

ItPS
Seminars

20th Dec
3pm CEST 2023

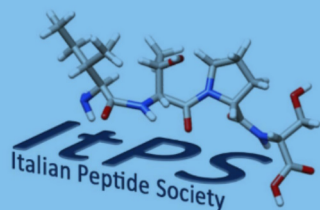


MEITAL RECHES
Associate Professor
Institute of Chemistry,
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Peptide-Based Functional Coatings



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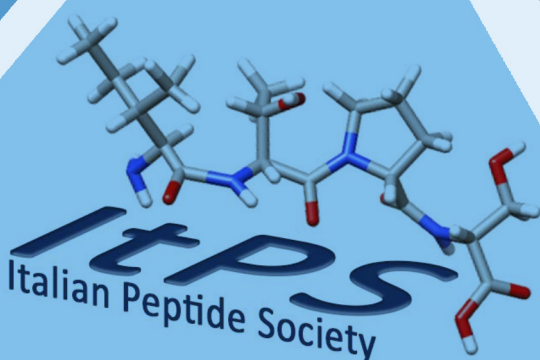
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University of Jerusalem, Israel



Peptide-Based Functional Coatings

I will present bio-inspired functional coatings that are spontaneously formed by extremely short peptides. These peptide-based coatings self-assemble on metals, oxides, and polymers under mild conditions without any need for a curing step. The coating can serve many functions. One application is preventing biofouling the undesirable adhesion of biomolecules and organisms to surfaces. This process leads to numerous adverse effects including hospital-acquired infection, blockage of water desalination facilities, and food contamination. We showed that this coating prevents the first step of biofouling, which involves the adsorption of bioorganic molecules to the substrate. Moreover, the coating significantly reduces the attachment of various organisms, such as bacteria, viruses and fungi, to surfaces. Another function that these peptide-based coatings can mediate is the adhesion of mammalian cells to implants. This function is important for the integration of implants into the human body.

Moreover, these peptides self-assemble in solution into particles that adsorb and release active compounds that synergistically reduce the number of bacteria and viruses on the surface. They can also be integrated into polymeric films by a simple co-extrusion protocol.



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