



RELIANCE project aims to design and develop smart response self-disinfectant antimicrobial nanocoatings based on a new range of smart antimicrobial nanoparticles. They will consist of mesoporous silica nanoparticles with metallic copper in their structure (Cu-SMIN), modified with biobased bioactive compounds: Antimicrobial peptides (AMP's) based on protein containing waste streams, and essential oils (EOs) coming from non-edible plants. The antibacterial action of these additives will be adjusted to the specific application, according to the dosages and durability requirements.

GET TO KNOW US

RELIANCE is a Research and Innovation Action project funded under Horizon Europe Programme of the European Union.

The solution RELIANCE proposes is the development of an entirely new class of biocidal additive, smart Cu-SMIN nanoparticles combined with synergistic, non-toxic bioactives, and employs these in the development of highly durable sustainable nanocoatings. The chemistry and physics of these nanocoating will be designed to maximize their sustainability (water based, fluorine free formulations) and microbial repellency (nanostructuring).

RELIANCE Consortium and Objectives

RELIANCE consortium is composed of 15 partners from 8 EU and 2 non-EU countries, to include research organizations, universities, SME and large industry partners. Together, the partners bring to the project interdisciplinary competences and expertise to ensure successful design and development of innovative antimicrobial nanocoatings, with self-disinfection smart response tailored to the specific area of application.



The ambition of the project for healthier environments will be achieved through the following objectives:

- Development of a new class of Cu-SMIN based biocidal additives with a synergistic mode of action and low impact on the environment
- Green synthesis of sustainable binder formulations for nanocoatings - organic and inorganic

- Optimization of cold-atmospheric plasma, spraying and digital printing deposition techniques, and nanostructuring of 3 types of antimicrobial nanocoatings, applied on chromed plated plastics, glass and stainless steel, and textiles
- Validate the new nanocoatings as high performing and with enhanced durability through demonstrators
- Ensuring that the proposed nanocoatings are non-toxic and sustainable, and confirm their economic value
- Promote the novel technologies for uptake by the industry

How we contribute to society

The COVID-19 pandemic revealed the necessity to strengthen Europe's industrial base, enhance its resilience and flexibility. It was critical to address key societal challenges like sustainability and inclusiveness to be able to compete globally, but also to protect our citizens, deliver services and products of the highest quality, and preserve our values and socio-economic model.

The scientific contribution of RELIANCE is operationalized through a breakthrough innovation in material science and modelling, increasing the scientific multidomain knowledge, allowing for new design procedures to obtain antimicrobial nanocoatings with specific response and doses in accordance with the area of application.

Economically, we boost sustainable research, development and innovation in the EU on nanotechnologies including nanoparticles and nanocoatings. The developed high efficiency nanocoatings will have large economic potential in a wide range of sectors. An estimated market of 270 M€ is foreseen for 2025 only by 1% replacement with AM bioactives and AM coating new formulations an estimated market of.

The societal impact of RELIANCE is a more resilient society ensuring the well-being of its citizens. Lower exposure to harmful chemicals and improved health of EU citizens. We also help the environment by reduced emissions of heavy metals and persistent chemicals in waste waters resulting in lesser toxicity and bioaccumulation.

And lastly, RELIANCE contributes to confirming Europe's leading role in passing regulations that are subsequently adapted world-wide, opening opportunities to early adopter European businesses in antimicrobial additives and nanoparticles to export globally.

Find out more about RELIANCE results, outcomes and sustainability in the [About us](#) section of our website.

RELIANCE KICK OFF MEETING

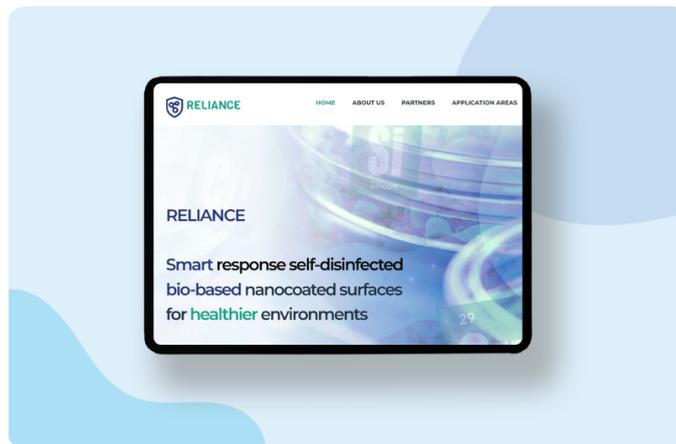


15 partners from 10 countries gathered together at Tekniker facilities in Eibar for the launch of the new Horizon Europe project RELIANCE. Everyone looked eager to delve into exciting research aiming to develop innovative antimicrobial nano-coatings based on a new range of smart antimicrobial nanoparticles.

