

Postdoc position available:

Exploiting natural epigenetic variation for tomato improvement

Applications are invited for a Postdoctoral Researcher to join our team at the Institute of Plant Science (IPS2) within the Paris-Saclay University.

The Plant Quantitative Genomics and Epigenomics laboratory ([Q-Lab](#)) investigates the contribution of transposable elements (TEs), together with the epigenetic mechanisms that control their activity, to the generation of heritable phenotypic variation. We use plants as models to address questions at the whole genome level through molecular, genetic, and computational approaches.

The project: Tomato is a major crop cultivated worldwide and a fleshy fruit plant model for biologists. Its genome contains large heterochromatic regions densely populated by transposons, which are typically silenced by DNA methylation. This epigenetic modification can also affect the expression of nearby genes and heritable variations in DNA methylation, known as epialleles, were recurrently observed in plants and with notable phenotypic effects. The successful candidate will investigate the extent and molecular pathways underlying natural epigenetic variation in tomato by obtaining and exploring the methylomes of a broad panel of non-domesticated and commercial cultivars. The contribution of this variation to phenotypic diversity will also be characterized. The ultimate goal of this project is to provide key knowledge to harness the potential of epigenetics for crop improvement.

We are seeking a person with a strong background in epigenomics. Experience in quantitative genetics and plant biology will be a plus. This position is fully supported by an ANR grant, starting by as early as January 2022. The contract is for two years with possibility of extension.

Applicants should send a CV and a cover letter summarizing their experience and motivation to Leandro Quadrana (leandro.quadrana@bio.ens.psl.eu). They should also arrange to have a least two letters of reference sent to this address.

References:

- Baduel P, Leduque B, Ignace A, Gy I, Gil Jr. J, Loudet O, Colot V, Quadrana L. Genetic and environmental modulation of transposition shapes the evolutionary potential of *Arabidopsis thaliana*. **Genome Biology**. 2021 22, 138
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- Domínguez M, Dugas E, Benchouaia M, Leduque B, Jiménez-Gómez JM, Colot V, Quadrana L. The impact of transposable elements on tomato diversity. **Nat Comm**. 2020 Aug 13;11(1):4058.
- Quadrana L, Colot V. Plant Transgenerational Epigenetics. **Annu Rev Genet**. 2016 50, 467-491
- Quadrana L, Almeida J, Asís R, Duffy T, Dominguez PG, Bermúdez L, Conti G, Corrêa da Silva JV, Peralta IE, Colot V, Asurmendi S, Fernie AR, Rossi M, Carrari F. Natural occurring epialleles determine vitamin E accumulation in tomato fruits. **Nat Comm**. 2014 Jun 26;5:3027