



Department of
Biomedical Engineering

香港城市大學
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Lightening up molecular events in live cells

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Time: 9:00 - 9:45 am

Venue: LT-4, 4/F

Yeung Kin Man Academic Building

Abstract

“Seeing is believing”. Live cell imaging is becoming a powerful tool for study of cell biology and disease mechanisms. Biomolecular interactions are the foundation of most biological processes, such as protein protein interactions, protein RNA interactions, protein genome interactions, and nucleic acid interactions. Many types of fluorescent protein based molecular biosensors have been developed. Among them, long wavelength emitting biosensors can have better penetration performance in in vivo applications. Design, construction and application of red, far red, and near-infrared molecular biosensors will be discussed. Cellular biosensors are a new cluster of biosensors. One application is to monitor ROS level in cells, which has potential applications in drug screening and evaluation, chemical toxicology research, and disease mechanism studies. The interaction between viruses and host cells is the basic problems of virology. Multiple labeling methods have been developed to study viral infections in cells. A series of new discoveries have been made in the study of HIV-1, Sars CoV-2, and Zika virus using this technology.

Biography

Degrees: He received his first degree from Hubei University, MPhil. (microbiology) and Ph.D. (biochemistry) from the Chinese Academy of Science (CAS), and an Honorary Doctor of Science Degree from University of Alberta, Canada.

Career: He became a full professor in 1993 in Wuhan Institute of Virology, Chinese Academy of Sciences. Now he serves the Dean and chair professor of the Faculty of Synthetic Biology of the newly built Shenzhen University of SIAT, and is professor of the Institute of Biophysics, Chinese Academy of Sciences.

Honors: He is a Fellow of American Institute of Medicine and Biological Engineering, a Fellow of Royal Society Chemistry. He received the Honorary Doctor of Science Degree from Alberta University, Canada.

Research: His research directions include molecular biosensors, nanobiology and synthetic biology, aiming to create new tools for elucidating the basic problems in virology and cell biology. He is a pioneer in tracking virus-host cell interactions using molecular imaging, and has created the Mycobacterium tuberculosis proteome microchip, which has become a unique powerful high-throughput platform for study of tuberculosis. He has published over 370 peer-reviewed papers and the book Biosensors.

Society: He is the Vice President of Chinese Society of Biotechnology and Chair of the Division of Synthetic Biology, Honorary Chair of the Division of Biosensors/Biochips/Nanobiotechnology, member of the permanent organizing committee of the World Congress on Biosensors, and founding co-chair of the Division of Nanobiotechnology/Biosensors/Biochips, Asian Federation of Biotechnology (AFOB).