

**Year of CfP: 2010**

**Project 1002-009**

<b>Project title:</b> Role of active retrotransposons (RT) In <i>Coffea canephora</i> and <i>C. Arabica</i> Genome Evolution
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**Unit managing the project:** UMR DIADE Diversity, adaptation and development of plants (IRD, UMII)

**Project leaders:** de Kochko Alexandre (alexandre.dekochko(a)ird.fr)

**Countries involved in the project:** Brazil & Uganda

**Subthematic axes:** IPB-1 (Integrative Plant Biology 1: *Genetics and genomics, plant breeding, ecophysiology*)

**Objectives:**

The scientific objective of the project is to identify active retrotransposons (RTs) among the *C. canephora* and the *C. arabica* genomes and to use these particular elements to better define the genetic structure of the species and asses alleged role of *C. canephora* as a parental species of *C. arabica*. We will focus on one class of Transposable Elements (TEs), those belonging to type 1, which moves through an RNA intermediate according to a "copy and paste model". It has been shown that the movement of such elements can be induced by different type of stresses, biotic or abiotic. It is also this type of elements that will introduce differences in isogenic lines or clones and permit an individual and precise identification through fingerprinting.

We will identify such mobile RTs using available sequence data, genomic and transcriptomic, and analyze plants submitted to different stresses susceptible to induce their movement.

The identification of such elements will provide an extremely valuable tool for the survey of any coffee tree pedigree constituting thus a powerful tool of traceability and for the definition of interesting genotypes to be included in breeding programs. It will also allow a better view of recent genome dynamics, help the prediction of their movement and thus allow a better targeting for the search of genetic diversity.

**Total Agropolis Fondation funding:** €20,000

**Funding categorie(s):** Study missions for Post-doc students and researchers

**Project duration:** 1 February 2011 - 1 March 2013

**Keywords:** *Coffea*, retrotransposons, genetic diversity, phylogenetic relationships, genome dynamics, traceability