



# Seminar(i)

## Adaptation to natural and urban environments: a transposable element perspective

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How organisms adapt to the environment is still an open question in Biology. Whole-genome short read sequencing has allowed to explore the role of single nucleotide polymorphisms (SNPs) in environmental adaptation. However, SNPs alone can only explain a fraction of the existing ecologically relevant phenotypic variation. Among the structural variants that can now be studied, thanks to the availability of long-read sequencing, transposable elements are likely to play a major role in adaptation due to their capacity to generate mutations that often have phenotypic effects of a complexity that is not achievable by single point mutations. In our lab, we investigate the contribution of transposable elements to environmental adaptation in *Drosophila melanogaster*, a species that has recently colonized very distinct environments, and to urban adaptation in *Anopheles coluzzii* mosquitoes. We have generated *de novo* reference genomes for the two species and we have *de novo* annotated transposable element insertions in these genomes. For *D. melanogaster*, we have also generated transcriptomes and epigenomes and we have used genome editing to unequivocally linked the identified adaptive insertions to their relevant fitness-related effect. We are currently analysing >200 *Anopheles* genomes with the final goal of identifying new candidate genes to design vector control strategies.

**WHERE?** Seminar room – SS6 (Institutes bldg. floor -1)

Presencial

**WHEN?** Thursday 09/03/2023 – 12:00 h

**LANGUAGE?** English