MIRRI-ERIC Policy on Accession

One element of the MIRRI-ERIC mission is to acquire, curate and provide live microorganisms that are interesting or valuable to the scientific, educational and business communities to foster and support the development of basic and applied science. Based on a long tradition, individual European not-for-profit microbial domain Biological Resource Centres (mBRCs) were established to allow facilitated and legal access to resources worldwide, to add value to known and yet unknown microbial biodiversity and to exploit unknown sources and knowledge to discover and disclose for the bio-economy and bioscience.

The present content, scope and range of biodiversity within individual European mBRCs is due to the history of individual research projects and the history of national mandates of funding bodies. More than 450.000 microbial resources are presently housed in the MIRRI partner collections with annual uptakes between a few dozen to up to 1.200 strains, consisting of obligatory deposits of type and reference strains and non-mandatory accessions of research material deposited by scientists. As the acquisition of novel material is not harmonized among European partner collections a stringent accession policy is required to guide mBRC managers and curators to coordinate a most complete offer that will satisfy the demands of users whilst balancing the needs of the individual mBRCs and their stakeholders.

The MIRRI-ERIC accession decision matrix focuses on:

- increasing taxonomic, metabolic, geographic, and ecological strain diversity;
- reducing redundancy at lower ranks (i.e. avoiding the acquisition of genera, species and strains which are already well covered in other collections);
- resources that have been published and deposited outside public (academic and industrial) collections;
- resources which are in an actual focus of innovative science and research & development;
- the provision of specialized collections, including consortia, for applications in bio-industry.

MIRRI-ERIC decision making policy

According to the MIRRI-ERIC Partner Charter mBRC partners agree to a targeted accession of biological material to broaden the range of strains that are of high interest for bio-industry and bio-science; this being financially supported by the respective mBRC host country. The mBRC Directors Forum (Article 10 of the MIRRI-ERIC Statutes), consisting of all directors of the signatory Partner-mBRCs of the MIRRI-ERIC, shall discuss and conclude on an annual update of the common accession policy and make ad-justments when deemed necessary (e.g. new member mBRCs, or new taxa and properties described). These updates shall be included in the annual Work Program to allow the Executive Director of the Central Coordinating Unit to coordinate its implementation through national nodes.

It will be a task of the Central Coordinating Unit to develop a strategy to make the deposition of microbial resources included in scientific publications into mBRCs mandatory by liaising with publishers of scientific journals.

It will be the task of National Nodes to evaluate national academic research collections for the presence of valuable material worth depositing in public collections.

It will be the task of the Central Coordinating Unit, the National Nodes and of individual mBRCs to seek national and international funding opportunities to expand the infrastructure to broaden the range of accessions and to link data to resources.

Accession Priorities

As the number of microbial strains cited and used in public research by academia and industry exceeds the maximal number of annual acquisition in public collections a pre-selection of available resources must be defined.

<u>For Prokaryotes and fungi including yeasts:</u>

- Metabolic uniqueness, based on the presence of a new pathway, modification of an existing pathway, metabolic differences compared to the type strain or novel products including any strains with demonstrated useful properties i.e. production of specific molecules, biopesticide, biofertilizer, degradation of specific compounds, etc. to facilitate biotech exploitation;
- Strains associated with significant or new plant and animal diseases in order to ensure reliable reference material is available for diagnostic services and activities;

- Strains from unexplored or extreme environments (e.g. naturally extreme environments, foodstuffs, polluted environments);
- Strains with potential for bioremediation or as soil health improvers;
- Strains from population studies, to further estimate biodiversity in various niche, environ-ments, substrates etc.;
- Any strain associated to a complete (or partial) nuclear genome sequence (as a reference and/or as part of future population studies). This includes the genomic uniqueness criteria of the prokaryote list;
- Several strains of those species for which only the type strain has been described (to allow delineation of species and to find strains with opposite mating types for genetic experimentation and strain improvement); it is useful to deposit strains from the same locality as they may show differences in virulence and other biological properties. Similarly, subspecies, special forms and different races may often exhibit different and unique properties;
- Strains associated with significant or new plant and animal diseases in order to ensure reliable reference material is available for diagnostic services and activities;

Additional for Prokaryotes:

- Phylogenetic uniqueness, based on a cut-off point of ≤98% of 16S rRNA gene sequence from its nearest phylogenetic neighbor;
- Genomic uniqueness, such as significant differences (≥20%) in genome size, genome architecture or new regulatory mechanisms;
- Resources and parts thereof with fully sequenced genomes (microorganisms, phages, plasmids);

Additional for fungi including yeasts:

- (Ex-) type strains of novel taxa – currently there is not a mandatory process for storing living cultures of the dead dried reference material for fungal types;
- Phylogenetic uniqueness, based on significant differences in the various phylogenetic markers defined for yeasts and fungi (e.g. ITS, D1/D2, SSU, LSU, EF1-alpha, tubulin, etc.);

  Selection criteria for the accessioning of microbial resources not listed above but falling into the MIRRI portfolio of resources shall be defined by members of the mBRC Directors Forum.

Reasons for not accepting a strain (and not limited to):

1. It is a duplicate of a strain already held in other MIRRI collections (except type and references strains);
2. Resources isolated after October 2014 where mandatory documentation as required by the Nagoya Protocol and national ABS measures (e.g. PIC, MAT) but not provided;
3. It is one of several isolates from the same location and the organism is not otherwise deemed interesting enough to have multiple strains;
4. A pure culture is contaminated with other microorganisms;
5. Strains with biosecurity or biosafety implications, or strains outside licensing remits of the mBRC.

Terms and Conditions of Microbial Resource Accession and Discarding

'Accessions are subject to the terms and conditions of the accepting mBRCS, and may include restrictions related to biosafety and biosecurity of national or institutional relevance.

Potential depositors must acknowledge and agree that accepting or not accepting a microbial resource for accession into MIRRI partner mBRC shall be within the sole and exclusive discretion of the respective partner mBRC. Strains will only be accepted if the depositors have undertaken due diligence with respect to the Nagoya protocol of the CBD with evidence provided for prior informed consent and mutually agreed terms where needed.

Furthermore, the discarding of a microbial resource currently being stored/maintained by the MIRRI partner mBRCs is also within the sole and exclusive discretion of the partner mBRC though the respective authority in the country of origin will be consulted beforehand.
http://dx.doi.org/10.5281/zenodo.47247