

ANR Funded Doctoral Contract

TITLE :

Studying the crosstalk between iron homeostasis and plant immunity

KEY WORDS : nutrition, defense responses, iron, Arabidopsis, genetics

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ABSTRACT

Iron (Fe) is an essential micronutrient for all living organisms. Therefore, organisms have evolved highly efficient mechanisms to acquire Fe and often compete for Fe acquisition. Such competition occurs in the context of microbial infection, whereby the host restricts Fe availability to the invading pathogen, a defense strategy known as nutritional immunity. The signaling mechanisms involved in plant nutritional immunity have not yet been deciphered. In a screen for mutants affected in Fe homeostasis, we have identified a dominant mutation affecting a gene encoding an LRR receptor involved in plant immunity. The objective of the PhD project supported by the ANR project Immuniron is to characterize the role of this receptor in Fe homeostasis and in the cross talk between Fe homeostasis and immunity. The PhD candidate will investigate the molecular mechanisms underlying the effect of mutations in the LRR receptor on Fe nutrition using a wide array of approaches including genetics, transcriptomics, metabolomics and interactomics. The project is expected to shed light on the molecular basis of the cross talk between Fe homeostasis and the immune response.

PROFILE

The candidate should hold a Master degree or equivalent in Biology have basic knowledge in plant molecular biology and be able to present his work in English. She/he should be motivated to work in an international team and to interact with collaborators and technological platforms. Previous experience in plant nutrition or phytopathology would be helpful but is not a requirement.

Applications are welcome on the ADUM portal

(https://adum.fr/as/ed/voirproposition.pl?site=PSaclay&matricule_prop=50994#version) until September 29, 2023

Expected starting date December 1st, 2023