

Postdoctoral position *Mathematical modeling in Network Biology*

Project

The aim of the project is to characterize molecular pathways deregulated in myelofibrosis development and define predictive factors of disease evolution. Hematopoietic tissue is sensitive to aging, which results in senescence and haematological age-related diseases like *myelofibrosis*. We propose an interdisciplinary approach focused on the understanding of the hematopoietic stem cell (HSC)/stromal cell cross-talk that evolves during aging and favors myelofibrosis.

The applicant will be in charge of the establishment and analysis of mathematical models centered on bone marrow and HSC aging in order to better understand haematological age-related disease onset. We have developed a unique mouse model, which recapitulates physiological and pathological aging that will be used to generate single cell transcriptomic data. The generated data, together with an extensive literature study, will be the base to address the complexity of the network deregulated upon HSC/stromal cell aging by mathematical modeling approaches.

Environment

The successful applicant will work in the *Mathematics and Algorithms for Systems Biology* (Mabios, <http://mabios.math.cnrs.fr/index.html>) group in the Marseille Institute of Mathematics (I2M, Aix-Marseille University) an interdisciplinary team of mathematicians and computational biologists, in close collaboration with the *E. Duprez* team (<http://crcm.marseille.inserm.fr/en/researchteams/estelle-duprez>), specialised in Epigenetic Factors in Normal and Malignant Hematopoiesis in the Centre de Recherche en Cancérologie de Marseille (CRCM).

Expected profile

The applicant should have a formation (PhD) in Computer Science, Applied Mathematics, Computational Biology (or related fields). He/she should have a strong interest in biology and interdisciplinary approaches to decipher biological processes. Skills in programming/scripting and/or bioinformatics (for *-seq data processing) would be an advantage.

Offer

Fully-funded position for 2 years in Marseille. The starting date is expected in January 2019. Application can be sent directly to “elisabeth.remy@univ-amu.fr” and “estelle.duprez@inserm.fr”. Please make sure your application includes a letter of motivation, a list of publications, a detailed CV and the contact information of 2 references (including email addresses and phone numbers).

Keywords: Mathematical modeling, Single cell, Data Analysis, Systems Biology