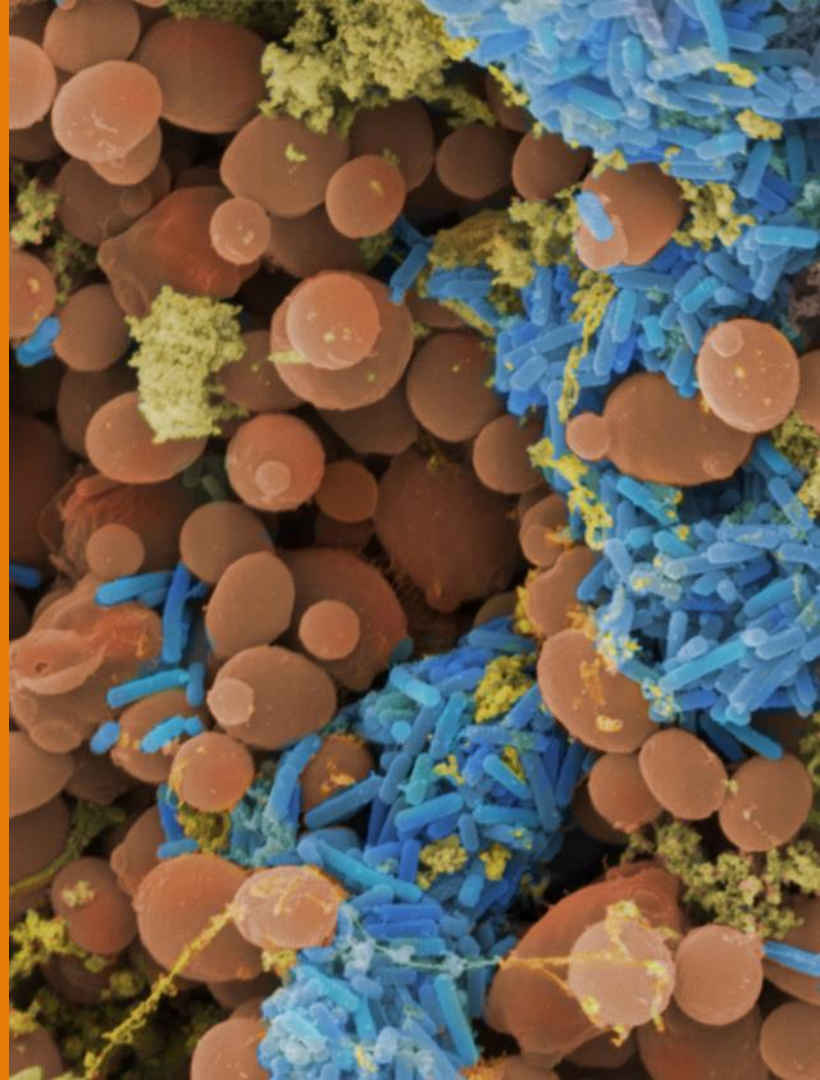
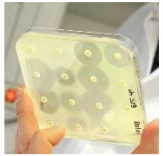
MIRRI MICROBIAL RESOURCE RESEARCH INFRASTRUCTURE ERIC

EUROPEAN RESEARCH INFRASTRUCTURE CONSORTIUM

A PAN-EUROPEAN RESEARCH INFRASTRUCTURE FOR MAKING MICROBIAL SCIENCE & INNOVATION HAPPEN

INSTITUTIONAL PRESENTATION | JANUARY 2023






MIRRI: from microbial collections to real-life innovations

The Microbial Resource Research Infrastructure – European Research Infrastructure Consortium (MIRRI-ERIC) is the pan-European distributed Research Infrastructure for the preservation, systematic investigation, provision and valorisation of microbial resources and biodiversity.

MIRRI-ERIC serves the bioscience and the bioindustry communities by facilitating the access, through a single point, to the broadest range of high-quality microorganisms, their derivatives, associated data and services, with a special focus on the domains of Health & Food, Agro-Food, and Environment & Energy.

By serving its users, by collaborating with other research infrastructures and by working with public authorities and policy makers, MIRRI-ERIC contributes to the advancement of research and innovation in life sciences and biotechnology, as well as for a sustainable, competitive and resilient bioeconomy.

MIRRI-ERIC has been set up by the Commission Implementing Decision (EU) 2022/1204 of 16 June 2022, and is a 'Landmark' in the Health & Food domain of the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap.

