description of new species nowadays also should include genome sequence information to obtain a clear picture of the genomic landscape of the novel organism. In this context, CeBiTec researchers from the group "Genome Research of Industrial Microorganisms" led by Prof. Alfred Pühler together with colleagues from the Technical University of Munich, the Ludwig-Maximilians University of Munich, the Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures GmbH (DSMZ), the Justus-Liebig University Giessen, the University of Oldenburg and the Humboldt University of Berlin joined forces and described a new species within a new genus, namely *Anaeropeptidivorans aminofermentans* strain M3/9^T. The corresponding approach involved interpretation of established genome sequence information and physiological characterization of the isolate. An anaerobic bacterial strain, designated M3/9^T, was isolated from a mesophilic laboratory-scale biogas fermenter. It featured straight, non-motile rods which occurred as single cells (Figure 8).

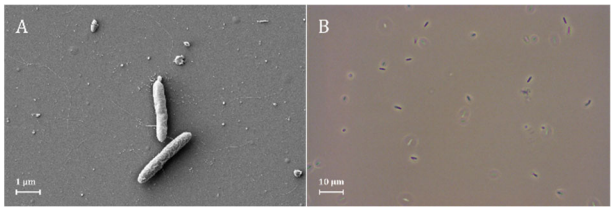

Figure 8: Cell morphology of strain M3/9^T grown in TSB medium for one day. (A) Scanning electron photomicrograph; (B) Phase-contrast photomicrograph (Source: Andreas Klingl).

Phylogenetic analysis allocated strain M3/9^T within the family *Lachnospiraceae* (phylum *Bacillota*) with *Clostridium colinum* DSM 6011^T and *Anaerotignum lactatifermentans* DSM 14214^T being the most closely related species as deduced from their 16S rRNA gene sequence similarities complemented with comparative genome analyses e.g. average amino acid identity (AAI) calculations. Based on physiological, chemotaxonomic and genetic data, we propose the description of a novel species and genus of which *Anaeropeptidivorans aminofermentans* gen. nov., sp. nov. M3/9^T represents the type strain. This study showcases the value of genome sequencing at the CeBiTec and once again highlights its power for describing novel microbial taxa.

The species description entitled "*Anaeropeptidivorans aminofermentans* gen. nov., sp. nov., a mesophilic proteolytic salt-tolerant bacterium isolated from a laboratory-scale biogas fermenter, and emended description of *Clostridium colinum*" was recently published in International Journal of Systematic and Evolutionary Microbiology. The complementary manuscript on *Anaeropeptidivorans aminofermentans* M3/9^T genome analysis entitled "The novel oligopeptide utilizing species *Anaeropeptidivorans aminofermentans* M3/9^T and its role in anaerobic digestion as deduced from large-scale fragment recruitment analyses" was published almost in the same time in the Frontiers of Microbiology Journal.

Reference

Maus, I., Wibberg, D., Belmann, P., Hahnke, S., Huang, L. et al (2022) The novel proteolytic species *Anaeropeptidivorans aminofermentans M3/9 T* and its role in anaerobic digestion as deduced from large-scale fragment recruitment analyses. *Front. Microbiol.* doi: 10.3389/fmicb.2022.1032515

(I. Maus, A. Schlüter & A. Pühler)

Intensification of collaboration with Japan during "Specially Appointed Professorship" of Prof. Dr. Harald Gröger at Osaka University

The scientific exchange and intensification of existing collaboration projects with research

groups from Osaka University were a major focus of the first stay of CeBiTec-member Prof. Dr. Harald Gröger (Chair of Industrial Organic Chemistry and Biotechnology at Bielefeld University) within his "Specially Appointed Professorship" at Osaka University. Osaka University is one of the largest national universities in Japan with an outstanding international scientific visibility and track record, being ranked 3rd among all universities in Japan and 68th worldwide in the "QS World University Rankings 2023" on top global universities. Furthermore, Osaka University is one of the official international partner universities of Bielefeld University, and since many years there are close ties between the Chair of Industrial Organic Chemistry and Biotechnology at Bielefeld University and research groups from different departments at Osaka University. Thus, besides current projects also future strategies for collaboration initiatives in the field of organic chemistry and biotechnology have been discussed within this stay of Prof. Gröger at Osaka University. In addition, he gave scientific lectures such as a Special Lecture at the "Mini-Symposium on Organic Chemistry" of the Graduate School of Pharmaceutical Sciences at Osaka University as well as further lectures at the Graduate School of Engineering (Figure 9). An ongoing collaboration project with the research group of Prof. Dr. Shuji Akai from Osaka University centers on the extension of the jointly demonstrated recent proof-of-concept for a chemoenzymatic dynamic kinetic resolution of a tertiary alcohol towards a

Figure 9: Prof. Akai (right) and Prof. Gröger (left) after his Special Lecture at the "Mini-Symposium on Organic Chemistry" of the Graduate School of Pharmaceutical Sciences at Osaka University

broadly applicable process technology platform for this class of compounds. Chiral tertiary alcohols and derivatives thereof are of high industrial interest in the field of pharmaceuticals. A representative example being also a target molecule in this collaboration project is the anti-HIV drug Efavirenz. The next stay of Prof. Gröger in Osaka within this "Specially Appointed Professorship" at Osaka University is scheduled to take place in March 2023.

(H. Gröger)

Impressum

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