The Singapore Bioimaging Consortium (SBIC)
presents a seminar

on

"A brain circuit : Its Identification, Characterization and preliminary Translational Research"

Speaker: **Prof Peng Cao**
Institute of Biophysics
Chinese Academy of Sciences
Beijing

Host : **Dr Han Weiping**
Date : **Wednesday, 20 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

Post-traumatic stress disorder (PTSD) is an anxiety disorder that can develop after a person is exposed to traumatic events threatening his/her life. It is generally accepted that fear response is one of the major causes for PTSD. Yet little is known about the brain circuits specifically processing threat-relevant sensory information and triggering fear responses in the mammalian brain. In this talk I will show that parvalbumin-positive (PV^+) excitatory projection neurons in mouse superior colliculus (SC) are key neuronal subtype for detecting looming objects and triggering fear responses. These neurons, distributed predominantly in the superficial SC, divergently projected to different brain areas, including the parabigeminal nucleus (PBGN), an intermediate station leading to the amygdala. Activation of the PV^+ SC-PBGN pathway triggered fear responses. Strikingly, repeated activations of this pathway drove the mice into a state resembling PTSD. Therefore, this brain circuit may be useful for generating circuit-specific PTSD disease mouse model for future translational research.

About the Speaker

Dr Peng Cao (BSc, 2000 at Peking University, China; PhD, 2005 at Chinese Academy of Sciences, China) is the Principal Investigator of Mammalian Neural Circuit Laboratory at Institute of Biophysics, Chinese Academy of Sciences, China. He is also a member of CAS Center for Excellence in Biomacromolecules. His primary research interests are the synaptic and circuit mechanisms underlying brain function and disorders. He has published a dozen of original research articles in *Cell*, *Science*, *Nature Neuroscience*, *PNAS* and *the Journal of Neuroscience*. His recent work

identified novel synaptic and circuit mechanisms underlying innate (visually-guided fight-or-flight response) and learned (olfaction-based food preference) behaviours in mammalian brain.

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