

Nanospikes for antimicrobial properties

## Bio-based smart packaging for enhanced preservation of food quality

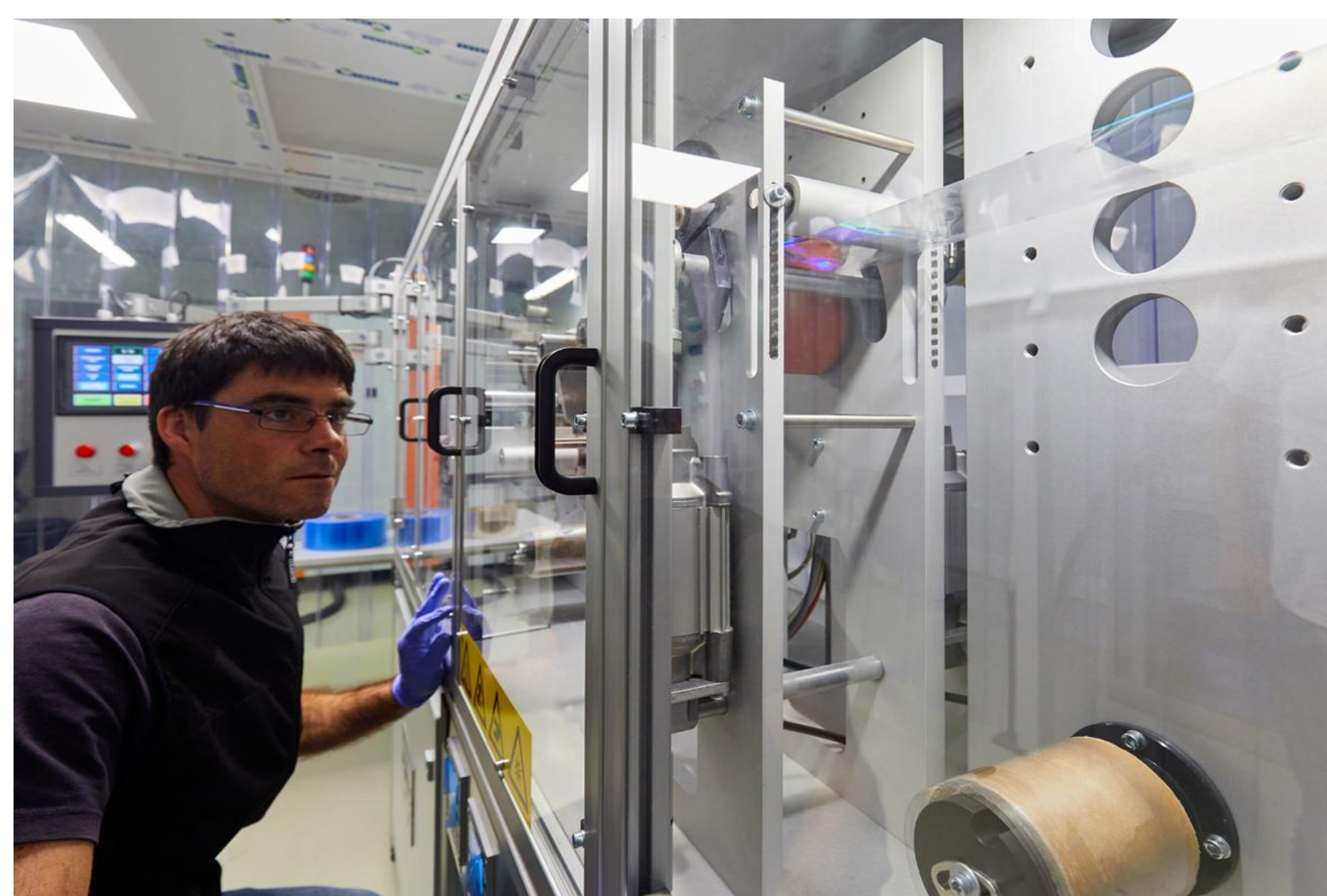
<http://biosmart-project.eu>

### BIOSMART PROJECT

The **BIOSMART** project will develop **active and smart bio-based and/or compostable packages** to meet the needs of both fresh and pre-treated **food applications**.

To address future demands, packaging will need to enable **light-weighting, reduced food residues, easier food monitoring and longer shelf life**, simplifying waste handling, all without a price premium.

BIOSMART encompasses an approach for selectively integrating **super-hydrophobic surfaces, micro-encapsulated phase change materials, barrier coatings, sensor devices and new bio-active antimicrobial and antioxidants**, into **fully bio-based multilayer flexible plastic packages**.



Scale up of the texturing biofilms by R2R-NIL system



### OBJECTIVES

The **BIOSMART** project aims to meet the following scientific and technological objectives. It will:

- **Develop** an operational framework for **tailoring active and smart functional bio-based packages**.
- **Scale up** existing laboratory level **active and smart functionally technologies to prototype pilot scale**.
- **Improve mechanical properties of the Polylactide (PLA) film** by developing nanoclay composites and copolymers.
- Implement single or multiple active and smart technologies into **three food package demonstrators** at acceptable costs.
- **Reduce the overall environmental impact** of the value chain.
- Introduce **novel bio-based lipopeptide and peptide additives** with anti-microbial, and/or anti-oxidant properties to increase food shelf life.
- Develop biobased solutions and **new coatings with enhanced O<sub>2</sub>, CO<sub>2</sub>, water and UV barrier properties** that will provide a 100% control of residual oxygen and degradation indicators in packages made from this biomaterial.
- Develop an **Application for selection of biobased materials**, performance and functionality selection for commercial needs of the packaging.



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