



CIRM as a coordinator of the European Consortium of Microbial Resource Centres (EMbaRC)

Height of the largest culture collections in the European Collection's Organization (ECCO) are partners in the EMbaRC consortium, representing 200 000 strains. This self-sustainable community of European Microbial Resource Centres will enable the development of new research projects with public institutes in the field of biodiversity and will facilitate economic partnerships.

Joint research to improve strain and DNA storage and to develop new microorganism identification methods will be carried out by the EMbaRC consortium.

EMbaRC lays down the foundation of the future Global Biological Resource Centre Network (GBRCN) ensuring that European expertise and research are at the forefront of the international scene.

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The IBISA Label for the CIRM...

The CIRM has received the IBISA (Infrastructures en Biologie Santé et Agronomie) Label in recognition as its status as an infrastructure in biology, health or agronomy.

It is granted by a scientific consortium with members from the French Ministry of Research and the main French research organisations (CEA, CNRS, INRA, INRIA, INSERM, The National Cancer Institute, and the Conference of French University Presidents).

IBISA ensures access to high quality services for the CIRM's partners, as well as to methodological research and developments.

CIRM

Centre International de Ressources Microbiennes

The **International Centre of Microbial Resources** (CIRM) is managed by INRA. It is dedicated to the preservation and exploration of microbial biodiversity, and conserves more than 15,000 strains of **fungi, yeast, food and pathogenic bacteria**.

The management of the collection involves **acquisition, authentication, preservation and distribution of microorganisms**.



The CIRM Organisation

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<http://www.international.inra.fr/crb-cirm>



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The CIRM is committed to the **scientific and industrial application of these microbial resources** through the distribution of strains, along with associated data and services:

- ◆ molecular, taxonomic, physiological, phenotypic and ecological information;
- ◆ methodological developments;
- ◆ secure strain deposit or open distribution.

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DIET & FOOD
AGRICULTURE
ENVIRONMENT





Filamentous fungi for sustainable development



The filamentous fungi, mainly of the basidiomycetes (61 genera) and ascomycetes (8 genera) groups, are especially involved in the degradation of lignocellulosic materials. They are collected all over the world, particularly in tropical forests.

A database supplies taxonomic, physiological and ecological information for agro-industrial interests.

Microtests suitable for high-throughput enzyme analysis are carried out robotically using an automate platform that includes all the steps of multichannel 'nano-pipetting'.



Yeasts from traditional fermentations for the food and beverage industry



More than 110 species and 19 genera of natural hemiascomycetous yeast isolates are preserved at the CIRM. Most of the strains have been isolated from traditional fermentations such as wine, cider, beer and cheese; yeasts belong primarily to the *Saccharomyces*, *Debaryomyces* and *Kluyveromyces* genera.

Benefiting from the support of a genomics research team (co-founder of the yeast sequencing consortium "Génolevures"), the CIRM provides expertise on yeast species delineation and strain typing using up-to-date molecular taxonomy methods.

The CIRM performs services such as confidential safe deposit and identification of the species level.



Partnership with CIRM means access to high level scientific methods and equipment



- ◆ characterisation and typing of strains;
- ◆ facilities for preservation by freeze drying or cryopreservation;
- ◆ molecular taxonomy methods and phenotypic identification;
- ◆ mass spectrometry methods for identification;
- ◆ development of high-throughput methods;
- ◆ genome analysis, etc.



Bacteria for fermented products



The CIRM Food Bacteria comprises 12 genera and about hundred different species. They were selected in order to offer the widest diversity possible in terms of biotope and geographic origin. The CIRM includes a set of species that confer added organoleptic, probiotic or rheological value to fermented products. Our aim is to preserve this natural biodiversity for researchers and food industry partners.

The exploration of molecular mechanisms leading to the strains biodiversity and its exploitation for food innovation, in particular by high throughput screening, are also major objectives of the CIRM.



Pathogenic bacteria for medical and veterinary applications and research



The collection comprises strains of 167 species and 57 genera of pathogenic bacteria. It notably includes a large number of strains of Extra-intestinal Pathogenic *Escherichia coli* of avian origin, numerous strains of different types of *Brucella*, and *Salmonella enterica* strains isolated from cattle farms.

The facilities of the CIRM meet today's strict biosafety standards to handle and preserve bacterial pathogens of groups 2 and 3. Moreover, the CIRM benefits from a technological facility (CL3) where microbiological experiments can be carried out using industrial or semi-industrial equipment under regulated ambient temperature and hygrometry conditions

Besides offering services related to strain phenotypical identification and preservation, the CIRM also develops scientific partnerships for studying biodiversity and molecular markers of bacterial pathogens.



To carry out its missions, the CIRM benefits from INRA facilities:
genomics, proteomics and transcriptomics Platforms,
Platform for experimentation on infectious diseases...