

## Bioimaging, Diagnosis and Therapy by Conceptually New Fluorogens

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**Date:** 20 August 2019 (Tuesday)

**Time:** 2:00 pm - 3:00 pm

**Venue:** Biomedicum 1 (D0320), Solnavägen 9, Karolinska Institutet, Solna



### **Abstract**

Advanced biosensors are highly demanded for accurate biological detection and clinical diagnostics. Unlike conventional organic fluorophores, luminogens with aggregation-induced emission (AIEgens) with propeller-shaped structures provide a superior choice for light-up fluorescence sensing. As isolated molecules, the rotor-containing AIEgens undergo low-frequency motions and dissipate exciton energy, leading to fast nonradiative decay of the excited states and weak emission. In the aggregated form, the radiative pathway is predominant for strong emission *via* the restriction of intramolecular rotation, vibration and motion. The AIEgen aggregates exhibit large absorptivity, robust luminosity, strong photobleaching resistance, no random blinking, and excellent biocompatibility. They have been widely applied for *in vitro* and *in vivo* biosensing and imaging, including specific biomolecular analysis (DNA, protein, enzyme, antigen, etc), micro-environment sensing (intracellular pH, membrane potential, viscosity, ROS, etc), real-time organelle or cellular imaging, highly sensitive pathogen detection, long-lasting drug delivery tracking and high-resolution biological process visualization (protein fibrillation, cell apoptosis, mitophagy, proliferation, etc).

### **Biography**

Ben Zhong Tang is Stephen K. C. Cheong Professor of Science, Chair Professor of Chemistry, and Chair Professor of Chemical and Biological Engineering at The Hong Kong University of Science and Technology (HKUST). His research interests include macromolecular chemistry, materials science and biomedical theranostics. Tang received B.S. and Ph.D. degrees from South China University of Technology and Kyoto University, respectively. He conducted postdoctoral research at University of Toronto. He joined HKUST as an assistant professor in 1994 and was promoted to chair professor in 2008. He was elected to the Chinese Academy of Sciences and the Royal Society of Chemistry (RSC) in 2009 and 2013, respectively. Tang has published >1,400 papers. His publications have been cited >83,000 times with an h-index of 134. He has been listed by Thomson Reuters as a Highly Cited Researcher in both areas of Chemistry and Materials Science.