The 18th iCeMS International Symposium

The 15th International Membrane Research Forum

2–4 MARCH 2015

iCeMS
Kyoto University

Program

The 18th
iCeMS International Symposium

The 15th
International
Membrane Research Forum

Featuring
Meso-Scale Molecular Complexes and Domains
and Synaptic Membranes

2 – 4 March 2015

iCeMS Main Building, Kyoto University

Organizing Institutions

The Institute for Integrated Cell-Material Sciences (WPI-iCeMS)

Japan Science and Technology Agency (JST) Strategic International Research Cooperative Program (SICP) with the Medical Research Council (MRC, U.K.)
Mallucci-Kusumi Team
"Single molecule imaging of synaptic protein dynamics in neurodegeneration"

Executive Committee for the International Membrane Research Forum

Co-Sponsors (Alphabetical Order)

JST CREST Program of "Creation of Fundamental Technologies for Understanding and Control of Biosystem Dynamics" (Yamamoto Program)
Okabe Team "Understanding synapse dynamics through nanoscale structural analyses"

Hamada project on "Regulation of signaling flow by cilia-centrosome system", awarded by Grants-in-Aid for Scientific Research on Innovative Areas from Ministry of Education, Culture, Sports, Science, and Technology (MEXT)

Kusumi Laboratory of the WPI-iCeMS and
the Institute for Frontier Medical Sciences, Kyoto University

Murata Lipid Active Structure Project of Exploratory Research for Advanced Technology Organization (ERATO), JST

Nagai project on "Spying minority in biological phenomena", awarded by Grants-in-Aid for Scientific Research on Innovative Areas from the MEXT

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Meeting Coordinators

Mayuko Iritani (Chief), Hisae Tsuboi, Hiroko Hijikata, and Kumiko Kojima

Design and Graphics

Koji Kanemasa (President and Designer, incomings)

Message from Director of the iCeMS

2 March 2015

On behalf of all my colleagues at the WPI-iCeMS, Institute for Integrated Cell-Material Sciences at Kyoto University, I welcome you to the 18th iCeMS International Symposium and the 15th International Membrane Research Forum.

iCeMS was founded as a response to the Japanese government initiative, called World Premier International Research Centers (WPI program, and thus iCeMS is officially called WPI-iCeMS). The initiative was for establishing globally visible research centers in Japan, which will attract top-level researchers from around the globe, particularly talented young scientists who will become world leaders in the future. The proposal to establish iCeMS was funded as one of the five such centers throughout Japan. iCeMS places a strong emphasis on international collaborations, and the series of the iCeMS international symposia have been one of our major means to develop our ties with international scientific communities.

We at the iCeMS strive to develop the fundamental understanding and control of molecular complexes in the meso-scale of 3-300 nm, as the cell appeared to develop them through evolution. We consider these efforts critical for creating the science and technology of the next generation, and we intend to do these, with a strong link to the studies of pluripotent stem (ES and iPS) cells and neuronal cells. We are holding this 18th iCeMS Symposium featuring "Meso-Scale Molecular Complexes and Domains and Synaptic Membranes", as an important part of our effort for understanding meso-scale events. It is also held as the 15th International Membrane Research Forum. I hope this meeting will provide a useful and important step for advancing research on meso-scale molecular interactions that control cellular functions, with a strong focus on the cellular plasma membrane.

Thank you very much again for joining us at this symposium. I hope you will enjoy this meeting.

Susumu Kitagawa, D.Eng.
Director and Professor
Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

Welcome to
The 15th International Membrane Research Forum

2 March 2015

We would like to welcome everybody who is participating in this membrane research forum, particularly the speakers from abroad. It is our great pleasure to report that many scientists expressed considerable interest in this forum, and volunteered to present their research results.

Singer and Nicolson's fluid mosaic model, which formed our basic concept for biological membranes, is still believed to represent the basic structure of the plasma membranes of all cells existing on earth. Such universality is comparable to that of the double helical structure of DNA, although it is not recognized as widely as it should be. Like many DNA functions are based on its double helical structure, various plasma membrane functions are enabled by the fluid-mosaic structure of the plasma membrane. This suggests that the fundamental mechanisms for various functions of biological membranes could essentially be understood by a set of simple principles based on their dynamic structures. Therefore, we hope to understand organizing principles of the cellular membranes and the general cellular strategies based on those principles that enable various membrane functions, which could be called the "membrane mechanisms".

