

Platform REFUGE

An international functional genomics platform using rice as a model species: the rice functional genomics platform (REFUGE)

ABSTRACT

The objective of the Refuge platform is to make available to the plant science community of Agropolis units and their partners from the North and the South the molecular, biological and bioinformatic tools and resources existing in the model cereal crop, rice, for the functional analysis of genes of agronomic relevance. The Agropolis Fondation support allowed the hosting of research projects in a flexible legal and financial framework, the hosting being first based on the scientific quality and feasibility of the project examined by an international scientific committee set up early in the project. The originality of the programme was also a complete handling and follow up of the biological materials produced on the platform between two successive hosting of a visitor, which is very adapted for a PhD thesis work time table.

By the end of december 2012, 32 scientific projects and 4 methodological trainings have been hosted totaling 80 cumulated months of presence of the visitors with an average visit of 9.2 weeks per project. Two-third of these 36 projects were carried out by PhD (24) and master (1) students and the remaining one third by post doctoral or permanent scientists (11), overall gathering 20 different nationalities. Two-third (64%) of the visitors originated from countries from the South (50%) or emerging countries (14%). Their cumulated presence represented 80% of the 80 months of hosting provided by the platform. Two-third of the projects have been conducted by students and scientists not residing in Agropolis units. Half of the projects were new collaborations, their establishment being related to the opening of the platform. 17, 12, 3 and 1 projects targeted genes involved in abiotic stress tolerance, biotic stress resistance, developmental processes and grain quality, respectively. The 3 remnant hostings aimed at methodological training without biological focus. 22 projects included gene transfer for functional analysis. Altogether, 174 gene constructs have been introduced in 4,200 plants in the frame of the programme. 10 journal articles have been published over the reporting period. 26 other articles are either submitted, being prepared or expected. 7 theses have been defended with the support of the platform. 17 new defences are expected in the coming 1-2 years. At the end, 24 theses would have been defended with the platform support. Improvement of the methods implemented on the platform was another objective of the programme. Part of those has been conducted internally notably in setting up a faster transformation protocol and a Q-PCR based method for the early detection of number of T-DNA integrations in primary transformants. Another part has been conducted in the frame of research contracts carried out by the permanent staff of the platform and aiming at an precise manipulation of the rice genome (Three projects funded by ANR and the Bill and Melinda Gates foundation). Last, equipments and softwares (QuickR and LIMS) improving the flow and the tracking of the materials and information generated by the projects of the platform have been set up, allowing an accreditation.

Keywords : 1. Exclu de la photothèque

Year : 2008

Project number : 0801-005

Type of funding : AAP

Project type : AAP

Research units in the network : BPMP DIADE IPME-PHIM

Start date : 2009-01-01

End date : 2012-12-31

Flagship project : no

Project leader : Emmanuel Guiderdoni

Project leader's institution : CIRAD

Project leader's RU : AGAP LGDP

Budget allocated : 328640 €

Total budget allocated (including co-financing) : 328640 €

Funding : RTRA

PERSPECTIVES

The accomplishments of the pilot phase of the Refuge platform has fully confirmed the high interest that the local and international scientific communities placed in its existence while précising with the help of the scientific committee ways for possible improvement in a future second phase of the programme. Even though the modalities of support can be adjusted regarding the North vs. South origin of the hostees and a permanent technician position has been recently open at Cirad, the future of the platform will still rely on the new application of functioning support to funding agencies. This assessment will be presented to funding agencies in 2013, for hopefully preparing a new phase of hosting that would fully resume in 2014. Beyond the projects of functional analysis, the hosting set up for the Refuge programme may well serve, following a critical analysis of the pilot phase and in adjusting some modalities, as a model to be extended to other scientific areas at Agropolis (as an example the hosting of international students in the frame of the programme of analysis of genetic resources ArCAd).