Unité 1109 – CRBS
Centre de **R**echerche en **B**iomédecine de **S**trasbourg
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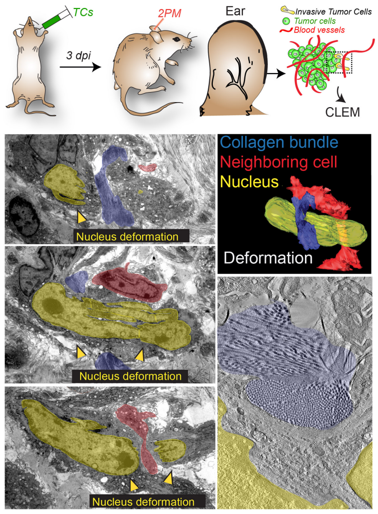
Institut national
de la santé et de la recherche médicale

Open position Intravital Imaging of the Metastasis Cascade

The Goetz Lab at INSERM U1109 (Tumor Biomechanics, www.goetzlab.com, CRBS, Strasbourg, FR) is seeking a talented postdoctoral scientist with strong background in **Intravital Microscopy and Cancer biology** and interest in interdisciplinary research.



Our lab uses advanced imaging techniques coupled to microfluidics and animal models to study tumor metastasis at multiple scales. The lab is actively investigating the contribution of mechanical forces as well as extracellular vesicles in metastasis onset. Our approach permits real-time imaging ranging from single-cell metastatic events to whole body tumor progression. Doing so, we aim at understanding how metastasis occurs in relevant and controlled animal models (Goetz et al., 2011, 2014; Follain et al., 2018; Hyenne et al., 2019; Osmani et al., 2019 Ghoroghi et al., 2021).

Our lab has developed, in collaboration with the EMBL and the DKFZ (Heidelberg) unique imaging technologies that offer nanoscale mapping of cellular and subcellular architecture in their most representative environment, notably **intravital Correlative Light and Electron Microscopy (iCLEM)** (Follain et al., 2018; Hyenne et al., 2019; Karreman et al., 2014, 2016). **We aim to expand the intravital imaging to several organs (liver, mammary tissue, lungs, etc..) using, for example, abdominal or lung windows and in the context of breast cancer.**

Our lab has recently relocated into the **Center for Biomedical Research of Strasbourg (CRBS)**, a brand new institute that is equipped with multiple platforms and facilities (mouse and zebrafish husbandry, imaging facility, sequencing platform). We benefit from a proximity and regular collaborations with the **IGBMC (Illkirch), EFS (Strasbourg), EMBL/DKFZ (Heidelberg) for both photonic and electron microscopy.** In addition, the lab is engaged in collaboration with the team of **Paul Timpson (Garvan Institute, Sydney)** a world-leader in intravital imaging.

The successful candidate will join an interdisciplinary team made of cell and cancer biologists, molecular biologists and physicist. The candidate will be **1. in charge of setting-up surgery and intravital imaging protocols for several models and study 2. tumor cell deformability during metastasis and participate in 3. setting up intravital imaging protocols of extracellular vesicles.** The candidate will develop his project independently, under the close supervision of Olivier LEFEBVRE (mouse surgery), Vincent HYENNE (Extracellular vesicles) and Jacky GOETZ (Metastasis). The candidate is also expected to present his results in the form of publications and international conference presentations, and to participate to writing of grant applications.

For more information on the group's research, see www.goetzlab.com

All applications must be sent to: Jacky G. Goetz (jacky.goetz@inserm.fr)

Contract: The position is full time with an initial one-year contract with strong prospects for renewal. The salary will be adapted to the experience of the candidate. The candidate will apply to additional funding (at national and European level). **We are interested in candidates who recently defended their Ph.D (early post-doctoral fellow) or who are experienced engineer/technician.**

About the candidate (see next page)

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About the candidate

Skills (mandatory)

- Strong experience with mouse handling and surgery
- Intravital imaging, live imaging (*In vivo and ex vivo*) and/or multiphoton imaging
- Ability to work independently and collaboratively with biologists and physicists in the team
- Being a team player, organized and curious, and able to drive the dynamics of the project
- Great communication and writing skills
- Fluency in English (lab comp. of people from France, Iran, Spain, Argentina, Czech Republic,...)
- Experience in both light & electron microscopy would be **a very significant asset**
- Experience in Image analysis software
- Experience with zebrafish and or microfluidics (although not essential)
- Experience with mouse models would be an advantage

Please include the following in your application:

- A cover letter
- Your resume including at least 2 referees with supporting letters/contact details

This position will remain open until filled.

We are reviewing applications as they are received:
as such candidates are encouraged to **submit their application as soon as possible**.

Starting date: **as soon as possible**
(note: 2 months administrative delay before recruitment)

Relevant bibliography:

Follain, G., Osmani, N., et al. (2018). Hemodynamic Forces Tune the Arrest, Adhesion, and Extravasation of Circulating Tumor Cells. ***Developmental Cell***, *45*(1), 33-52.e12.

Ghoroghi, S., et al. (2021). Ral GTPases promote breast cancer metastasis by controlling biogenesis and organ targeting of exosomes. ***ELife***, *10*.

Goetz, J. G., et al. (2011). Biomechanical Remodeling of the Microenvironment by Stromal Caveolin-1 Favors Tumor Invasion and Metastasis. ***Cell***, *146*(1), 148–163.

Goetz, J. G., et al. (2014). Endothelial Cilia Mediate Low Flow Sensing during Zebrafish Vascular Development. ***Cell Reports***, *6*(5), 799–808.

Hyenne, V., et al. (2019). Studying the Fate of Tumor Extracellular Vesicles at High Spatiotemporal Resolution Using the Zebrafish Embryo. ***Developmental Cell***, *48*(4), 554-572.e7.

Karreman, M. A., et al. (2016). Intravital Correlative Microscopy: Imaging Life at the Nanoscale. ***Trends in Cell Biology***, *26*(11), 848–863.

Karreman, M. A., et al. (2014). Correlating Intravital Multi-Photon Microscopy to 3D Electron Microscopy of Invading Tumor Cells Using Anatomical Reference Points. ***PLoS ONE***, *9*(12), e114448.

Osmani, N., et al. (2019). Metastatic Tumor Cells Exploit Their Adhesion Repertoire to Counteract Shear Forces during Intravascular Arrest. ***Cell Reports***, *28*(10), 2491-2500.e5.