

# How IS\_MIRRI21 H2020 Project paved the MIRRI-ERIC: The Current State of the Art

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# What is IS\_MIRRI21?

IS\_MIRRI21 - Implementation and Sustainability of Microbial Resource Research Infrastructure for the 21<sup>st</sup> Century

**IS\_MIRRI21** is a project funded by the European Union's Horizon 2020 programme to support research, development and innovation in the use and preservation of microbial life for the purpose of basic and applied scientific research.

> IS\_MIRRI21 began in February 2020 and will finish in January 2023. We are now discussing the potential 6 months extension.



@ Institut Pasteur - photo François Gardy



## **IS\_MIRRI21's Consortium**

The project is led by the **University of Minho** from *Portugal* and now has **13 partners** and **eight third parties** from nine European Union member states.







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# **IS\_MIRRI21's Mission?**

IS\_MIRRI21 aims to implement the **Microbial Resource Research Infrastructure** (MIRRI) and secure its long-term sustainability. With this in mind, the mission of IS\_MIRRI21 is to serve its stakeholders by providing:

- A. a broad range of high-quality biological resources and associated data;
- B. long-term sustainability of microbial;
- C. biodiversity, and knowledge and professional development.

### **IS\_MIRRI21's objectives**

The principal aim of IS\_MIRRI21 is to implement MIRRI and secure its long-term sustainability through 10 Work Packages





## **IS\_MIRRI21's main outputs**



The project intends to meet several goals by the end of its lifetime:

- Develop and launch of the Collaborative Work Environment (CWE);
- Establish a Transnational Access programme (TNA);
- Establish an Education and Training programme (E&T);
- Enlarge the MIRRI memberships.



# 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

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]

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- 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

### MICROBIAL RESOURCES FOR

# A GREEN, HEALTHY AND SUSTAINABLE FUTURE

Strategic Research & Innovation Agenda 2021 - 2030



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

		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	Environment & Energy	Research & Development of new, safe, healthy         and sustainable food and feed products         Resources and methods for biological         management of soils and crops         Resources and methods for biomonitoring and/or         bioremediation of microbial pathogens, persistent         organic pollutants and plastics in soils and waters         Besearch & Development of renewable biobased	Bi	Biodiversity iotechnology Bioeconomy Sustainability One Health
		chemicals, materials and bioenergy sources Rescuing and preserving microbial biodiversity		

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



### 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



# 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		
inici o biai i						Environment & Energy	
		Strategic Area 1	Strategic Area 2	Strategic Area 3	Strategic Area 4	Strategic Area 5	Strategic Area
	Archaea for bloactive compounds		•	•			
Archaea	Archaea for agro-environmental applications					0	٠
	Archaea for biotech applications	•	0		۰		۰
	Pathogenic bacteria (for humans, animals, plants and crops)	•	•	0	•	•	
	Bacteria for bloactive compounds						•
	Foodborne bacteria						•
Bacteria	Bacteria for agro-environmental applications (e.g. bioremediation, biofertilizers, biopesticides, etc.)				•	•	•
	Bacteria for biotech applications			0		•	
	Bacteria as reference strains for bioassays' controls	•					•
	Taxic cvanobacteria (for humans and animals)						
	Cyanobacteria for bioactive compounds						•
Cvanobacteria	Cyanobacteria for faod (e.g. dietary supplements)						•
Gjunobuccenu	Cyanobacteria for agro-environmental applications (e.g. biofertilizers)				•	•	•
	Cyanobacteria for biotech applications	•			•		•
	Pathogenic fungi (for human, animal, plants and crops)						
	Fundi for bioactive compounds						
	Foodborne fungi						
Filamentous Fungi	Fungi for agro-environmental applications (e.g. bioremediation, biofertilizers, biopesticides, etc.)						
	Fungi for biotech applications	•	•	0			
	Fungi as reference strains for bioassays' controls	•			•		•
	Pathogenic yeasts (for human, animal, plants and croos)						
	Yeasts for bioactive compounds (e.g. mycocins)						
Yeasts	Yeasts for biotech applications						
	Yeasts as reference strains for bioassays' controls		•				•
	Uleandana far blandke ennes ode						
	Microalgae for booktive compounds		•				
Microalgae	Microalyna for non-anvironmental analiantiane (a.n. hioramariation hiofartilizare atc.)					-	
	Microalage for bistech applications						
	Pathogenic viruses (for humans, animals, plants and crops)	•	•	•		•	•
	Viruses for therapies		•				•
Viruses	Viruses us vectors		•				
	Vinuese for biotech condications						
	Viruses as reference strains for bioassavs' controls						
	territoria		•				
	Human, animat and plant cell lines	•	•	•	•	•	•
Cell Lines & Genetic	Masmas	•	•	•	•	•	•
Constructs	sacteriophage 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  $\ensuremath{\mathbf{2}}$

#### 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	OTHER SERVICES			
Isolation and purification of strains Isolation and purification of strains Freeze-drying Optimisation of preservation conditions Optimisation of preservation conditions Optimisation of cultivation/fermentation Optimisation of cultivation/fermentation Microbial counting/titer Microbial counting/titer	Other characterisation analyses         . Mycovirus detection         . Determination O <sub>2</sub> consumption / CO <sub>2</sub> 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         . DNA extraction			
SCREENING, TESTS AND BIOASSAYS	. Construction and characterisation of intraspecific hybrids			
Grown promoting antimicrobial randviral bloassays     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	TAXONOMIC DATABASE TOOLS Taxonomic database tools . MycoBank . YeastIP . FungalDC . Yeast-ID . BIGSdb-Pasteur . Klebsiella MALDI TypeR . CLIMA			
Characterisation of technological abilities of microbial strains	CONSULTANCY, TRAINING AND CONTRACT RESEARCH			
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	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,  $\beta$ -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

# 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 <u>access@mirri.org</u>.

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

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?

