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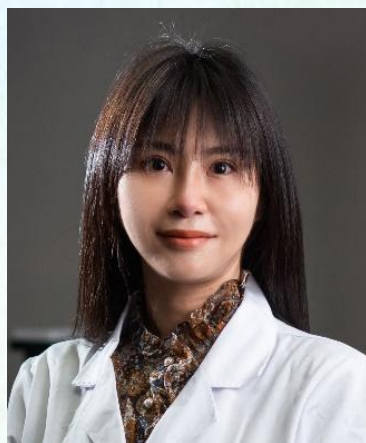
The University of Hong Kong

**Department of Pharmacology and Pharmacy
& Dr. Li Dak-Sum Research Centre
Present**

Seminar series – Drug Delivery and Translational Medicine

Photocrosslinkable polymers for tissue regeneration

by



Prof. Xin Zhao

Professor

Department of Applied Biology and Chemical Technology
The Hong Kong Polytechnic University

Date: 30 May 2025 (Friday)

Time: 10:00 a.m. – 11:00 a.m.

Venue: Seminar Room 1, G/F Laboratory Block, LKS
Faculty of Medicine, 21 Sassoon Road, Pokfulam

Abstract:

Photocrosslinkable polymers solidify upon light exposure and are used in tissue engineering due to their mild crosslinking conditions, tunable mechanical properties, printability, biodegradability, and biocompatibility. These biomaterials maintain structural integrity after fabrication and guide cellular behavior in a biomimetic environment. This talk explores their application in tissue regeneration through scaffolds such as electrospun fibers, microspheres, and 3D-printed structures for hard and soft tissues. We developed GelMA-based microspheres using microfluidics, encapsulating human mesenchymal stem cells for bone repair, ensuring optimal conditions for cell survival and differentiation. Additionally, we created a periosteum-mimicking scaffold using photocrosslinkable GelMA, Arg-UPEA, and nHAMA NPs. Light exposure rapidly solidifies the scaffold, with adjustable mechanical and degradation properties ensuring long-term structural support. A novel 3D printing nanocomposite ink combining PmLnDMA and nHAMA was also formulated, achieving rapid co-crosslinking and enhanced mechanical strength to facilitate efficient bone regeneration.

Bio:

Prof. Xin Zhao is a professor at the Department of Applied Biology and Chemical Technology at the Hong Kong Polytechnic University. She is an expert in Translational Regenerative Medicine, integrating material science, cell biology, engineering, and medicine for tissue engineering and regenerative therapies. With over 100 publications and an h-index of 64 on Google Scholar, Prof. Zhao's contributions are acknowledged globally, featuring in Clarivate Analytics' "Highly Cited Researchers 2022" and Stanford University's "World's Top 2% Scientists" for 2023 and 2024. She is the recipient of numerous prestigious awards, like the National Science Fund for Excellent Young Scholars (2021) and the Biomaterials Award for Young Investigator (2024). Prof. Zhao's pioneering research on biomimetic nanocomposite bone grafts has garnered international acclaim, including the TechConnect Global Innovation Award (2023). Prof. Zhao also plays a vital role in academia as a founding editor and associate editor for leading scientific journals.

Moderator: Prof. Weiping Wang, Associate Professor, Department of Pharmacology and Pharmacy & Dr. Li Dak-Sum Research Centre, The University of Hong Kong
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