



Seminars in Biotechnology BTEC 592 & BTEC 692

“Bioinspired Functional Polymers and Nanomaterials”

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13:30

GTU Congress Center, Red Hall

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Dr. Pınar Çakır Hatır is currently working as an assistant professor at the Department of Biomedical Engineering at İstinye University. She graduated from Boğaziçi University with B.Sc. degree in Chemistry in 2004. Afterwards, she completed her M.Sc. studies at Boğaziçi University in the subject “Synthesis of dendrons with bone targeting moieties”. She received her Ph.D. degree in Biotechnology from Sorbonne Universities, University of Technology of Compiègne, France in 2012. During her Ph.D. she worked in “Molecularly imprinted polymer nanostructures”. She was also employed as early-stage researcher in EU research networks, NASCENT and IRMED. After her Ph.D. she returned to Turkey and has worked as a project manager in a Sampaş Nanotechnology for almost a year, where she was involved in 5 FP7 projects (PCATDES, Mu-Tool, EFFESUS, Tex-Shield, S-Varnish). Since 2013, she has been involved in numerous national and international research projects as coordinator and researcher. Currently, she is conducting a national project (TÜBİTAK3501) and an EuroNanoMed project under Horizon 2020 (4NanoEARDRUM). Additionally, she is one of two management committee members of COST Action (CA16215) from Turkey. She received MSCA Seal of Excellence Award for her proposal in 2019 (Score: 88.40%). Her research interests focus on development of molecularly imprinted polymers, smart hydrogels, micro/nanostructured materials for biomedical applications. She is also interested in renewable resources and environmentally friendly synthesis methods.

Abstract

Molecularly imprinted polymers (MIPs) are bioinspired synthetic materials with specific recognition properties for target molecules. They are considered an alternative to antibodies and are characterized by a higher chemical and physical stability, better availability, and lower cost. Due to the specific recognition characteristics, MIP-based biomimetic systems can successfully be employed for applications in sensing, catalysis, separation including chromatography, pseudo-immunoassays, and drug delivery. Hydrogels are three-dimensional crosslinked polymer networks with a high capability for water absorption. They can be designed with several functionalities and implemented into industrial applications. Hydrogels with unique recognition characteristics can be considered a valuable tool for sensing and separation purposes. Biobased starting materials are good candidates for environmentally

friendly manufacturing processes. Castor oil is one of the promising biobased raw materials, because it is a long-chained unsaturated fatty acid with a hydroxyl group in which chemical modifications are possible. Thus, various kinds of monomers and polymers can be designed from castor oil. This talk aims to outline significant aspects about bioinspired functional polymers and nanomaterials in biomedical applications and their environmentally friendly production methods developed with renewable resources.