

2024年度 第2回 生命科学技术国際卓越講義



World-leading Innovative Lectures
in Life Science & Technology
The University of Tokyo



Cryo-Electron Microscopy – A Method to Bridge Scales in Biology

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Date: Friday, 24th, May, 2024

Time: 16:30 registration

17:00-18:00 Lecture including Questions and Discussions

18:00-18:10 Break

***18:10-18:40 Interview with students and researchers**

(*Attending an interview session needs another registration (see your e-mail))

Venue: Seminar room No.6, 13F Faculty of Medicine Experimental Research Bldg.

Hongo- Campus, The University of Tokyo (医学部教育研究棟 13階 第6セミナー室)

Please register by this QR code or clicking the following link

[Registration Form](#)



Abstract:

Cryo-electron microscopy (cryo-EM) is an advanced structural biology technique that can bridge the resolution between light microscopy and observations at molecular level. Particularly, the recent technological developments for EM pushed the targeted resolution limit to atomic level, opening tremendous opportunities for the visualization and analysis of biological assemblies and dynamic machineries.

My laboratory aims to understand the molecular actions of the remodelling of cellular structures and machineries during critical events of neuronal morphogenesis, regeneration and signaling. We employ a wide range of

imaging techniques to analyze molecular actions in various cellular contexts. We target specific cellular locations by fluorescence-based methods and obtain an in-depth view of events using in situ cellular cryo-electron tomography (cryo-ET). In addition, we perform biochemical reconstitution of cellular machines and complexes to understand their mode of operation and advance our molecular view by single-particle analysis (SPA). Our pipeline uncovered surprising insights into focal adhesion, the control for decision-making processes hub at the cell periphery, and neuronal regeneration after traumatic injuries.

Organizer: World-leading Innovative Graduate Study Program for Life Science and Technology

Cooperation: Graduate Program for Leaders in Life Innovation, The University of Tokyo
Clinical Research Promotion Center, The University of Tokyo Hospital

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