# Press release

**Microbiologists from Vienna and Brunswick discover rare bacteria that counteract methane production and climate change**

(Brunswick – 19 February 2019): The collaboration of microbiologists Prof. Dr. Alexander Loy and Dr. Bela Hausmann of the Department for Microbiology and Ecosystem Science at the University of Vienna, Austria, with Prof. Dr. Michael Pester of the Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures in Brunswick, Germany, has unearthed a rare bacterial species (Candidatus Desulfosporosinus infrequens), which counteracts the excessive formation of the greenhouse gas methane in moors. These bacteria produce energy by reducing sulfate to sulfide, and hold an important control function in the process of methane production. The bacteria are locked in a continuous competitive battle for nutrients with methane-producing archaea; in doing so, they reduce the archaea's activity, thereby preventing the production of even more methane and helping to obviate additional global warming.
In an article recently published in the renowned journal mBio (https://doi.org/10.1128/mBio.02189-18), the research team from Vienna and Brunswick employed a systems biology based approach to show that the high activity of the new, sulfate-reducing bacterial species (Candidatus Desulfosporosinus infrequens) can counteract the excessive formation of methane in moors, despite their low occurrence. Moors are natural wetlands and as such responsible for around 30 percent of the worldwide emissions of the greenhouse gas methane. But why do these high-activity bacteria not have a higher rate of reproduction? The researchers think it is because the bacteria have to deal with the acidic pH-environment of the moors. It is therefore probable that these organisms invest their whole energy in the survival of the cell, rather than its growth.

**Literature:**

Hausmann, B.; Pelikan, C.; Rattei, T.; Loy, A.; Pester, M. (2019) Long-Term Transcriptional Activity at Zero Growth of a Cosmopolitan Rare Biosphere Member. MBio 10(1); doi: 10.1128/mBio.02189-18

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Picture: DSMZ

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## About the Leibniz Institute DSMZ

The Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures is the world's most diverse collection of biological resources (bacteria, archaea, protists, yeasts, fungi, bacteriophages, plant viruses, genomic bacterial DNA as well as human and animal cell lines). Microorganisms and cell cultures are collected, investigated and archived at the DSMZ. As an institution of the Leibniz Association, the DSMZ with its extensive scientific services and biological resources has been a global partner for research, science and industry since 1969. The DSMZ is the first registered collection in Europe (Regulation (EU) No. 511/2014) and certified according to the quality standard ISO 9001:2015. As a patent depository, it offers the only possibility in Germany to deposit biological material in accordance with the requirements of the Budapest Treaty. In addition to scientific services, research is the second pillar of the DSMZ. The institute, located on the Science Campus Braunschweig-Süd, accommodates more than 69,00 cultures and biomaterials and has 198 employees. www.dsmz.de

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The Leibniz Association connects 95 independent research institutions that range in focus from the natural, engineering and environmental sciences via economics, spatial and social sciences to the humanities. Leibniz Institutes address issues of social, economic and ecological relevance. They conduct knowledge-driven and applied basic research, maintain scientific infrastructure and provide research-based services. The Leibniz Association identifies focus areas for knowledge transfer to policy-makers, academia, business and the public. Leibniz institutions collaborate intensively with universities – in the form of “Leibniz ScienceCampi” (thematic partnerships between university and non-university research institutes), for example – as well as with industry and other partners at home and abroad. They are subject to an independent evaluation procedure that is unparalleled in its transparency. Due to the importance of the institutions for the country as a whole, they are funded jointly by the Federation and the Länder, employing some 19,100 individuals, including 9,900 researchers. The entire budget of all the institutes is approximately 1.9 billion Euros.