NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

SEMINAR

Fri, 10 May 2024 | 10 am | Seminar Room 2

Hosted by Assist. Prof Hu Chunyi

Delivery of Gene-Editing Biomacromolecules for Precision Gene Therapy

By **Ping Yuan**
Zhejiang University, China

The clustered, regularly interspaced, short palindromic repeat (CRISPR)-associated nuclease 9 (CRISPR/Cas9) is emerging as a promising genome editing tool to treat diseases in a precise way, and now it has been applicable to a wide range of research in the areas of biology, genetics, and medicine. Delivery of therapeutic genome-editing agents provides a promising platform for the treatment of genetic disorders. In this talk, I will discuss the modes of CRISPR/Cas9 delivery with non-viral vectors we have developed, and how we design the hierarchical delivery strategies to overcome the biological barriers during in vivo delivery processes. I also introduce the concept of "genome-editing prodrug" we have proposed recently, and show how the prodrug works for precision gene therapy. The future outlook of CRISPR/Cas9 in treating genetic disorders will also be briefly discussed in the end.

About the Speaker

Dr. Yuan Ping is currently a tenured full professor and principal investigator at College of Pharmaceutical Sciences, Zhejiang University. He joined Zhejiang University in 2017 and obtained tenured position in 2020, and was promoted to full professor in 2023. Dr. Ping's current research mainly focuses on biomacromolecular drug delivery and gene therapy, and his multidisciplinary research has produced more than 80 original research papers in the fields of drug delivery, nanomedicine, biomaterials etc. As a corresponding author, he has published more than 40 research articles in prestigious journals, including Nature Biotechnology, Nature Nanotechnology, PNAS, Nature Communications, Science Advances, etc. in the past 5 years. His research was supported by National Natural Science Foundation of China, National Key Research and Development Program of China, Global Pivotal Life Science Sponsorship Program. Dr. Ping is the recipient of JCR (Journal of Controlled Release) Emerging Leader Award, Journal of Material Chemistry Emerging Investigator Award. He also serves as the editorial board member in Journal of Controlled Release, Synthetic and Systems Biotechnology, and Asian Journal of Pharmaceutical Sciences.