The first feature of this year's forum is the meso-scale dynamic molecular complexes and domains and their functions in cellular membranes. Here, the meso-scale roughly represents the space scale between 3 and 300 nm, where key molecular complexes and interactions take place in cellular membranes. The meso-scale structures are considered important for membrane functions, such as signal transduction and membrane transport.

The second feature is protein dynamics in neuronal network formation and neurodegeneration, with a special attention paid to the axonal initial segment, myelins, and, of course, synapses. The research in these fields is extremely active now. The understanding gained in the study of the meso-scale structures and domains in the plasma membranes of other cells and tissues would be very useful for neuronal research, and at the same time, the knowledge obtained in neuronal research will be beneficial for basic studies of the plasma membrane structure and function.

We hope that you will enjoy this meeting and mingle with other scientists having very different backgrounds.

Organizers for the 15th International Membrane Research Forum Meeting

Standing Committee Members

Jiro Usukura (Nagoya), Masahiro Sokabe (Nagoya), and Aki Kusumi (Chair, Kyoto)

Invited Committee Members for the 15th Forum Meeting

Giovanna Mallucci (Cambridge), Shigeo Okabe (Tokyo), Michio Murata (Osaka), Takeharu Nagai (Osaka), Hiroshi Hamada (Osaka), and Sachiko Tsukita (Osaka)

Committee Members from the WPI-iCeMS

Mineko Kengaku, Yoshie Harada, Takahiro Fujiwara, Kazumitsu Ueda, Makoto Kiso Hiromune Ando, John Heuser, Kenichi Suzuki, Itaru Hamachi, and Michiyuki Matsuda

March 2 10:10 - 18:30 - 21:50

Opening 10:10 - 10:20

Aki Kusumi WPI-iCeMS and Institute for Frontier Medical Sciences
Kyoto University

Keynote Lecture 1 10:20 - 11:00 Chair: John Heuser

Christian Eggeling Weatherall Institute of Molecular Medicine
University of Oxford

STED(-FCS) microscopy to elucidate meso-scale interactions in the cellular plasma membrane

Coffee Break 1 11:00 - 11:20

Seminar 1 11:20 - 11:40 Chair: John Heuser

Takahiro K. Fujiwara Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

Mesoscopic organization of the plasma membrane as revealed by the development of ultrafast single-fluorescent molecule imaging

Keynote Lecture 2 11:40 - 12:20 Chair: Toshihide Kobayashi

Gerhard Schütz Vienna University of Technology

The enigmatic role of lipids in membrane protein interactions

Seminar 2 12:20 - 12:40 Chair: Toshihide Kobayashi

Kenichi G. N. Suzuki Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

The very first steps for raft organization and function, revealed by single-molecule imaging

Lunch 12:40 - 13:40
Lounge and Exhibition Hall
Every participant is invited

Keynote Lecture 3 13:40 - 14:20 Chair: Kathleen Green

Ian Macara Department of Cell and Developmental Biology
Vanderbilt University School of Medicine

Membrane-bound polarity proteins and morphogenesis

Coffee Break 2 14:20 - 14:40

Seminar 3 14:40 - 15:20 Chair: Kathleen Green

Asako Shindo Dept. of Molecular Biology, Division of Biological Sciences
Nagoya University Graduate School of Science

Membrane skeleton-mediated compartmentalization of molecular machinery for collective cell movements *in vivo*

Michiyuki Matsuda Department of Pathology and Biology of Diseases
Graduate School of Medicine & Laboratory of Bioimaging and Cell Signaling, Graduate School of Biostudies, Kyoto University