MIRRI: where biodiversity meets biotechnology & bioeconomy

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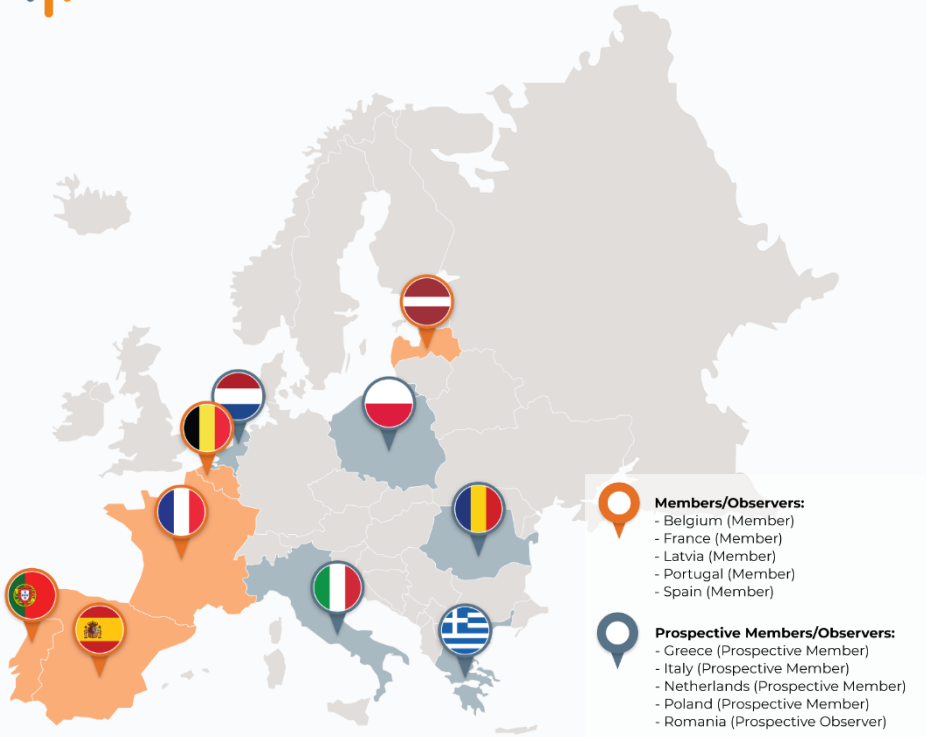


For more information about MIRRI-ERIC and its partners please visit

www.mirri.org

MIRRI: KEY FACTS & FIGURES

- ☑ **10 countries** (5 Founding Members + 5 Prospective Members/Observers)
- ☑ **50 partner biorepositories and research institutes**
- ☑ **2,800+ combined years of activity**
- ☑ **2/3 organisations with QMS**
  (quality management system implemented or in implementation)
- ☑ **7 strategic areas in the Health & Food, Agro-Food and Environment & Energy domains**
- ☑ **300+ people involved**
- ☑ **8 European projects ongoing, with €7.2M funding for MIRRI partners**
- ☑ **400,000+ microbial resources**
- ☑ **20,000+ strains identified/characterised /year**
- ☑ **90+ types of general services**
- ☑ **30+ application-specific services/workflows**
- ☑ **6,000+ users /year**
- ☑ **20,000+ samples supplied /year**

MIRRI offers a single point of access to ~50 microbial domain Biological Resource Centres (mBRCs), culture collections and research institutes from 10 countries, totalling 2,800+ combined years of experience

BELGIUM [Member]
- BCCM - Coordination cell - Belgian Science Policy
- BCCM/DCG - Diatoms Collection
- BCCM/GeneCorner - Plasmid Collection
- BCCM/IHEM - Fungi Collection: Human and Animal Health
- BCCM/ITM - Mycobacteria Collection
- BCCM/LMG - Bacteria Collection
- BCCM/MUCL - Agro-Food and Environmental Fungal Collection
- BCCM/ULC - Cyanobacteria Collection

FRANCE [Member]
- CIRM - CFBP Plant associated bacteria collection
- CIRM - BIA Food associated bacteria collection
- CIRM - BP Pathogenic bacteria collection
- CIRM - CF Filamentous fungi collection
- CIRM - Levures Yeasts collection
- CRBIP-CNCM National Collection of Cultures of Microorganisms
- CRBIP-CVIP Collection of Viruses of the Institut Pasteur
- CRBIP-CIP Collection of bacteria of the Institut Pasteur

LATVIA [Member]
- MSCL - Microbial Strain Collection of Latvia

PORTUGAL [Member; Co-host; Statutory seat]
- MUM - Micoteca da Universidade do Minho, CEB/UMinho
- PYCC - Portuguese Yeast Culture Collection, UCIBIO/UNLisboa
- ACOI - Algoteca de Coimbra, UCoimbra
- LEGE-CC - Blue Biotechnology and Ecotoxicology Culture Collection, CIIMAR/UPorto
- UCCCB - University of Coimbra Bacteria Culture Collection
- CIMOCC - Mountain Research Centre Culture Collection, CIMO/IPBragança
- VFMCC-INIAV - Agronomic, Veterinary and Food Microbial Culture Collections
- Biotropical Resources - GHTM-IHMT/Global Health and Tropical Medicine, UNLisboa
- CDB - Coleção do Departamento de Biologia, CBMA/UMinho
- IVDP - Instituto dos Vinhos do Douro e Porto, I.P.
- LRV/DRAg - Laboratório Regional de Veterinária dos Açores, Dir. Regional da Agricultura

