

Workshop Program

●Day 2 July 7 (Tue.) 9:30–11:45 (tentative)

PSSJ Workshop 1

Theme	20th Anniversary Workshop of the PSSJ meeting: Emerging topics on protein science in cells 【Session Language: English】
Organizers	Taguchi, Hideki (Tokyo Institute of Technology)
Outline	To celebrate the 20th Anniversary of Protein Science Society of Japan (PSSJ), this workshop was planned to introduce recent hot topics on in vivo protein science. The workshop includes phase separation of proteins in the cell, organelle protein science, and so on. A marriage of classical protein science and cell biology would provide a new direction in this emerging field.
Speakers	Manajit Hayer-Hartl (Max Planck Institute of Biochemistry), Kazuhiro Nagata (Kyoto Sangyo University), Yasushi Saeki (Tokyo Metropolitan Institute of Medical Science), Benjamin Tu (University of Texas Southwestern Medical Center) Several oral presentations will be chosen from the posters

●Day 2 July 7 (Tue.) 14:00–16:15 (tentative)

PSSJ Workshop 2

Theme	Drug discovery in academia and its platform 【Session Language: English】
Organizer	Nakamura, Haruki (Osaka University)
Outline	Creating innovative drugs requires state-of-the-art technology of protein science, such as informatics and computations based on big-data, and structural biology including cryo-EM, which are well developed in academia, at the pre-clinical basic stage. Here, development of a platform at the early-stage drug discovery is essential with many different methods including HTS of chemical compounds. In this workshop, platforms in Japan, EU, and USA are introduced, and their current and future products will be discussed.
Speakers	Haruki Nakamura (Osaka University), Rolf Apweiler (EMBL-EBI), Kengo Kinoshita (Tohoku University), Louis Scampavia (Scripps HTS-Lead Identification), Katsumi Maenaka (Hokkaido University), Toshiya Senda (KEK) Several oral presentations will be chosen from the posters.

PSSJ Workshop 3

Theme	New insight into the biometal transport 【Session Language: English】
Organizers	Hiroshi Sugimoto (RIKEN), Hiro Nakamura (RIKEN)
Outline	Biological metal ions play essential roles in redox reaction, signal transduction and metabolism of various substances, as cofactors of proteins. Despite such importance of metals, their uncontrolled accumulation in the body causes harmful effects. This workshop focuses on the metal transport system and addresses key aspects of metal regulation in biological systems.
Speakers	Jian Hu (Michigan State University), Xiaojing Yuan (University of Maryland), Taiho Kambe (Kyoto University), Junpei Takano (Osaka Prefecture University), Hiro Nakamura (RIKEN BDR), Hiroshi Sugimoto (RIKEN SPring-8 Cetrner) Oral presentations will NOT be chosen from the posters.

PSSJ Workshop 4

Theme	Molecular Engines: From Biological Molecular Motors To Artificial Molecular Machines 【Session Language: English】
Organizers	Mitsunori Ikeguchi (Yokohama City University), Takeshi Murata (Chiba University)
Outline	Proteins are called molecular machines, which precisely work like machines on the nanoscale. Recently, on the basis of understanding molecular mechanisms of biological molecular motors, designs of artificial molecular machines have been attempted. The key concept is the molecular engine, which generates mechanical motions by receiving external energy, and converts it to another form of energy. In this workshop, recent advances on molecular engines from structural and computational analyses of biological molecular engines to designs of novel artificial molecular engines will be discussed.
Speakers	Kazushi Kinbara (Tokyo Institute of Technology), Takafumi Ueno (Tokyo Institute of Technology), Akira Kakugo (Hokkaido University), Takeshi Murata (Chiba University), Mitsunori Ikeguchi (Yokohama City University) Oral presentations will NOT be chosen from the posters.

●Day 3 July 8 (Wed.) 9:30–11:45 (tentative)

PSSJ Workshop 5

Theme	Antibody technologies in BINDS program. 【Session Language: English】
Organizers	Tatsuya Sawasaki (Ehime University), Yukinari Kato (Tohoku University)
Outline	Antibody is widely used for detection, purification, and stabilizer for structural analysis of proteins. Recently wide varieties of antibody technologies, such as bispecific antibody, have been reported. In BINDS (Basis for Supporting Innovative Drug Discovery and Life Science Research), several groups have also developed multiple antibody technologies, and supported to many researchers in Japan. This workshop will introduce these technological advances and supportive studies in BINDS program.
Speakers	Yukinari Kato (Tohoku University), Ryuichi Kato (KEK), Hiroyuki Takeda (Ehime University), Takao Arimori (Osaka University), Tatsuya Sawasaki (Ehime University) Several oral presentations will be chosen from the posters.

