

Postdoctoral position in: Laboratoire Micro & Nano Médecine Translationnelle (MINT)

Joël Eyer, Research Director INSERM.

Title: Microrobots Targeting Glioblastoma (MTG)

Glioblastoma multiform (GBM) is the most frequent and aggressive cancer of the nervous system with an averaged survival limited to 15 months. Classical anti-cancer therapies show poor efficacy for GBM because of their low specificity and toxic effect on healthy cells. We identified a peptide (NFL peptide), which enters specifically in all GBM tested, targets the entry of nanocapsules into GBM cells, and inhibits GBM cell division in vitro and in vivo on rats with a GBM tumor implanted in the brain (Bocquet et al. 2009, Berges et al. 2012, Balzeau et al. 2013). We also developed superparamagnetic microrobots carriers guided in real time by tri-axial Helmholtz coils systems. These microrobots are magnetically actuated and steered by a low-strength rotating magnetic field. This strategy provides a minimally invasive surgery together with an optimized concentration and delivery of therapeutic principle to the tumor, consequently lowering the toxic effects on healthy cells.

The objective of this project (Plan Cancer Inserm) is to functionalize microrobots with the NFL peptide in order to develop Microrobots Targeting Glioblastoma (MTG). These MTG filled with a fluorochrome will be tested in vitro for their capacity to target GBM versus healthy cells. Then, they will be injected intravenously in rats bearing a GBM tumor to evaluate their capacity to cross the blood-brain-barrier, to target the tumor, and to reduce its development when filled with cytotoxic products.

Candidates must be highly motivated and with strong working knowledge and expertise in **cell biology, microscopy and animal experimentation** to evaluate in-vitro and in-vivo the properties of these Microrobots and their capacity to target Glioblastoma. Candidates must have a Ph.D. in Cell Biology, Neurosciences, or a related discipline. The position is initially for 2 or 3 years and it is available **from the 1 December 2018**.

For application, please send:

- a curriculum vita;
- letters of three references;
- a letter describing research accomplishments and career objectives;

to: Dr. Joel Eyer

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