



# Citric Acid: The Nexus of Cellular Mechanism and Biomaterial Innovation



**Prof. YANG Jian**

Chair Professor at Westlake University

Date : 9 April 2024 (Tuesday)  
Time : 2:00pm  
Venue : ERB1122, William M W Mong Engineering, CUHK

## **Abstract**

Citric acid, historically known as an intermediate in the Krebs cycle, is a multifunctional, nontoxic, readily available, and inexpensive cornerstone chemical used in the design of citrate-based biomaterials. Leveraging the multifunctional nature of citrates in chemistry and inspired by its important biological roles in human tissues, a class of highly versatile and functional citrate-based biomaterials and small molecules has been developed. In this talk, I will discuss the emerging frontiers of citrate-based biomaterials including the citrate chemistry for new biomaterial design, citrate biology in regulating cell metabolism, immune response, and stem cell differentiation and their applications in tissue engineering, drug delivery, in vitro and in vivo bioimaging and biosensing, and anti-counterfeiting. I will also introduce the translation successes of citrate biomaterials in regenerative engineering and outlook their future developments.

## **Biography**

Dr. Jian Yang is currently a Chair Professor in Biomaterials and Regenerative Engineering, the Chair of Biomedical Engineering Program, and an Associate Vice President at the Westlake University. Prior to Westlake, he was a Professor of Biomedical Engineering and Dorothy Foehr Huck and J. Lloyd Huck Chair in Regenerative Engineering at the Pennsylvania State University. Dr. Yang is known for his pioneering contribution on citrate chemistry and biology for the development and applications of citrate-based biomaterials. He was a recipient of NSF CAREER Award (2010), Outstanding Young Engineering Faculty Award at UTA (2011), PSEAS Outstanding Research Award at Penn State (2018), and BMES Wallace H. Coulter Award for Healthcare Innovation Award (2023). Dr. Yang is an elected Fellow of American Institute of Medical and Biological Engineering (AIMBE, 2016), the National Academy of Inventors (NAI, 2018), the Biomedical Engineering Society (BMES, 2020), the American Association for the Advancement of Science (AAAS, 2021), and the International Academy of Medical and Biological Engineering (IAMBE, 2023). Dr. Yang is the Co-Editor-in-Chief of “Bioactive Materials”, and an Associate Editor of “Science Advances”. Dr. Yang is a co-founder and the Past-President of Chinese Association for Biomaterials (CAB) and the recipient of 2023 CAB Distinguished Leadership and Service Award.

\*\*\* ALL ARE WELCOME \*\*\*

*For enquiries, please contact Ms. Joyce Chan, Department of Biomedical Engineering at 3943 8278*