### 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.

\* e.g. mBRCs, culture collections or research institutes.

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 2020-2021

	Research & Innovation	<ul> <li>Publication of MIRRI's Strategic Research &amp; Innovation Agenda 2021-2030 (<u>https://www.mim.org/about/repository/communication-materials/</u>).</li> <li>Participation in several strategy groups and public consultations supporting policymaking at European and national levels.</li> </ul>
STRATEGY	Intelligence & Business Development	<ul> <li>Set up of the business model and business plan for MIRRI-ERIC.</li> <li>Launching of the user survey "How can we help delivering the maximum value from your projects, technologies or products?"</li> <li>Set up and implementation of the strategic plan "Broadening MIRRI's partnership with the private sector".</li> <li>Launching the foundations for the study "Microbial resources for an innovative, competitive and resilient bioeconomy".</li> </ul>
2	Resources, Data & Services	<ul> <li>Development/update of MIRRI's catalogues (microbial resources, services and workflows) and expert clusters.</li> <li>Set up and implementation of the 1<sup>st</sup> TransNational Access (TNA) Call and preparation of the 2<sup>nd</sup> call.</li> <li>Development and implementation of the MIRRI Collaborative Working Environment (CWE) Platform.</li> </ul>
ACCESS	Education & Training	<ul> <li>Set up of the European Specialisation Course on Microbial Resource Centres (EuroMiRC).</li> <li>Set up of the Biotechnology Business Mentoring Support (BBMS) Programme.</li> <li>Development of videos to promote literacy in microbial-related topics.</li> </ul>
OPERATION	Operations & Quality	<ul> <li>Establishment of the new headquarter premises and hiring of the Management Backoffice staff.</li> <li>Application of MIRRI to the "European Research Infrastructure Consortium" (ERIC) status.</li> <li>Awarding of MIRRI with the "Landmark" status on the ESFRI Roadmap 2021.</li> <li>Development of the "MIRRI agreement on transnational field collections" and the "MIRRI common procedures and standards for strain characterisation".</li> </ul>
	Partnerships & Enlargement	<ul> <li>Establishment of a working group and promotion of dedicated events for attracting new Members/Observers and Partners, from Europe and beyond, including a mission to Brazil and Chile.</li> <li>Interaction and (preparation of) formal partnerships with other Research Infrastructures and organisations.</li> <li>Participation in several Horizon 2020 projects n collaboration with other Research Infrastructures.</li> </ul>
OUTREACH	Branding & Communication	<ul> <li>Strengthening of the online presence: new webportal <u>www.mirri.org</u> and website <u>www.ismirri21.mirri.org</u> reaching several thousand users, and 5 social media accounts with 2,500+ followers.</li> <li>Production of communication materials – e.g. institutional presentation, brochures, newsletters, etc.</li> <li>Organisation of promotional/networking events, directly reaching 600+ participants, and participation in external events targeting MIRRI's different stakeholders and audiences.</li> </ul>

## **MIRRI Partnerships with other RIs and Organisations**







BBMRI-ERIC

ITMP

HORIZON-INFRA-2021-EMERGENCY-01

FAIR and open data sharing in support to European preparedness for COVID-19 and other infectious diseases BY-COVID – Beyond COVID / 53 Partners / ELIXIR (coord.) / approved (12M€)

### HORIZON-INFRA-2021-EMERGENCY-02

Research infrastructure services for rapid research responses to COVID-19 and other infectious disease epidemi ISIDORe / 17 Partners (+150 Extended partners) / ERINHA (coord.) / approved (21M€)

### HORIZON-INFRA-2021-SERV-01-01

Research infrastructures services to support research addressing cancer CanServ / 19 Partners / BBMRI (coord.) / approved (15M€)

### HORIZON-INFRA-2021-SERV-01-02

P BIOIMAGING Research infrastructures services for a sustainable and resilient agriculture and agro-ecological tr

AgroServ / 73 Partners / Anaee (coord.) / approved (15M€)

### HORIZON-INFRA-2022-TECH-01-01

MICRObiome Biobanking (RI) Enabler

MICROBE / 9 Partners / AIT (coord.) / under negotiation (c. 5.8M€)

### HORIZON-INFRA-2022-TECH-01-01

eatrıs

Fraunhofer

Bioindustry 4.0 BIOINDUSTRY 4.0 / 24 Partners / IBISBA (coord.) / under negotiation (c. 10M€)







EMBRC EUROPEAN MARINE BIOLOGICAL RESOURCE CENTRE











17 PARTNERSHIPS FOR THE GOALS

### **MIRRI-ERIC European Headquarters**

University of Minho Campus of Gualtar Pedagogic Complex 3, Floor 0 4710-057 Braga Portugal

### www.mirri.org

### 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



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