



IBS Center for Molecular Spectroscopy and Dynamics

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# Seminar

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■ **SPEAKER**

Prof. Jaewon Ko (DGIST)

■ **TITLE**

Molecular logic of neural circuit architecture

■ **ABSTRACT**

Synapses are fundamental information units of the brain that function by establishing and regulating innumerable overlapping and interdigitating neural circuits between neurons. Synaptic cell-adhesion molecules (CAMs) are central synapse organizers that structurally align pre- and postsynaptic membranes and functionally coordinate assembly of pre- and postsynaptic machineries that are essential for instructing cell-type specificity, neuronal specification, and the diversity of individual synapse functions. My laboratory has spent recent years identifying key synaptic CAMs and studying their mechanisms in shaping distinct synaptic signaling pathways. Our hypothesis is that the number, location, and properties of diverse synapses are determined by interactions between pre- and postsynaptic CAMs and their associated signaling molecules, and we refer to the rules by which the network of these proteins build neural circuits as the molecular logic of neural circuit architecture.

This lecture will be composed of two parts—the first part of my talk will aim to provide introduction to audience who are not familiar with key concepts and trends in modern neuroscience and synapse biology. The second part of my talk will highlight our recent studies on a specific synaptic CAM that turned out to regulate properties of specific neural circuits. In addition, I will provide a fascinating perspective for future work on testing major hypotheses in the field.

■ **DATE AND VENUE**

July 25, 2022 (Monday, 15:00 - 16:00)  
Seminar Room A (116)

■ **LANGUAGE**

Korean

■ **INVITED BY**

Associate Director Wonshik Choi