Intercellular signal transduction between the epithelial cells

Keynote Lecture 4 15:20 - 16:00 Chair: Sachiko Tsukita

Kathleen Green Feinberg School of Medicine
Northwestern University

Desmosomes: Membrane signaling scaffolds with surprising diversity

Coffee Break 3 16:00 - 16:20

Seminar 4 16:20 - 18:20 Chair: Ian Macara and Gerhard Schütz

Sachiko Tsukita Graduate School of Frontier Biosciences and Graduate School of Medicine, Osaka University

Tight junction and apical cytoskeleton complex in epithelial cells

Koichiro M. Hirosawa Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

Signaling adaptor LAT works on the vesicles associated with the plasma membrane: a single-molecule tracking study

Kenta J. Yoshida Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

Formation of the key immune signaling complex based on the adaptor protein SLP-76 revealed by single-molecule tracking

Taka A. Tsunoyama Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

Elongated single-molecule tracking revealed dynamic architecture of focal adhesion

Takeharu Nagai The Institute of Scientific and Industrial Research
Osaka University

Toward long term single molecule imaging in live cells with luminescent probes

Yoshie Harada Institute for Integrated Cell-Material Sciences (WPI-iCeMS)
Kyoto University

Measurement of cellular dynamics using diamond nanoparticles

18:30 Bus Transportation to Yasaka-michi (see Map 2, 3)

Please get together in the Building's Entrance area after the last talk by Prof. Harada. We will use two buses to go to Yasaka-michi intersection in the Gion area.

From there, we will walk to Restaurant Oblio, passing a famous street going around the Yasaka Pagoda.

19:00 - 21:21 Mixer at Oblio Restaurant (see Map 2, 3)

Welcome Speech

Jiro Usukura Structural Biology Center
Nagoya University

21:21 - 21:50 Walk to the Kacho gate (Japanese national heirloom) of the Chion-in temple (see Map 3)

We will walk through famous sightseer's streets, San-nen-zaka, Ni-nen-zaka, and Ishibei-koji (although all stores will be closed at this time of the day), and then through Yasaka shrine, reaching the Kacho gate of Chion-in temple, where our return buses will wait for us. Walk for ~1.4 km.

21:50 Buses to Kuni-so will leave (see Map 2, 3)

March 3 8:20 - 17:30 - 19:00 - 21:00

Keynote Lecture 5 8:20 - 9:00 Chair: Christian Eggeling

Reinhard Lipowsky Max Planck Institute of Colloids and Interfaces
Multiscale membranes: From molecular interactions to mesoscopic remodelling

Seminar 5 9:00 - 9:40 Chair: Christian Eggeling

Michio Murata Department of Chemistry, Graduate School of Science
Osaka University
Natural products that interact with sterols in membrane

Toshihide Kobayashi RIKEN
Visualization of the heterogeneous distribution of sphingomyelin associated with cytokinesis, cell polarity and sphingolipidosis

Coffee Break 4 9:40 - 10:00

Keynote Lecture 6 10:00 - 10:40 Chair: Shigeo Okabe

Justin W. Taraska National Heart, Lung, and Blood Institute (NHLBI)
National Institutes of Health (NIH)
Imaging the nanometer-scale architecture of endocytosis

Seminar 6: 10:40 - 11:20 Chair: Shigeo Okabe

Kazuhisa Nakayama Graduate School of Pharmaceutical Sciences
Kyoto University
Architecture of multi-subunit complexes involved in membrane trafficking revealed by visible immunoprecipitation (VIP) assay

Jiro Usukura Structural Biology Center
Nagoya University
Spatial structure of the peri-nuclear cytoskeleton

Lunch 11:20 - 12:40

Invited speakers (both international and domestic):
Speakers' lunch at Restaurant "La Tour"
located in the Kyoto University Clock Tower Building (follow the guides)

Other participants: on your own (See **Map 5** for restaurants in the area)

Seminar 7 12:40 - 13:20 Chair: Justin W. Taraska

Moritz Pfreundschuh Department of Biosystems Science and Engineering
ETH Zürich

Imaging native G-protein coupled receptors while quantifying their ligand-binding free energy landscape

Rinshi S. Kasai Institute for Frontier Medical Sciences
Kyoto University

Transient GPCR dimers trigger basal signals as revealed by single-molecule imaging

