

Next Generation BiOactive NAnocoatings

SUPREME × TRIPLE-A-COAT Joint Workshop

NOVA Project: Novel Approaches to Antimicrobial Surface Design

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Friday, September 25, 2026



Funded by
the European Union

Project funded by

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI



UK Research
and Innovation



DECHEMA

As a project partner, we offer support in



- **identifying** research topics and R&D needs
- **project acquisition** and project funding
- **project coordination**, from initiation to finalisation



- **networking** with partners and experts
- communicating and disseminating project results
- organising events and workshops



- **conducting** studies and analyses
- evaluating trends
- technology scouting





- The transmission of pathogenic microorganisms can happen **rapidly**.
- The transmission of pathogenic microorganisms can lead to **catastrophic and long-term consequences**.

Further Challenges

- Declining antibiotic effectiveness
- Rising antibiotic resistance

Next Generation BiOactive NANocoatings

NOVA Identified challenges and opportunities

Advanced coating instruments.

Robust **in-silico models** for risk management and coating development

Novel antibacterial, antifungal and antiviral **test methods** for real-life and operational conditions.



Safe and sustainable from synthesis to end-of-life coatings.

Three next generation light-activated **antimicrobial** permanent / re-applicable coatings for different applications.

Our mission is to streamline antimicrobial coating development by providing expertise, high-quality coatings, and new test methods to deliver ready-to-use solutions.

Key Figures



14 dedicated partners



9 Countries



6.128 €

IMSL
INDUSTRIAL MICROBIOLOGICAL SERVICES LTD

POLYMER INSTITUTE SAS

dolmen

DECHEMA

SIEMENS Healthineers

Empa
Materials Science and Technology

Manchester Metropolitan University



PRESTE

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Funded by the European Union



