Expert UK SME in antimicrobial nanocoatings has developed a new technology for the incorporation of novel antimicrobial silver nanocoposites onto textiles is looking for organisation able to provide R&D assistance to apply together to EUROSTARS call.

Summary

Profile type

Research & Development Request

Company's country

United Kingdom

POD reference

RDRGB20240131017

Profile status

PUBLISHED

Type of partnership

Research and development cooperation agreement

Targeted countries

- **Denmark**
- **Estonia**
- **Czechia**
- **Bulgaria**
- **Canada**
- **Croatia**
- **Belgium**
- **Cyprus**
- **Austria**
- **Finland**
- **Latvia**
- **Greece**
- **Portugal**
- **Germany**
- **Iceland**
- **Ireland**
- **Israel**
- **France**
- **Netherlands**
- **Hungary**

- **Italy**
- **Luxembourg**
- **Malta**
- **Norway**
- **Poland**
- **Lithuania**
- **Singapore**
- **Switzerland**
- **South Korea**
- **Romania**
- **Spain**
- **South Africa**
- **Slovenia**
- **Türkiye**
- **Sweden**
- **Slovakia**

Contact Person	Term of validity	Last update
Sabrina WODRICH	**31 Jan 2024** **30 Jan 2025**	**31 Jan 2024**

General Information

Short summary

Expert UK SME in antimicrobial nanocoatings has developed a new technology for the incorporation of novel antimicrobial silver nanocoposites onto textiles. The SME is aiming to apply for Eurostars (call 6) competition and looking for Engineering companies for upscaling of its nancomposites from lab to pilot scale and their coating technology.

Full description

Antimicrobial fabric technology is an effective way to inhibit growth of bacteria, however, durability and longevity as well as health and safety concerns are major issues.

A number of antimicrobial finishes have been developed for the application in textiles. A common method to prevent bacterial growth is to apply antimicrobial chemicals known as biocides., which are normally incorporated into the finished textiles. However, so far no preservative agent has been developed with complete protection and without

disadvantages.

The SME has previously developed an innovative technology to induce antimicrobial properties to bed sheets by a unique technology of incorporation of their unique antimicrobial nanocomposite onto fabrics and textiles. This technology will extensively reduce the risk of infections and biofilm formations AND reduce the costs for healthcare systems in terms of disinfecting, treatments and durability of the sheets even after several washings as well as low health risks for patients.

In this project, the SME will optimise their developed technology for textiles used for linen and bed sheets, check their efficacy and possible cytotoxicity, design and scale up the technology from the lab to pilot and design a small production line for the nanocomposite materials and optimise it for the best possible efficacy and cost effectiveness.

The project is designed within five WPs:
1. WP1-Project Management; WP leader UK SME
2. WP2- Process optimisation and validation: laboratory process optimisation and efficacy, biocompatibility validation; WP leader: UK SME
3. WP3- Process & Mechanisms for Pilot Production; the preparation of active ingredients for coating and prototyping; WP leader: EU Partner
4. WP4- Exploitation and regulatory assessments, IP registration filing for CE/UKCA marking; WP leader: UK SME
5. WP5-Completion of pilot plant and Prototyping; WP leader: EU partner

Advantages and innovations

The novel silver nanocomposite and its incorporation technology onto textiles developed by the SME have proven the following advantages compared to current competitors' products:
1. Low use of silver compared to metallic silver coated textiles (e.g. Acticoat from Smith&Nephew) AND silver chloride based product (e.g. Silvershield from Microban) while keeping enhanced antimicrobial properties.
2. Lower cytotoxicity than commercial products such as Acticoat as tested on human cell lines
3. Cost effective product due to minimum use of silver and other costly materials (at least 70% cheaper)
4. Simple coating technology for most textiles leading to low manufacturing costs
5. Environmentally friendly materials and coating technology

Technical specification or expertise sought

The SME is looking for partners in the field of Chemical Engineering capable of process and production design for upscaling of the lab process for the preparation of the developed nanocomposite and their incorporation/attachment onto textiles. In this project, a small scale production line (e.g. 100Kg/week) is targeted. The chemical process involves four steps of reaction, washing and decanting/centrifuging. The process may involve strong acids and oxidizing/reducing agents. The active row material will then be used for the attachment onto fabrics via a simple one step process during the textile manufacturing followed by washing.
Either SMEs with material engineering background and production technology who are interested in antimicrobial coatings AND/OR textile manufacturers with interests and capabilities of above or have access to them are particularly sought.

Stage of development

Lab tested

Sustainable Development goals

- **Goal 17: Partnerships to achieve the Goal**

IPR Status

IPR applied but not yet granted

Partner Sought

Expected role of the partner

The technology is currently at the TRL3 and has been validated in the lab. The UK SME is seeking a partner who can provide the services described above. Any company with the skills/knowledge. The expected role of the partner would be to focus on upscaling from lab to pilot for prototyping nanomaterial coating precursors and the coating technology.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **R&D Institution**
- **SME 11-49**
- **University**
- **SME <=10**
- **SME 50 - 249**

Call Details

Framework program

Eureka

Call title and identifier

EUREKA call 6 Eurostars

Submission and evaluation scheme

Anticipated project budget

Coordinator required

No

Deadline for EoI

23 Feb 2024

Deadline of the call

14 Mar 2024

Project duration in weeks

Web link to the call

Project title and acronym

Dissemination

Technology keywords

• 06001018 - Virus, Virology/Antibiotics/Bacteriology

Market keywords

• 04017 - Micro- and Nanotechnology related to Biological sciences

• 08001007 - Coatings and adhesives manufactures

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- **Malta**
- **Norway**
- **Poland**
- **Lithuania**
- **Singapore**
- **Switzerland**
- **South Korea**
- **Romania**

Sector groups involved

- **Textiles**
- **Creative Industries**

- **Spain**
- **South Africa**
- **Slovenia**
- **Türkiye**
- **Sweden**
- **Slovakia**