

Single-molecule fluorescence microscopy for the characterization of Microtubule-severing enzymes

WILFRIED GRANGE (BIOSOFT TEAM, PI : P. HEBRAUD)
INSTITUT DE PHYSIQUE ET CHIMIE DES MATERIAUX DE STRASBOURG
E-MAIL : WILFRIED.GRANGE@IPCMS.UNISTRA.FR
<http://biosoft-ipcms.fr/>

Background

Microtubules (MTs) are components of the cytoskeleton required for many cellular functions including chromosome segregation (mitosis and meiosis), polarity, nucleus positioning, morphogenesis, motility and cell signaling. MTs constantly oscillate between rapid phases of polymerization, via their plus-ends and shrinkage of their minus-ends. This dynamics is controlled by microtubule-associated proteins, which are interacting with the microtubules ends. Another class of enzymes, which regulate microtubules, comprises the Microtubule-Severing Enzymes (MSE). Those are unique by their ability to interact directly with the MT lattice.

Project

To characterize the function of MSE, we propose to use a unique single-molecule fluorescence set-up. The successful candidate will participate in (i) the alignment and characterization of the set-up (ii) the design of microfluidic devices and (iii) test experiments involving MTs.