Fraunhofer

EVONIK
Leading Beyond Chemistry

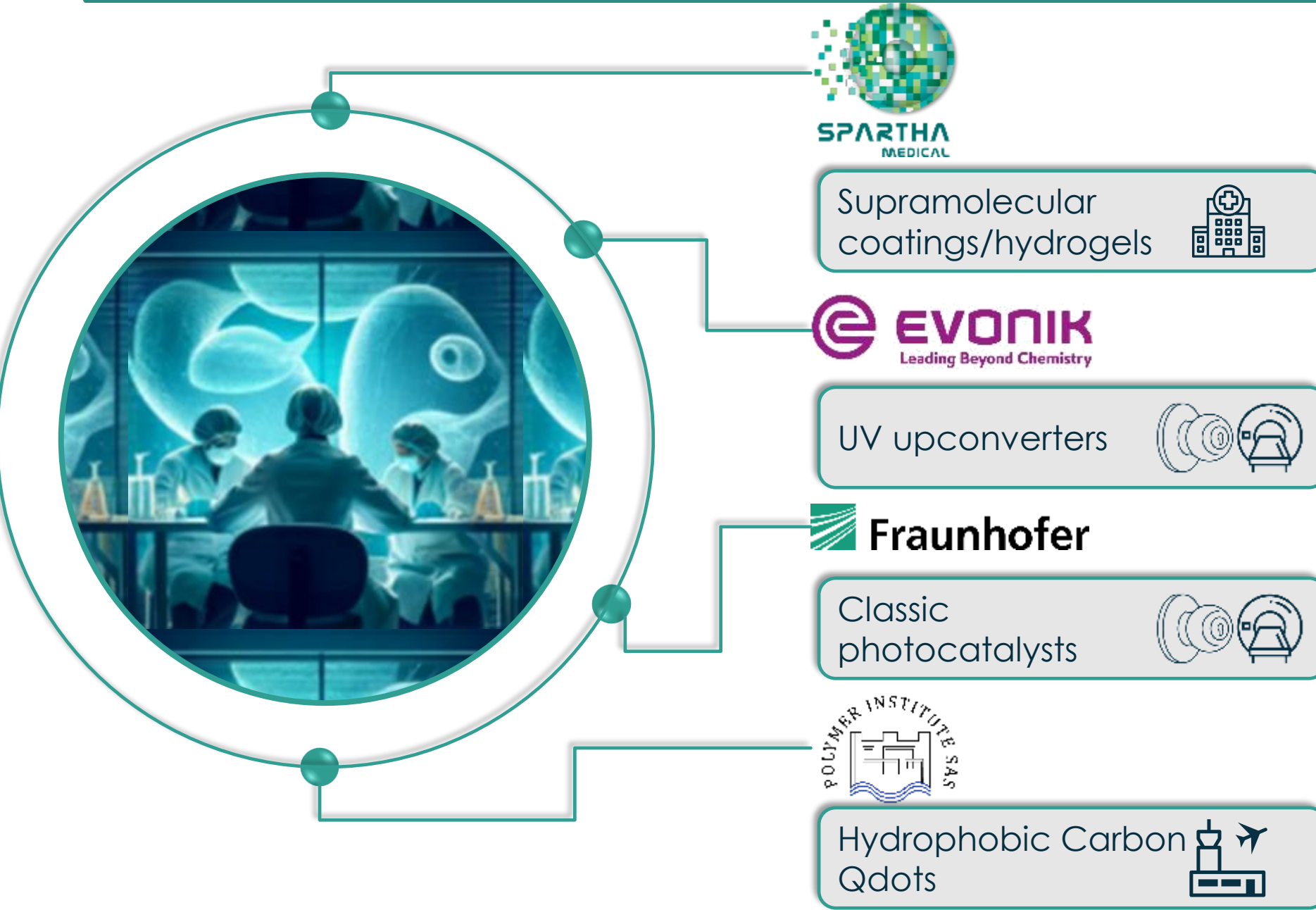
BIOMATERIALS BIENGINEERING

AkzoNobel

Univerza v Ljubljani
Biotehniška fakulteta



NOVA technologies in a nutshell



NOVA technologies in a nutshell

NOVA



Supramolecular
coatings/hydrogels



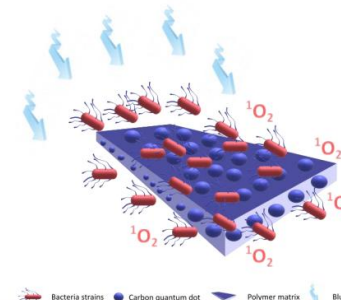
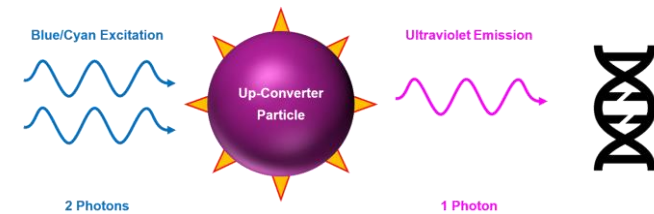
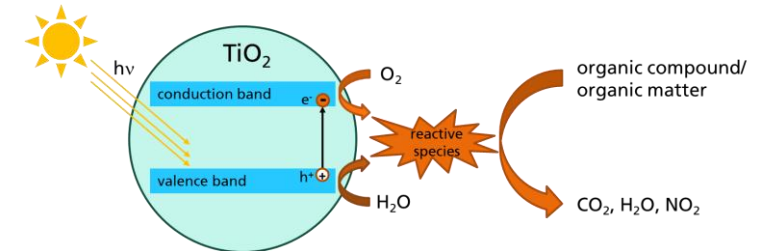
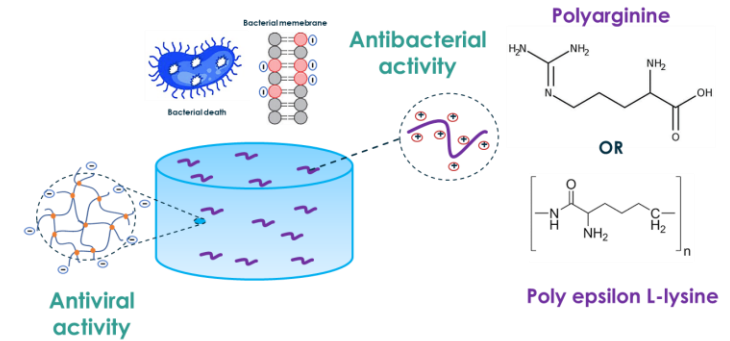
UV upconverters



