Special Seminar

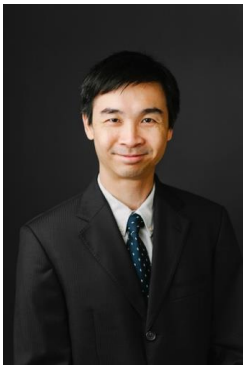
Date: Wednesday June 29, 2016
Time: 11:00 a.m. – 12:00 p.m.
Location: Rosebrugh Building
164 College Street, 2nd Floor, Room 208

Dr. Yen Wah Tong
Chem-Eng Alumni and Tenure-Track Faculty Member
Department of Chemical and Biomolecular Engineering, National University of Singapore

"Amphiphilic Peptides That Mimic Nature – A versatile platform for tissue engineering via the control of biofunctional signaling, mechanical strength and chemical degradation"

The self-assembling behavior of peptide amphiphiles has been studied for over 20 years, and has been found to have interesting behaviors and applications. Recently, our group has worked on using these peptide amphiphiles to mimic nature in a multi-scale manner, from molecular signaling through receptor interactions, to hierarchical assembly that changes nanofibers into micro- and macro-fibers, and at the physiological level in controlling mechanical strength. The eventual goal is to mimic nature to produce synthetic materials that behaves like extracellular matrices with its corresponding biological, mechanical and chemical behavior and function. The peptide amphiphiles are more than a versatile platform, as it is also surprisingly simple to design a range of these functions through logical peptide selection and by learning from nature. We have achieved mimicry of ECM molecules from collagen to elastin, and from spider to silkworm silk. Our applications are currently aimed at tissue engineering of soft tissues such as liver and brain, to hard tissues of bone, and elastic tissues of the skin and fat.

Biography



Associate Professor Yen Wah Tong joined the Department of Chemical and Biomolecular Engineering at the NUS in 2001. His research started with biomaterials based on peptide-amphiphile hydrogels for tissue engineering of the liver and brain together with biomolecule delivery. The major focus of his Biomimetic Materials and Systems Laboratory is thus on applying biomimetic principles for various applications, including membranes, scaffolds and processes. Recently, his group has expanded research into bioenergy using biomass wastes and municipal solid wastes, converting these into renewable fuels and chemicals. Prof Tong is currently the Assistant Dean for Research in the Faculty of Engineering at NUS. He is also the co-Programme Director for an NRF CREATE programme with Shanghai Jiaotong University "Energy and Environmental Sustainability Solutions for Megacities".

Hosted by Dr. Molly Shoichet
Snacks and Refreshments will be served