CMX Seminar

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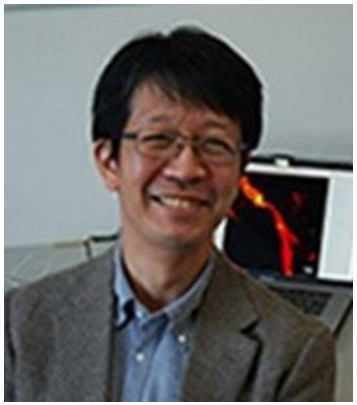

Regulatory Mechanism of the Neuronal Network Activity by Specific Ubiquitination

November 1, 2023, 4 – 5:30 pm
Mtg Rm, Bldg B 2 F

Higher brain functions such as memory formation and learning are mediated by neural networks in the brain. The neural network of the human brain consists of about 100 billion neurons, each of which exchanges information with other neurons via hundreds of synapses. In the presynaptic terminal, action potentials trigger exocytosis of neurotransmitters to the synaptic cleft. Upon binding of the neurotransmitter to the postsynaptic neurotransmitter receptor, the receptor's ion channel opens and cations flow from the outside to the inside of the cell. This influx leads to excitation of the postsynaptic neuron. The excitability of neurons depends on the extracellular ionic environment, which is regulated by astrocytes.

Astrocytic and neuronal functions depend on the expression levels of proteins that are important for their functions. A great number of transcriptional and translational regulations of synaptic proteins have been reported so far. In this seminar, I will explain how protein degradation via specific ubiquitination regulates the activity of neural networks. In addition, I will explain our recent progress of the development of super-resolution fluorescence microscopy.

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