



NCCR MICROBIOMES

**Harnessing microbial communities
for health and the environment**

Unil
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ETH zürich

A unique research endeavour

Communities of microorganisms – bacteria, viruses, fungi and protists – play essential roles in health, agriculture and the environment. The National Centre of Competence in Research **NCCR Microbiomes** has been launched in 2020 to develop new tools to study these microbiomes, hinder pathogenic organisms and promote beneficial ones.

This vast research consortium gathers more than 100 scientists across Switzerland for a duration of up to 12 years. It is led by teams at the University of Lausanne and ETH Zurich.

Society needs integrated microbe management

Understanding the functioning of microbial communities provides numerous opportunities in medicine, agriculture, environmental management and biotechnology.

Health

Microbes live naturally in and on our body. Changes in their composition are linked to many conditions such as infections, obesity or autoimmune diseases. Novel strategies that selectively target pathogenic microorganisms are needed.

Agriculture and food supply

Microbes living in and on plants, as well as in the soil, greatly impact their health and must be managed for a more efficient, resilient and sustainable agriculture. Moreover, livestock are prone to infections, which has led to overuse of antibiotics.

Environment

The entire biosphere relies on balanced microbial communities. They contribute to soil fertility, water quality, the treatment of human waste and remediation of pollution.

The NCCR Microbiomes...



... develops

new tools to study microbiome formation, functioning and evolution



... analyzes

the impact of microbiome status for health, agriculture and the environment

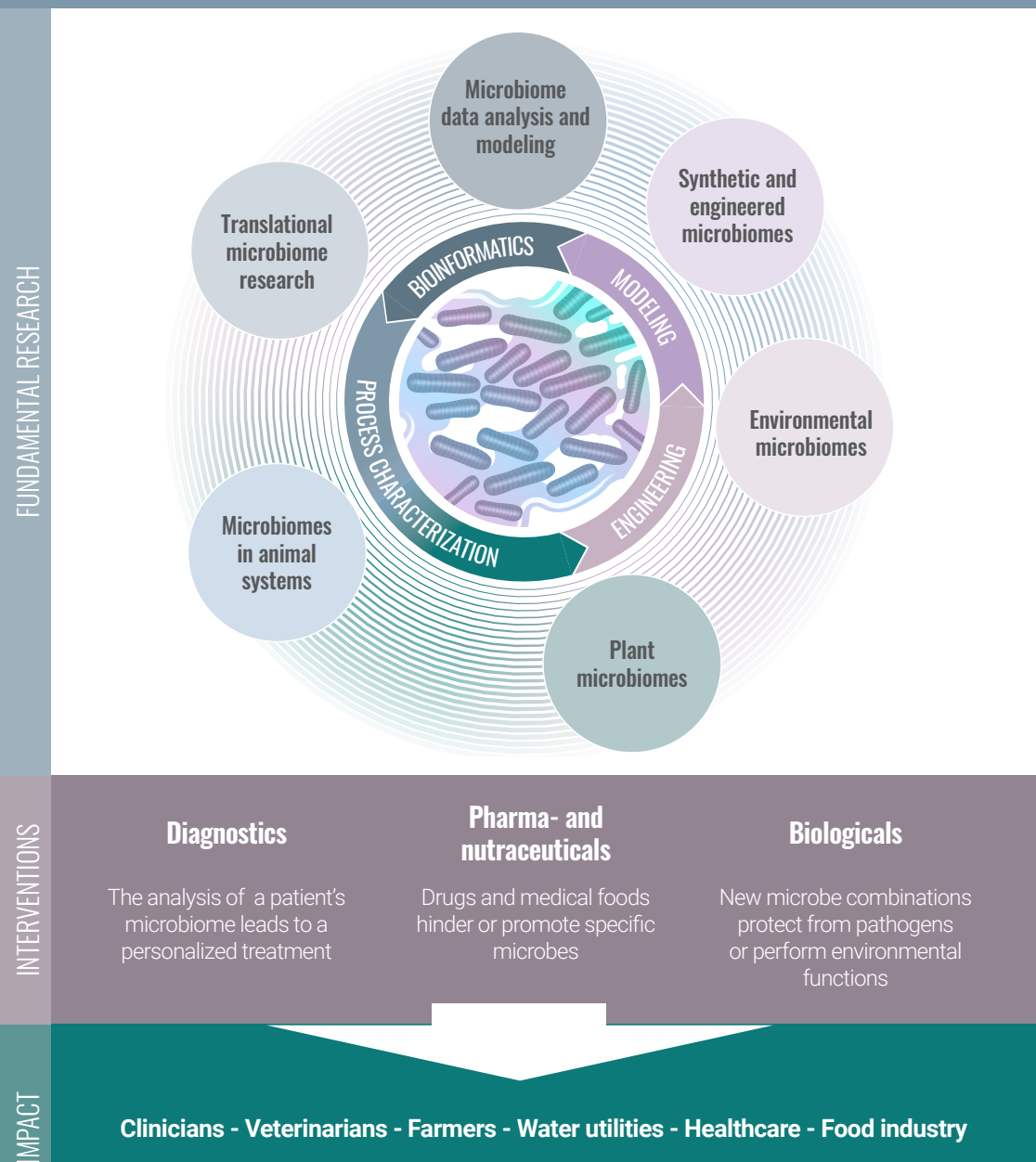


... produces

new treatments and technologies to restore natural microbiomes, and to design and produce microbial communities with desired functions.

Towards microbiome engineering

The NCCR Microbiomes translates new knowledge obtained by fundamental research into concrete interventions that are useful to numerous stakeholders in health, agriculture and the environment.



A Swiss Microbiome Competence Centre

The NCCR Microbiomes creates an expanding network of scientists. It develops durable competences for Switzerland in a new field at the intersection of microbiology, medicine, engineering and environment. It promotes technology transfer, training, career promotion, gender equality and education.



The NCCR Microbiomes integrates research groups from the University of Lausanne, ETH Zurich, EPFL, CHUV Lausanne University Hospital, University of Bern and University of Zurich.

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