



Postdoctoral position

The aim of ENAMEP “Exosomes as innovative Nanomedicine Approaches to reverse obesity and its MEtabolic and Psychotic complications with specific targeting of the hypothalamus” project is to develop a “nanobiomedicine” approach to harness nanoscale cell-derived extracellular vesicles, namely exosomes, as “cargos” of specific therapeutic molecules. The aim is to deliver specific DNA in the hypothalamic area, modulating energy balance and tackling thermogenesis for the treatment of obesity. This can be obtained via specific inhibition of lipid metabolism targets in the ventromedial nucleus of the hypothalamus by the use of peripherally administered engineered exosomes. Controlling central regulation of obesity would spawn new strategies to monitor efficacy of therapy with minimal side effects. The use of engineered exosomes is the only way to target specific hypothalamic area by intravenous delivery, making them affordable for therapeutic use.

A major part of the project will be to produce engineered exosomes from immature dendritic cells in vitro and in vivo to be delivered specifically in the hypothalamic neurons loaded with targets of interest. The project will also investigate the in vivo effects of these exosomes in obese models (body weight, metabolic and cardiovascular consequences).

The project will involve signaling analysis using in vitro cellular and in vivo rodent models, including through a better knowledge on extracellular vesicles biology and engineering.

Geographical mobility: Europe

Start: 01/04/2020

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Applicants must hold a PhD in Biology/Molecular Biology/Physiology, be highly motivated, independent and senior enough to organize the work of technicians and integrate themselves into a team. A background in cardio-metabolism, cellular and molecular biology and experimental animal work are required, as is fluently spoken English and French. The candidate will work in an international and motivated, well-financed environment with modern equipment's.

The position is for 2 years.

In details applicants should have:

- Good knowledge in cell and tissue biology (cardiovascular and metabolic physiology)
- In-depth knowledge of cell signaling and molecular biology
- Expertise in techniques of cell imaging analysis and cell transfection and in vivo imaging “echocardiography”
- Expertise cell culture and cell biology, in particular plasma assays of metabolites and extracellular vesicles preparation, characterization and extracellular vesicles-associated biological activities.