



Project:

Breaking the barrier - An integrated multidisciplinary approach to kill Gram-negative bacteria through existing antibiotics by making their outer membrane permeable

Acronym: BREAKthrough

Financing: Horizon Europe

Project duration: 1. Jan 2023 – 31. Dec 2026

Coordinator: Universite Catholique de Louvain

Project manager at the Faculty of Pharmacy: PhD Stanislav Gobec

Participating:

- Universite Catholique de Louvain, Francija
- Centre National De La Recherche Scientifique CNRS, France
- Universita Degli Studi Di Milano, Italy
- Stichting Vu, Netherlands
- Univerza v Ljubljani, Slovenia
- Stichting Amsterdam Umc, Netherlands
- Fundacio Privada Institut Catala D'investigacio Quimica, Spain
- Aicuris Anti-Infective Cures Ag, Germany
- Naicons Srl, Italy
- Abac Therapeutics, SI, Spain

- **Associated Partners:**
- Accelopment Schweiz Ag, Switzerland
- Symeres Netherlands Bv, Netherlands
- F. Hoffmann-La Roche Ag, Switzerland
- Syngulon, Belgium
- Universitat Rovira i Virgili, Spain
- University of Newcastle upon Tyne, United Kingdom
- The University of Queensland, Australia

More about the project



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Abstract:

Antimicrobial resistance, associated with multidrug-resistant pathogens, represents a global health emergency. Gram-negative bacteria prevent effective treatment by making their outer membrane (OM) impermeable for standard-of-care (SOC) antibiotics. Funded by the Marie Skłodowska-Curie Actions programme, the BREAKthrough research and training network aims to sensitise the bacteria to SOC antibiotics by making their OM permeable. The goal is to develop inhibitors of three protein machineries responsible for OM maintenance. The objectives include the development of new chemical space rules for drugs crossing the OM, the discovery of OM maintenance inhibitors to overcome the resistance to SOC antibiotics, and the training of 11 doctoral candidates to become professional industrial drug developers.