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# The 39th iCeMS SEMINAR

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**Mon 30 Nov 2009**  
**10:30-11:30**

Lecturer: **Dr. Thomas Biederer**  
Department of Molecular Biophysics and Biochemistry  
Yale University

## **Synapse Organization by Trans-Synaptic SynCAM Complexes**

Venue: 2nd floor Seminar Room (#A207)  
Main Building iCeMS Complex 1, Kyoto University

Synapse formation is required to wire neuronal circuits in the developing brain, and remodels adult circuits during learning. Our group investigates the roles of cell adhesion in guiding synaptogenesis. We focus on the roles of SynCAM proteins, synaptogenic adhesion molecules of the immunoglobulin superfamily. This seminar will present recent results that SynCAM 1 participates in the first steps of axo-dendritic contact interaction, and then remains at synapses to guide their development. At developing synapses, SynCAM proteins form trans-synaptic adhesion complexes that drive excitatory synapse formation. SynCAM 1 is then required to maintain this increase in synapses. Further, SynCAM adhesion acts at mature synapses to regulate their ability to undergo activity-dependent changes in synaptic strength. Together, our studies utilize biochemistry, live imaging, physiological studies, and mouse models to analyze the molecular interactions that organize synapses.

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**Hosted by:** iCeMS (Institute for Integrated Cell-Material Sciences), Kyoto University