The meeting was opened by the coordinator, Miren Blanco from Tekniker, with an overview of the project, which is organized around ten work packages. This was followed by some introductory words of the EC Project Officer, who stressed on the importance of the continuous reporting and thorough communication and dissemination activities and flowed into detailed discussions of each of the work packages. In the afternoon, Tekniker gave the group an interesting tour of their facilities, allowing partners to gain a closer look on the science Tekniker does on a daily basis. The day concluded with a lovely walk in Bilbao and delicious social dinner in the evening.

[Read more here](#)

WEBSITE LAUNCH



End of September 2022, we were excited to launch our website. RELIANCE website is conceived as the project's main public interface. The main function of the platform is to serve as a single point of reference about the project, in an accurate and coherent way. It comprises seven public access sections featuring topics such as RELIANCE ambition, specific objectives, partners' network, news, events, application areas, and outcomes and results. Furthermore, the website has been designed to provide logical navigation paths for users to follow through the website and reach to information they are looking for in a least number of clicks.

The content on the website will be updated with the progress of the project and will be maintained at least 2 years after its end.

[Take a look at RELIANCE website here](#)

MEDIA COMMUNICATION

[First Press Release is out](#)

The news about the launch of RELIANCE was broken with project's first press release

issued in September 15th.



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

The whole document is located [here](#). Spread the news: download and share with your audience and media contacts.

Communication Toolbox - what's inside?

One way partners in RELIANCE manage project's relations with both the public and media is through the use of attractive promotional and informational materials, such as the project brochure, online leaflet, and poster. In the Communication Toolbox on the website, you will find RELIANCE's marketing materials designed by Europroject (EP). They are designed and developed for use on social media, or offline, by the consortium members and everyone else who is interested in the project and wishes to spread the word about RELIANCE ambition, objectives, expected results and benefits to end-users, in a comprehensive manner.

We've shown below the project's poster. Curious to see more? Open the [Toolbox](#) and see for yourself what else is inside.



RELIANCE

Smart response self-disinfected bio-based nanocoated surfaces for healthier environments

The successful implementation of RELIANCE will generate as main results a range of innovative self-disinfectant antimicrobial nanocoatings, combining the microbial repelling action provided by the chemistry and physics of the nanocoating, with the antimicrobial action provided by the additives incorporated in the coatings (contact killing action of inorganic metallic copper and AMPs, and smart leaching of EO's under stimuli).

- Sustainable synthesis of nanostructured coatings to be applied in a wide range of materials by novel technologies, such as digital printing, spraying and cold atmospheric plasma
- Minimised risk of spread of infections from harmful pathogens arising from everyday human activities
- Creating a healthier living and working environment and offering a holistic solution to people with health issues
- Improve citizens' health and enhance the EU's reputation as a public health best practice region
- Enhance economic benefits through reduction of lost hours of work through illness
- Boost research, development and innovation in the EU
- Provide business opportunities especially for SMEs



Partners 15	Budget 5€ million	Program Horizon Europe	Duration 48 months	Countries 10
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<https://reliance-he.eu> reliance-he-project @reliance_he



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RELIANCE project is social. Follow us on [LinkedIn](#) @reliance-he-project and [Twitter](#) @reliance_he to be always up to speed with news, results and events.

You are invited to frequently swing by our website <https://reliance-he.eu> and yes, forward our newsletter to friends and colleagues, to help them learn about RELIANCE, what it does and how it helps society.

We don't believe you landed on the current issue by chance but if you did, make sure you [subscribe](#) to get the latest on RELIANCE straight into your Inbox.

Stay tuned.



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