SPAIN [Member; Co-host]
- CECT - Spanish Type Culture Collection
- BEA - Spanish Bank of Algae

GREECE [Prospective Member]
- CCUoA-NKUA - Culture collections of the National and Kapodistrian University of Athens
- ACA-DC - Agricultural College of Athens - Dairy Collection
- BPIC - Benaki Phytopathological Institute Collection

ITALY [Prospective Member]
- TUCC - Turin University Culture Collections
- DBVPG - Industrial Yeasts Collection
- UMCC - University of Modena and Reggio Emilia Microbial Culture Collection
- CNR-PLAVIT - National Research Council-Plant Viruses Italy
- CNR-ITEM - National Research Council-Agro-Food Microbial Culture Collection
- HSM - IRCCS Ospedale Policlinico San Martino

NETHERLANDS [Prospective Member]
- CBS - Collection of yeasts and filamentous fungi
- NCCB - Netherlands Culture Collection of Bacteria

POLAND [Prospective Member]
- IAFB - Collection of Industrial Microbial cultures of the Prof. Wacław Dąbrowski Institute of Agricultural and Food Biotechnology
- KPD - Collection of Plasmids and Microorganisms at the University of Gdansk
- PCM - Polish Collection of Microorganisms

ROMANIA [Prospective Observer]
- IBB - Institute of Biology Bucharest
- MCUB - Microbial Collection of the University of Bucarest
- CMII-ICCF - Culture Collection of Industrial Importance Microorganisms-National Institute for Chemical Pharmaceutical Research and Development
- MIUG-DJUG - Industrial Microorganisms Collection of "Dunărea de Jos" University of Galati, (DJUG)
- CNCBC-IC Cantacuzino National Medico-Military Institute for Research and Development

What are Biological Resource Centres and why are they important?

According to the definition by the Organisation for Economic Co-operation and Development (OECD), **Biological Resource Centres (BRCs) are an essential part of the infrastructure underpinning biotechnology**. They consist of service providers and repositories of the living cells, genomes of organisms, and information relating to heredity and the functions of biological systems. BRCs contain collections of culturable organisms (e.g. microorganisms, plant, animal and human cells), replicable parts of these (e.g. genomes, plasmids, viruses, cDNAs), viable but not yet culturable organisms, cells and tissues, as well as databases containing molecular, physiological and structural information relevant to these collections and related bioinformatics. BRC must meet the high standards of quality and expertise demanded by the international community of scientists and industry for the delivery of biological information and materials. **They must provide access to biological resources on which R&D in the life sciences and the advancement of biotechnology depends.**

in "Biological Resource Centres: Underpinning the Future of Life Sciences and Biotechnology", ISBN 92-64-18690-5, 2001, OECD, Paris.

What are Biological Resource Centres and why are they important?

The many crucial roles played by BRCs and culture collections include:

- Preservation and provision of biological resources for scientific, industrial, agricultural, environmental and medical R&D and applications.
- Performance of R&D on these biological resources.
- Provision of scientific, analytical and consultancy services.
- Training of scientists and technical staff.
- Conservation of biodiversity.
- Preservation and provision of reference strains to ensure quality and reproducibility of science.
- Repositories of biological resources for protection of intellectual property.
- Resources and expertise for public information and policy formulation.

adapted from "Biological Resource Centres: Underpinning the Future of Life Sciences and Biotechnology", ISBN 92-64-18690-5, 2001, OECD, Paris.

MIRRI is a first-choice partner for Research & Innovation in several key scientific and economic areas

Health & Food

- Research on pathogenic microorganisms and human / human-animal infectious diseases
- Research & Development of new (bio)pharmaceuticals / therapeutic solutions (including antimicrobials, vaccines, phage therapies and microbiome therapeutics – for human use)

Agro-Food

- Research & Development of new, safe, healthy and sustainable food and feed products
- Resources and methods for biological management of soils and crops

Environment & Energy

- Resources and methods for biomonitoring and/or bioremediation of microbial pathogens, persistent organic pollutants and plastics in soils and waters
- Research & Development of renewable biobased chemicals, materials and bioenergy sources
- Rescuing and preserving microbial biodiversity

Biodiversity
Biotechnology
Bioeconomy
Sustainability
One Health

Bioprospection | Preservation & Culturomics | Taxonomy
Digital services & FAIR data | Legal/Regulatory issues & Standards

