The Joint Research Unit MIRRI-IT

During the preparatory phase of MIRRI, 2 Institutions joint the project as full partners and 3 Institutions as collaboration parties.

Full Partners:
University of Torino (MUT)
University Hospital San Martino Genoa

Collaborative Parties:
University of Perugia (DBVPG)
University of Modena 6 Reggio Emilia (UNIMORE)
Italian National Research Council (ITEM_BA).

Survey of 158 questions about biological material, QMS, Biosafety, biosecurity, Code of Conduct, services, etc.
During the preparatory phase of MIRRI and after, MUT carried out a survey at national level:

- to list all the microbial culture collections located in Italy;
- to characterize the mCCs;
- to do a SWOT analysis of the Italian situation;
- to create a mailing list and a working group with the aim to create the national network of microbial culture collections;

Survey of 158 questions about the biological material preserved, QMS, biosafety, biosecurity, Code of Conduct, Services, database, staff, business plan, etc.
Italian holdings according to the survey

<table>
<thead>
<tr>
<th>Microorganisms</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archea</td>
<td>44</td>
</tr>
<tr>
<td>Bacteria</td>
<td>63.395</td>
</tr>
<tr>
<td>Cianobacteria</td>
<td>98</td>
</tr>
<tr>
<td>Filamentous fungi</td>
<td>27.336</td>
</tr>
<tr>
<td>Lichens</td>
<td>9</td>
</tr>
<tr>
<td>Yeasts</td>
<td>23.070</td>
</tr>
<tr>
<td>Microalgae</td>
<td>2250</td>
</tr>
<tr>
<td>Plasmids</td>
<td>60</td>
</tr>
<tr>
<td>Animal/Human Virus</td>
<td>5250</td>
</tr>
<tr>
<td>Plant/Fungal Virus</td>
<td>1.420</td>
</tr>
<tr>
<td>Phages</td>
<td>65</td>
</tr>
<tr>
<td><strong>TOT</strong></td>
<td><strong>122.997</strong></td>
</tr>
</tbody>
</table>

48 collections have been listed and analyzed.
The Institutions that host the largest collections of microorganisms in Italy (90%)

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Università degli studi di Bologna</td>
<td>18.880</td>
</tr>
<tr>
<td>Università degli studi di Torino</td>
<td>16.072</td>
</tr>
<tr>
<td>CNR – Istituto di scienze delle Produzioni Alimentari - Bari</td>
<td>11.602</td>
</tr>
<tr>
<td>Università degli studi di Perugia</td>
<td>6.500</td>
</tr>
<tr>
<td>AGRIS Sardegna – Agenzia per la ricerca in agricoltura della Regione Sardegna - Sassari</td>
<td>10.000</td>
</tr>
<tr>
<td>Università degli studi di Sassari</td>
<td>7.000</td>
</tr>
<tr>
<td>Milano Fondazione IRCC CA’ Granda – Ospedale Maggiore di Milano</td>
<td>6.900</td>
</tr>
<tr>
<td>Università degli studi di Parma</td>
<td>5.222</td>
</tr>
<tr>
<td>Istituto Nazionale per le Malattie Infettive &quot;Lazzaro Spallanzani&quot; I.R.C.C.S</td>
<td>5.110</td>
</tr>
<tr>
<td>CREA – Centro di ricerca per la Patologia Vegetale</td>
<td>4.480</td>
</tr>
</tbody>
</table>
The preserved biodiversity is **not always managed properly** according to the international standards required;

it is not visible to potential users as most of the collections **do not have catalogs available online**;

numerous Collections have **critical issues regarding the documentation** related to the acquisition and distribution of biological material in compliance with the regulations relating ABS of genetic resources, to the biosecurity of biological material (**Biosafety and Biosecurity**) and to the **Code of Conduct of the staff** who comes into contact with the material itself.

Lack of permanent staff and of specific skills (bioinformatics, certifications, etc)

**Highlighted several Weaknesses**

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**Coordination to improve the management of the collections sharing the Best Practices, training the personnel working in the collections and to improve the dissemination of information through the creation of catalogs on-line and shared websites.**
In light of the strategic importance of the collections in education, in the epidemiology of animal and plant diseases and in biotechnologies, the discrepancy between the abundance of services offered and the management of resources should not be underestimated.

The collections of microorganisms therefore have a fundamental socio-economic importance Italy, although not always recognized in terms of monetary turnover.

The raising of standards in the management of collections of microorganisms, represents an important opportunity for scientific and economic growth.
mBRC and CCs play an important role in supporting Italian companies that, in many cases, take advantage of the services or skills in mBRC. Plus a lot of unpaid services!!!!
Total annual turnover around 1 million euros...

...impossible for many collections to report independently from their institutions.

The turnover of the collections will increase considerably if we the low awareness of the industrial sector with respect to the current and potential services provided by the collections.

It will therefore be important to implement communication strategies (www.mirri-it.it/)
The Joint Research Unit MIRRI-IT has been founded in 2017 for the implementation of the Italian node of the European Microbial Resource Research Infrastructure (MIRRI-ERIC).

Current partners of the MIRRI-IT JRU: the Universities of Turin, Perugia, Modena and Reggio Emilia, the University Hospital San Martino Genoa and the Italian National Research Council.