Coffee Break 5 13:20 - 13:40

Seminar 8 13:40 - 14:20 Chair: Justin W. Taraska

Kazumitsu Ueda WPI-iCeMS and Graduate School of Agriculture
Kyoto University

Single molecule imaging of the membrane lipid transporter ABCA1

Dragomir Milovanovic Department of Neurobiology
Max Planck Institute for Biophysical Chemistry

Length matters: Hydrophobic mismatch sorts SNARE proteins into distinct membrane domains

Keynote Lecture 7 14:20 - 15:00 Chair: Takeharu Nagai

Takanari Inoue Department of Cell Biology
Johns Hopkins University

Synthetic Cell Biology: Deconstructing and constructing dynamic cell functions

Seminar 9 15:00 - 15:20 Chair: Takeharu Nagai

Masahiro Sokabe Mechanobiology Lab
Nagoya University Graduate School of Medicine

Gating mechanism of bacterial mechanosensitive channels: interplay between protein, lipid and water

Coffee Break 6 15:20 - 15:35

Symposium on
Protein Dynamics in Neuronal Network Formation and Degeneration 1

Opening 15:35 – 15:40

Giovanna Mallucci Department of Clinical Neurosciences
University of Cambridge

Seminar 10 15:40 - 16:20 Chair: Takanari Inoue

Manami S. H. Miyahara Institute for Frontier Medical Sciences
Kyoto-University

Molecule-selective lateral-diffusion barrier in the neuronal axon membrane

Hiroshi Kuba Cell Physiology
Nagoya University Graduate School of Medicine

Complementary regulation of Kv1.1 and Kv7.2 during structural axon initial segment plasticity

Seminar 11 16:20 - 17:20 Chair: Peter Penzes

Shigeo Okabe Department of Cellular Neurobiology
Graduate School of Medicine
The University of Tokyo

Molecular dynamics in synapse formation and remodeling

Michisuke Yuzaki Department of Physiology
Keio University School of Medicine

How to connect membranes at synapses?—New roles played by C1q family proteins

Haruhiko Bito Department of Neurochemistry, Graduate School of Medicine
The University of Tokyo

Activity-dependent bidirectional signaling between the synapses and the nucleus during long-term plasticity and memory formation

17:30 - 19:00

Poster Session for the Entire Symposium

The program is attached at the end of this booklet.
Hors d'oeuvre, aperitifs, and other drinks (as starters for the following reception) will be served.

Presentation Time		
3n-2	Numbers	17:30 - 18:00
3n-1	Numbers	18:00 - 18:30
3n	Numbers	18:30 - 19:00

19:00 - 20:00 - 21:00 Reception in the iCeMS Lounge

20:00 - 21:30

Tour of the iCeMS Imaging Center (Center for Meso-Bio Single-Molecule Imaging=CeMI) and Kusumi Lab (Map 4)

We will form 4~6 tour groups, each consisting of 5~6 people. The tour groups will leave the reception area every 10 min or so. Take all your belongings with you.

A demo-experiment will be shown by **Koichiro (Ko) M. Hirosawa, Yuki M. Shirai, and Kenta J. Yoshida**, and ultrafast single-molecule imaging camera will be shown by **Tahahiro K. Fujiwara**.

Tour conductors	Approximate Departure Time
Yuri Nemoto	**20:00**
Taka A. Tsunoyama	**20:10**
Manami S. H. Miyahara	**20:20**
Limin Chen	**20:30**
Rinshi S. Kasai	**20:40**
Kenichi (Ken) G. N. Suzuki	**20:50**

Wine, beer, soft drinks, and night snacks will be served at the Kusumi Lab.

