

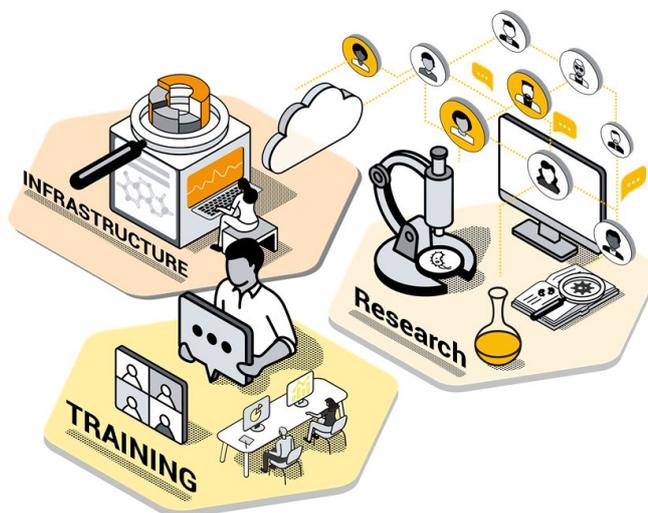
Welcome

Dear Reader,

With our third NFDI4Microbiota newsletter, we would like to share news about our upcoming conferences and events. In this issue, you can also read about our connecting efforts and we continue presenting recent publications, news and much more.

If you are interested in other topics we should cover, please let us know. We are happy to [hear from you!](#)

And now: Enjoy reading the newsletter!



Community engagement – events and conferences

Save the date for the second NFDI4Microbiota annual conference

The theme of this year's NFDI4Microbiota conference is "Community Engagement", as we want to get to know our participants and their needs, and give them an insight into our services. The conference will take place April 24-26, 2023, venue and registration information will follow shortly. On the morning of the first day, we will present our services to the community during NFDI4Microbiota lectures, which will be available online for everyone to attend. The rest of the conference will be reserved for NFDI4Microbiota participants, ambassadors, committees and the NFDI4Microbiota consortium. The first day will be a community day to connect with our participants and ambassadors. The second day will be dedicated to cross-cutting issues such as training and workflows, as well as the General Assembly. The third day will feature inspirational talks from international speakers involved in similar projects, followed by roundtable discussions about our Use Cases and a community workshop.

Love is in the air! NFDI4Microbiota contributes to Love Data Week 2023 with a panel discussion on the benefits of data-driven decisions in life sciences

During the [Love Data Week 2023](#), several NFDI consortia participate in events or training regarding the topic "Data: Agent of Change". Together with the NFDI consortia DataPLANT, NFDI4Health and NFDI4Biodiversity, we will host an in-person panel discussion on 'Wind of change - sharing is caring! How

Love is in the air!

'Wind of change - sharing is caring' - How to improve research data and its benefits in the Life Sciences.

2023-02-16, 3-5 PM CEST - Save the date!

Panel discussion, hybride event at University of Bremen.



to improve research data and its benefits in the Life Sciences' at the University of Bremen. Data-driven decisions in the life sciences have an immense impact on human and environmental well-being, as well as on the development of research directions. Therefore, experts from different areas of the life sciences will discuss the importance of data-driven decisions using best practice examples. Expect an in-depth discussion on the challenges and benefits of cultural change related to research data governance, Open Science and FAIR principles, and their impact on the daily life of each individual.

- **Panelists:** Prof. Dr. Konrad Förstner (NFDI4Microbiota), Björn Usadel (DataPLANT), Dr. Barbara Ebert (NFDI4Biodiversity), Prof. Dr. Dagmar Waltemath (NFDI4Health)
- **Moderation:** Dr. Kerstin Elbing (VBio)
- **Location:** University of Bremen Bremen, Room NW2 C0290 (Hörsaal 1)
- **Date and time:** 2023/02/16 15.00 - 17.00 PM CEST
- **Zoom option:** Meeting-ID: 812 3227 9619, Password: 092856

NFDI4Microbiota World Café on Electronic Lab Notebooks (ELNs)

To identify the needs of the German microbiology research community on Electronic Lab Notebooks (ELNs), we will run a virtual World Café on 2023-02-24, 10:00 - 12:00. After an introduction, we will discuss topics such as General Needs, Interoperability, Ergonomics and Processes & Workflows. Ultimately, we would like to help the microbiology sub-communities to select and implement an ELN in their research group. To participate, please register [here](#).

NFDI4Microbiota will showcase its activities to the virology and parasitology communities

In March, we will present our mission, work progress and services at the [32nd Annual Meeting of the Society for Virology](#) and the [30th Annual Meeting of the German Society for Parasitology](#).

The NFDI4Microbiota consortium members met at the first NFDI4Microbiota annual conference

In November 2022, we met for the first time during the internal NFDI4Microbiota conference in Cologne. Presentations and fruitful discussions took place on our current work in the areas of computational infrastructure, data storage and analysis, data and metadata standards, training and outreach. In addition, our six active [Use Cases](#) were presented and discussed in roundtable sessions.



The NFDI4Microbiota consortium met in Cologne.

