

PRESS RELEASE

15 September 2022

SELF – DISINFECTANT SURFACES FOR HEALTHIER ENVIRONMENTS – NEW EU PROJECT WORKING ON INNOVATIVE HOLISTIC SOLUTION OF SMART RESPONSE ANTIMICROBIAL NANOCOATINGS

A GREAT NUMBER OF PATHOGENIC MICROORGANISMS CAN SURVIVE FOR MONTHS ON SURFACES, CAUSING THE TRANSMISSION OF A WIDE RANGE OF INFECTIONS, WHICH ARE CONSIDERED TO BE ONE OF THE MAJOR SINGLE CAUSES OF DEATH WORLDWIDE. ANTIBIOTIC RESISTANT MICROBIAL INFECTIONS ALONE ARE RESPONSIBLE FOR AN ESTIMATED 110,000 LIVES LOST (OECD HEALTH REPORT 2016) AND 1.5 BILLION EUR IN HEALTHCARE COSTS AND PRODUCTIVITY LOSSES PER YEAR.

Currently existing antimicrobial coatings raise concerns related to their antibiotic resistance, complex chemical synthesis, toxicity, non-biodegradability and extremely low sustainability in terms of product performance and environmental protection. The new Horizon Europe interdisciplinary project RELIANCE addresses the growing need for innovative antimicrobial coatings that are highly effective, safe, self-disinfecting and removing bacteria, fungi and viruses in a more efficient cost/performance ratio than the presently used petrochemical-based ones.

„Beyond the present-day possibilities of conventional chemicals, RELIANCE aims to design and develop smart response self-disinfectant antimicrobial nanocoatings with an antimicrobial action that is adjusted to the specific application. In this way, RELIANCE will contribute to having a healthier and more resilient society towards microorganisms, by mitigating the spread of infections and ensuring the health and well-being of citizens “

**Miren Blanco, RELIANCE Coordinator and senior researcher at
Fundación Tekniker**

An Innovation Contributing to Society

The project’s ambitious objective to shift from harmful chemicals to a novel class of coatings will be achieved through a new range of antimicrobial copper doped mesoporous silica nanoparticles (Cu-SMIN) modified with non-toxic bioactive compounds such as antimicrobial peptides (AMPs) coming from protein containing waste streams, and essential oils (EOs) extracted from non-edible plants, both functionalized to respond respectively to temperature and pH changes.

RELIANCE supports the transition to a circular economy through employing green synthesis of sustainable binder formulations for nanocoatings, reduced emissions of heavy metals and persistent chemicals in wastewater streams, and providing for recycling possibilities for the antimicrobial organic coatings to the treated surfaces.

The consortium of RELIANCE consists of 15 partners from 8 EU and 2 non-EU countries, to include research organizations, universities, SME and large industry partners. The project with a budget of € 5 million was launched in June 2022 and will end in May 2026.

For more information

Senior researcher Miren Blanco, miren.blanco@tekniker.es



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

