

Company or University + lab: University Orléans (FRANCE), Lab P2e (Physiology, Ecology Environment)

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Supervisor (to be contacted for applying):

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(<https://www.univ-orleans.fr/en/p2e/teams/trees-and-responses-hydric-and-environmental-constraints>)

Internship title: Integrative multi-Omic analysis for priming potential in a model forest and cultivated tree species: poplar.

Keywords: Data analysis from Epigenomics and Transcriptomics, NGS data analysis (Long reads and WGBS), integrative statistical analysis and modelling

Internship description (½ page à 1 page) :

The P2e laboratory is conducting research into the epigenetics of trees in response to climate change, integrating ecophysiology, biochemistry, genetics and genomics. The ANR EPITREE project had explored the impact of this epigenetic mark on the adaptation of trees such as poplar. An M2 internship is proposed to focus on the integrative bioinformatic, and statistical modelling of omics data obtained in collaboration with specialists in relation to a European network.

A multi-omics analysis will be done such as MIXoMICS. Methylome (WGBS and sequence capture bisulfite), RNAseq data (long reads oxford nanopore) and bacteriome NGS data will be available. A RNAseq analysis pipeline will be prepared according to nanopore recommendations (gene expression, differential expression, RNA splicing). These candidate genes will have to be compared with the methylome data (pipeline already available) and carry out several other analyses such as GO enrichment or gene network analyses to extract a biological interpretation in conjunction with the phenotyping data. Statistical analyses will be carried out and high-quality graphs produced using R with a view to publication.

Salary or allowance: 3800 euros for the 6 months (633 euros per month).