Gerald Auer
Public Relations and Event Management
Head

Medical University of Graz
Neue Stiftingtalstraße 6
8010 Graz
gerald.auer@medunigraz.at

Press release
For immediate release

Climate protection and gut health: EU funds microbiome research in Graz
ERC Advanced Grant for Christine Moissl-Eichinger

Graz, June 17, 2025: Major success for cutting-edge research at the Medical University of Graz: Christine Moissl-Eichinger from the Diagnostic and Research Institute for Hygiene, Microbiology, and Environmental Medicine has been awarded an ERC Advanced Grant by the European Research Council. She will receive €2.5 million in funding over the next five years for her project "ARCH-METH – Archaeal keystone species in host microbiomes: Understanding and Controlling Methanobrevibacter for Environmental and Health Benefits." The aim of the research is to specifically influence key microorganisms in the human and animal gut – with the potential to promote gut health and simultaneously reduce climate-damaging methane emissions in agriculture.

Key role in the gut microbiome

The project focuses on microorganisms of the genus Methanobrevibacter, which belong to the domain of archaea. These evolutionarily ancient microbes play a central role in microbial networks in the gut – in both animals and humans. They are largely responsible for methane production in ruminants and are therefore a relevant factor for the global climate. At the same time, they influence the availability of important vitamins and metabolites in humans and are associated with healthy aging and a low body mass index (BMI).

Archaea: the often overlooked players in the microbiome

Archaea such as Methanobrevibacter are true survivalists – and hitherto underestimated players in the gut. Unlike bacteria, with which they work closely, they belong to a completely separate microbial world. And that is precisely what makes them so exciting. Methanobrevibacter act as a central switching point: they are in constant exchange with other microorganisms and influence important processes in the body – such as the utilization of nutrients or even personal well-being. "Methanobrevibacter never act in isolation, but as a hub in microbial communities. This opens up fascinating prospects for targeted interventions in the microbiome – with great potential for environmental and health applications," says Christine Moissl-Eichinger.

Research with vision: from the laboratory to practical application

The ARCH-METH project aims to better understand this special microorganism – and make it usable. Using state-of-the-art technologies combined with a spirit of research, the aim is to decipher the connections within the microbiome. The vision is to control Methanobrevibacter in such a way that it helps humans—for example, by promoting intestinal health—while also contributing to climate protection by reducing methane production in agriculture. to control Methanobrevibacter in such a way that it helps humans – for example, by promoting gut health – while also contributing to climate protection by reducing methane production in agriculture.

Background: ERC Advanced Grants

With the ERC Advanced Grants, the European Research Council supports excellent, established scientists who are opening up new fields of research with visionary projects. Selection is based solely on scientific excellence, innovative strength, and international visibility.

Further information and contact details

Christine Moissl-Eichinger
Medical University of Graz
Research field: Microbiome & Infection
Diagnostic and Research Institute for Hygiene, Microbiology, and Environmental Medicine
Tel.: +43 316 385 73770
Mail: christine.moissl-eichinger@medunigraz.at