



# CENTRE OF EXCELLENCE IN MICROBIOME

## GLOBAL SIGNIFICANCE

- Microbiome research has gained worldwide significance, offering profound insights into the microorganisms shaping our ecosystems.
- A rising demand for advanced microbiome research has been magnified by the COVID-19 pandemic, underscoring its relevance in various fields, from ecology to medicine.

## KERALA'S UNIQUE POTENTIAL

- Kerala, with its unparalleled geographical and demographic diversity, stands as an ideal stage for microbiome research.
- With well-established educational and research institutions, Kerala is poised to become a leader in the field.

## KEY PARTNERSHIP

- Kerala Development and Innovation Strategic Council (K-DISC)
- Kerala State Council for Science, Technology, and Environment (KSCSTE)
- Rajiv Gandhi Centre for Biotechnology (RGCB)

**PRIME LOCATION:** Bio 360 Life Science Park, Thonnakkal, Thiruvananthapuram





## VISION

To lead in cutting-edge microbiome research, fostering innovation and interdisciplinary collaboration, and to drive positive impacts on human health, agriculture, ecosystems, and the well-being of the State of Kerala, while serving as a global beacon of excellence in microbiome science and its applications

## MISSION

To drive research for tailored therapeutic solutions, supporting projects with clear milestones through academic and laboratory networks, harnessing the untapped potential of unique microbiomes across diverse domains to meet the State's needs.

## OBJECTIVES

**Global Coordination:** Become a prominent global centre, promoting interdisciplinary research and cross-domain collaboration that underscore the vital role of microbiota in the context of One Health.

**Genomic Database:** Establish a comprehensive genomic database to support ongoing research and deepen our comprehension of microbial interactions.

**Research & Development:** Catalyze and support research, development, and therapeutic interventions tailored to the unique needs of the State

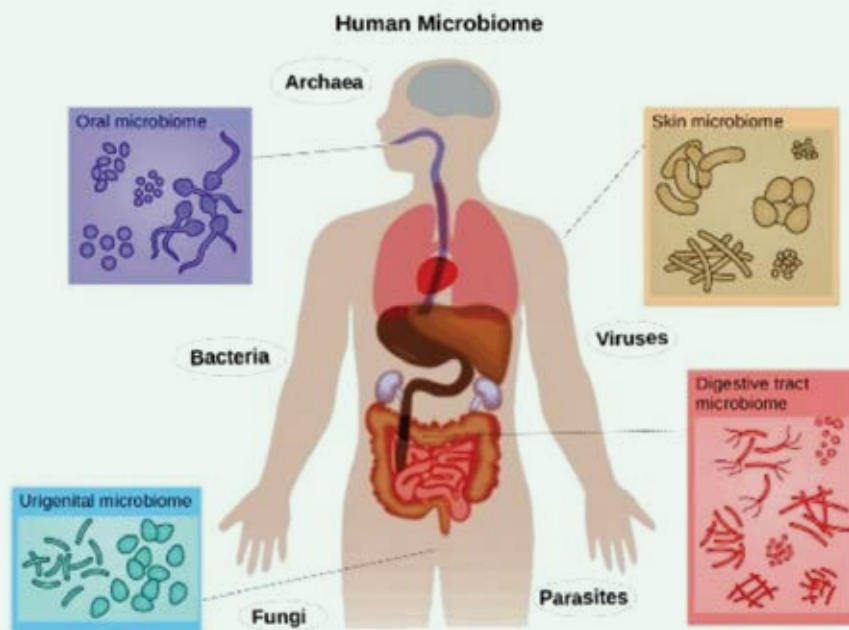
**Fostering Innovation:** Develop new tools using emerging technologies, fostering exemplary research and providing support for startups and entrepreneurs.

**Sustainable Development:** To contribute to the social, economic, and environmental development of the State in alignment with sustainable development goals.

## UNLOCKING MICROBIOME MYSTERIES

The Centre of Excellence in Microbiomes spans five fascinating domains, each with specific objectives aimed at uncovering the secrets of microbiomes:

**Human Microbiome:** Exploring microbiome diversity, disease associations, and bioactive metabolites, paving the way for personalized prebiotics, probiotics, and synbiotics, and pioneering Microbiota reinstatement therapy to address prevalent health challenges



**Animal Microbiome:** Deciphering the ideal microbiome for food security, animal well-being, and climate resilience, pioneer bio-therapeutics, diagnostics, and antimicrobials, tackle community antimicrobial resistance (AMR) concerns, and explore microbial shifts in wildlife conservation

**Plant Microbiome:** Research on Microbiome of Kerala's native crops, cultivate a core microbiome for enhanced crop health, pioneer a 'Minimum Effective Microbiome Set' (MEMS) for plant and human well-being, and assess MEMS in real-world settings, paving the way for local and global commercial success

**Aquatic Microbiome:** Nurturing aquatic ecosystems, enhancing fish health, boost aquaculture production, ensure safe, nutrient-rich fish for consumption, research antimicrobial resistance (AMR) mitigation, explore cryptic pathogen diversity, and conduct vital resistome surveillance

**Environment Microbiome:** Establishing the Environmental Microbiome Observatory in Kerala, catalyze research and entrepreneurship, derive inspiration from nature, and engineer enhanced ecosystems with circular waste management for sustainable, bio-innovation-driven ventures

This initiative represents a significant step toward advancing microbiome research in Kerala, with the potential to contribute to scientific advancements, innovation, and the overall well-being of the state and beyond.

## MICROBIOME RESEARCH TO CONTROL ANTIMICROBIAL RESISTANCE (AMR) THROUGH A ONE HEALTH APPROACH