Networking and Collaborations

Regular exchange of NFDI4Microbiota and NMDC

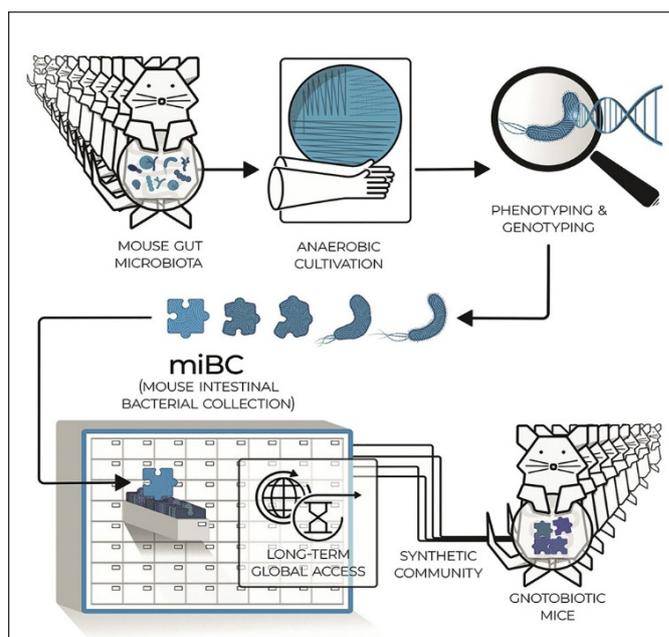
[The National Microbiome Data Collaborative](#) (NMDC) was initiated in July 2019 as the foundation of a community-driven US national effort aimed to develop standards, processes, and infrastructure for an integrated microbiome data ecosystem. The NMDC aims to achieve similar solutions for the US as we at NFDI4Microbiota are pursuing for Germany. They are working with the community to develop and lead an integrated, open-source microbiome science gateway that leverages existing resources and enables comprehensive access to multidisciplinary microbiome data and standardized, reproducible data products. Like our NFDI4Microbiota consortium, NMDC is committed to open science and the FAIR principles. Our representatives from NFDI4Microbiota meet regularly with those from NMDC to explore synergies and to determine how best to integrate efforts in all areas, such as standards, analytical workflows, data and results sharing, and training.



Publications

Enhanced cultured diversity of the mouse gut microbiota enables custom-made synthetic communities – Published in *Cell Host & Microbe*

Microbiome research needs comprehensive repositories of cultured bacteria from the intestine of mammalian hosts. The groups of our NFDI4Microbiota partners, Prof. Thomas Clavel and Prof. Jörg Overmann, both NFDI4Microbiota partners, expanded [the mouse intestinal bacterial collection](#) to 212 strains, all publicly available and taxonomically described. This includes strain-level diversity, small-sized bacteria, and previously undescribed taxa (one family, 10 genera, and 39 species). This collection enabled metagenome-educated prediction of synthetic communities (SYNs) that capture key functional differences between microbiomes, notably identifying communities associated with either resistance or susceptibility to dextran sulphate sodium (DSS)-induced colitis. Additionally, nine species were used to amend the Oligo-Mouse Microbiota (OMM)12 model, yielding the



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OMM19.1 model. The added strains compensated for phenotype differences between OMM12 and specific pathogen-free mice, including body composition and immune cells in the intestine and associated lymphoid tissues. Ready-to-use OMM stocks are available for future studies. In conclusion, this work improves the knowledge of gut microbiota diversity in mice and enables functional studies via the modular use of isolates.

Microbiota research is hampered by the fact that approximately half of complex microbial communities is still unknown. Moreover, there is a lack of cultured isolates publicly available, which prevents functional studies. This published work addresses both issues by making cultured bacteria from the mouse intestine and their metadata available according to FAIR principles. [Read more](#)

Toward FAIR Representations of Microbial Interactions – Published in mSystems

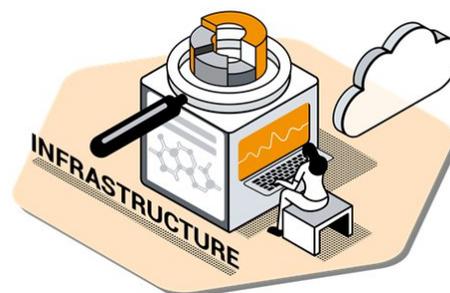
Despite an ever-growing number of data-sets that catalog and characterize interactions between microbes in different environments and conditions, many of these data are neither easily accessible nor interoperable. These limitations present a major challenge to microbiome research by hindering the streamlined drawing of inferences across studies. Here, Charlie Pauvert from our consortium and the other authors propose guiding principles to make microbial interaction data more findable, accessible, interoperable, and reusable (FAIR). They outline specific use cases for interaction data that span the diverse space of microbiome research, and discuss the untapped potential for new insights that can be fulfilled through broader integration of microbial interaction data. These include, among others, the design of interoperable synthetic communities for environmental, industrial, or medical applications, and the inference of novel interactions from disparate studies. Lastly, they envision potential trajectories for the deployment of FAIR microbial interaction data based on existing resources, reporting standards, and current momentum within the community. [Read more](#)

Services and Infrastructure

The BacDive database of the Leibniz Institute DSMZ has been selected as a Global Core Biodata Resource

The Bacterial Diversity Metadatabase ([BacDive](#)) of the Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures GmbH has been selected as a [Global Core Biodata Resource](#) by the renowned Global Biodata Coalition. This makes BacDive one of the most important global databases for bacterial

research. BacDive is the world's largest database for standardised bacterial phenotypic data, developed by one of our partners. It aims to mobilise and standardise research data to improve the accessibility and comparability of phenotypic data in microbial research. [Read more](#)



Media

In a recent episode of the [Open Science Radio Podcast](#) the director of the NFDI, York Sure-Vetter, gives an overview of the NFDI including the potential and challenges as well as its history and international context. [Listen to it.](#)

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