Main goal of the MIRRI-IT JRU:
- to develop a tight network of Italian collections of microbial resources.
- to overcome fragmentation in availability of resources and services; to enhance the quality management system of the collections; to focus on needs and challenges of the stakeholders interested in the biotechnological transfer of these resources.
13 new Entities joint the JRU MIRRI-IT

Associated Partners

Agenzia regionale per la ricerca in agricoltura - AGRIS Sardegna.
- Dipartimento di Biologia dell’Università di Napoli “Federico II”
- Dipartimento di Scienze Agrarie, Alimentari e Forestali, Università di Palermo
- Dipartimento di Scienze Ecologiche e Biologiche (DEB) dell’Università degli Studi della Tuscia
- Istituto Nazionale di Oceanografia e di Geofisica Sperimentale di Trieste
- Istituto Nazionale Malattie Infettive Lazzaro Spallanzani
- Istituto Zooprofilattico Sperimentale della Lombardia e dell’Emilia Romagna - IZSLEM.
- Istituto Zooprofilattico Sperimentale delle Venezie
- Scuola SAFE dell’Università della Basilicata (Scuola di Scienze Agrarie, Forestali, Alimentari e Ambientali)
- Università di Genova
- Università di Milano Bicocca
- Università di Roma la Sapienza
- Università di Sassari

Universities, Zooprophylactic Institutes, Hospitals, Regional Agencies for Agricultural and Food Research, etc
✓ Coordination Group
✓ General Assembly
✓ Scientific Committee
The General Assembly is the highest governing body of JRU and meets at least once a year.

✓ Each Party has the right to cast one vote (resolution with a 2/3 majority).
✓ The members cannot be part of the Coordination Group.

- Propose to the Parties to approve agreements and Memorandums of Understanding with other JRUs, organizations or public and private entities that have a positive and significant impact on the aims and activities of the JRU defined in the previous articles;
- Approve requests for new membership;
- Adopt regulations and guidelines and make the necessary decisions to ensure the effectiveness of the JRU in pursuing its goals;
- Approve the use of the JRU to participate in calls for the presentation of project proposals;
- Periodically approve a JRU Activity Plan, and on this basis the annual program of JRU activities;
The Scientific Committee is the body of the JRU to which the scientific support functions are delegated, as well as the processing of the Annual Activity Plan and the implementation of the activities (decides with a 2/3 majority).

- Each Party has the right to cast one vote (resolution with a 2/3 majority).
- The members cannot be part of the Coordination Group.

- work on the JRU regulation together with the coordinator in order to favor the participation in the JRU of other subjects;
- Request the General Assembly to approve with other JRUs, organizations or public and private entities that have a positive and significant scientific impact on the aims and activities of the JRU defined in the previous articles (Associated partners);
- Request the General Assembly to approve the use of the JRU to participate in calls for the presentation of specific project proposals;
- Request the General Assembly to approve the Annual Activity Plan;
Coordination Group

☑ Coordinator
☑ JR Unit Manager
☑ Liason Officer

- Maintaining relations at European and national level with project partners, other JRU ministries, etc.
- Bring forward the proposals ratified by the General Assembly;
- Disseminate the JRU activities and the results obtained;
JRU MIRRI-IT objectives

◆ Promotion of the Italian adhesion to MIRRI-ERIC;
◆ Valorisation of the resources and competences of the institutions belonging to MIRRI-IT;
◆ Coordination of national activities within MIRRI-ERIC; interface with MIUR (and other Ministries) for Italian membership in MIRRI-ERIC;
◆ Promotion of the role of the Collections in the Italian landscape (scientific research, technology transfer) also favoring new adhesions to MIRRI-IT;
◆ Promotion of joint projects at national and international level;
◆ Creation of a national network of mBRCs to increase the supply of services related to microbiological resources;
◆ Creation of a MIRRI-IT portal to facilitate access to conserved genetic resources and to provide information in terms of skills (including legal basis - intellectual property);
◆ Coordination of services offered;
◆ Promotion of the transfer of know-how to potential users through the establishment of groups of expert consultants and training programs;
◆ Support for minor collections through the implementation of good practices to allow the transition to mBRC.
MIRRI-IT JRU main activities

- **Support funds rising** at national and local level (MIUR, MIPAAF – Anagrafe biodiversità at Regional level)
- **Coordinate and support** the operation of the Microbial Culture Collections in Italy according to the established international quality standards;
- **Harmonize the procedures** of the Collections in order to comply with national and international rules (i.e. Nagoya Protocol, Intellectual Property Rights, privacy, biosafety, etc.);
- **Propose actions** to relevant State authorities in order to strenth the functioning and sustainability of the Collections;
- **Promote interdisciplinary cooperation** and represent Italy in relevant national (SBI; SIMTREA; etc) and international Networks and Organizations;
- **Provide a unique entry point** to quality microbiological services and microbial Biological Resource Centres (mBRC) holdings.
- **Ensure access to data** contained in partner databases, implementing their interoperability.
1. Guarantee security of microbial biodiversity according to Best practices for future use and protection of public funding investment;
2. Guarantee legal certainty on genetic resources use becoming an important tool to comply with national and international legislations (CBD, NP, etc);
3. Guarantee data interoperability to facilitate global data mining;
4. Guarantee broader access to material for the exploitation of microbial diversity and related data to boost knowledge transfer and innovation driving a successful bioeconomy;
5. Guarantee access to technology, services and expertise to meet stakeholder needs;
6. Guarantee the development of clusters of expertise and innovative services to solve societal challenges interacting with other ESFRI RIs at National level;
7. Guarantee increase level of education and training creating interdisciplinary programs for students, researcher, staff of BRC and SMEs and citizens.
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President of the Scientific Committee: Ing. Paolo Romano (email: paolo.romano@hsanmartino.it)

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https://www.researchgate.net/project/Join-Research-Unit-MIRRI-IT