Classic
photocatalysts



Hydrophobic Carbon
Qdots

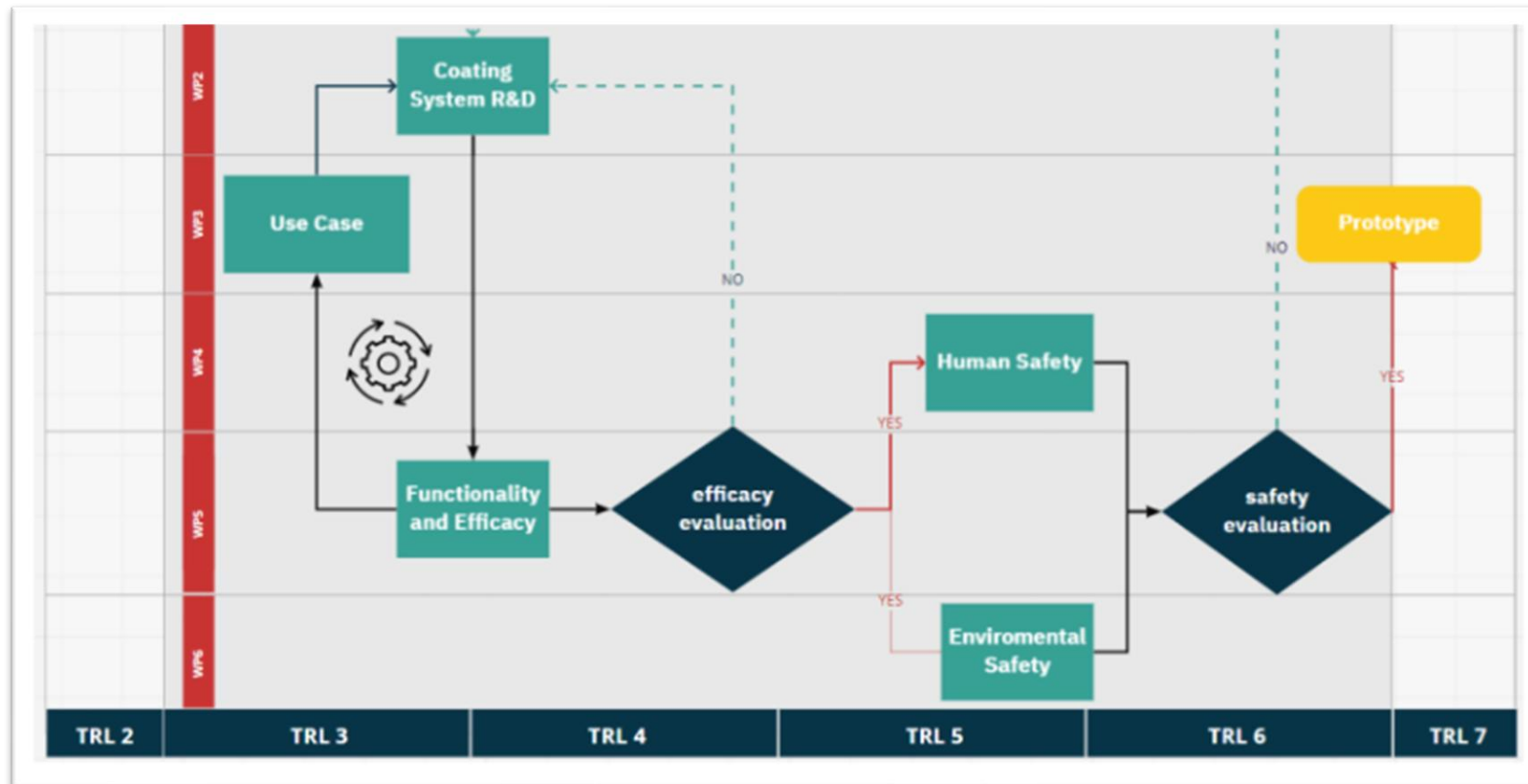


NOVA's learning approach

Use Case



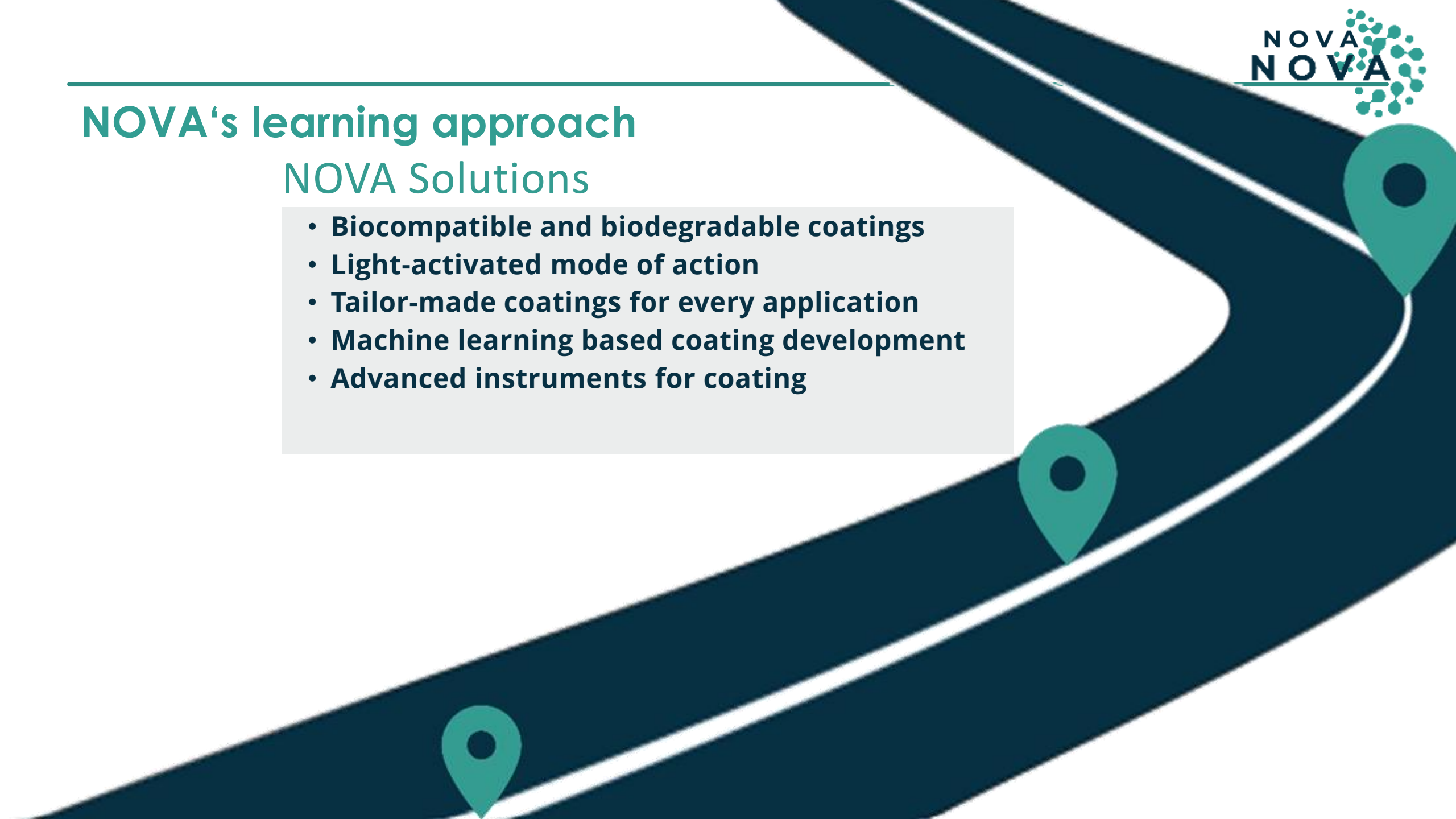
NOVA's learning approach



NOVA's learning approach

NOVA Solutions

- Biocompatible and biodegradable coatings
- Light-activated mode of action
- Tailor-made coatings for every application
- Machine learning based coating development
- Advanced instruments for coating



NOVA's learning approach

Additional Tools

- New generation of cytotoxicity & immunotoxicity test methods for coatings
- Advanced antimicrobial efficacy testing and simulations
- In silico models for structure/function relationships of coatings
- Comprehensive roadmap for coating development/testing and use
- Biocides safe and sustainable by design methodology

gradable coatings
action
every application
coating development
or coating

NOVA's learning approach

Finish line

- 
- **Marketable coating solutions** with a significant impact on public health
 - **Advanced tools** to simplify coating development
 - Broadening and scale up of use cases
 - **Industrial implementation**

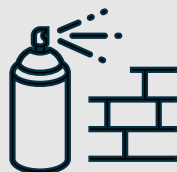
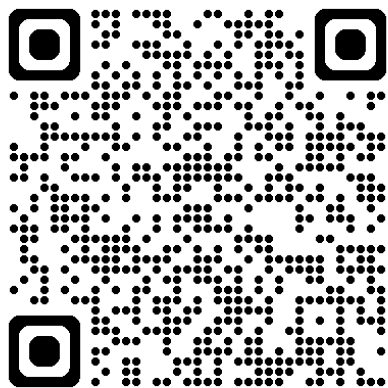
gradable coatings
action
every application
coating development
or coating

Main Results – Much More to Come



33

Publications in our
Zenodo Community



>4

Prototypes

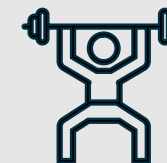


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New testing methods



Sneeze Box



36

Diss. & Comm.
activities



Thank you for your attention.



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