MIRRI MICROBIAL RESOURCE RESEARCH INFRASTRUCTURE

MICROBIAL RESOURCES FOR A GREEN, HEALTHY AND SUSTAINABLE FUTURE

Strategic Research & Innovation Agenda 2021-2030

Overview of MIRRI's strategic areas and alignment with the United Nations Sustainable Development Goals

Research on pathogenic microorganisms and human / human-animal infectious diseases

- Human & animal health
- Microbial pathogens
- Infectious diseases, emerging diseases & zoonoses
- Epidemic/pandemic prevention and response
- Diagnostics

Research & development of new (bio)pharmaceuticals / therapeutic solutions

- Innovative medicines/ biopharmaceuticals
- Antimicrobial resistance
- Antimicrobials
- Vaccines
- Phage therapies
- Microbiota & micro-biome therapeutics

Research & development of new, safe, healthy and sustainable food and feed products

- Food security
- Food safety
- Food processing & preservation
- Food microbiome
- Sustainable and nutritious foods/diets
- Functional foods, pre-, pro- and postbiotics

Resources and methods for biological management of soils and crops

- Soil microbiomes & healthy soils
- Plant-microbe interactions, plant health & crop productivity
- Biocontrol & biopesticides
- Biofertilizers

Resources and methods for biomonitoring and/or bioremediation of soils and waters

- Environmental pollution, clean soils and clean water
- Biomonitoring & bioremediation
- Microbial pathogens
- Persistent organic pollutants and plastics/microplastics

Research & development of renewable biobased chemicals, materials and bioenergy sources

- Circular economy
- Climate change
- Renewable biobased chemicals and materials/biomaterials
- Sustainable, clean energy/bioenergy & advanced biofuels

Rescuing and preserving microbial biodiversity

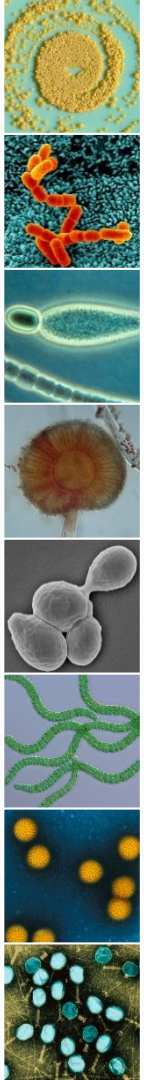
- Endangered environments and biodiversity loss
- Composition and functioning of microbial communities
- Microbial bio-prospection, cultivation and preservation

HEALTH & FOOD

AGRO-FOOD

ENVIRONMENT & ENERGY

BIODIVERSITY · BIOTECHNOLOGY · BIOECONOMY · SUSTAINABILITY · ONE HEALTH

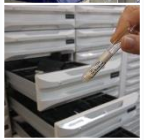


MIRRI offers the broadest catalogue of microbial resources and data

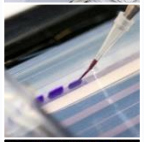
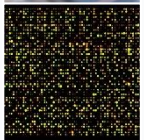
Single point of access to 400,000+ high-quality microbial resources
– such as archaea, bacteria (and their cognate bacterio-phages), fungi (including yeasts), microalgae, eukaryotic viruses, and other microbiological material such as microbiomes, cell lines, natural or constructs carrying plasmids, DNA libraries, and genomic DNA –,
and associated data
– e.g. taxonomy, ecology, pathogenicity, morphology, physiology, chemical characterization, DNA barcoding or genomics.

20,000+ strains identified/characterised /year
and
20,000+ samples supplied /year

