

The balance of microbial communities is fundamental for the well-being of plants, animals and humans. Dysbalance of microbial consortia often leads to crop loss, destroyed ecosystems or diseases. To prevent or treat negative consequences, pesticides or antibiotics are often used. However, these only treat the symptoms. Therefore, a holistic approach to study microbiomes and their influence on their hosts and the environment is required.

Within the Cluster of Excellence **Balance of the Microverse** at Friedrich Schiller University (FSU) Jena, scientists study the composition and the communication processes of microbial communities and their interactions among each other and with their environment. The results enable targeted interventions to preserve or restore microbial balance. Thus, the scientists can find solutions to urgent societal questions such as contamination of soils or resistances to antibiotics.

The holistic approach of the Cluster of Excellence Balance of the Microverse is structured in three research areas:

- A. Microverse of the Environment
- B. Microverse of the Host
- C. Microverse Imaging Center and Data Synopsis

Experts from the fields of biology, medicine, optics/photonics, material sciences and informatics of the FSU, the Leibniz HKI and seven other extra university research institutions and four Collaborative Research Centres are involved in the interdisciplinary project. In addition, training of junior scientists is supported by Master programmes of FSU and graduate training programmes of the [Jena School for Microbial Communication](#) and the [Abbe School of Photonics](#).

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