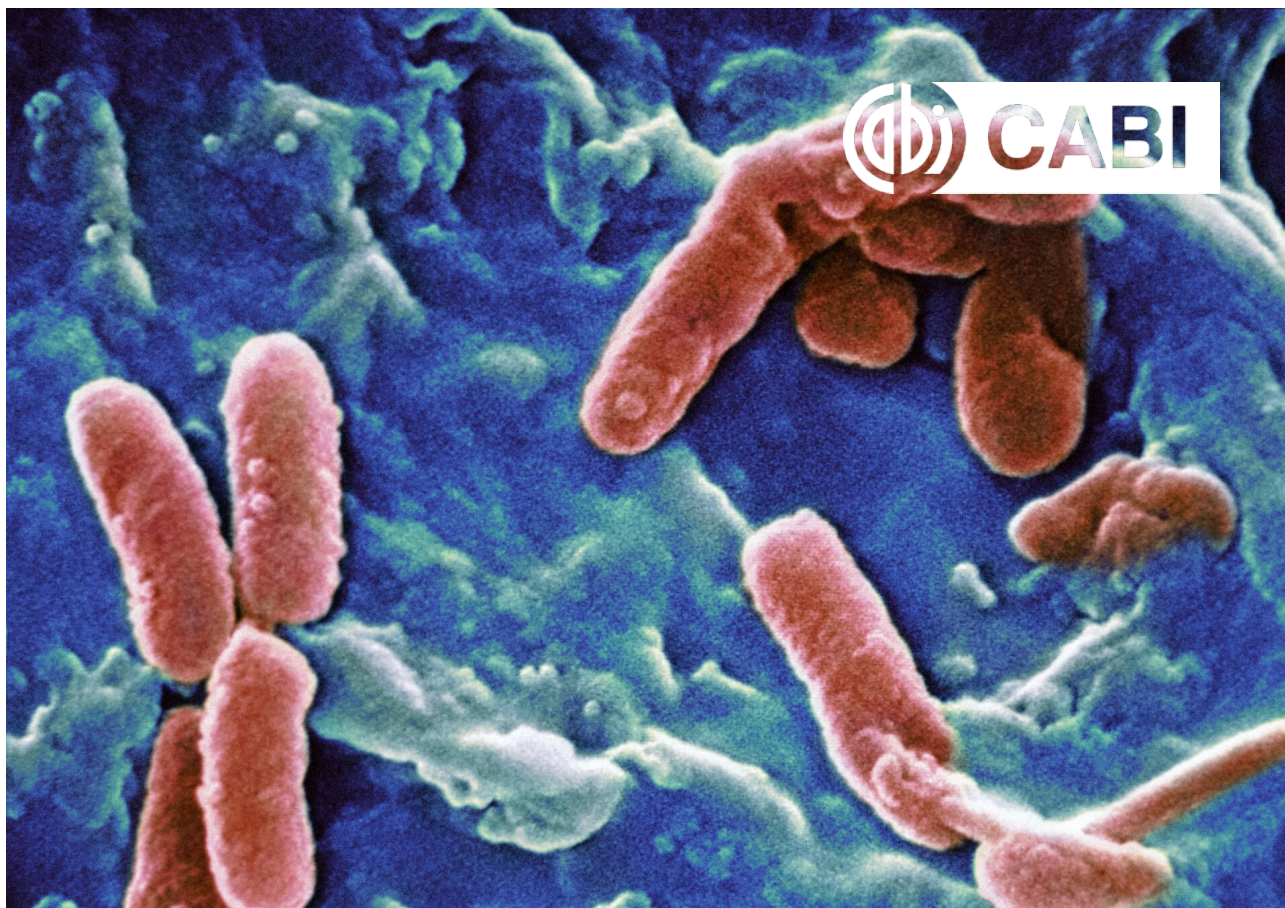




THE EUROPEAN MICROBIOME BIOBANKING (RI) ENABLER

Locations Europe

Dates 01/02/2023 - 31/01/2027

Summary

Microbiomes are communities of microorganisms that include bacteria, archaea, protists, fungi and microalgae, their structural elements, metabolites, signal molecules, mobile genetic elements and surrounding environmental conditions. They are essential for maintaining ecosystems and the health of plants, animals and humans. The EU-funded MICROBE project will cooperate with research infrastructures to create and develop methodologies and technologies to enable access to microbiome samples and associated data. The project objectives include technical solutions for microbiome preservation, propagation and functionality assessment, as well as data infrastructures. MICROBE will also address issues associated with standardization, ethical and legal requirements, and business opportunities.

The problem

Microbiomes comprise of communities of microorganisms (microbiota that includes bacteria, archaea, protists, fungi and microalgae) and their "theatre of activity" (structural elements, metabolites, signal molecules, mobile genetic

elements, as well as surrounding environmental conditions).

Microbiomes play a key role in maintaining life on Earth by providing a range of essential ecosystem services and are indispensable for the health of plants, animals and humans. Therefore, there is a wide consensus that by harnessing microbiome functions, society would be better placed to tackle global challenges such as food security, health and wellbeing, food waste management, and climate change mitigation.

To facilitate the science necessary to achieve key advances in microbiome research, methodologies and technologies to capture or create, ensure stable long-term maintenance, and experimentally perturb microbiomes are required.

Research infrastructures currently lack optimized methodologies and technologies to preserve and provide access to microbiome samples and massive amounts of associated data.

What we are doing

The MICROBE project is designed to address these issues by building upon and connecting:

1. technical solutions for microbiome preservation, propagation and functionality assessment
2. novel ecological concepts ("core microbiome" and "microbial keystone taxa"), and
3. data infrastructures.

In addition, MICROBE will address essential framework issues such as standardization, ethical and legal requirements and new business opportunities.

Participation of relevant European research infrastructures such as BBMRI-ERIC, MIRRI, ELIXIR and EMBRC-ERIC, ensures that community needs are properly addressed and that developed solutions are efficiently taken up by the infrastructures themselves and by their user communities.

The long term ambition is to ensure widespread uptake in microbiome research communities and therefore support the development of novel microbiome-based applications.

CABI is leading Work Package 1 – Technical solutions for biobanking of microbiome samples. This work package is seeking to develop the technology required for the preservation of microbiome samples and synthetic microbial communities.

Results so far

Early results are encouraging, with partners reporting the successful cryoconservation of microbiome samples as measured by sample viability post-storage.

The next steps of the project will involve optimizing the technology to ensure we conserve representative biodiversity while answering key scientific questions relating to keystone species, retention of functionality and analysis of meta-data.

[More information](#) about the MICROBE project.

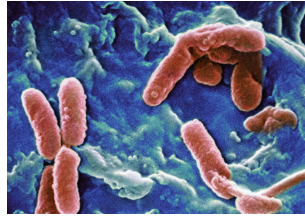
Donors

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Partners

Medizinische Universität Graz, AIT Austrian Institute of Technology GMBH, Institut National De Recherche Pour L'Agriculture, L'Alimentation et L'Environnement, Helmholtz Zentrum München Deutsches Forschungszentrum Für Gesundheit Und Umwelt GMBH, Leibniz-Institut DSMZ-Deutsche Sammlung Von Mikroorganismen Und Zellkulturen GMBH, European Molecular

CABI Project Manager Matthew Ryan



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