Microbial Resources		Health & Food		Agro-Food	Environment & Energy		
		Strategic Area 1	Strategic Area 2	Strategic Area 3	Strategic Area 4	Strategic Area 5	Strategic Area 6
Archaea	Archaea for bioactive compounds		●	●			●
	Archaea for agro-environmental applications					●	●
	Archaea for biotech applications	●	●	●	●	●	●
Bacteria	Pathogenic bacteria (for humans, animals, plants and crops)	●	●	●	●	●	●
	Bacteria for bioactive compounds		●	●			●
	Foodborne bacteria		●	●			●
	Bacteria for agro-environmental applications (e.g. bioremediation, biofertilizers, biopesticides, etc.)				●	●	●
	Bacteria for biotech applications	●	●	●	●	●	●
	Bacteria as reference strains for bioassays' controls	●	●	●	●	●	●
Cyanobacteria	Toxic cyanobacteria (for humans and animals)	●	●	●		●	●
	Cyanobacteria for bioactive compounds		●	●			●
	Cyanobacteria for food (e.g. dietary supplements)			●			●
	Cyanobacteria for agro-environmental applications (e.g. biofertilizers)				●	●	●
	Cyanobacteria for biotech applications	●	●	●	●	●	●
Filamentous Fungi	Pathogenic fungi (for human, animal, plants and crops)	●	●	●	●		●
	Fungi for bioactive compounds		●	●			●
	Foodborne fungi		●	●			●
	Fungi for agro-environmental applications (e.g. bioremediation, biofertilizers, biopesticides, etc.)				●	●	●
	Fungi for biotech applications	●	●	●	●	●	●
	Fungi as reference strains for bioassays' controls	●	●	●	●	●	●
Yeasts	Pathogenic yeasts (for human, animal, plants and crops)	●	●	●			●
	Yeasts for bioactive compounds (e.g. mycocins)		●	●			●
	Yeasts for biotech applications	●	●	●	●	●	●
	Yeasts as reference strains for bioassays' controls	●	●	●			●
Microalgae	Microalgae for bioactive compounds		●	●			●
	Microalgae for food (e.g. dietary supplements, food additives, etc.)			●			●
	Microalgae for agro-environmental applications (e.g. bioremediation, biofertilizers, etc.)				●	●	●
	Microalgae for biotech applications	●	●	●	●	●	●
Viruses	Pathogenic viruses (for humans, animals, plants and crops)	●	●	●		●	●
	Viruses for therapies		●				●
	Viruses as vectors		●				
	Viruses for agro-environmental applications				●	●	●
	Viruses for biotech applications	●	●	●	●	●	●
	Viruses as reference strains for bioassays' controls	●	●	●		●	●
Cell Lines & Genetic Constructs	Human, animal and plant cell lines	●	●	●	●	●	●
	Plasmids	●	●	●	●	●	●
	Bacteriophage vectors	●	●	●	●	●	●
	Microbial DNA/RNA	●	●	●	●	●	●



MIRRI offers a comprehensive, diverse portfolio of 90+ types of high-quality services (1/2)

SUPPLY OF MICROBIAL RESOURCES

Supply of microbial resources

. Supply of freeze-dried strains
. Supply of active cultures
. Supply of strains in cryovials
. Supply of DNA
. Supply of strains in other delivery forms
. Supply of competent cells
. Supply of inactivated strains

DEPOSIT

Deposit

. Public Deposit
. Patent Deposit
. Safe Deposit

IDENTIFICATION

Identification from microbial pure cultures

. Identification by gene sequencing
. Identification by morphological and phenotypic traits
. Identification by MALDI-TOF-MS

Virus detection and identification

. Identification of plant viruses
. Detection and identification of human and animal viruses up to risk group 2

Human cell line authentication

. Human cell line authentication by STR profiling

MOLECULAR TYPING AND PHYLOGENETIC ANALYSIS

Gene sequencing and analysis

. Gene sequencing and analysis

Genotyping

. Random Amplification of Polymorphic DNA (RAPD)
. Denaturing Gel Gradient Electrophoresis (DGGE)
. Temporal Temperature Gradient Gel Electrophoresis (TTGE)
. Amplified Fragment Length Polymorphism (AFLP)
. Microsatellites or Simple Sequences Repeats (SSR)
. Repetitive element palindromic PCR (rep-PCR)
. Inter-LTR
. Genomic restriction fragment length polymorphisms (RFLP)
. Mitochondrial restriction fragment length polymorphisms (mt-RFLP)
. Amplified Ribosomal DNA Restriction Analysis (ARDRA)
. Ribotyping

Clustering of isolates by MALDI-TOF MS protein profiles

. Clustering of isolates by MALDI-TOF MS protein profiles

Karyotyping

. Karyotyping by PFGE

Determination of ploidy

. Determination of ploidy by flow cytometry

Plasmid profile analysis

. Plasmid profile analysis

PHENOTYPIC CHARACTERISATION

Structural analysis

. Analysis of the cellular fatty acid composition
. Analysis of cell wall sugars
. Analysis of peptidoglycan structure
. Analysis of the cellular polar lipid composition
. Analysis of mycolic acids
. Analysis of respiratory quinones
. Immunochemical analysis
. Electron microscopy imaging

Metabolic and physiologic analyses

. Biochemical tests
. Analysis of enzymatic activities
. Analysis of volatile metabolites
. Antioxidant activities
. Analysis of respiratory quinones
. Production of other metabolites/ bioactive substances and analysis

NGS RELATED SERVICES

Draft/complete genome sequencing of a pure culture

. Genome sequencing of a pure culture
. Preliminary bioinformatic analysis of the genome sequences

Taxon-specific gene amplification and sequencing of environmental samples or mixed communities

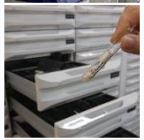
. Amplicon sequencing
. Preliminary bioinformatic analysis of the amplified sequences

Whole Metagenome Shotgun (WMS) sequencing

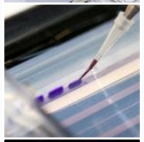
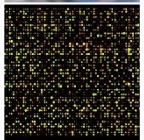
. Metagenome sequencing
. Preliminary bioinformatic analysis of the metagenome sequences