March 4 8:40 - 14:30

Symposium on Protein Dynamics in Neuronal Network Formation and Degeneration 2

Keynote Lecture 8 8:40 - 9:20 Chair: Hiroshi Kuba

Robin Franklin Wellcome Trust-MRC Stem Cell Institute
University of Cambridge
Myelin regeneration – from mechanisms to medicines

Seminar 12 9:20 - 9:40 Chair: Hiroshi Kuba

Mineko Kengaku WPI-iCeMS
Kyoto University
Mechanics of nuclear migration in developing neurons

Coffee Break 7 9:40 - 10:00

Keynote Lecture 9 10:00 - 10:40 Chair: Michael Häusser

Peter Penzes Feinberg School of Medicine
Northwestern University
Psychiatric risk factor ANK3/Ankyrin-G nanodomains regulate the structure and function of glutamatergic synapses

Seminar 13 10:40 - 11:40 Chair: Giovanna Mallucci

Itaru Hamachi Department of Synthetic Chemistry and Biological Chemistry
Kyoto University
New chemical labeling method for endogenous protein in live cells

Hiroko Bannai Department of Biological Science, Graduate School of Science
Nagoya University
Spatial regulation of $GABA_AR$ synaptic structure by glutamate and calcium

Yasunori Hayashi RIKEN BSI

Structural and molecular remodeling of dendritic spine during LTP

Coffee Break 8 + Light Lunch 11:40 - 12:00

Keynote Lecture 10 12:00 - 12:40 Chair: Robin Franklin

John Heuser WPI-iCeMS, Kyoto University and
Washington University School of Medicine

Defining the mechanism(s) of synaptic vesicle membrane recycling at the neuronal synapse

Coffee Break 9 + Light Lunch 12:40 - 13:00

Keynote Lecture 11 13:00 - 13:40 Chair: Hiroko Bannai

Michael Häusser Wolfson Institute for Biomedical Research
University College London

All-optical interrogation of neural circuits

Keynote Lecture 12 + Closing 13:40 - 14:25 Chair: Yasunori Hayashi

Giovanna Mallucci Department of Clinical Neurosciences
University of Cambridge

Cold shock proteins drive synapse regeneration and protect against neurodegeneration

Closing for the entire meeting 14:25 - 14:30

Masahiro Sokabe Mechanobiology Lab
Nagoya University Graduate School of Medicine

Poster Session Program
March 3　17:30 - 19:00

Presentation Time

3n-2	**Numbers**	**17:30 - 18:00**
3n-1	**Numbers**	**18:00 - 18:30**
3n	**Numbers**	**18:30 - 19:00**

Posters are listed in the alphabetical order of the presenter's last name.
The company names rather than the presenter names are used for PR posters of corporate sponsors. Note that the poster number of Katayama Chemical Industries Co., Ltd. is 36-37 and that of Leica Microsystems Co., Ltd. is 38-39.

1. Natsumi Ageta-Ishihara[1], Kohtarou Konno[2], Hisako Nakayama[3], Kouichi Hashimoto[3], Masahiko Watanabe[2], and Makoto Kinoshita[1]
[1]Dept. of Molecular Biology, Grad. Sch. of Science, Nagoya Univ. [2]Dept. of Anatomy, Grad. Sch. of Medicine, Hokkaido Univ. [3]Dept. of Neurophysiology, Grad. Sch. of Biomedical & Health Sciences, Hiroshima Univ.
CDC42EP4/septin-based perisynaptic glial scaffold that facilitates glutamate clearance

2. Jin Cui[1,2], Sébastian Lethu[1,2], Tomokazu Yasuda[1], Shigeru Matsuoka[1,2], Nobuaki Matsumori[3], Fuminori Sato[1,2], and Michio Murata[1,2]
[1]Grad. Sch. of Science, Osaka Univ. [2]JST ERATO Murata Lipid Active Structure Project. [3]Grad. Sch. of Science, Kyusyu Univ.
Phosphatidylcholine bearing 6', 6'-didueterated oleic acid, a useful solid-state ^{2}H NMR probe for investigating membrane properties

3. Kazuto Fujishima[1] and Mineko Kengaku[1]
[1]iCeMS, Kyoto Univ.
Mechanisms regulating dendrite growth orientation of cerebellar Purkinje cells

4. Takahiro K. Fujiwara[1], Shinji Takeuchi[2], and Akihiro Kusumi[1,3]
[1]Institute for Integrated Cell-Material Sciences (WPI-iCeMS), Kyoto University, Kyoto 606-8501, Japan. [2]Photron Limited, Tokyo 102-0071, Japan. [3]Institute for Frontier Medical Sciences, Kyoto University, Kyoto 606-8507, Japan. (**Sponsored by PHOTORON Ltd.**)
High-speed ultrasensitive camera system for single fluorescent-molecule imaging in the plasma membrane

