

The French Plant Genomic Resource Center (CNRGV)

Rules of procedure for genomic Libraries

The CNRGV is responsible for preserving and maintaining plant genomic resources produced in the context of major projects by internationally-renowned laboratories. The task of the CNRGV is to manage these plant genomic libraries by setting up the quality procedures necessary for their multiplication, storage, referencing and dissemination.

The CNRGV benefits from leading-edge technologies and automated equipment which guarantees high throughput and standardised processing of the collections. Information systems, and the traceability of collections and associated data, are optimised.

The CNRGV has obtained certification under ISO 9001 quality standards.

1. Traceability

In order to centralize the information related to the collections stored at the CNRGV, to allow clone tracking and to guarantee the electronically documentation of all experiments, CNRGV has developed its own management system including databases.

This information system, called GENOLIMS (LIMS: Laboratory informatics management system), allows tracking of each process related to the genomic collections from the acquisition, to the production of genomic tools and delivery of clones, and guides staff in their work and ensures the tracking of all processes and analyses carried out in the laboratory. Thanks to using up-to-date, open technologies and based on standards of the market, the evolution and adaptation of the system is simplified, with respect of the integrity, the security and the confidentiality of the data.

2. Quality control of the biological material and mirror copy

The libraries stored at the CNRGV are certified "uncontaminated" by other micro-organisms or phages: each library is subjected to a battery of tests to ensure that this is the case. The CNRGV has developed dedicated software for the validation of these tests. The quality control results are checked automatically and can be provided on request.

CNRGV performs clone identity, viability and growth tests and tests for non-contamination by any micro-organism other than the host or by any virus, using the appropriate technology. The tests are carried out at least on receipt and also during collection maintenance. In the case of bacterial clones whose sequences are known, the identity of the biological material is checked by random sequencing of a few percent of the cloned inserts and comparing the sequences obtained with the expected sequences. The viability of the plasmid host and the absence of contamination by a micro-organism other than the host organism or bacteriophage are tested on an appropriate medium (see Table 1).

Table 1: Quality control

Genomic Libraries	Viability test	Non-contamination test	Identity test/insert size checking
Bacteria + plasmid combination	Check host/plasmid combination on appropriate selective medium.	For bacteria phage sensitive: check for possible presence of bacteriological, viral contaminants by observation of the cultured strain on the appropriate medium	check identity and/or insert size of the collection by randomly tests on a few percent of cloned inserts.

All information on biological material, including test data, are collected, organised and recorded to ensure traceability of each clone.

A maintenance plan is implemented for all stored collections via GENOLIMS. This plan sets a regular schedule for copying parent collections and performing all the above-mentioned tests on the newly synthesised copies.

All libraries are duplicated automatically, with high-throughput machinery, guaranteeing faithful reproduction. This duplication is carried out in microtiter plates (96-well or 384-well) identified by a unique barcode. All manipulations are tracked by GENOLIMS. The bar-coded plates are placed in cardboard freezer storage boxes (-80°C). The mirror and mother copies are stored in different places.

3. Material distribution

The legal status of collections, and their dissemination to different public or private sector partners, depends on the source of the material.

CNRGV will distribute the material based on modalities described on the website.