Post-doctoral position at the Institute of Genetics and Molecular and Cellular Biology (Illkirch, France) in the team of Daniel Metzger

Project : "Identification of new biomarkers and drug targets for prostate cancer"

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Prostate cancer (PCa) is the second most commonly diagnosed neoplasia in men worldwide and one of the major causes of cancer-related death in men. Advances made in the management of PCa have markedly improved survival rates in men with localized disease, but current treatments have considerable side effects. Moreover, no reliable biomarkers are available to predict relapses, and patients with metastatic disease have limited treatment options and an overall poor prognosis.
Our laboratory generated Pten$^{(i)pe-/-}$ mice, in which the tumor suppressor gene Pten is selectively ablated in luminal prostatic epithelial cells at adulthood. We have shown that these mice faithfully recapitulate disease progression in humans, and are valuable tools to provide insights in prostate tumorigenesis. Our recent results based on single cell transcriptomics and histological analyses revealed that the evolution of prostatic tumors is associated with luminal epithelial cell plasticity and immunosuppression.
The aim of the project is to characterize the underlying molecular mechanisms, identify new biomarkers of tumor evolution and new drug targets, using cutting-edge technics.
The project will be developed at the Institute of Genetics and Molecular and Cellular Biology (IGBMC), the largest French academic research unit, under the supervision of INSERM, CNRS and the Strasbourg University. The institute develops interdisciplinary research at the interface of biology, biochemistry, physics and medicine, hosts state-of-the art scientific services and technological platforms, and attracts students from around the world by offering high-level education in biomedical sciences. IGBMC is located at the "Parc d'Innovation d'Illkirch", an exceptional scientific, academic and industrial environment next to Strasbourg.

We offer a 2-year contract, starting October 2022, with the possibility of extension. Remuneration and social benefits will be based on the CNRS agreement for public-sector employees. The applicant will be involved in a multidisciplinary group including basic scientists, pathologists and bioinformaticians, integrated in international collaborations. She/he will have access to various technologies to perform this scientific project with high clinical relevance.

Requirements. Applicants should have a PhD in biological science, a strong background in cellular and molecular biology with a sound knowledge in cancer research and genetics. Expertise in bioinformatics will be a plus.

Your responsibilities will include:

- Molecular biological assays on tissues of genetically modified mice
- Organoid cultures
- Single cell RNAseq and spatial single cell RNAseq analyses of mouse and human prostate tumors
- Mentoring graduate and undergraduate trainees

Your application. Candidates should send a curriculum vitae with a publication list, a short summary of research achievements and mastered techniques, as well as contact information of at least two references to metzger@igbmc.fr.

Selected publications of the team:

M. A. Abu el Maaty, J. Terzic, C. Keime, D. Rovito, R. Lutzing, D. Yanushko, M. Parisotto, E. Grelet, I. J. Namer, V. Lindner, G. Laverny and D. Metzger (2022). Hypoxia-mediated stabilization of HIF1A in prostatic intraepithelial neoplasia promotes cell plasticity and malignant progression. **Sci. Adv.** 8, eabo2295.

M. A. Abu el Maaty, E. Grelet, C. Keime, A.-I. Rerra, J. Gantzer, C. Emprou, J. Terzic, R. Lutzing, J.-M. Bornert, G. Laverny, D. Metzger (2021). Single-cell analyses unravel cell type–specific responses to a vitamin D analog in prostatic precancerous lesions. **Sci. Adv**. 7, eabg5982.

M. Parisotto, E. Grelet, R. El Bizri, Y. Dai, J. Terzic, D. Eckert, L. Gargowitsch, J-M. Bornert and D Metzger (2018). PTEN deletion in luminal cells of mature prostate induces replication stress and senescence *in vivo.* **J. Exp. Med**. 215 : 1749-1763**.**