

## Forest



The **Forest pillar** is composed of one biological resource center distributed over three INRAE sites (Avignon, Bordeaux and Orléans). Its objective is to collect, conserve, characterize by genotyping and distribute forest biological resources of interest for research, as well as their associated phenotyping and genotyping data, in order to make them available to the scientific community.

These biological resources consist of *ex-situ* tree collections, seed and pollen lots, DNA samples, leaves or needles. About ten forest species are concerned: poplars, oaks, beeches, corm trees, chestnuts for the deciduous trees; pines, larches, cedars, cypresses for the conifers.

<https://fbrc.isc.inrae.fr/>



## Micro-organism



The **Microorganism pillar** of RARe includes seven BRCs: five BRC grouped into the CIRMM, the UBOCC BRC hosting resources of marine origin, and the SAMBO biobank of Métagénopolis for the study of human microbiome. The CIRMM (International Center for Microbial Resources) is organized as a Scientific Interest Group, bringing together 5 BRCs certified ISO 9001, which manage more than 22,000 strains of bacteria associated with plants, bacteria pathogenic to animals and humans, bacteria of food interest, yeasts and filamentous fungi. CIRMM is a member of the European Research Infrastructure for microbial resources, MIRRI-ERIC, registered on the ESFRI roadmap (<http://mirri.org>). CIRMM's mission is to manage and make accessible its collections to the international scientific community and to the relevant industries, with applications in food, health and bioprocessing.

<https://www6.inrae.fr/cirm>



# RARe

Ressources agronomiques  
pour la recherche

## A national research infrastructure that brings together five pillars of Biological Resource Centers

All sectors of agriculture are concerned: plant and animal production, agri-food industries, non-food biomass valorization, and clean tech biotechnology.

French research institutions working in the field of agronomy and biology (INRAE, CIRAD, IRD) and their partners (technical institutions, research and higher education institutions) have set up Biological Resource Centers (BRCs), most of which have received the IBISA label and are ISO 9001 certified.

Currently, about thirty BRCs store millions of resources:

- for genomics (BAC libraries, tissue and DNA collections),
- for reproduction of 36 plant families (seeds, plants) and 22 animal species (sperm, embryos),
- more than 22,000 strains of bacteria, yeast or fungi, 10,000 soil samples and more than 100,000 feces samples hosting microbial consortia.

<https://www.agrobrc-rare.org/>





## Plant

**The Plant pillar** provides access to genomic resources maintained by the Centre National de Ressources Génomiques Végétales (CNRGV) and to genetic resources maintained by the network of BRCs of French research and higher education institutions in the field of agronomy.

Conserving, managing and sharing plant genetic resources are essential not only to better valorize the diversity of existing cultivated varieties, but also to develop new ones in a context where agricultural systems must adapt to new environmental conditions, in connection with the current economic and ecological priorities.

At the European level, INRAE represents this pillar in the INFRA-DEV project 'PRO-GRACE'.

<http://florilege.arcad-project.org/fr>  
<https://cnrgv.toulouse.inra.fr/fr>



## Animal

**The Animal pillar** brings together six BRCs that manage genomic or reproductive resources for domestic animal species raised in France and their wild relatives (mammals, birds, fish, shellfish, etc.).

It concerns farm animals as well as pets, in partnership with breeders' associations or breeding companies. It supports research on genetic diversity, selection, biomedical models. The 'CRB-Anim' project (funded by ANR-11-INBS-0003 from 2012 to 2022) supported the development of new methods for cryopreserving reproductive resources, the enrichment and genomic characterization of collections. A portal for discovering the catalog, retrieving passport data and submitting on-line requests completes this organisation.

This pillar plans to get organized as a Scientific Interest Group. At a European level, it is represented by INRAE in the INFRA-DEV 'EuroFAANG'

<http://crb-anim.fr>  
<https://crb-anim.fr/access-to-collection/#>



## Environment

**The Environment pillar** (BRC4Env) brings together BRCs and collections that manage a variety of biological resources sampled from cultivated or natural ecosystems.

The network preserves and distributes these resources, together with associated data, to researchers from academia, industry and associations.

The collections include environmental resources (soils and DNAs), invertebrates, vertebrates and microorganisms whose management or propagation are not directly related to a human intervention. They are notably used to describe and characterize environmental components and their dynamics, to develop processes for biocontrol of crop pests, or to develop symbiosis with plants.

<https://www.brc4env.fr/>

