

GENERAL POLICY OF THE EPIGENOMIC AND TRANSLATIONAL RESEARCH PLATFORM ON PLANTS (EPITRANS)

The epigenomic and translational research platform has been a collective scientific infrastructure of INRAE⁽¹⁾ since 2018 and has held the IBISA⁽²⁾ and CNOC⁽³⁾ labels since 2008 and 2012 respectively.

Against a backdrop of global warming and climate change, one of the major challenges facing world agriculture is the development of resilient plants able of feeding the world's growing population. To meet this challenge, natural and induced genetic resources represent a considerable reservoir of allelic variability. Combined with recent discoveries of multiple genetic and epigenetic regulators controlling key aspects of plant development and their interactions with their environment, new possibilities for plant improvement are opening up. The EPITRANS platform mission is to cross these 2 approaches, by transferring results from fundamental research into traits of interest in several cultivated species on a more systematic basis.

Our main tasks are as follows:

1. To explore, create and exploit genetic and epigenetic variability in cultivated plants.
2. To develop innovative genomics and epigenomics tools and continuously improve them.
3. To share our know-how and products available to the academic and industrial scientific community, to help them with their plant genetic investigation and improvement projects (skills transfer and consultancy).

The EPITRANS platform is a Collective Scientific Infrastructure, regularly assessed by INRAE. We are continuing our efforts in 2024 to respond to the recommendations made by the *ad hoc* committee, in particular by setting up a scientific council.

To assure the human resources and a stable workforce, 1 recruitment was done in May 2024 for 13 months.

With IBISA funding, jointly with the IPS2 transcriptomics platform, a PromethION 2 sequencer (Oxford Nanopore Technologies) was purchased to explore new strategies of screenings.

The transfer of skills from the research team to the platform continues, in particular for the DAP-seq and ATAC-seq protocols.

We are committed to opening up our services* to the widest scientific community, both national and international, academic and private, taking into account our capacities. We are also very concerned about the satisfaction of our customers and partners, which is why the platform has been Iso9001 v2015 certified since 2021 by AFNOR. The certificate was renewed in April 2024 by AFNOR company.

*List of services offered by EPITRANS :

- Forward genetics: positional cloning.
- Reverse genetics: mutagenesis, TILLING, EcoTILLING, CRISPR/Cas9 genome editing.
- Epigenomic analyses to identify new functions superimposed on DNA sequence information (DAP-seq and ATAC-seq).
- Sequencing of the genomes of plants of interest and gene annotation.

- Identification of candidate genes for traits of agronomic interest.
- Training and advice in our areas of expertise.
- Transfer of tools and skills.

- (1) *Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement, premier institut de recherche agronomique en Europe, deuxième en sciences agricoles dans le monde*
- (2) *Infrastructures en Biologie Santé et Agronomie*
- (3) *Commission Nationale Outils Collectifs de l'INRAE*

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