5. Taka A. Tsunoyama[1], Junri Goto[1]*, Kenichi G.N. Suzuki[1,2], Takahiro K. Fujiwara[1], and Akihiro Kusumi[1,3]

[1]iCeMS, Kyoto University. [2]National Centre for Biological Science/ Inst. for Stem Cell Biology and Regenerative Medicine, India. [3]Inst. for Frontier Medical Sciences, Kyoto Univ.

***Presenting Author**.

Method development for prolonging single fluorescent-molecule tracking in living cells

6. Peter Greimel[1,2], Yan-Fen Lee[1,2], Motohide Murate[1], Françoise Hullin-Matsuda[1], Kumar Sudesh[2], Hiroshi Takahashi[1,3], and Toshihide Kobayashi[1,2]

[1]Lipid Biology Laboratory, RIKEN. [2]Univ. Sains Malaysia, Malaysia. [3]Gunma Univ.

10-N-Nonyl acridine orange inhibits cardiolipin polymorphism

7. Yong-Woon Han[1], Takuma Iwasa[1,2], Ryo Hiramatsu[3], Hiroaki Yokota[1,4], Ryuji Yokokawa[5], Teruo Ono[3], and Yoshie Harada[1,2]

[1]iCeMS, Kyoto Univ. [2]Grad. Sch. of Biostudies, Kyoto Univ. [3]Inst. for Chemical Research, Kyoto Univ. [4]Grad. Sch. for the Creation of New Photonics Industries. [5]Grad. Sch. of Technology, Kyoto Univ.

Characterization of RuvA-RuvB-Holliday junction DNA complex formation process using Single molecule fluorescence imaging technique

8. Koichiro M. Hirosawa[1], Kenta J. Yoshida[2], Taka A. Tsunoyama[1], Kenichi G.N. Suzuki[1 3], Takahiro K. Fujiwara[1], and Akihiro Kusumi[1 2]

[1]iCeMS, Kyoto Univ. [2]Inst. for Frontier Medical Sciences, Kyoto Univ. [3]National Centre for Biological Science (NCBS)/Institute for Stem Cell Biology and Regenerative Medicine (inStem), India.

Transmembrane signaling adaptor LAT works on the vesicles associated with the plasma membrane: a single-molecule tracking study

9. Takehiko Inaba[1], Motohide Murate[1], and Toshihide Kobayashi[1]

[1]Lipid Biology Laboratory, RIKEN.

Helical superstructures of sphingolipids

10. Hirohide Iwasaki[1,2], Shinji Tanaka[1,2], and Shigeo Okabe[1,2]

[1]Dept. of Cellular Neurobiology, Grad. Sch. of Medicine, The Univ. of Tokyo. [2]CREST.

Structural analysis of dendritic spine by two-photon and electron microscopy

11. Japan Laser Corporation

Presented by Toshiyuki Nishimoto (Osaka Branch)

With photon patterns towards species selective microscopy

12. Sabrina Kargoll[1], Peter Greimel[1], and Toshihide Kobayashi[1]

[1]Lipid Biology Laboratory, RIKEN.

Synthesis and cellular distribution of a fluorescent analogue of an inhibitor of ceramide biosynthesis, fumonisin

13. Yohei Katoh[1], Shohei Nozaki[1], Masaya Terada[1], and Kazuhisa Nakayama[1]

[1]Grad. Sch. of Pharmaceutical Sciences, Kyoto Univ.

Multisubunit complex architectures revealed by visible immunoprecipitation (VIP) assay using fluorescent fusion proteins

14. Aiko S. Kondo[1], Ludger Johannes[3], Ziya Kalay[2], Ivan R. Nabi[4], Akihiro Kusumi[1,2], and Takahiro K. Fujiwara[2]

[1]Inst. for Frontier Medical Sciences, Kyoto Univ. [2]iCeMS, Kyoto Univ. [3]Inst. Curie and CNRS, France. [4]Life Sciences Inst., Univ. of British Columbia, Canada.

