



Characterization, phenotyping and quality control of extracellular vesicles bioproduction by single-molecule localization microscopy (SMLM)

Extracellular vesicles (EVs) are cargo carriers, secreted by cells and playing a role in their communication. There are multiple types of EVs categorized by size, biogenesis and function. EVs are present in all biofluids and are tracked as biomarkers or use as therapeutic tools. One of the strongest need in the field of EVs research, is to provide detailed and reproducible characterization of size, biomarkers and morphology.

The company Abbelight and the laboratory MSC, with its IVETH platform, started a collaboration to develop methods and solutions for imaging and analyze EVs with super-resolution microscopy (SMLM).

Optimization of parameters for super-resolution imaging of EVs will be done by using calibration tools, notably by employing synthetic lipid vesicles with a similar size (LUVs). Those results will be useful to optimize and chose EV markers to discriminate and characterize subpopulation. A comparative study will be run with different analytical tools present on the IVeth platform.

We are looking for a master student to support this project. The candidat would be trained at Abbelight on SMLM and work on the IVETH platform. Expertise in super-resolution microscopy is not necessary but knowledge in molecular biophysics, biochemistry and/or physics is much appreciated.

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