
StARE: Stopping Antibiotic Resistance Evolution



Célia M. Manaia

Project Coordinator:

- Célia M. Manaia - Universidade Católica Portuguesa – Centro Regional do Porto (UCP), Portugal

Projects partners:

- Marko Virta - University of Helsinki, Finland
- Despo Fatta-Kassinou - Nireas International Water Research Center, University of Cyprus (NireasIREAS-IWRC), Cyprus
- Sara Rodriguez - Fundació Institut Català de Recerca de l' Aigua (ICRA), Spain
- José Luís Martínez - Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC), Spain
- Henning Sørum - Norwegian School of Veterinary Science (NSVS), Norway
- Thomas Berendonk - Technische Universität Dresden (TUD), Germany
- Isabel Henriques - University of Aveiro (UA), Portugal
- Fiona Walsh - National University of Ireland, Maynooth (NUIM), Ireland



This project was designed based on the identification of the major gaps in knowledge and technology that impede successful measures to control antibiotic resistance in the environment. The research consortium assembles wastewater engineers, microbiologists, molecular biologists, and bioinformatics interested in antibiotic resistance evolution. The mobility of researchers within the consortium will enhance collaborative activities, mainly by the combination of fundamental and applied approaches. Major aims of this project include i) the establishment of standardized protocols, ii) the elucidation of the relationship between antibiotic residues and resistance genes in wastewater, iii) the comparison of antibiotic resistance prevalence in the effluents discharged by urban wastewater treatment in Northern and Southern European regions and the iv) the development of improved advanced wastewater treatment technologies and their effects on the microbiome and resistome. Major outcomes will be the formulation of harmonized protocols to measure antibiotic resistance in aquatic environments and the identification of critical factors (e.g. antimicrobial residues, heavy metals) coinciding with the highest antibiotic resistance prevalence. Advanced wastewater treatment technologies suitable to decontaminate effluents critical points (e.g., UWTP, hospital effluents) and capable of minimizing resistance acquisition will be improved. Since antibiotic resistance concerns the whole population, consortium members will actively promote educational, communication and dissemination activities directed to the public, stakeholders, policy makers, officials and students.