Advanced genome and metagenome analyses

. Gene annotation
. Genotyping
. *In silico* characterisation
. Overall genome relatedness indexes (ANI, AAI, eDDH…)
. Phylogenomics
. Operational taxonomic units (OTUs) generation and tagging
. Tailor made analyses of genomes and metagenomes



MIRRI offers a comprehensive, diverse portfolio of 90+ types of high-quality services (2/2)

MICROORGANISM ISOLATION, PRESERVATION AND CULTIVATION

Isolation and purification of strains
. Isolation and purification of strains

Freeze-drying
. Freeze-drying

Optimisation of preservation conditions
. Optimisation of preservation conditions

Optimisation of cultivation/fermentation
. Optimisation of cultivation/fermentation

Microbial counting/titer
. Microbial counting/titer

SCREENING, TESTS AND BIOASSAYS

Growth promoting / antimicrobial / antiviral bioassays
. Microbial growth-promoting and antimicrobial tests
. Antibiotic resistance assays
. Biocontrol agents tests on plants
. Biostimulating tests on plants
. Virus resistance assays

High-throughput screening
. Metabolomic analyses
. Analysis of the resistance/sensitivity of strains to physical and chemical stressors
. Analysis of adhesive activity

Characterisation of technological abilities of microbial strains
. Analysis of the strain performance for industrial application
. Analysis of adhesive activity
. Analysis of biosurfactant-producing activity

Detection of contaminants in raw materials and products
. Detection of contaminants in raw materials and products

Material resistance testing
. Material resistance testing

OTHER SERVICES

Other characterisation analyses
. Mycovirus detection
. Determination O_2 consumption / CO_2 production
. Plasmid copy number quantification
. Safety assessment of strains for food and feed
. High-throughput and high-resolution visualisation

Purification of cells/metabolites
. Cell sorting applications (Flow cytometry)
. Purification of metabolites

Complementary services
. DNA extraction
. Construction and characterisation of intraspecific hybrids

TAXONOMIC DATABASE TOOLS

Taxonomic database tools
. MycoBank
. YeastIP
. FungalDC
. Yeast-ID
. BIGSdb-Pasteur
. Klebsiella MALDI TypeR
. CLIMA

CONSULTANCY, TRAINING AND CONTRACT RESEARCH

Consultancy, training and contract research
. Consultancy (topics aligned with the MIRRI Clusters of Expertise)
. Training courses
. Contract Research







MIRRI offers 30+ application-specific services or workflows of integrated services

HEALTH & FOOD

Diagnostic

- Bacterial and fungal pathogens detection, isolation, characterisation and preservation under controlled conditions.
- Selection of reference pathogenic strains for bioassays and diagnostics.
- Bacterial genome scanning for investigation of virulence factors and antimicrobial resistance.

Biopharmaceuticals

- Identification of taxonomically related *Streptomyces* strains with antimicrobial activity using mass spectrometry profiles.
- Scanning of fungal genomes, identification of pathways for synthesis of biomolecules with pharmaceutical interest and heterologous expression of silent fungal gene clusters for bioactive compounds production.
- *In vitro* screening of anti-inflammatory and anti-infectious activities (antibacterial, antiviral, antifungal and antiparasitic) of newly isolated strains or strains preserved in mBRCs (including archaea, bacteria, cyanobacteria, yeasts and fungi isolated from untapped environments).
- Preparation of inactivated strains to be used for the development of vaccines.

Microbial based therapeutics and health promoting solutions

- *In vitro* screening of phages for phage therapy as alternative to antimicrobials.
- *In vitro* screening for health-promoting properties i.e. production of organic acids, vitamins, aminoacids, GABA.
- Isolation and/or selection of strains with probiotic activity, screening of probiotic potential and analysis of resistance to gastrointestinal conditions.

AGRO-FOOD

Food production processes

- Food microbiome: metagenomic & culturomic analysis, fungal/yeasts/bacterial species isolation and identification.
- *In vitro* screening of food preservation activities: antifungal, antibacterial.
- Analysis of relevant metabolites for food production (e.g. exopolysaccharide, esters, superior alcohols, volatile compounds in wine production).
- Microalgae strain selection and mass culture optimisation for aquaculture feed and food ingredients production.
- Food-waste products recycling: isolation, identification and characterisation of degrading strains.

Food safety

- Genome analysis for food safety strain requirements i.e. antimicrobial resistance (AMR), antimicrobial production, toxigenicity and pathogenicity.
- Food safety assessment based on genomic information (according to EFSA).
- Analysis of mycotoxin profiles.
- Investigation of food contamination and identification of bacteria and fungi applying an integrated polyphasic approach (e.g. identification of *Alicyclobacillus* sp., frequent spoiler of fruit juices).

