# Post-doctoral position at CRCM, Marseille

Team leaders: Pr. Jean-Paul Borg (CRCM) and Dr Flavio Maina (IBDM)

Title of the project: Study of the crosstalk between immune and cancer cells in breast cancer

Summary
Triple-negative breast cancer (TNBC) has a very poor prognosis and cannot benefit from either hormone therapy or HER2-targeting drugs. The great complexity of TNBC studied for many years by the teams in collaboration with the clinical and pathology departments of the Paoli-Calmettes Institute is linked to its heterogeneity, its tumorigenicity resulting from the action of non-mutated genes, and the key role played by immune cells impacting its development and its resistance to treatment. Immune checkpoint inhibitors as monotherapy have limited effects, but the association with chemotherapies is much more promising, including in TNBC. In this project, the candidate will investigate the dialogue between cancer and immune cells by exploiting a unique TNBC mouse model and integrating the results with those of human TNBC.
This interdisciplinary research project is based on mouse genetics, single-cell level transcriptomics, human omics data integration, bioinformatics, histology and spectral analysis in cytometry. The research takes place in close collaboration with clinicians of Institut Paoli-Calmettes, the cancer hospital of Marseille.

The project will be developed in the teams of Jean-Paul Borg (Centre de Recherche en Cancérologie de Marseille, http://crcm.marseille.inserm.fr/en/) and Flavio Maina (Institute of Biology and Development of Marseille, http://www.ibdm.univ-mrs.fr/) in outstanding research institutes located in the beautiful city of Marseille. The labs benefit from the close collaboration between teams and clinicians of Institut Paoli-Calmettes and have access to biological resources, and cutting edge facilities in proteomics, genetics, flow cytometry, preclinics, cell imaging, and organoids. The recruited postdoc will be benefit from research networks, including Institute for Cancer and Immunology, Cancéropôle PACA, Nanotumor, UNICANCER and Centuri.

Applicants should send a *curriculum vitae* with a publication list, a 2-page summary of research achievements in English, the names and addresses of two references to jean-paul.borg@inserm.fr and flavio.maina@univ-amu.fr before March 30th, 2022.

References:

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4. Daulat A.M., *et al.* ECT2 associated with PRICKLE1 are poor-prognosis markers in triple-negative breast cancer. (2019) *British J Cancer,* 120: 931-940. *co-corresponding authors.
5. Daulat A.M., Silveira Wagner M., Walton A., Baudelet E., Audebert S., Camoin C., and Borg J.-P. The tumor suppressor SCRIB is a negative modulator of the Wnt/β-catenin signaling pathway. (2019) *Proteomics*, 19: e1800487.
6. Daulat A.M. and Borg J.-P. Wnt/Planar Cell Polarity signaling: new opportunities for cancer treatment. (2017) *Trends in Cancer,* 3: 113-125.
7. Puvirajesinghe T.M., *et al.* Identification of p62/SQSTM1 as a component of non-canonical Wnt VANGL2-JNK signaling in breast cancer. (2016) *Nat. Commun.*, 7:10318.
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