



SMNS2023

Defining a healthy microbiome

30. 11. - 1. 12. 2023, Maribor, Slovenia

Final Report of the Slovenian Microbiome Network Symposium 2023 (SMNS2023) in Maribor, Slovenia

The Slovenian Microbiome Network (SMN) is a dynamic and collaborative initiative dedicated to advancing microbiome research in Slovenia and fostering connections with the global scientific community. Founded on the principles of interdisciplinary cooperation and knowledge exchange, the SMN aims at exploring the intricate world of microbiomes and their diverse applications. Thus, since 2022 we organize regional scientific symposia, where students, researchers, professionals, and industry leaders come together to discuss and exchange ideas on topics related to human, animal, plant, and environmental health.

The Slovenian Microbiome Network Symposium 2023 (SMNS2023) was the second symposium organized by the SMN and was held on **November 30 and December 1, 2023, in Maribor, Slovenia** (<https://slovenianmicrobiome.net/>). The symposium theme was **Defining a healthy microbiome**. We hosted **110 participants** from 13 different European countries. An exciting and rich program was prepared by an international scientific committee (Gabrielle Berg, Suncica Bosak, Jozsef Geml, Baz Stres and Nejc Stopnisek).

Presentation of topics and invited speakers

Five scientific sessions covered all areas of microbiome research: the human, animal, plant, environmental microbiome and One Health as an emerging important field within the microbiome research.

The keynote presentation entitled *Human-associated Archaea – Players in the healthy microbiome?* was delivered by Christine Moissl-Eichinger (Medical University of Graz, Austria).

- **Environmental Microbiome: Linking Microbes to Ecosystem Health.** With invited speakers Ulisses Nunes da Rocha (UZH, Germany) and Petra Pjevac (University of Vienna, Austria), this session investigated the intricate microbial communities present in various environmental settings, such as soil and water. It explores the ecological

functions of these microbiomes, including nutrient cycling, pollutant degradation, and their value as bioindicators.

- **Animal Microbiome: From Gut to Habitat.** With invited speakers Marton Papp (University of Veterinary Medicine Budapest, Hungary) and Suncica Bosak (University of Zagreb, Croatia) this session explored the role of the animal microbiome in maintaining host health across different species and environments. Speakers addressed questions related to the stability of animal microbiomes, their impact on host physiology and behavior, and the impacts of food production practices on animal microbiome.
- **Human Microbiome: Insights into Health and Disease.** With invited speakers Marcus Claesson (University College Cork, Ireland) and Blaz Stres (National Institute of Chemistry, Slovenia) this session focused on the latest research on the human microbiome, exploring its composition, function, and role in maintaining health. It covered topics such as the impact of the human microbiome on various diseases, host-microbiome interactions, therapeutic interventions, but also the power of machine learning in disease predictions from microbiome samples.
- **Plant Microbiome: Harnessing the Power of Plant-Microbe Interactions.** With invited speakers Tomislav Cernava (University of Southampton, UK) and Omri Finkel (The Hebrew University of Jerusalem, Israel) this session covered the complex relationship between plants and their associated microbiomes. Topics covered the role of plant microbiota in nutrient uptake, pathogen resistance, and plant growth promotion. Additionally, discussions various strategies to modulate the plant microbiome for sustainable agriculture and crop improvement were presented.
- **One Health and healthy microbiomes.** With invited speakers Emilia Hannula (Leiden University, the Netherlands) and Gabriele Berg (Graz University of Technology, Austria) this session explored the interconnectedness of human, animal, and environmental health through the lens of microbiomes. In this session, we delved into the critical role of microbiomes in maintaining overall health within these interconnected systems covering the spread and diversity of AMR in milk products, pathogens in food processing systems and impact of environmental pollution on food associated-microbiomes.

ISME awards for Early Career Researchers

Early Career Researchers (ECRs) made significant contributions to the scientific discourse at the recent ISME symposium, presenting eight talks and the majority of the poster presentations. To recognize their outstanding achievements, the Scientific Committee honored five exceptional ERCs with awards. These awards not only celebrate individual accomplishments but also represent a commitment to fostering and empowering the next generation of microbiome researchers.

With the support of ISME, five ECRs were each awarded a travel grant of 300€ and a registration fee waiver of 190€.

The awardees are:

Tijana Martinovic, oral presentation: "Using stable isotope probing to track the utilization of carbon in temperate forest soils."

Ursa Miklavcic, oral presentation: "Longitudinal changes in human gut microbiota vs. sporobiota."

Monika Sabic Runjavec, poster presentation: "Role of bacterial consortium in aerobic bioremediation of food waste"

Martin Bole, poster presentation: "Exploring provenance gaps between lab and computer analysis in genomics and metagenomic studies, a part of the NFDIMicrobiota consortium."

Faith Ifeoluwa Oni, poster presentation: "Genome-centered metagenomics reveals a diverse microbial community participating in aromatics degradation under sulfate-reducing conditions."



SMNS2023 participants (photo by dr. Aleksander Mahnic, SMNS2023 local team)

On behalf of the Organizing Committee

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