



Seminars in Biotechnology BTEC 591 & BTEC 691

“Design of Nanocarriers for Drug Delivery and Diagnostic Applications”

Thursday, November 3, 2022

14.00

GTU Institute of Biotechnology, Lecture Hall

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Banu İyisan is an assistant professor at the Institute of Biomedical Engineering (BME), Boğaziçi University since 2020. She is the founder of Biofunctional Nanomaterials Design (BIND) Lab and her multidisciplinary research interests include the design, fabrication and characterization of smart nanocarrier systems to overcome challenges in biomedical research and healthcare applications. She received her BsC (2009) and MsC (2011) degrees in chemical engineering from Istanbul Technical University (ITU) where she worked also as a research&teaching assistant until she moved to Germany for her PhD study in 2012. She received her PhD degree in chemistry on the topic of multifunctional and stimuli-responsive polymersomes (biomimetic polymer vesicles) for biomedical applications from Dresden Technical University (TU Dresden, 2016) after working at Leibniz Institute for Polymer Research, Dresden. During her PhD, she was also a member of an interdisciplinary research school from Helmholtz Association (IHRS NANONET, Germany) in the field of nanoelectronics. She then worked as a postdoctoral researcher at Max Planck Institute for Polymer Research (MPIP) in Mainz, Germany. During her postdoc period (2017-2020), she focused on the development of functional and light responsive nanocarriers for biosensing and targeted drug delivery applications. Since 2021, she is also a visiting senior scientist at MPIP as an adjunct research position for her collaborative studies on different topics of nanomedicine.

The development of a nanocarrier system for drug delivery and diagnostic applications requires immense efforts to have improved clinical outcomes, especially for the treatment and detection of dreadful diseases like cancer. Controlled and selective drug delivery, biocompatibility, biodegradability, long circulation time in blood stream, stability are key properties of a nanocarrier to push the limits of current therapies and diagnostic tools. In BIND Lab, our approach is to design multifunctional and smart nanocarrier systems where we can impart these key properties into a single structure to perform various tasks in one-pot. In this context, the aim of this talk will be to discuss our research activities on development of versatile nanocarriers for diverse applications of nanomedicine.