Molecular Biotechnology in Vienna, Austria and joined CEDOC as a Principal Investigator in 2016. In 2017 Catarina Homem was selected as a Howard Hughes Medical Institute (HHMI) and Wellcome Trust International Research Scholar, received an EMBO Installation grant and an ERC Starting Grant.
Catarina Homem is a board member of the Portuguese Society of Stem Cells and Research Therapies. Catarina Homem is also an invited Professor at NOVA Medical School.

5 SELECTED PUBLICATIONS

- **Homem CC**, Repic M, Knoblich JA (2015) Proliferation control in neural stem and progenitor cells. ***Nat Rev Neurosci.*** 16, 647-59.
- **Homem CC**, Steinmann V, Burkard TR, Jais A, Esterbauer H, Knoblich JA (2014) Changes in energy metabolism triggered by Ecdysone and Mediator end proliferation in *Drosophila* neural stem cells. ***Cell*** 158, 874-888.
- Eroglu E, Burkard TR, Jiang Y, Saini N, **Homem CC**, Reichert H, Knoblich JA (2014) SWI/SNF complex prevents lineage reversion and induces temporal patterning in *Drosophila* neural stem cell lineages. ***Cell*** 156, 1259-1273.
- **Homem CC**, Reichardt I, Berger C, Lendl T, Knoblich JA (2013) Long-Term Live Cell Imaging and Automated 4D Analysis of *Drosophila* Neuroblast Lineages. ***PLoS ONE*** 8(11): e79588. doi:10.1371/journal.pone.0079588.

- **Homem CC**, Knoblich JA (2012) *Drosophila* neuroblasts: a model for stem cell biology. ***Development*** 139, 4297-4310.

PROJECT TITLE AND SHORT DESCRIPTION

The interaction between chromatin and metabolism – mechanisms and role in stem cell fate establishment.

In recent years it has become clear that energy metabolism has critical roles in the generation of new biomass and provision of substrates for the epigenetic modification of histones and DNA, this way having an important and unexpected role in the regulation of cell fate. This project aims at understanding how chromatin regulators interact with the metabolic machinery, particularly in the context of stem cells. Because stem cell fate is very sensitive to their environment, the goal is to perform these analyses in the context of a living animal, using Drosophila neural stem cells as a model.

These studies will reveal how chromatin and metabolism interact to influence the transcriptional profile and fate of both stem cells and their differentiated neuronal lineage.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST

LIFE SCIENCES (LIF) | Stem cell biology; Neurobiology.