HKU Med LKS Faculty of Medicine Department of Pharmacology & Pharmacy 香港大學藥理及藥劑學系

Dr Li Dak-Sum Research Centre 李達三博士研究中心

The University of Hong Kong

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

Present

Seminar series – Drug Delivery and Translational Medicine

Platinum anticancer prodrugs: New stories from old drugs

by

Prof. Guangyu Zhu

Head and Professor
Department of Chemistry
City University of Hong Kong

Date: 26 March 2025 (Wednesday)
Time: 2:00 p.m. – 3:00 p.m.
Venue: Seminar Room 2, G/F, Laboratory Block, LKS Faculty of Medicine, 21 Sassoon Road, Pokfulam

Abstract:

Platinum-based anticancer drugs like cisplatin are widely used but face challenges such as side effects and resistance, driving research into novel metal-based complexes. Pt(IV) prodrugs, non-traditional platinum compounds, show great potential as next-generation drugs due to their selective activation within tumors, minimizing damage to normal tissues. In this presentation, I will introduce the design, activation mechanism, and antitumor activity of photo- and sono-activatable Pt(IV) prodrugs. These small-molecule prodrugs are inert in the dark but under short-period irradiation with low intensity of visible light or ultrasound, and without the need for any external catalyst, the prodrugs are efficiently reduced. The prodrugs display superior antitumor activity both in vitro and in vivo in human carcinoma models. Our recent progress in revealing components responsible for activating Pt(IV) prodrugs in live cells will be briefly discussed. In addition, I will introduce our recent progress in the applications of Pt(IV) complexes as photoinitiators and photocrosslinkers for hydrogels and protein labeling.

Bio:

Prof. Guangyu Zhu is the Head and Professor at the Department of Chemistry, CityUHK. He received his B.Sc. in Chemistry from Peking University and Ph.D. in Biological Chemistry from the University of Pittsburgh. He conducted postdoctoral research at MIT before joining CityUHK. Prof. Zhu's research focuses on anticancer drug development, including the synthesis of metal-based anticancer agents, stimuli-responsive prodrugs, and cancer-specific nanomedicine to overcome drug resistance. His work has been widely published in top-tier journals, including Nat. Chem., Nat. Synth., Nat. Catal., Chem, and JACS. He serves as the Secretary of the AsBIC Steering Committee and is a member of various national and international committees. His recent honors include the 2024 AsBIC James Hoeschele Award, the 2023 College of Science Outstanding Young Researcher Award, the 2023 Teaching Excellence Award, and his election to the Hong Kong Young Academy of Sciences in 2023.

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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Seminar series website QR code