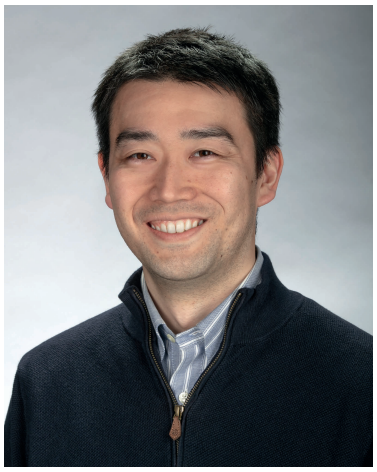
Seminar Series | Biological Sciences

Date & Time **July 3, 2023, 17:30 pm**
Venue **Seminar Room 103,**
Science Frontier Laboratory —先端科学研究棟—

Imaging protein conformational changes at the plasma membrane



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Endocytosis is the uptake of material into the cell by the formation and capture of vesicular carriers from the plasma membrane. Exocytosis is the release of products from cells by the fusion of cargo-loaded vesicles with the plasma membrane. These processes are essential to the normal function of human cells. I use high resolution fluorescence and electron microscopy to monitor the structure and behavior of the proteins that regulate these processes. First, I developed a new correlative lifetime-based fluorescence resonance energy transfer (FRET) and platinum replica electron microscopy method, named FRET-CLEM. This method allows the measurement of conformational changes in proteins at different stages of endocytosis. I mapped the conformational changes in clathrin light chain, a major component of clathrin lattices, at the plasma membrane during endocytosis. Second, I study the structural dynamics of SNARE proteins during exocytosis. I am developing a short-range FRET method to map the conformational changes in these proteins in relation to vesicle docking, SNARE complex formation, and fusion at the plasma membrane. I will report on my progress and future plans.

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