



DSMZ support for digitalization of collection data

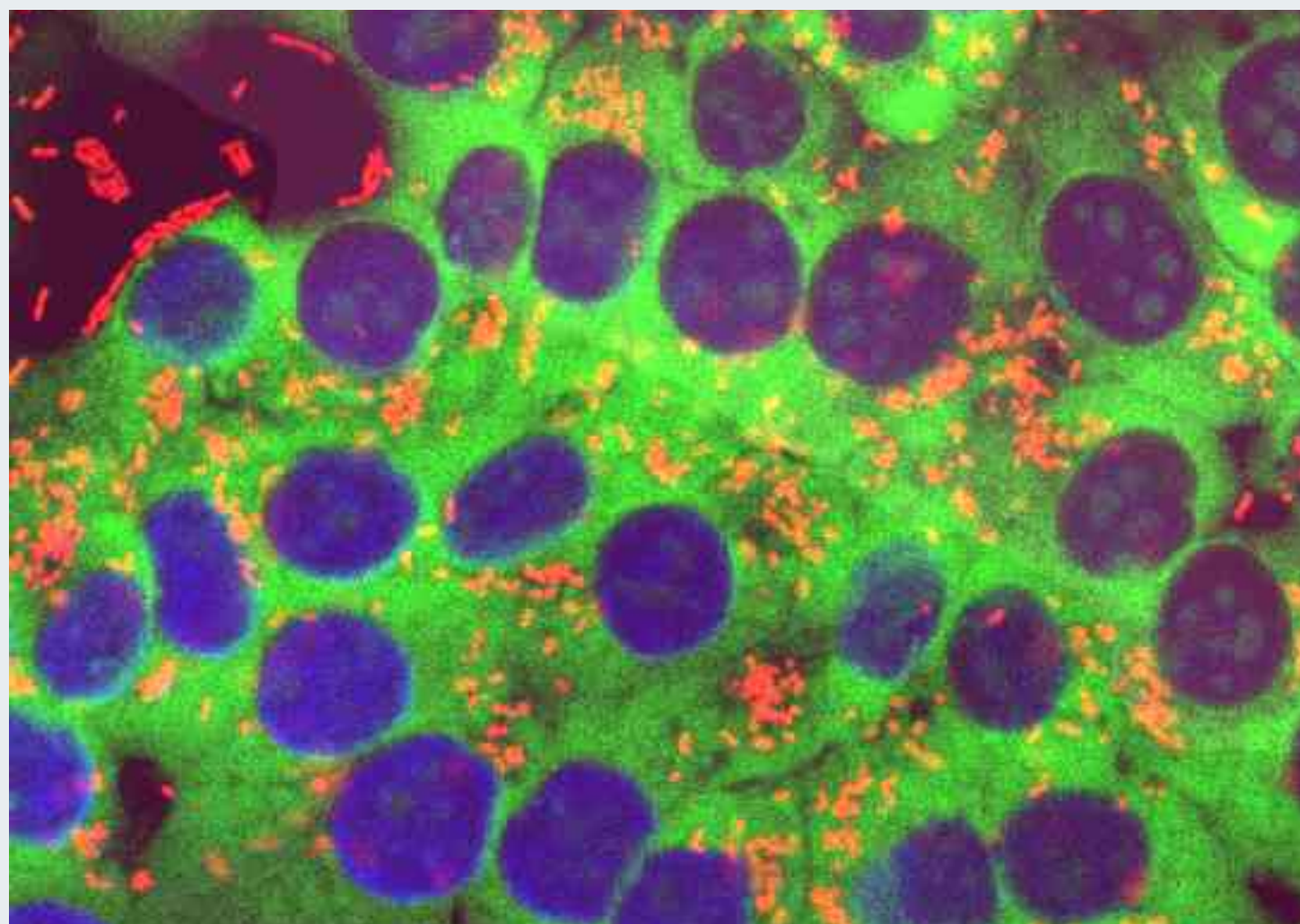
Databases constructed for two specialized collections of bacteria



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Collection of Gram positive and Gram negative Pathogens, University of Würzburg, Chair of Molecular Infection Biology

