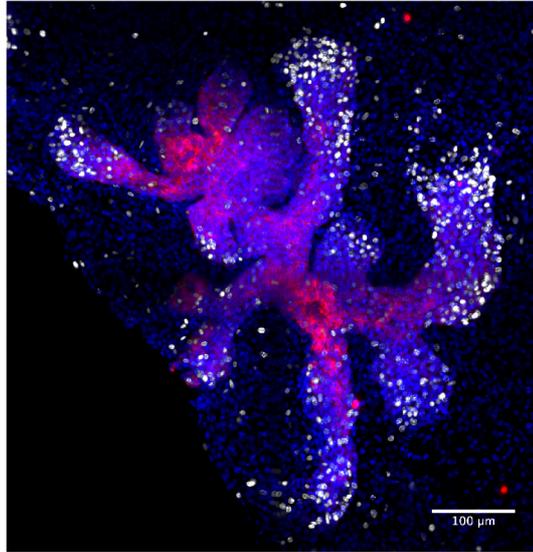




Post-doc position to study Cell Fate and Morphogenesis at Institut Curie, Paris



A 3-year post-doctoral position is available for a project in collaboration between the Group “Notch signaling in stem cells and tumors” directed by **Silvia FRE** and the Group “Polarity, Division and Morphogenesis” directed by **Yohanns BELLAICHE** in the Department of Genetics and Developmental Biology (UMR3215/U934) at Institut Curie in Paris, France.

<https://curie.fr/unit/umr3215-u934>

Our research is focused on the dissection of *in vivo* stem cell behaviour, both during physiological tissue development and homeostasis as well as in tumours, combining clonal analysis by lineage tracing with time-lapse imaging of 3D organotypic cultures and intravital microscopy, single cell transcriptomics and mathematical modelling of clonal dynamics. In the mammary gland epithelium, we have recently investigated the mechanisms underlying stem cell plasticity and directing lineage specification during embryonic development (Lilja et al. Nat Cell Biol. 2018). The project will continue and expand these studies to integrate the characterization of the transcriptional circuitries defining specific cell states (on-going in the lab) with real-time cell and tissue dynamics during branching morphogenesis.

Techniques: the project will involve mouse work, Flow Cytometry, optogenetics, image analyses, 3D organoid cultures, molecular biology and immunofluorescence analyses, bioinformatics and statistics.

Candidate requirements

- PhD or MD/PhD with at least one first author publication
- Enthusiastic and highly motivated researcher with strong interest in stem cell biology
- Ability to work independently, good team spirit
- Good communication skills, proficiency in oral and written English
- Candidates with competence in image analyses as well as previous experience in mouse handling, developmental biology, molecular biology or 3D cultures will be prioritised.

Work environment

The candidate will benefit from the top-level scientific environment of Institut Curie and of state-of-the-art technological platforms. The lab is located in the heart of Paris, in a building devoted to

Developmental Biology within the Curie campus, providing interdisciplinary expertise and a very friendly and international environment.

To apply, please send: curriculum vitae, cover letter summarizing research interests, professional experience, and career goals and the names/contact information of 2/3 referees, one of which should be a previous employer to silvia.fre@curie.fr and yohanns.bellaiche@curie.fr

Please indicate «Postdoc application» in the subject line.

Recent Publications of the two labs in this area

Jacquemin G, Wurmser A, Huyghe M, Sun W, Homayed Z, Merle C, Qasrawi F, Perkins M, Richon S, Dingli F, Arras G, Loew D, Vignjevic D, Pannequin J and **Fre S.** (2022). *Paracrine signalling between intestinal epithelial and tumour cells induces a regenerative programme.* *eLife* 11:e76541. doi: 10.7554/eLife.76541. PMID: 35543624.

Lloyd-Lewis B, Gobbo F, Perkins M, Jacquemin G, Huyghe M, Faraldo M and **Fre S.** (2022). *In vivo imaging of mammary epithelial cell dynamics in response to lineage-biased Wnt/ β -catenin activation.* *Cell Reports* 38 (10) 110461, ISSN 2211-1247, doi: 10.1016/j.celrep.2022.110461. PMID: 35263603.

Jacquemin* G, Benavente-Diaz M, Djaber S, Bore A, Dangles-Marie V, Surdez D, Tajbakhsh S, **Fre* S** and Lloyd-Lewis* B. (2021). *Longitudinal high-resolution imaging through a flexible intravital imaging window.* *Science Advances* 7 (25), eabg7663
DOI: 10.1126/sciadv.abg7663. * co-corresponding authors.

Lilja*, A., Rodilla*, V., Huyghe, M., Hannezo, E., Landragin, C., Renaud, O., Leroy, O., Ruland, S., Simons, B.D and **Fre S.** (2018). *Clonal analysis of Notch1-expressing cells reveals the existence of unipotent stem cells that retain long-term plasticity in the embryonic mammary gland.* *Nature Cell Biology* 20(6), p. 677–687.

di Pietro, Herszterg S, Huang A, Floris Bosveld, Alexandre C, Sanc  r   L, Pelletier S, Joudat A, Kapoor V, Vincent JP, **Bellaiche Y.** (2021). Rapid and robust optogenetic control of gene expression in *Drosophila*. *Dev Cell.* 56. 3393-3404.e7.

L  pez-Gay JM, Nunley H, Spencer M, di Pietro F, Guirao B, Bosveld F, Markova O, Gaugue I, Pelletier S, Lubensky DK, **Bellaiche Y.** (2020). Apical stress fibers enable a scaling between cell mechanical response and area in epithelial tissue. *Science.* 370:eabb2169.

Reviews

Lloyd-Lewis B, Mourikis P and **Fre S** (2019). *Notch signalling: sensor and instructor of the microenvironment to coordinate cell fate and organ morphogenesis.* *Current Opinions in Cell Biology* 61: 16-23. DOI: 10.1016/j.ceb.2019.06.003.

Rodilla V and **Fre S** (2018). *Cellular Plasticity of Mammary Epithelial Cells Underlies Heterogeneity of Breast Cancer.* *Biomedicines* 2018, 6, 103. DOI:10.3390/biomedicines6040103.