



## CDD job offer – 1-year engineer contract on confocal microscopy and imaging analysis

### Environment

MSC-Med laboratory (CNRS and Université de Paris) has a consolidated expertise in extracellular vesicles (EVs), from their bioproduction and loading with drugs / nanoparticles to their characterization and therapeutic application in regenerative medicine and drug delivery (1-8).

The team obtained funding from Région Ile de France, Idex Université de Paris, and DRRT for launching the first facility in the Paris region dedicated to EVs. **IVETH facility is a center of expertise for research-grade production, engineering, purification and characterization of EVs.**

IVETH facility relies on innovative and high-throughput methods for EV production and isolation and their characterization in terms of content and activities (asymmetric flow field-flow fractionation - A4F-MALS, Raman and SERS imaging / spectroscopy, as well as high-content screening cytomic method for potency tests on recipient cells).

### Background

High-content screening is a multi-parametric technology allowing high-resolution microscopy combining automated fluorescence microscopy with automated image analysis to track the cellular morphology and intracellular parameters. It can analyze multiple cell parameters and thousands of individual cells simultaneously.

(Please see: <https://www.thermofisher.com/fr/fr/home/life-science/cell-analysis/cellular-imaging/high-content-screening/cellinsight-cx7-lzr.html>)

**Mission:** MSC Med and IVETH platform are looking for an engineer for setting high-content screening protocols using the equipment CellInsight CX7 LZR recently acquired. We are seeking an **extremely motivated rigorous engineer** to join our dynamic team and **participate to the exciting experience to launch a cutting-edge facility.**

**Profile:** cell biology, cell culture of mammalian adherent cells, fluorescence confocal microscopy, imaging analysis and teamwork skills are absolutely required. Expertise on high-content screening is desired but not mandatory.

**Starting date:** September 2021.

**Type of contract:** 1-year CDD

### Contact:

Amanda Sliva Brun, CR CNRS, [amanda.brun@univ-paris-diderot.fr](mailto:amanda.brun@univ-paris-diderot.fr)

Florence Gazeau, DR CNRS, directrice adjointe MSC, [florence.gazeau@univ-paris-diderot.fr](mailto:florence.gazeau@univ-paris-diderot.fr)

Kelly Aubertin, IR UP, Responsable scientifique plateforme IVETH, [kelly.aubertin@univ-paris-diderot.fr](mailto:kelly.aubertin@univ-paris-diderot.fr)

Hugo Salmon, MCF UP, [hugo.salmon@parisdescartes.fr](mailto:hugo.salmon@parisdescartes.fr)

### References from the team related to the topic:

- [1] A.K. Andriola Silva, R. Di Corato, T. Pellegrino, S. Chat, G. Pugliese, N. Luciani, F. Gazeau, C. Wilhelm, Cell-derived vesicles as a bioplatfrom for the encapsulation of theranostic nanomaterials, *Nanoscale*, 5 (2013) 11374-11384.
- [2] A.K.A. Silva, J. Kolosnjaj-Tabi, S. Bonneau, I. Marangon, N. Boggetto, K. Aubertin, O. Clément, M.F. Bureau, N. Luciani, F. Gazeau, C. Wilhelm, Magnetic and photoresponsive theranosomes: Translating cell-released vesicles into smart nanovectors for cancer therapy, *ACS Nano*, 7 (2013) 4954-4966.
- [3] A.K. Silva, N. Luciani, F. Gazeau, K. Aubertin, S. Bonneau, C. Chauvierre, D. Letourneur, C. Wilhelm, Combining magnetic nanoparticles with cell derived microvesicles for drug loading and targeting, *Nanomedicine: Nanotechnology, Biology and Medicine*, 11 (2015) 645-655.
- [4] A.K. Silva, R. Di Corato, F. Gazeau, T. Pellegrino, C. Wilhelm, Magnetophoresis at the nanoscale: Tracking the magnetic targeting efficiency of nanovectors, *Nanomedicine*, 7 (2012) 1713-1727.
- [5] M. Piffoux, A.K. Silva, C. Wilhelm, F. Gazeau, D. Taresté, Modification of extracellular vesicles by fusion with liposomes for the design of personalized biogenic drug delivery systems, *ACS nano*, 12 (2018) 6830-6842.
- [6] M. Millard, S. Posty, M. Piffoux, J. Jasniewski, H.-P. Lassalle, I. Yakavets, F. Gazeau, C. Wilhelm, A.K. Silva, L. Bezdetsnaya, mTHPC-Loaded extracellular vesicles significantly improve mTHPC diffusion and photodynamic activity in preclinical models, *Pharmaceutics*, 12 (2020) 676.
- [7] I. Yakavets, A. Francois, L. Lamy, M. Piffoux, F. Gazeau, C. Wilhelm, V. Zorin, A.K. Silva, L. Bezdetsnaya, Effect of stroma on the behavior of temoporfin-loaded lipid nanovesicles inside the stroma-rich head and neck carcinoma spheroids, *Journal of Nanobiotechnology*, 19 (2021) 1-18.
- [8] A Pinto, I Marangon, J Méreaux, A Nicolás-Boluda, G Lavieu, C Wilhelm, L Sarda, A K A Silva, M Pocard\*, F Gazeau\*. Immune Reprogramming Precision Photodynamic Therapy of Peritoneal Metastasis by Scalable Stem Cell Derived Extracellular Vesicles". *ACS Nano*, just accepted, 10.1021/acsnano.0c09938