

EPIMAIZE

Innovative Tools to Study Trans-generational Epigenetic Inheritance in Maize

ABSTRACT

In this project, we will use a set of resources collectively developed by our labs to advance our understanding of paramutations from two perspectives. First, we will use the materials developed by the Mexican team and the expertise of the Montpellier lab in maize reproductive biology to analyze the importance of epigenetic regulatory pathways acting during reproduction in establishing paramutations. This implies the isolation and epigenomic characterization of plant germ cells, both of which require highly trained personnel, which can be found in the IRD group. Second, we will implement state of the art CRISPR-based cell biology protocols and hyper-resolution microscopy to study the role of nuclear architecture in paramutations in maize, taking advantage of methodologies developed in the host lab and the excellent imaging platforms available in Montpellier for advanced cell imaging. The project will result in significant, novel information on the mechanisms underlying paramutations and TEI, highly valuable datasets regarding plant germ cells, and significant publications in the field. The project could also easily be linked to the Agropolis foundation-funded COFEDIT project (Coffee genetic engineering based on genome editing using CRISPR-Cas9 technology: a cutting-edge tool for functional analysis and breeding). Interestingly, the COFEDIT project leader, Jean-Christophe Breitler, will soon be posted in Xalapa, Mexico, where fruitful interactions with M Arteaga are likely in the future.

Year : 2016

Project number : 1502-307

Type of funding : AAP

Project type : AAP MOBILITE

Research units in the network :

Start date : 2017-08-01

End date : 2018-07-31

Flagship project : no

Project leader : Daniel Grimanelli

Project leader's institution : IRD

Project leader's RU : DIADE

Budget allocated : 19872 €

Total budget allocated (including co-financing) : 19872 €

Funding : Labex