

We would like to invite you to attend this seminar hosted by A/Prof. Adam Claridge-Chang:

Date: 16 October 2014, Thursday

Time: 11:00AM – 12:00PM

Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Prof. P. Gopalakrishnakone, Professor, Venom and Toxin Research Programme, Yong Loo Lin School of Medicine, NUS

Title: Drug Discovery from Natural Toxins

Venom is produced by specialized glandular or epithelial cells which when introduced into the blood by bite or sting induces many changes in multi-organ systems of the human body ranging from alterations in neural transmission, blood coagulation disorders or myotoxicity, etc. Isolation, characterization and determination of novel biological activity of a toxin have lead to the identification of many peptides and proteins which could be used as tools for studying neuromuscular transmission, channel activity(sodium,potassium,calcium) or isolation of specific receptors as well as potential drug candidates. Our experience in patenting some of these candidates as well as taking them along the path of drug development will be shared. Among the Venoms which have been investigated by our group over the last 3 decades were snake venom, scorpion venom, spider venom and conus venom yielded many novel peptides. Some of these peptides structure and their functional relationship will be presented. In addition, details of a Phospholipase A2 inhibitor, isolation, characterization as well as designing of a novel peptide with anti-inflammatory activity will be presented. Recent work on anticancer compounds from venoms also will be reviewed. The presentation will give an overview of the concept “From venoms to drugs and Toxins to therapeutics”

Biography:

P. Gopalakrishnakone is presently Professor in the Anatomy Department and Chairman of the Venom and Toxin Research Programme at the National University of Singapore. He is also a consultant to the Defence Science Organization in Singapore and Adjunct Senior Research Scientist at the Defence Medical Research Institute. He is an Honorary Principal Fellow at the Australian Venom Research Unit.

Professor Gopal’s research studies includes structure function studies (toxin detection, biosensors, antitoxins and neutralization factors), toxicogenomics and expression studies, antimicrobial peptides from venoms and toxins and PLA2 inhibitors as potential drug candidate for inflammatory diseases. The techniques he employs include quantum dots to toxinology, computational biology, microarrays and protein chips. He has patented analgesic peptide, anti inflammatory peptide as well as anti rheumatoid arthritis peptides. He is exploring various possibilities of delivery systems for these peptides to target sites and administration of these peptides orally, transdermally, ocular and injections.

His research awards include the Outstanding University Researcher Award from the National University of Singapore (1998); Ministerial Citation, NSTB(National Science and Technology Board, present A* STAR) Year 2000 Award in Singapore; and the Research Excellence Award from the Faculty of Medicine, National University of Singapore (2003). His awards in teaching include, Faculty Teaching Excellence Award 2003/4 & NUS Annual Teaching Excellence Award 2003/4. He also received the Faculty Teaching Excellence Award in 2009/10 and the Annual Teaching Excellence Award at University level, NUS for 2009/10.

He holds adjunct appointments at Interactive Digital Media Institute (IDMI),Defence Science Organization (DSO) and Defence Medical and Environmental Research Institute(DMERI)

He was the President of International Society on Toxinology till 2012.He shares his expertise in “Natural toxins” with many national, regional and international organizations.