



The Singapore Bioimaging Consortium (SBIC)  
presents a seminar on

**“Molecular organization of Mammalian inhibitory synapses:  
Relevance to Epilepsy”**

**Speaker:** Dr Um Ji Won  
**Department of Brain and Cognitive Sciences**  
**Daegu Gyeongbuk Institute of Science and Technology (DGIST)**  
**Daegu, Korea**

**Host :** Dr Jung Sangyong

**Date :** Monday, 27 May 2019

**Time :** 11.00am – 12.00pm

**Venue :** SBIC Seminar Room  
11 Biopolis Way  
Level 2, Helios Building, Singapore 138667  
(Please enter via Level 1)

**Abstract**

A delicate balance between synaptic excitation-inhibition balance is crucial for appropriate brain functions. In this regard, comprehensive understanding inhibitory synapse organization is critical, but the integrated principles remain to be established. The most extensively studies protein at inhibitory synapses is gephyrin, a key scaffold in orchestrating mammalian GABAergic synapse development. Recently, we identified IQSEC3, a guanine nucleotide exchange factor for ADP-ribosylation factor (ARF-GEF) as a novel binding partner for gephyrin. In my talk, I will present some evidences to show that IQSEC3 is a key component for activity-dependent inhibitory synapse development and neural circuits, and that IQSEC3 dysfunction is linked to temporal lobe epilepsy. I will also discuss how the proposed mechanisms may contribute to our understanding the pathophysiology against epilepsy.

**About the Speaker**

Prof Um Ji Won is an Associate Professor at the Department of Brain and Cognitive Sciences of Daegu Gyeongbuk Institute of Science and Technology (DGIST). Prior to joining DGIST in 2017, she was an Assistant Professor at the Department of Physiology in Yonsei University College of Medicine from 2015 to 2017. She obtained B.S. (2002), M.S. (2004) and Ph.D. (2008) in Biology from Yonsei University. She has received postdoctoral training from Yale University School of Medicine (2009-2013). Awards and honors include presidential postdoc fellowship (2013), outstanding research award from AKN (2013), and excellent academic achievement award from Ministry of Education (2015). Her research is focused on the molecular mechanisms underlying neurodegenerative disease and neuropsychiatric disorders, particularly caused by synaptic impairment at molecular, cellular and systems levels.

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