

## JOINT COLLOQUIUM

2 DECEMBER 2025, 10 AM, IVAN SUPEK LECTURE HALL, I WING  
RUĐER BOŠKOVIĆ INSTITUTE

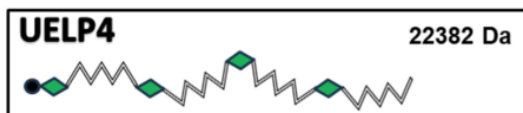
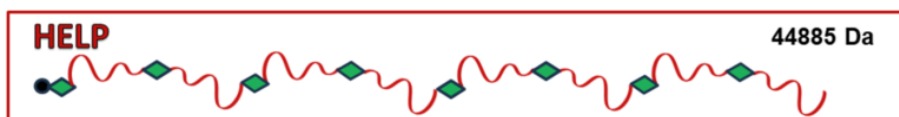
### HELP & UELP4:

#### SMART CARRIERS FOR ANTIMICROBIAL COATINGS DEVELOPMENT

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The development of biotechnology opens the door to new routes for the production of peptide-based materials that can replace the standard chemical synthesis with more sustainable and convenient methods. The Human Elastin-like Polypeptides are a class of recombinant proteins between synthetic polymers and natural proteins, being codified by synthetic genes that can be further tailored and customized on demand. They are characterized by thermo-responsive behavior, shifting from the solvated to the aggregated state depending on temperature, concentration and ionic strength of the solution. For this reason, they are valuable fusion carriers to produce antimicrobial peptides and to obtain biomimetic materials that can be exploited to obtain functional coatings that hamper bacterial growth. We are actively exploring different formulations to improve the anti-bacterial capacity exploiting the potential of blending the different HELP and UELP4 fusion products toward the realization of multifunctional composites.





**Dr. Antonella Bandiera** is an Assistant Professor in Molecular Biology, BIO11, in the Department of Life Sciences at the University of Trieste. She carries on the Molecular Biology Laboratory for the First Level Degree in Science Biological Sciences and Technologies.

Her research activity is based on a strong biochemical and molecular biology background, specially referring to cloning and nucleic acids manipulation, recombinant protein expression and purification. Her work focuses on exploring the potential of customizable elastin-inspired biopolymers coded by synthetic genes as basic components of innovative biomaterials for biotechnological and biomedical applications. She developed the HELP smart platform to realize stimuli-responsive components and matrices endowed with functionality by fusion with bioactive domains. HELP-based antimicrobial biopolymers and composites with controlled release capacity of active growth factors have been developed as well as a fluorescent bioreceptor for bilirubin detection.

She has more than 50 publications in peer-reviewed journals (Google Scholar H-index 24 and 1970 citations) and one patent. She has received funding from the Italian Ministry for University and Research. Currently she is responsible for the STOP project (2022-2026 grant n. 101057961 granted from the European Union).