The Singapore Bioimaging Consortium (SBIC)
presents a seminar

on

"Tails of Kv Channel Auxiliary subunits"

Speaker: **Prof Koichi Takimoto**
Department of Bioengineering
Nagaoka University of Technology, Japan
Host : **Dr Han Weiping**
Date : **Tuesday, 26 January 2016**
Time : **11.00am – 12.00noon**
Venue : **SBIC Seminar Room**
11 Biopolis Way
Level 2, Helios Building, Singapore 138667
(Please enter via Level 1)

Abstract

Voltage-gated potassium (Kv) channels constitute a diverse group of membrane proteins. This diversity is generated by the presence of ~80 principal pore-forming subunit genes. Association with various auxiliary subunits further increases the functional heterogeneity of Kv channels. The fact that many channel auxiliary subunits are homologs of other functional proteins suggests that they might acquire a channel-regulatory role during evolution. For example, mammalian DPP10 (dipeptidyl peptidase 10) consists of one transmembrane and a large extracellular domain with a hydrolase fold, similar to the famous diabetic drug target DPP4. Whereas this protein lacks peptidase activity, it tightly binds to Kv4 channels and markedly alters the gating of associated channels. Interestingly, the fly ortholog appears to be a dual functional protein, acting as a channel ancillary subunit and possessing dipeptidyl peptidase activity with the substrate specificity similar to mammalian DPP4. Further investigations to explore the crosstalk between the two functions of fDPP10 led to the identification of a protease inhibitor that specifically facilitates Kv4 channel inactivation without affecting peak current amplitude.

About the Speaker

Dr Koichi Takimoto is Professor at Nagaoka University of Technology, Japan. He obtained PhD in Osaka University, and worked as a postdoctoral fellow and Assistant Professor in University of Pittsburgh. For the past 25 years, he has been working on voltage-gated potassium channels and mechanisms controlling membrane excitability. He has identified various voltage-gated potassium channel isoforms and their auxiliary subunits, and mechanisms underlying disease-associated changes in channel gene expression.

--- Admission is free and all are welcome ---