

JOB DESCRIPTION

Job Title : **Post-doctoral fellow-18-month**

Job Summary :

A postdoctoral position is available in INSERM U949 “Biology and Pharmacology of Blood Platelets” (Strasbourg France). Our research team (www.u949.inserm.fr) is located within the French Blood Bank (Etablissement Français du Sang-Alsace). The proposed stage will be under the supervision of Pierre Mangin (DR2 INSERM), and in close collaboration with the group of Jacky G.Goetz (INSERM U1109, Strasbourg), that is specialized in imaging of tumor cells *in vivo*.

We are looking for a highly motivated post-doctoral fellow with a good track record. Ideally, the candidate should have validated a first post-doctoral stage with at least one publication as a first author (not more than 4 years post-*Ph.D.* studies).

The proposed work aims to unravel the role of blood platelets in metastatic dissemination. While a background in platelet biology is not essential, expertise in the field of cancer would be appreciated. Expertise in imaging and/or intravital microscopy would also be appreciated.

Job Description :

Platelets, which play a central role in the arrest of bleeding, were also proposed to support metastasis through an interplay with circulating tumor cells (CTCs). They could protect CTC from the immune system and induce epithelial-mesenchymal transition. In addition, platelets could facilitate CTC recruitment at the vessel wall and promote their extravasation to facilitate invasion of distant organs. The mechanisms involved in platelet-CTC interplay remain poorly understood and their identification will provide a basis to interfere with platelet-dependent CTC dissemination and thereby open new therapeutic anti-cancer avenues.

The main objective of this project is to characterize the role of platelets in tumor metastasis to propose new safe anti-cancer avenues. This stage will take places in Inserm research unit 949 (Strasbourg, France: www.u949.inserm.fr Director: Dr. Christian Gachet) under the supervision of Pierre Mangin (DR2 INSERM). The main research aim of U949 is to study the biology and pharmacology of platelets. The stage will be in close collaboration with the team of Jacky G.Goetz (CR1 Inserm; www.goetzlab.com) which is focused on tumor biomechanics and develops several state-of-the-art imaging techniques.

This work will unravel the mechanisms by which platelets participate in metastatic dissemination of breast and colon cancer. We will use *in vivo* models based on orthotopic injection of breast (E0771) and colon (MC38) cancer cells. Tumor growth and metastatic formation will be followed over time by bioluminescence imaging on the whole mouse body. Anatomic-pathological properties of the metastasis will be determined by histological methods. The role of platelets will be evaluated with antiplatelet agents and we will determine the role of several platelet receptors by using genetically-modified mice available in our animal facility. In addition, we will use numerous human and mouse cancer cell lines (MCF7, SKRB3, E0771...) to study *in vitro* and *ex vivo* their physical and functional interaction with platelets. Finally, intravital microscopy will be used to visualize in mice the interactions between platelet/tumor cells/endothelial cells as well as the role of platelets in tumor cell extravasation. The fellow will be responsible of conducting, in collaboration with experts in electron microscopy, correlative light and electron microscopy approaches for dissecting the role played by metastatic-prone platelets during arrest and extravasation of circulating tumor cells. Here, the multiple advantages of the zebrafish embryo (high number, transparency, stereotyped vasculature) will be exploited.

The perspectives of this work are to better understand the role of platelets in metastatic formation and to propose novel adjuvant anticancer strategies.

Main research field : Platelet Biology and Cancer Biology Biological sciences / Medical sciences

JOB DETAIL

Type of contract : Temporary
Status : Full-time
Company / Institute : Université de Strasbourg
Country : France
City : Strasbourg
Postal Code : 67000
Street : 4 rue Blaise Pascal

APPLICATION DETAILS (mandatory)

Envisaged job starting date : 01/04/2016
Application deadline : 01/06/2016
Application e-mail : pierre.mangin@efs.sante.fr