Agriculture

- Selection and characterisation of arbuscular mycorrhizal fungi strains for application in agricultural and horticultural crops.
- Biofertilizers: identification and quantification for registry purposes.
- Biocontrol agents: identification and characterisation of strains used as biocontrol agents (e.g. *Trichoderma harzianum*).
- Investigation of microbial activities with impact in soil nutrients (e.g. siderophore production, phosphate solubilisation).

ENVIRONMENT & ENERGY

Bioremediation

- Compositional and functional characterisation of microbiomes from metal contaminated sites, strain isolation (cyanobacteria, bacteria, fungi, yeasts, microalgae) and taxonomic characterisation. Screening of tolerance to heavy metals.
- Screening of existing microbial resources (cyanobacteria, bacteria, fungi, yeasts, microalgae) for biotransformation of organic pollutants (e.g. phthalates, polycyclic aromatic hydrocarbons).
- Characterisation of microbial communities, isolation of autochthonous strains or selection of strains in mBRC (bacteria, cyanobacteria, fungi, microalgae) for application in wastewater treatment processes.

Biomass valorisation and bioenergy production

- Assessment from genome annotation of specific enzymatic activities for biofuel production (e.g. hydrolytic activities) and *in vitro* validation in bacteria.
- Characterisation of microbial communities and/or screening and isolation of autochthonous strains for enzymatic activities aimed at biomass degradation and waste-to-energy valorisation.
- Microalgae strain selection, ecophysiology, growth and mass culture for biofuel production.

Biomaterials and bioindustry

- Bioplastics: production of polyhydroalkanoates.
- Self-healing concrete: strain for microbial calcium carbonate deposition and counselling for processes development.
- Analysis of relevant enzymatic activities with environmental and industrial interest (alginase, chitinase, lignolytic activity, agarase, amylase, β-glucanase, protease...).
- Counselling for microbial bioprocesses: growth and productivity, screening of tolerances under technological conditions, analysis of biotechnological relevant behaviour (e.g. flocculation, foaming).

MIRRI provides top-level expertise, training and education

MIRRI offers access to a wide selection of experts and training and education opportunities, covering different aspects of the use of microbial resources

Expert clusters

- Legal/Regulatory Issues & Standards
- Applications in Biotechnology and Bioindustries*
- Taxonomy*
- Bioprospection, Cultivation & Preservation*
- High-End Technologies & Platforms*
- mBRC Quality Management*

Training & Education

- European Specialisation Course on Microbial Resource Centres (EuroMiRC)
- 20+ courses covering different fields/topics

* Coming soon

MIRRI's current participation in European projects

IS_MIRRI21 – Implementation and Sustainability of Microbial Resource Research Infrastructure for 21st Century
[Coord. UMinho]

EOSC-Life – Providing an open collaborative space for digital biology in Europe
[Coord. ELIXIR/EMBL]

BY-COVID – Beyond COVID
[Coord. ELIXIR]

ISIDORe – Integrated Services for Infectious Disease Outbreak Research
[Coord. ERINHA]

canSERV – Providing cutting edge cancer research services across Europe
[Coord. BBMRI]

AgroServ – Integrated SERVices supporting a sustainable AGROecological transition
[Coord. AnaEE]

BIOINDUSTRY 4.0 – RI services to promote deep digitalization of Industrial Biotechnology – towards smart biomanufacturing
[Coord. IBISBA]

MICROBE – MICRObiome Biobanking (RI) Enabler
[Coord. AIT]

In short, MIRRI offers to researchers and to companies:

- Single point of access to ~50 world-class biorepositories.
- Broad catalogue of 400,000+ high-quality microbial resources and data.
- State-of-the-art facilities and technological platforms.
- Cutting-edge services, techniques and technologies.
- Top-level scientific/technical expertise.
- Training opportunities.
- Tailor-made, flexible and cost-competitive/cost-free solutions.

Interested in accessing MIRRI's resources and services?

- To request access to microbial resources, data or services provided by MIRRI, as listed on the respective catalogues, or for any related queries, please contact our Access Officer at access@mirri.org.

- Please note that specific offers and conditions, including free-of-charge access, are to be made available, at defined time periods, under the so-called TransNational Access (TNA) calls. For more information, please visit our TNA programme platform at https://www.mirri.org/microbial-resources-data/transnational-access-tna/.

For more detailed information about access modalities and conditions, please consult MIRRI's Access Policy available at www.mirri.org and/or contact us at access@mirri.org.

Interested in having your country or organisation joining MIRRI-ERIC?

MIRRI is continuously engaged in enlarging its coverage in Europe and beyond. EU Member States, associated countries, third countries other than associated countries and intergovernmental organisations may become a Member or an Observer of MIRRI-ERIC. Individual organisations – e.g., microbial domain Biological Resource Centres (mBRCs), culture collections or research institutes – may become a Partner of MIRRI-ERIC.

