Postdoctoral POSITION

Plant root membrane receptor complexes

A 2-years post-doctoral position is open in the frame of an ANR project aiming at identifying and characterizing interactors of membrane proteins involved nitrogen-fixing root nodule symbiosis in legumes.

Two genes encoding membrane proteins (a receptor-like kinase and a receptor-like cytoplasmic kinase) essential for establishment of the root nodule symbiosis in the legume *Aeschynomene evenia* have recently been identified (1). One of the objectives of the SYMWAY project is to identify their interacting proteins using proximity labeling and phosphoproteomic approaches, in order to better understand their roles in protein complexes at the plasma membrane and downstream signaling pathway(s). As preliminary cloning having been made, you will start with production of material for mass spectrometry. You will then analyze the mass spectrometry results in order to identify the best candidates and validate the interactors by FRET-FLIM, co-immunopurification and in vitro transphosphorylation assays. You will test in parallel interactions with proteins known to play a role in root nodule symbiosis and/or identified by an ongoing forward genetic screen in *Aeschynomene evenia*. Finally, you will perform a functional characterization of the new genes identified.

You will be hosted in the laboratory of plant-microbe-environment interactions (https://www.lipme.fr) on the INRAE campus of Auzeville-Tolosane, France. You will interact with the proteomic platforms of Toulouse for Proximity labeling and of Montpellier for phosphoproteomics. You will have access to an on-site microscopy platform. You will benefit from local expertise on protein-protein interactions (2-3) and on plant-microorganism interactions. The project will be carried out in close collaboration with the Jean-François Arrighi’s team in Montpellier (coordinator of the SYMWAY project, PHIM, https://umr-phim.cirad.fr).

Ref : (1) Quilbé et al., 2021 Nature comms. doi.org/10.1038/s41467-021-21094-7; (2) Mbengue et al., 2010 Plant cell. doi.org/10.1105/tpc.110.075861; (3) Fliegmann et al., 2016 FEBS Letters. doi.org/10.1002/1873-3468.12191.

Skills in membrane protein biochemistry and molecular biology are expected (immunodetection, subcellular fractionation, protein purification, analysis of data from mass spectrometry, *in vitro* phosphorylation assays and cloning). Skills in microscopy and knowledge on root symbioses would be appreciated.

To apply, send a motivation letter, a CV and references to: boenit.lefebvre@inrae.fr, until July 31st.

For more details: https://jobs.inrae.fr/en/ot-15496