



Carballido-López Lab - Prokaryotic Cell Development

Micalis Institute, INRA Jouy-en-Josas, France



Post-doctoral or engineer positions:

Dynamics and ultra-structure of the actin-like MreB cytoskeleton in bacteria using high spatio-temporal resolution fluorescence microscopy (PALM, FCS)

A post-doctoral or engineer position (depending on the applications received) is available immediately in our research group “Prokaryotic Cell Development” at the Micalis Institute (a mixed research unit INRA-AgroParisTech-Paris-Saclay University from the Microbiology Department of the INRA). Our lab is located in Jouy-en-Josas, in the Paris area (20 km south-west of Paris and 7 km east of Versailles).

Scientific environment. We study emerging questions in the fields of bacterial cell morphogenesis and the bacterial cytoskeleton using a combination of high-resolution fluorescence microscopy with powerful genetic, genomic, biochemical, biophysical and systems biology approaches. We are a well-funded lab with international character and a dynamic atmosphere in which collaborations and initiative are welcome. Our working language is English.

Background and context. Mechanistic understanding of bacterial morphogenesis requires further information on the spatial and temporal organization of its key players. We propose to expand our toolbox of high-resolution fluorescence-based approaches and implement photoactivated localization microscopy (PALM) and fluorescence spectroscopy (FCS) to go beyond the state-of-the art and obtain spatiotemporal resolution of membrane-associated proteins in bacteria at unprecedented levels.

Missions. The position is available within the context of a recently obtained European ERC Consolidator grant. The hired fellow will be in charge of analysing the dynamics of MreB and cell-wall biosynthetic proteins and investigating the ultrastructure of MreB assemblies using high temporal resolution (spt-PALM and FCS) and super-resolution microscopy (SIM/TIRFM, and 3D-PALM). MreB assemblies below the diffraction limit will be characterised using functional native photoconvertible fusions to MreB (already generated by our lab) both in fixed and in living cells and spt-PALM and 3D-PALM. The complex dynamic modes of MreB and associated proteins will be characterized by implementing a novel approach in microbiology based on TIRF-FCS imaging.

Skills and position details. This ERC-funded position is available for a start any time between spring and autumn 2019, for a period of 3 years (initial contract of 1 year, renewable for 2 additional years).

Candidates should hold a PhD in biophysics or in cellular or molecular biology with solid experience in advanced fluorescence imaging. Experienced and autonomous skilled biophysicist with a Master degree will also be considered. Strong theoretical and practical experience in SMLM/SIM/TIRF (demonstrated with a good publication record) and/or in FCS is mandatory. Experience in image analysis or coding, and/or in cellular (micro-)biology will be appreciated. Candidates are expected to be highly motivated, able to work autonomously and possess excellent interpersonal and communication skills to work within our interdisciplinary team involving microbiologists, geneticists, microscopists and a bio-image analyst. Our lab possesses several imaging systems including 2 super-resolution microscopes.

How to apply: Interested applicants should send: (a) a letter stating their motivation, (b) their CV and (c) the contact details for 3 references to rut.carballido-lopez@inra.fr. Please send your application as a single PDF document and state ‘Postdoc/Engineer BACTIN application’ in the subject of your email.

You can visit our website for further details: https://www.micalis.fr/micalis_eng/Poles-and-teams/Pole-Systems-and-Synthetic-Microbiology/Prokaryotic-Cell-Development-Rut-Carballido-Lopez

