

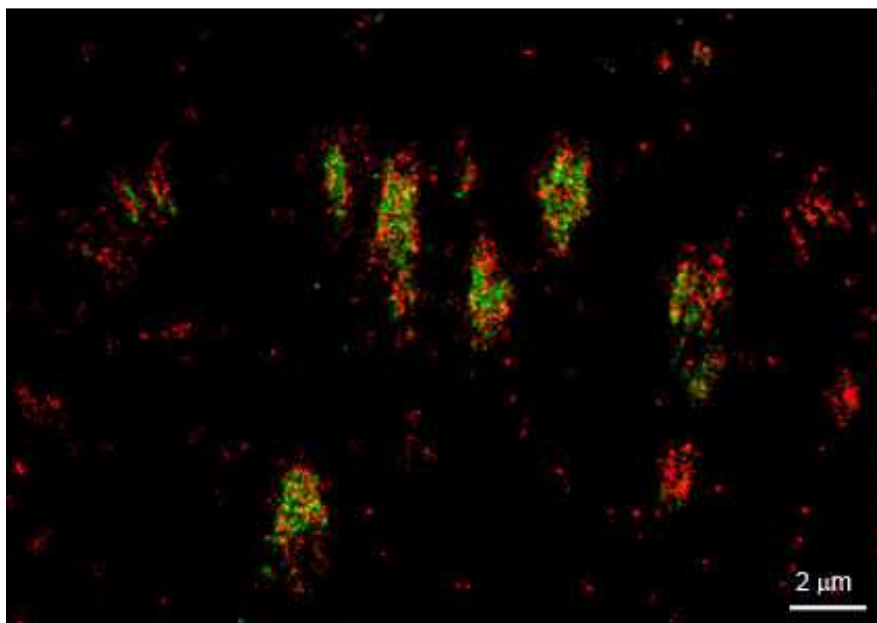
Bottom-up Molecular Assembly of Cellular Focal Adhesion-Associated Proteins at Nanopattern Membrane Interfaces



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This project aims to gain insight into the organization of cellular focal adhesion –associated proteins at nano-pattern membrane interfaces. We hypothesize that the specific organization of hundreds of molecules relative to one another in a functional architecture is a key determinant of the function of such multi-protein complexes. To gain insights into *the spatial organization and stoichiometry* we are performing in situ imaging and analysis of the organization of protein pairs as a function of the nanopattern membrane interface. We realize this by using super-resolution technique PALM (PhotoActivated Localization Microscopy) that improves the resolution of 10- 20 times with respect to conventional fluorescence microscopy. Our instrument is axially stabilized, while chromatic aberrations are minimized with adequate image registration method and by the use of high end Adaptive Optics (AO that improves the quality of the Point Spread Function (PSF) of the microscope. PALM has the potential to gather massive collection of biochemical and molecular data on protein-protein interactions into a structural and stoichiometric context essential for their interpretation.

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