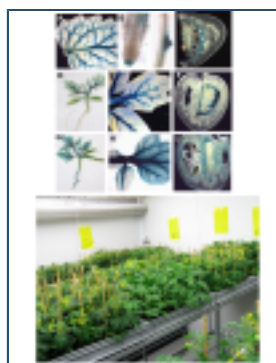# Facilities in the GBF laboratory

Reverse genetics and Plant transformation

Julien Pirrello, Lydie Tessarotto Lemonnier, Dominique Saint-Martin

As the rapid development in plant genomics research identifies more genes potentially involved in the devellopment and maturation of tomato fruit, their functional analysis relies on strategies such as complementation, overexpression, gene silencing or promoter GUS/GFP fusion. Plant genetic transformation is a critical technology required in the application of these strategies.

Tomato agrobacterium-mediated transformation is routinely used in our laboratory and we have acces to controlled environment growth facilities, containment glasshouses suitable for GM trials.

Bioinformatics

Eli Maza, Anis Djari, Margo Zahm, Clément Folgoas. Leader: Mohamed Zouine

 The goal of the GBF-Bioinformatics team is to generate digital tools and resources for the need of all GBF projects. Through Local, National, EU and International collaborations, significant and useful tools and resources for the tomato community have been generated. See more here...

Transcriptomics

Pierre Frasse, Alexandra Legendre

Microarray:
This tool is implemented in all the projects developed in our laboratory and help to the definition of target genes involved in the regulation of the different pathways with regard to biotic or abiotic stress.

Our laboratory elaborate the tomato microarrays called : EU Tom1 12K oligo-arrays.
They contain 12,160 long oligos (70 mers) including 300 controls randomly placed throughout the array.
11,860 genes from the tomato are represented, the majority of the probes being designed from gene sequences gathered from the Lycopersicon Combined Build #3 Unigene database at Cornell University. The remaining number of oligos was designed from sequences in GenBank.
For complete documentations on the array see below:
* EU_TOM1_12K description
* GenePix .Gal file for EU_TOM1_12K microarrays
* Gene ID file for EU_TOM1_12K microarrays
* Protocol for target synthesis (labelled aRNA)
* Protocol for manual hybridization

RNA-Seq & ChIP-Seq:
The availability of the tomato genome sequence lead us to implement this new technic to the new projects started in our lab.

Single Cell and Microscopy
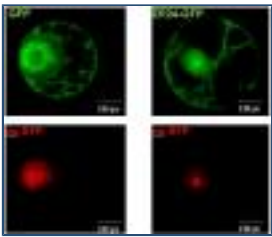
Isabelle Mila

We use tobacco protoplasts transient expression assays to study characteristics and functions of genes, regulatory cis-acting elements, subcellular localization and transactivation/repression activity of transcription factors that are studied in our laboratory.

Rapid phenotyping of tomato lines

Lydie Tessarotto Lemonnier and Christian Chervin

Using a near infra-red portable spectrometer, the lab has expertise in screening hundreds of fruit per day for at least the six following parameters: color Hue, color Chroma, juice soluble solid content, juice pH, firmness and water content. More developments can be initiated for the prediction of additional quality parameters of the fruit and other plant organs.