



MIRRI: IMPROVING ACCESS TO MICROBIAL RESOURCES, SERVICES AND DATA

Locations France, Germany, Italy, Netherlands, Poland, Portugal, Russia, Spain, Sweden, United Kingdom

Dates 01/11/2012 - 30/06/2018

Summary Microorganisms are vital natural resources for biotechnology; they help advance human health, improve food security and provide innovative solutions to research and development. The European microbial landscape is fragmented and resources or data are hard to find. The Microbial Resource Research Infrastructure (MIRRI) is resolving this; integrating the main microbial domain – Biological Resource Centres and their supporting services and data into a novel pan-European research infrastructure.

The problem To date less than 1% of the estimated known species have been described and are able to be harnessed by man. When new species are discovered, expertise is needed to accurately identify them. Modern tools for identification, such as public sequence databases, are expanding rapidly but the information they produce is often of poor quality and not backed up by biological material.

Original material can confirm data, and either provide information to re-characterization or for further work. In addition, millions of strains for research are sourced without proper authentication (without verifying their identity), so easy access is required to high quality biological materials and associated information to provide innovative solutions to some of the worlds' problems.

Microorganisms also need to deliver fair returns to the places from which they originate particularly with regard to the access and benefit sharing mechanisms of the Convention of Biological Diversity and the subsequent Nagoya Protocol. There is a need for coordination, common standards and activity sharing in order to facilitate legitimate access to known and yet to be discovered microbial populations.

Individual microbial Biological Resource Centres cannot present global solutions to microbiological needs; this requires a coordinated approach and MIRRI hopes to achieve all this through its expert networks.

What we are doing

MIRRI provides a broad range of microorganisms (about 450,000 resources) to users from academia, health and agricultural authorities, and the bio-industry. Currently 12 microbial Biological Resource Centres from 11 countries offer their expertise in analyzing complex microbial interactions; from isolating a specimen to describing a novel species, deciphering genomic information and its path to gene expression, and provide genetic identification for biotechnological exploitation as well as analysis and understanding of environments.

Additionally, MIRRI offers:

- Economy of scale: together MIRRI can afford the full range of often expensive technologies needed to explore biodiversity
- A single entry point access to the entire spectrum of microorganisms
- European standards of collection, curation and analysis
- Ambitious, collaborative research goals over extended periods
- Sharing of best practices, standards, data and personnel exchange for sabbaticals, training and education

MIRRI is setting the framework to change the way microbial Biological Resource Centres operate so that they can underpin and improve the microbiological sciences more effectively and efficiently.

Results so far

The MIRRI infrastructure is currently under development, but basic services are already available (see the [MIRRI website](#)). During the preparatory phase the number of associate partners increased to 28, and the network is now represented in 19 countries. Full operability (ie. the virtual entry point to all services) and the collaborative environment will be achieved once the legal status is established. Even before this, those involved in the initiative are exchanging technology and knowledge through publications and workshop participation (over 70 workshops and over 30 conferences, presenting 76 papers) and publishing more than 20 peer-reviewed papers.

MIRRI also provides input to three EU INFRADEV 3 projects:

- CORBEL (Coordinated Research Infrastructures Building Enduring Life-science Services) in which MIRRI is one of the work package leaders
- The infrastructure cluster EMBRIC (European Marine Biological Research Infrastructure Cluster to promote the 'Blue Bioeconomy') in which MIRRI mainly constitutes the beginning of a natural product pipeline
- Rltrain (Research Infrastructure Training Programme) in which MIRRI covers part of the microbial area

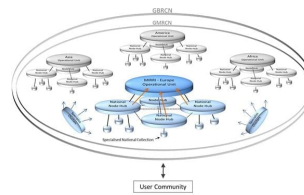
Donors

European Union's Seventh Framework Programme

Partners

Culture Collection, University of Göteborg (CCUG), Institut Mediterrani d'Estudis Avançats (IMEDEA), Spanish Type Culture Collection (CECT), All-Russian Collection of Microorganisms (VKM), Westerdijk Fungal Biodiversity Institute [formerly: CBS ? KNAW Fungal Biodiversity Centre (CBS)], University Hospital San Martino IST (USMI), Mycotheca Universitatis Taurinensis (MUT), Leibniz Institute DSMZ ? German Collection of Microorganisms and Cell Cultures (DSMZ), International Centre for Microbial Resources (CIRM), Belgian Coordinated Collections of Microorganisms (BCCM/LMG)

CABI Project Manager David Smith



<https://www.cabi.org/what-we-do/cabi-projects/>