BME Seminar Series I

Department of Biomedical Engineering
香港城市大學
City University of Hong Kong

Citrate Chemistry and Biology for Biomaterials Design and Applications

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Hybrid Event
Date: 13 December 2022 (Tuesday)
Time: 2:30 – 4:30 p.m.
Venue: B6605 College Conference Room, 6/F, Yeung Kin Man Academic Building
Zoom: https://cityu.zoom.us/j/95484901513?pwd=ejU3ODlXUHE5dTZXWFgxTXQ1M2Y0UT09
Meeting ID: 954 8490 1513
Passcode: 023625

Abstract

Leveraging the multifunctional nature of citrate in chemistry and inspired by its important biological roles in human tissues, a class of highly versatile and functional citrate-based biomaterials has been developed. Citric acid, historically known as an intermediate in the Krebs cycle, is a multifunctional, nontoxic, readily available, and inexpensive cornerstone monomer used in the design of citrate-based biomaterials. In addition to the convenient citrate chemistry for the syntheses of a number of versatile polymers that may be elastomeric, mechanically strong and tough, injectable, photocrosslinkable, tissue adhesive, photoluminescent, and/or electrically conductive, citric acid also presents inherent anti-bacterial, anti-clotting, angiogenic, and metabonegenic characteristics, which make citrate biomaterials ideal for a number of medical applications. In this presentation, a methodology for the design of biomimetic citrate biomaterials and their applications in regenerative engineering, drug delivery, bioimaging and biosensing will be discussed.

Biography

Dr. Jian Yang is a Professor of Biomedical Engineering and Dorothy Foehr Huck and J. Lloyd Huck Chair in Regenerative Engineering at The Pennsylvania State University (Penn State). Dr. Yang is known for his contribution on citrate chemistry and biology for the development and applications of citrate-based biomaterials. Dr. Yang has published 150 papers and received 21 issued US patents and many more international patents. He was a recipient of NSF CAREER Award (2010), Outstanding Young Engineering Faculty Award at UTA (2011), and PSEAS Outstanding Research Award at Penn State (2018). Dr. Yang is an elected Fellow of American Institute of Medical and Biological Engineering (AIMBE, 2016), a Fellow of National Academy of Inventors (NAI, 2018), a Fellow of Biomedical Engineering Society (BMES, 2020), and a Fellow of American Association for the Advancement of Science (AAAS, 2021). Dr. Yang is the Co-Editor-in-Chief for journal “Bioactive Materials”, and Associate Editor of “Science Advances”, and an Associate Editor of “Frontiers in Biotechnology and Bioengineering”. Dr. Yang is the co-founder and the Past-President of Chinese Association for Biomaterials (CAB). Dr. Yang co-founded a medical device company, Aleo BME, Inc. and is also serving on the Scientific Advisory Board of Acuitive Technologies, Inc.