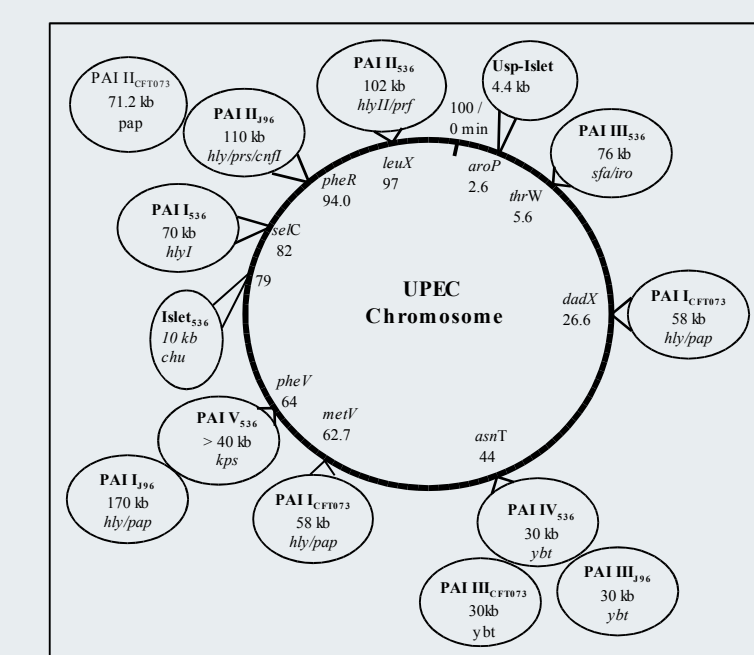


Fluorescence photomicrograph of uropathogenic *Citrobacter freundii* strain 3009 bacteria (red) adhering to human urinary T24 bladder epithelial cells (cytoplasm: green, nuclei: blue).

The work of the institute with pathogenic bacteria is focused on the elucidation of molecular mechanisms of pathogenicity. This includes identification and molecular characterization of virulence factors, such as adhesins and invasins, as well as genomic approaches for the identification of pathogenicity islands and diagnostic purposes.



Transmission electronphotomicrographs of *C. freundii* strain 3009 in the moment of invasion of human T24 bladder epithelial cells (B) and internalized bacteria residing intracellularly in an endosome (A).



Genome analysis of several uropathogenic *E. coli* (UPEC) strains revealed the presence of pathogenicity islands (PAIs) and islets harbouring characteristic virulence genes. Indicated are the insertion sites of PAIs and islets as well as genes encoded by these mobile genetic units.

Data of more than 1000 strains have been digitized within the GBIF Project

Collection of antagonistic bacteria against phytopathogenic fungi, University of Rostock, Institute for Molecular Physiology and Biotechnology

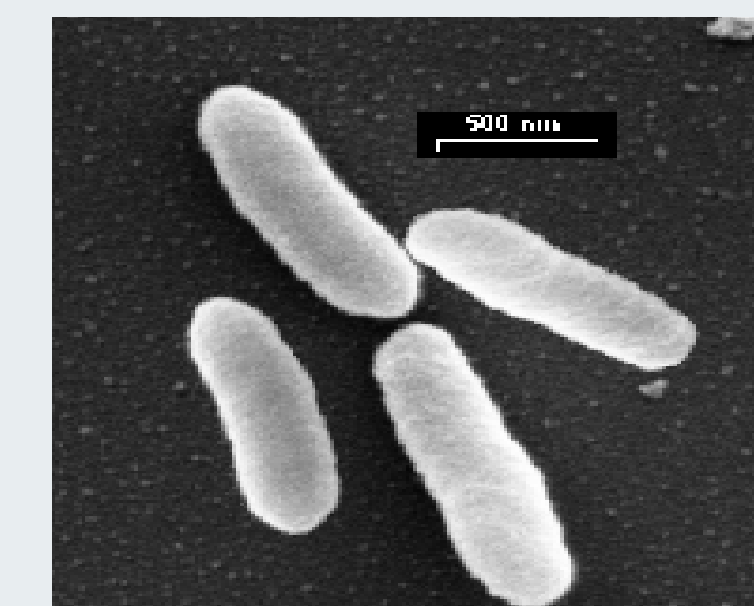


Effect of the biological control agent *Serratia plymuthica* HRO-C48 (right) compared to untreated control plants (left). Pathosystem: *Rhizoctonia solani* ↔ lettuce. Photo: G. Berg, University of Rostock

Research of the group focus on ecological aspects and the molecular analysis of plant-associated bacteria, especially on the group of antagonistic bacteria. These antagonists play an important role in the mechanisms of plant growth promotion and the defense against plant pathogens. Based on the research results, biological control agents (BCAs) are being developed in cooperation with biotechnological companies.



Dual culture assay on Waksman agar to determine the antifungal activity of bacteria against *Verticillium dahliae* KLEB. *in vitro*. Photo: J. Lottmann, Universität Rostock



Scanning electron micrograph of cells of the biocontrol strain *Serratia plymuthica* HRO-C48. Photo: EMZ University of Rostock

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Entity relationship model of the databases

Data of both institutes are stored in an MS Access database set up by the DSMZ. The core database is identical for both institutes. Due to the fact that some fields are mainly used for antagonistic bacteria (green), while others apply mainly to bacteria held in the Institute for Molecular Infection Biology (blue), the forms for entering strain data were adapted to the needs of the particular institute. A few fields for internal information (not shown) are unique for each collection.

