

# Annual Biotechnology Congress

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## Werner Lubitz

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### Construction of biocatalytic micro-reactors with the bacterial ghost platform technology

Bacterial ghosts (BGs) are empty, non-living cell envelopes of Gram-negative bacteria, which are created by the controlled expression of gene E in bacteria and formation of a lysis-tunnel structure spanning the inner and outer membrane. Actual and potential application areas for the BG technology platform are manifold. Within the field of medicine, they include immunotherapy of cancer, human and veterinary vaccines, BGs as carrier and delivery system for drugs and other active substances. Within the area of industrial applications, the use of BGs as carrier particles for enzymes is one of the most advanced of all concepts. Commonly used enzyme immobilization agents are rather old-fashioned and show various disadvantages compared to BG-based enzyme carriers. BGs carrying enzymes could be advantageous for the catalysis of products at the interface between organic and inorganic solutions that prove often to be problematic for enzyme stability. Here, a BG would act like a bioreactor containing and thus protecting the enzymes against harsh environmental conditions while allowing for the synthesis and export of the product of interest into the exterior.

### Biography

Werner Lubitz holds an MSc and a PhD in Microbiology from the Technical University of Munich, Germany. He obtained his postdoctoral training in cell- and tumor-biology at the Institute of Cell Biology, University of Munich, Germany, at the Centre Hospitalier Universitaire Vaudois (CHUV) Lausanne, Switzerland, at the Wallenberg Laboratories, University of Uppsala, Sweden, at the Biocenter, University of Basel, Switzerland, and at the Max Plank Institute of Neurobiology, Martinsried, Germany, and in Genetic Engineering and Microbiology at the Institute of Microbiology, University of Victoria, Canada. He was Associate Professor of Microbiology at the Institute of Microbiology, University of Kaiserslautern, Germany, and Associate Professor of Genetic at the Institute of Genetic, University of Munich, Germany. Since 1987, he was Full Professor of Microbiology and Biotechnology at the University of Vienna, Austria, first at the Department of Microbiology, Genetics and Immunology, later at the Department of Medicinal Chemistry, and the Center of Molecular Biology, Vienna Biocenter. He is the inventor of the Bacterial Ghost Platform Technology (BGPT) and holds an extensive patent portfolio. He is the Founder and Co-founder of three biotech companies including BIRD-C holding the position of CEO/CSO of the latter company exploring different application areas of the BGPT.

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