Station de Génétique
et Amélioration des Plantes

Post-doctoral Fellowship at INRA

« Role of F-box proteins in Arabidopsis gametophytes development : analysis of gametophytic mutations »

Location:
Station de Génétique et d'Amélioration des Plantes- UR 254-Institut Jean-Pierre Bourgin, INRA
Route de Saint Cyr, 78026 Versailles Cedex

Summary:

The Ubiquitin Proteasome System (UPS) pathway plays a major role in eucaryotes development regulation, through the selective degradation of target proteins that are no more needed for the cell or that are defectuous. A large portion (5%) of the Arabidopsis genome is predicted to encode for structural elements of this pathway, and in particular, almost 700 F-box protein genes have been reported (Vierstra, Trends Plant Sci, 2003). F-box proteins are key elements in the target recognition step prior to degradation, and the role of some of them has been established in floral development, auxin (and other hormones) signaling pathways, photomorphogenesis, stress response and self-incompatibility (for review: Lechner et al, Curr Opin Plant Biol, 2006). Substrates targeted by these F-box proteins often remain to be discovered. From transcriptomic data studies and previous work in the laboratory, we suspected that the UPS pathway is also involved in the regulation of both male and female gametophyte development – the haploid phases that take place following meiosis and prior to fertilization. We have set up a screen for Arabidopsis gametophytic mutant lines impaired in genes encoding factors of the UPS pathway. Putative gametophytic mutants were scored, which affect genes that encode F-box proteins. Our objective is to gain access to the substrates/targets of these F-box proteins.

The opening postdoc position will focus on two F-box protein genes for which T-DNA insertion mutants have been scored that show a transmission defect of their insertion to the progeny. Allelic mutants will be studied, along with mutations in genes encoding similar proteins if this happens to be necessary. Mutant characterization includes the description of the gametophytes phenotypes and functionnal complementation. In the second year, the objective is to identify the targets of at least one of the F-box proteins studied, by searching its molecular interactants.

Candidate profile :
Applicant should possess a Ph.D. degree in Plant Biology with prior experience in plant genetics and molecular biology. A practical experience of plant cytology and/or biochemistry will be appreciated.

This position is open only for non French citizens.
Funding : INRA Department of Genetics and Plant Breeding
Duration : 2 years ; Start : september 2008 the soonest
Gross salary: 2200-2500 €/month

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