

THESIS OFFER

In the framework of the *Phys2BioMed Biomechanics in health and disease: advanced physical tools for innovative early diagnosis* (Innovative Training Networks ITN - Call: H2020 - MSCA - ITN - 2018) program, the team MILLET (*Mechanobiology, Immunity and Cancer* at the Institute for Advanced Biosciences) proposes a thesis offer

ESR6: Nano-mechanical signature of cancerous tissues and its relation to the associated immune response

Applicants should provide a cover motivation letter; short CV, to Dr. Arnaud MILLET (arnaud.millet@inserm.fr).

About Team MILLET Mechanobiology, Immunity and Cancer

The research project is devoted to the understanding of the influence of the physical environment on the ontogenesis and functions of human macrophages in the context of the resolution phase of inflammation and in cancer. The project addresses the question of the influence of the tissular physical environment on the clearance of apoptotic cells by macrophages. This question is of particular interest in the understanding of the impairment of the active phase of resolution of inflammation which is underlying most of inflammatory chronic diseases but is also relevant in the field of biomaterials for medical applications. In this project, we use 3D hydrogels based culture of human macrophages to decipher how the modification of physical parameters associated with their chemical characteristics could influence the polarization and the cross talk between macrophages and their cellular partners like cancer cells.

The project proposes to develop the use of biomaterials as tools for tissue re-engineering through the targeting of innate immune cells like macrophages in chronic inflammatory contexts.

Selected publications

1. Court M, Malier M, Millet A. *J Vis Exp* in press
2. Court M, Petre G, Atifi ME, Millet A. *Mol Cell Proteomics*. 2017 Dec;16(12):2153-2168.
3. Osman R, Tacnet-Delorme P, Kleman JP, Millet A, Frachet P. *Front Immunol*. 2017 Aug 23;8:1034.
4. Court M, Barnes JP, Millet A. *Rapid Commun Mass Spectrom*. 2017 Oct 15;31(19):1623-1632.
5. Pariset E, Agache V, Millet A. *Adv Biosystems* 2017, 1, 1700040
6. Millet A, et al. *J Clin Invest*. 2015 Nov 2;125(11):4107-21.

About the Institute for Advanced Biosciences

With 19 teams, the Institute for Advanced Biosciences (IAB) is an internationally renowned institute in fundamental and translational biomedical research, recognized for its high-level publications (more than 1,000 over the last 5 years) and its impact on the development of start-ups in the field of biotechnology. The scientific strategy is based on three topics: Epigenetics, Chronic Diseases and Cancer. The scope of action of the IAB covers a range of scientific expertise from the biological continuum of molecules to populations. More information: iab.univ-grenoble-alpes.fr