

Institut Jean-Pierre Bourgin

## Séminaire

Lundi 29 janvier 2018, à 14h00

**Pr. Oren Ostersetzer-Biran***(The Hebrew University of Jerusalem, Israël)*

### **Plant mitochondria group II introns splicing: A window into the evolution of the nuclear spliceosomal machineries**

Mitochondria serve as principal sites for cellular energy metabolism and play pivotal roles in the biosynthesis of many essential metabolites for the (plant) cell. As dependences of a free-living organism, mitochondria contain their own genome, the mtDNA. Plant mitochondria are remarkable with respect to the presence of numerous group II introns. The removal of the introns from the coding sequences is essential for respiratory functions. While the splicing of group II introns *in vivo* is facilitated by maturase factors, canonical group II introns are catalytic RNAs that are able to excise themselves from their pre-RNA hosts *in vitro*, in the absence of the protein cofactors, using a mechanism identical to that utilized by the spliceosome. Structural analyses and phylogenetic data may indicate that the spliceosomal RNAs have evolved from group II intron-related ancestors. Yet, it remains unclear how could such general players in spliceosomal splicing evolve from the monospecific bacterial systems (i.e. a group II intron RNAs and their highly specific intron-encoded maturase factors). Analysis of the organellar splicing machinery in plants may provide us with important clues into the evolution of the nuclear splicing machineries. The ability of the mitochondrial maturases in plants to act on different intron targets further support the notion that the early organellar self-splicing and mobile group II RNAs spread in the eukaryotic genomes and later 'degenerated' into the universal splicing system, known as the spliceosome. The similarities between maturases and the core spliceosomal factor, Prp8, may support this intriguing hypothesis.

[Oren Ostersetzer-Biran webpage](#)

Invité par **Hakim Mireau**

Ce séminaire aura lieu dans l'amphithéâtre de Versailles Bât.10