Advantages for countries joining MIRRI-ERIC:

- Coordinate and mutualise a comprehensive set of resources and services for the benefit of its scientific and entrepreneurial communities.
- Stimulate the scientific and technological development of its regions.
- Boost the competitiveness of product and service development in the different sectors of biotechnology.
- Foster investment and job creation.
- Obtain key insights for strategic planning and policy making.

Advantages for organisations joining MIRRI-ERIC:

- Become more competitive and provide improved harmonised services as a result of the exchange of knowledge.
- Improve sustainability, enlarge holdings in a coordinated, standardised and coherent manner, in line with their major expertise.
- Improve the standardised data offer associated to the microbial resources, by connection to the MIRRI Information System.
- Increase the accessibility to their capacities, taking advantage of the higher profile conferred by the MIRRI brand.

For more information on how to join MIRRI-ERIC, please visit www.mirri.org and/or contact us at info@mirri.org

MIRRI's key activities/achievements in 2020-2022

STRATEGY	Research & Innovation	▪ Publication of MIRRI's Strategic Research & Innovation Agenda 2021-2030 (https://www.mirri.org/about/repository/communication-materials/). ▪ Participation in several strategy groups and public consultations supporting policymaking at European and national levels.
	Intelligence & Business Development	▪ Set up of the business model and business plan for MIRRI-ERIC. ▪ User survey "How can we help delivering the maximum value from your projects, technologies or products?" ▪ Set up and implementation of the strategic plan "Broadening MIRRI's partnership with the private sector". ▪ Launching the foundations for the study "Microbial resources for an innovative, competitive and resilient bioeconomy".
ACCESS	Resources, Data & Services	▪ Development/update of MIRRI's catalogues (microbial resources, services and workflows) and expert clusters. ▪ Set up and implementation of two TransNational Access (TNA) Calls, with a total of 26 applications and 11 awardees. ▪ Development and implementation of the MIRRI Collaborative Working Environment (CWE) Platform.
	Education & Training	▪ Development/update of MIRRI's catalogue of training and education. ▪ Set up of the European Specialisation Course on Microbial Resource Centres (EuroMiRC). ▪ Set up and implementation of the Biotechnology Business Mentoring Support (BBMS) Programme, with 4 awardees/mentorees. ▪ Development of videos to promote literacy in microbial-related topics.
OPERATION	Operations & Quality	▪ Establishment of the new headquarter premises and hiring of the Management Backoffice staff. ▪ Development of the MIRRI Rules of Operation. ▪ Development and implementation of the MIRRI Dashboard. ▪ Development of an agreement on transnational field collections, and common procedures and standards for strain characterisation. ▪ Development of reports, checklists and guidelines on ABS, biosecurity and ISO 20387:2018. ▪ Attribution to MIRRI of the "European Research Infrastructure Consortium" (ERIC) status by the European Commission. ▪ Awarding of MIRRI with the "Landmark" status on the ESFRI Roadmap 2021. ▪ Granting of MIRRI-PT with a regional (Norte) €2.5M funding, and MIRRI-IT with a €17M national funding for capacitation activities.
OUTREACH	Partnerships & Enlargement	▪ Establishment of a working group and promotion of dedicated events and multiple bilateral meetings for attracting new Members/ Observers and Partners, from Europe and beyond. ▪ Interaction and/or formal partnerships with other Research Infrastructures and organisations, including the signature of two Memoranda of Understanding with the ERIC Forum and the US Culture Collection Network. ▪ Participation in 3 Horizon 2020 and 6 Horizon Europe projects in collaboration with other Research Infrastructures, with a total funding for MIRRI / MIRRI partners of about €7M.
	Branding & Communication	▪ Strengthening of the online presence: new webportal www.mirri.org and website www.ismirri21.mirri.org reaching several thousand users, and 5 social media accounts with 3,900+ followers. ▪ Production of communication materials – e.g. institutional presentation, brochures, newsletters, etc. ▪ Organisation of promotional/networking events, directly reaching 600+ participants, and participation (with booths, oral presentations or posters) in external events targeting MIRRI's different stakeholders and audiences.

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Social media

https://www.linkedin.com/company/microbial-resource-research-infrastructure

https://twitter.com/MIRRI_live

https://www.facebook.com/mirri.esfri

https://www.youtube.com/user/MicrobialResourceRI

The Microbial Resource Research Infrastructure – European Research Infrastructure Consortium (MIRRI-ERIC) is a 'Landmark' in the Health & Food domain of the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap.

MIRRI-ERIC is partly supported by the European Union, through the project "Implementation & Sustainability of Microbial Resource Research Infrastructure for 21st Century" (IS_MIRRI21), which has received funding from the Horizon 2020 Research and Innovation programme, under the Grant Agreement no. 871129. This document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.