

POST-DOCTORAL POSITION AVAILABLE

Location: Paris, France

Cochin Institute, CNRS UMR 8104, INSERM U567

22 rue Méchain, 3rd Floor, Rm 306 75014 Paris

Cell Biology Department

Team 4 (Dr. Pierre-Olivier Couraud): Biology of the Brain Endothelium

Group (Dr. Julie Gavard): Cellular interactions within the vascular niche.

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Please send your CV and a cover letter.

Post-doctoral position opening: Summer-Fall 2009

The candidate will develop an independent project on the regulation of the endothelial barrier function in physiological and pathological conditions.

Expertise: Cell biology, Cellular Imaging, Molecular Biology, Biochemistry

Field: Angiogenesis, Cell Adhesion, Cell Signaling, Cancer, Stem Cells

Deadline application: 02/15/2009

Abstract:

Cancer progression is a complex process where cells acquire aberrant proliferative, survival and migratory properties, as well as the ability to trigger the formation of a dedicated tumor blood supply. There is now compelling evidence that the bulk of the malignant cells in cancers contained a rare fraction of self-renewing, multi-potent, and tumor-initiating cells, termed stem-like cancer cells (SLCCs), that constitute a reservoir to generate and/or maintain the tumors. Such as developmental or normal stem cells, "cancer" stem cells reside within a stem cell niche, which heterogeneous composition always contains a vascular structure.

In addition to the delivery of nutrients and oxygen, and to provide a circulating option for metastatic and inflammatory cells, the tumor blood vessels may therefore also form a specific and confined micro-environment where endothelial cells from the vascular wall and tumor stem cells from the tumor mass may interact. Indeed, the fact that stem-like cancer cells (SLCC) resides in close proximity of tumor blood vessels had led to the hypothesis of bidirectional exchanges between endothelial cells and SLCCs.

In line with these recent observations, we propose to explore the nature of the interactions between "cancer" stem cells and brain endothelium, and how this niche may impact both stemness properties and endothelial barrier function. Targeting cancer stem cell niches may thus represent new opportunity for treating cancer. Elucidating the mechanisms underlying normal and abnormal vascular function is an exciting and important area of current investigation as it may provide new targets for the treatment of many disease conditions, including cancer, ocular and inflammatory disorders, asthma, diabetes, acquired immunodeficiency syndrome, and bacterial infections.