Skimming diffusion behavior of galectin-3 as detected by ultra high-speed single molecule tracking

15. Yan-Fen Lee[1,2], Sabrina Kargoll[1], Kumar Sudesh[2], Peter Greimel[1,2], and Toshihide Kobayashi[1,2]

[1]Lipid Biology Laboratory, RIKEN. [2]Univ. Sains Malaysia, Malaysia.

Thiocholesterol: Characterization of changes in the physical properties of membranes

16. ShiRou Lim[1,2], HuiHui Tan[2], Francoise Hullin-Matsuda[1], LayHarn Gam[2], Kumar Sudesh[2], Peter Greimel[1,2], and Toshihide Kobayashi[1,2]

[1]Lipid Biology Laboratory, RIKEN. [2]Univ. Sains Malaysia, Malaysia.

Towards the biosynthesis of the endosome specific lipid bis(monoacylglycero)phosphate

17. Daisuke Matsuoka[1,2], Shigeru Sugiyama[1,2], Michio Murata[1,2], and Shigeru Matsuoka[1,2]

[1]JST ERATO Murata Lipid Active Structure Project. [2]Grad. Sch. of Science, Osaka Univ.

Molecular dynamics simulations of heart-type fatty acid-binding protein: With a goal of elucidation of the lipid loading mechanism to protein binding cavities from membranes

18. Dragomir Milovanovic[1,2], Alf Honigmann[2], Herre Jelger Risselada[3], Helmut Grubmüller[3], Stefan W. Hell[2], Geert van den Bogaart[1], Reinhard Jahn[1]
[1]Dept. of Neurobiology, Max Planck Inst. for Biophysical Chemistry, Germany. [2]Dept. of NanoBiophotonics, Max Planck Inst. for Biophysical Chemistry, Germany. [3]Dept. of Theoretical and Computational Biophysics, Max Planck Inst. for Biophysical Chemistry, Germany.
Length matters: Hydrophobic mismatch sorts SNARE proteins into distinct membrane domains

19. Manami S.H. Miyahara[2], Chieko Nakada[3], Takahiro Fujiwara[1], Toshiki Matsui[2], Hiroko Hijikata[1], Hiroo Iwata[2], Ziya Kalay[1], and Akihiro Kusumi[1,2]
[1]iCeMS, Kyoto Univ. [2]Inst. for Frontier Medical Sciences, Kyoto Univ. [3]Instruments Company, Nikon Corporation.
Molecule-selective lateral-diffusion barrier in the neuronal axon membrane

20. Nobuhiro Morone[1], Hajime Mori[2], and John E. Heuser[1, 3]
[1]iCeMS, Kyoto Univ. [2]Kyoto Inst. of Technology. [3]Washington Univ. in St. Louis, USA.
Infectious protein crystals and filament organization revealed by quick-freeze, freeze-fracture electron microscopy

21. Tomoki Naito[1], Hiroyuki Takatsu[1], Kazuhisa Nakayama[1], and Hye-Won Shin[1]
[1]Grad. Sch. of Pharmaceutical Sciences, Kyoto Univ.
Subcellular localization and phospholipid flippase activity of class 5 P4-ATPases

22. Kazuki Obashi[1,2] and Shigeo Okabe[1,2]
[1]Dept. of Cellular Neurobiology, Grad. Sch. of Medicine, The Univ. of Tokyo. [2]CREST.
Investigation of the cellular structures inside neuronal compartments by two-photon fluorescent correlation spectroscopy

23. Akihiro C.E. Shibata[1], Yoshihisa Nakahata[2], Junichi Nabekura[2], and Hideji Murakoshi[1]
[1]Supportive Center for Brain Research, Section of Multiphoton Neuroimaging, National Inst. for Physiological Sciences (NIPS). [2]Div. of Homeostatic Development, National Inst. for Physiological Sciences (NIPS).
Imaging intracelluer signal transduction using a newly developed "non-fluorescent" fluorescent protein for FLIM-FRET

24. SHIMADZU CORPORATION

Hidesato Kumagai, Akihiro Arai, Taigo Nishida, Akira Harada, and Masamitsu Shikata

Clinical & Biotechnology Business Unit, Life Science Business Department, SHIMADZU CORPORATION, Kyoto 604-8511, Japan.

