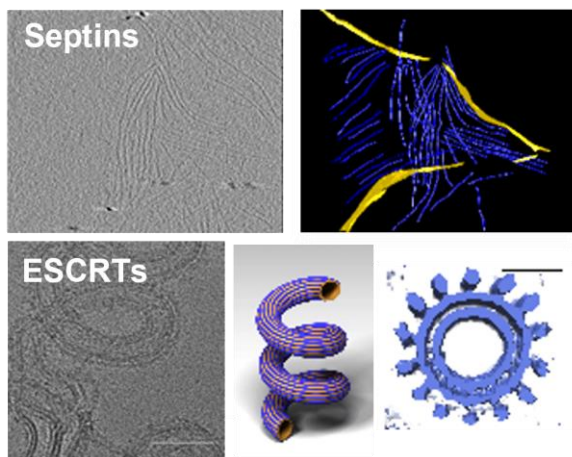


Characterization of the mutual interaction and organization of septin and ESCRT proteins



Joint Supervision:

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Project description :

Septins and ESCRTs are ubiquitous filamentous proteins in eukaryotes, essential for numerous cellular processes including cytokinesis and both involved in membrane remodeling. They localize at the cleavage furrow during cell division. Both septins and ESCRTs are essential the last step of cell division where cells split into two. Septins are recruited prior to ESCRTs. The final scission (abscission) requires the concentration of ESCRT-III filaments at the abscission site.

In the present work, we propose to understand the mutual interplay between the septin cytoskeleton and the ESCRT-proteins both in vitro and in situ, at different scales.

Methodologies: biochemistry, biophysics and structural biology (reconstitution bottom-up assays using lipidic membrane of various sizes and geometries (Supported lipid bilayer, small and large unilamellar vesicles and Giant vesicles), cryo-electron microscopy and tomography, fluorescence microscopy, microfluidics tools).

The project can be adapted to the skills and motivations of the candidate.

CVs, motivation and reference letters can be sent to stephanie.mangenot@u-paris.fr and aurelie.bertin@curie.fr

Significant publications related to the proposed project:

Beber et al Nature commun. 2019 (<https://doi.org/10.1038/s41467-019-08344-5>)

Bertin et al Nature commun. 2021 (<https://doi.org/10.1038/s41467-020-16368-5>)

The project will be carried out in collaboration with A. Echard (I. Pasteur) and W. Wissenhorn (IBS)

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