

PLANT TRANSFORMATION AND TISSUE CULTURE

Transformation and tissue culture platform abilities allow us to obtain transgenic events of agroindustry relevance crops. Technologies as water stress tolerance and resistance to different families of herbicides have already been validated in soybean and alfalfa crops. Moreover, the obtaining of safflower transgenic events for the production of industrial high-value enzymes has set our attention on this botany species to be used as a biofactory.

The Molecular Biology Laboratory assists the platform with the early confirmation of generated events carrying different technologies as well as with the subsequent deregulation process requirements by means of the molecular characterization of the DNA inserted sequences.

SOYBEAN

Application: Transgenic events obtainment carrying traits of interest.

Germplasm: *Glycine max*, cultivar Williams' 82.

Transformation method: *Agrobacterium tumefaciens* mediated transformation.

Selection Agent: Glufosinate-ammonium (*bar*)

Deliverable: Seed T₁.

Complementary services: Generational increase; greenhouse efficacy trials.

ALFALFA

Application: Transgenic events obtainment of alfalfa varieties of commercial value carrying traits of interest.

Germplasm: *Medicago sativa*, own cultivar, winter rest group Nro.6.

Transformation method: *Agrobacterium tumefaciens* mediated transformation.

Selection Agent: Glufosinate-ammonium (*bar*)

Deliverable: T₀ Events.

Complementary services: Clonal multiplication of achieved events; greenhouse efficacy trials.



SAFFLOWER

Application: Transgenic events obtainment carrying traits of interest for Molecular Farming projects.

Germplasm: *Carthamus tinctorius*, cultivar centennial.

Transformation method: *Agrobacterium tumefaciens* mediated transformation.

Selection Agent: Glufosinate-ammonium (*bar*).

Deliverable: T₁ Seed.

Complementary services: Generational increase; greenhouse efficacy trials.

GENE EDITING

As part of the platform know-hows, the genome editing new techniques have been acquired with a view to being able to incorporate special traits in a goal-directed manner, giving a differential value to target plant species. This tool is applicable to soybean, alfalfa and safflower crops - routinely handled by the platform- as well as to special projects that may arise. In this framework, all started new projects offer a very rich field of action.

GENOTYPING AND MOLECULAR CHARACTERIZATION OF EVENTS

- ◆ Final time PCR and real time PCR transgenes detection.
- ◆ Zygosity analysis.
- ◆ Indels detection by HRM (High Resolution Melting).
- ◆ SNPs detection by endpoint genotyping.
- ◆ Number of transgene copies determination by Southern blot.
- ◆ Flanking sequences identification or determination.
- ◆ Stability and segregation analysis.
- ◆ Transgene expression analysis.

OTHER SERVICES

◆ **ARABIDOPSIS GENETIC TRANSFORMATION** Applied on the validation of novel molecular constructions.

◆ **HAPLOID, DOUBLE HAPLOID AND POLYPLOID LINES OBTAINMENT**
Rapid new varieties production as a complement to traditional plant breeding programs.