A method for verification of Genome editing using an automated electrophoresis platform, MCE-202 MultiNA

25. Hiroyuki Takatsu[1, 2], Gaku Tanaka[1], Kazuhisa Nakayama[1], and Hye-Won Shin[1, 2]*

[1]Grad. Sch. of Pharmaceutical Sciences, Kyoto Univ. [2]Career-path Promotion Unit for Young Life Scientists, Kyoto Univ. ***Presenting Author**

ATP8B1 (familial intrahepatic cholestasis 1) translocates phosphatidylcholine at the plasma membrane

26. Kenichi G. N. Suzuki[1,2], Rinshi S. Kasai[1], Koichiro M. Hirosawa[1], Yuri L. Nemoto[1], Munenori Ishibashi[1], Yoshihiro Miwa[3], Takahiro K. Fujiwara[1], and Akihiro Kusumi[1]

[1]iCeMS, Kyoto Univ. [2]NCBS/inStem, India. [3]Dept. of Pharmacology, Inst. of Basic Medical Sciences, Univ. of Tsukuba

The very first steps for raft organization and function, revealed by single-molecule imaging

27. Takeya Masubuchi[1], Masayuki Endo[2], Ryo Iizuka[3], Takashi Funatsu[3], Hiroshi Sugiyama[2,4], Yoshie Harada[2], Takuya Ueda[1], and Hisashi Tadakuma[1,2]*

[1]Grad. Sch. of Frontier Science, The Univ. of Tokyo. [2]iCeMS, Kyoto Univ. [3]Grad. Sch. of Pharmaceutical Sciences, The Univ. of Tokyo. [4]Dept. of Chemistry, Grad. Sch. of Science, Kyoto Univ. ***Presenting Author**.

Construction of transcription nano-chip

28. TAKARA BIO INC.

Manipulating the genome: Advanced tools for CRISPR/Cas9 genome editing and analysis

29. Yuichi Umegawa[1,2], Satoshi Kawatake[1,2], Shigeru Matsuoka[1,2], and Michio Murata[1,2]

[1]JST-ERATO Murata Lipid Active Structure Project, [2]Dept. of Chemistry, Grad. Sch. of Science, Osaka Univ.

Affinity evaluation between surrounding lipids and bacteriorhodopsin

30. Hiroki Umeshima[1], Yuu Kure[1, 2], Kenichi Nomura[3], Shuhei Yoshikawa[3], Shinya Sakuma[4], Fumihito Arai[4], Makoto Kaneko[3], and Mineko Kengaku[1, 2]

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Quantitative image analyses of nuclear dynamics in migrating neurons

31. Sho Wakayama[1], Shigeki Kiyonaka[1], and Itaru Hamachi[1]

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Development of a novel chemical labeling technique for visualizing endogenous AMPA receptors in live neurons

32. Rei Yamada[1] and Hiroshi Kuba[1]

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Functional distribution of excitatory synapses along dendrites of auditory coincidence detector neurons

33. Tomokazu Yasuda[1], Nobuaki Matsumori[1,2], and Michio Murata[1,3]

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^{2}H Solid state NMR study on the dynamics and interaction of lipids in lipid rafts

34. Kenta J. Yoshida[1,2], Koichiro M. Hirosawa[1], Taka A. Tsunoyama[1], Takahiro K. Fujiwara[1], and Akihiro Kusumi[1,3]

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Formation of the key immune signaling complex based on the adaptor protein SLP-76 revealed by single-molecule tracking

35. Azumi Yoshimura[1] and John Heuser[1]

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Structural changes in caveolae induced by manipulation of cholesterol-levels in the plasma membrane

36-37. Katayama Chemical Industries Co., Ltd.
Presented by Takayuki Otani (R&D Division)

38-39. Leica Microsystems Co., Ltd.
Super Resolution Microscope TCS STED 3X