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OVERVIEW OF NANOPARTICLE-BASED TARGETED DRUG DELIVERY

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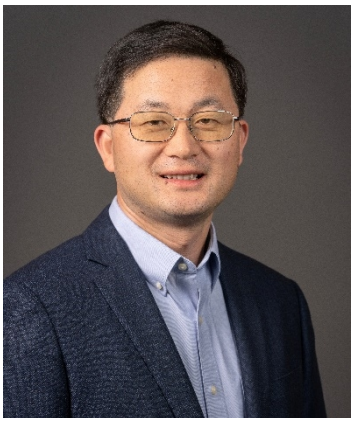

Abstract: Nanoparticle-based drug delivery represents a revolutionary breakthrough in the field of medicine, offering a paradigm shift in the treatment of various diseases. Its significance lies in its ability to enhance the therapeutic efficacy of drugs while minimizing undesirable side effects. Over the past several decades, nanomedicine researchers have sought to design and develop effective nanoscale platforms capable of more precisely delivering drug payloads. This presentation aims to provide an overview of the evolution of nanoparticle-based targeted delivery technologies. It will trace their journey from the early development of antibody-functionalized nanoparticles to the latest nanocarrier designs that ingeniously exploit endogenous cellular receptors or genetically expressed ligands for precise and tailored drug delivery. Additionally, the ongoing efforts and achievements in translating these technologies to clinical applications will also be discussed.

Bio: Dr. Liangfang Zhang is Joan and Irwin Jacobs Chancellor Professor of Nanoengineering and Bioengineering and Chair of the Department of Nanoengineering at UC San Diego. He received his Ph.D. in Chemical & Biomolecular Engineering from the University of Illinois at Urbana-Champaign in 2006 under the supervision of Prof. Steve Granick. He was a postdoctoral associate in the laboratory of Prof. Robert Langer at MIT during 2006-2008. He joined the Department of Nanoengineering at UC San Diego as an Assistant Professor in 2008 and was promoted to Professor in 2014. His research aims to create cutting-edge biomimetic nanotechnologies and exploit them for various biomedical applications with a particular focus on biomimetic nanodelivery and biological neutralization. He has published 270 peer-reviewed articles and was among the Clarivate Analytics list of “Highly Cited Researcher” during 2017-2022. He is an inventor of 120 patents and patent applications worldwide. Professionally, Dr. Zhang was elected to the Fellows of the American Institute for Medical and Biological Engineering (AIMBE) in 2015, the Fellows of the American Association for the Advancement of Science (AAAS) in 2018, and the Fellows of the National Academy of Inventors (NAI) in 2020.