●Day 3 July 8 (Wed.) 14:00–16:15 (tentative)

PSSJ Workshop 6

Theme	Selective autophagy: mechanisms and physiological functions 【Session Language: English】
Organizers	Hitoshi Nakatogawa (Tokyo Institute of Technology), Masaaki Komatsu (Juntendo University)
Outline	To date, although autophagy has been generally considered to be a non-selective degradation pathway, autophagy pathway has selectivity. It has become clear that soluble proteins, liquid-liquid phase separated granules, aggregates, nucleic acids, and organelles such as mitochondria and the endoplasmic reticulum are selectively recognized, sequestered and degraded. In this session, we will show molecular mechanisms and physiological functions of selective autophagy as well as novel tools developed by knowledge of molecular basis of selective autophagy.
Speakers	Hitoshi Nakatogawa (Tokyo Institute of Technology), Jin-A Lee (Hannam University), Miyuki Sato (Gumma University), Masaaki Komatsu (Juntendo University) Several oral presentations will be chosen from the posters.

PSSJ Workshop 7

Theme	Non-equilibrium state molecular movies: a new frontier in structural and functional studies on proteins 【Session Language: English】
Organizers	Eriko Nango (Kyoto University), Tetsunari Kimura (Kobe University)
Outline	Shooting “molecular movies” by X-ray free electron lasers has enabled us to visualize structural changes in non-equilibrium states of proteins with high spatial and temporal resolution, which has opened a new era of structural and functional studies on proteins. In this workshop, we will discuss the latest research on protein structural dynamics.
Speakers	So Iwata (Kyoto University), Jiangyun Wang (Chinese Academy of Sciences), James Fraser (California Institute of Quantitative Biosciences), Shigehiko Hayashi (Kyoto University), Keiichi Inoue (The University of Tokyo) Several oral presentations will be chosen from the posters.

●Day 4 July 9 (Thu.) 9:30–11:45 (tentative)

PSSJ Workshop 8

Theme	Mechanism and manipulation of protein folding and degradation 【Session Language: English】
Organizers	Tomohide Saio (Hokkaido University), Masaki Okumura (Tohoku University)
Outline	The life of protein in the cell is destined to experience multiple protein homeostasis, proteostasis, systems including chaperone-mediated protein folding and translocation, unfolded protein response in the endoplasmic reticulum, and autophagy. Disfunctions in these systems can cause severe diseases such as neurodegenerative disorder. Here in this workshop, the young scientists having distinct expertises in protein science, protein structural study, biophysics, cell biology, and organic chemistry gather and discuss about cutting-edge findings in proteostasis systems. We also aim to discuss about the challenges in manipulating these systems using newly-designed molecules.
Speakers	Ojore Oka (University of Glasgow), Markus Zweckstetter (German Center for Neurodegenerative Diseases), Tomohide Saio (Hokkaido University), Masaki Okumura (Tohoku University), Takahiro Muraoka (Tokyo University of Agriculture and Technology), Ryo Ushioda (Kyoto Sangyo University) Several oral presentations will be chosen from the posters.

●Day 5 July 10 (Fri.) 9:30–11:45 (tentative)

PSSJ Workshop 9

Theme	Recent developments in discovery, quality control and regulatory sciences of therapeutic proteins 【Session Language: English】
Organizers	Susumu Uchiyama (Osaka University), Hiroki Shirai (Astellas Pharma)
Outline	Researches on biopharmaceuticals with various types of modality have been extensively carried out. In this session, researches on the therapeutic proteins in terms of drug discovery, manufacturing, quality control, and regulatory science will be demonstrated by academic and industrial researchers. Existing issues and future perspectives from the viewpoint of protein science will be discussed.
Speakers	Akiko Ishii-Watabe (National Institute of Health Sciences), Shinya Honda (Natl Inst Adv Indust Sci Tech), Daisuke Kuroda (The University of Tokyo), Tatsuji Matsuoka (Daiichi Sankyo), Haruki Hasegawa (Amgen) Several oral presentations will be chosen from the posters.

PSSJ Workshop 10

Theme	Structural and functional analysis of protein assemblies by physicochemical approaches 【Session Language: English】
Organizers	Motomasa Tanaka (RIKEN), Naomi Hachiya (Tokyo Metropolitan Industrial Technology Research Institute)
Outline	Proteins mediate their physiological functions not only as monomeric proteins but also as macromolecular assemblies through interactions with nucleic acids and small molecules such as ATP as well as other proteins. In this workshop, we aim to understand the molecular basis that governs the dynamic structural changes which occur during the assembly and disassembly of these complexes by using various approaches including chemistry, physics, and microfluidics
Speakers	Song Jianxing (National Singapore University), Shinichi Nakagawa (Hokkaido University), Tetsunari Kimura (Kobe University), Naomi Hachiya (Tokyo Metropolitan Industrial Technology Research Institute), Joseph Jen-Tse Huang (Institute of Chemistry Academia Sinica) Several oral presentations will be chosen from the posters.