The Singapore Bioimaging Consortium (SBIC)
presents a seminar on

# "CUBIC-HistoVIsion: A Pipeline for Three-Dimensional whole-organ/body staining and imaging with Single-cell Resolution based on Chemical properties of Tissue Gel"

**Speaker:** **Dr Etsuo A. Susaki**
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**University of Tokyo**
**Hosts :** **Dr Fu Yu**
**Date :** **Monday, 9 July 2018**
**Time :** **10.00am – 11.00am**
**Venue :** **SBIC Seminar Room**
**11 Biopolis Way**
**Level 2, Helios Building, Singapore 138667**
**(Please enter via Level 1)**


## Abstract

Recent development of various tissue clearing and three-dimensional (3D) methods enabled the comprehensive observation of whole organ/body with cellular resolution or more. Several studies tried to integrate whole-mount staining into the clearing-imaging scheme. However, due to the difficulty in efficient penetration of stains and antibodies, they have only been applied in loose embryonic tissues or with a limited number of antibodies/stains for adult rodent tissues. To logically find out critical parameters for the efficient penetration, we first investigated chemical features of fixed and de-lipidized tissue as a type of gel. Then, we constructed a surrogate assay with an artificial gel similar to tissue gel, in order to widely examine multiple chemical conditions for efficient staining. The identified parameters were integrated as a general 3D staining protocol, with which we have confirmed ~30 chemicals and antibodies used in whole adult mouse brain staining and imaging with single-cell resolution. The developed "CUBIC-HistoVIsion" pipeline for 3D history and volumetric imaging provides opportunities for multi-channel imaging of functional and structural molecules of whole adult mouse organs as well as primate organs, thus will be widely applied to life science and medical researches in future.


## About the Speaker

Dr Susaki graduated from Faculty of Medicine and graduate School of Medicine at Kyushu university (Fukuoka, Japan) and got his M.D. license in 2002 and PhD in 2007. He started his research from cell cycle and proteolysis biology as well as developing a disease model of obesity. Then he moved to RIKEN in 2010 and started developing technologies for multicellular systems biology including comprehensive cell and cell circuit analysis pipeline "CUBIC" and high-throughput "next-generation" mouse genetics. For the success, he was awarded The Young Scientists' Prize of MEXT in 2017.

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