**Program**

**October 31 (Tue)**

12:15 – 13:30  Registration
13:30 – 13:40  Opening remarks  
**Keiji Imoto** (Director General, NIPS, Japan)

**Yumiko Yoshimura** (NIPS, Japan)

### Session 1: Activity- and experience dependent developmental mechanisms

13:45 – 14:20  S1-1  **Yumiko Yoshimura** (NIPS, Japan)  
“The roles of visual experience in the maturation of neural responses in the primary visual cortex”

14:20 – 14:55  S1-2  **Kenichi Ohki** (the University of Tokyo, Japan)  
“Gap junctions in postnatal excitatory neurons regulate spine density and response reliability”

14:55 – 15:10  Coffee Break

**Chair: Yoshio Hata (Tottori University, Japan)**

15:10 – 15:45  S1-3  **Madoka Narushima** (NIPS, Japan)  
“The metabotropic glutamate receptor subtype 1 mediates experience-dependent maintenance of mature synaptic connectivity in the dorsal lateral geniculate nucleus”

15:45 – 16:20  S1-4  **Nobuhiko Yamamoto** (Osaka University, Japan)  
“Activity-dependent mechanisms for thalamocortical circuit formation”

16:20 – 16:35  Coffee Break

**Chair: Takuji Iwasato (National Institute of Genetics, Japan)**
Session 2: Multimodal integration and plasticity
16:35 –17:10  S2-1 Patrick Kanold (University of Maryland, USA)
"Crossmodal induced refinement of auditory cortex circuits"

17:10 –17:45  S2-2 Seung-Hee Lee (KAIST, Korea)
"Neural circuits for sensory integration"

Short Talk 1: Chair: Rie Kimura (NIPS, Japan)
17:45 –18:00  ST1-1 Tzu-Huei Kao (the University of Tokyo, Japan)
"Roles of synaptic activity in climbing fiber to Purkinje cell synapse elimination in the developing cerebellum"

18:00 –18:15  ST1-2 Mieko Morishima (NIPS, Japan)
"Pyramidal cell subtype-dependent inhibitory-excitatory circuits in layer 5 of the rat frontal cortex"

18:15 –18:30  ST1-3 Eriko Kuramoto (Kagoshima University, Japan)
"Local connections of excitatory neurons to parvalbumin-containing interneurons in motor-associated cortical areas of mice"

18:30 – Dinner for invited speakers & Discussion
November 1 (Wed)

Special Lecture 1

Chair: Yumiko Yoshimura (NIPS, Japan)

9:00 – 10:00  Edward M. Callaway (Salk Institute, USA)
“Imaging the mouse visual system: parallel pathways and visual cortical areas”

10:00 – 10:15  Coffee Break

Chair: Takeshi Yagi (Osaka University, Japan)

Session 3:  Molecular mechanisms for formation and elimination of neural circuits

10:15 – 10:50  S3-1 Denis Jabaudon (University of Geneva, Switzerland)
“Dynamic control of neuronal diversity in the developing neocortex”

10:50 – 11:25  S3-2 Kazuo Emoto (the University of Tokyo, Japan)
“Molecular and cellular basis for neurite remodeling in Drosophila”

11:25 – 12:00  S3-3 Tomomi Shimogori (RIKEN, Japan)
“Activity dependent Btbd3 protein dynamics for selective dendrite morphogenesis in developing neurons”

12:00 – 12:20  Group photo

12:20 – 13:30  Lunch with Discussion

Special Lecture 2

Chair: Yumiko Yoshimura (NIPS, Japan)

13:30 – 14:30  Haruo Kasai (the University of Tokyo, Japan)
“Dopamine actions on the dendritic spines and conditioning behaviors”

14:30 – 14:45  Coffee Break

Short Talk 2:

Chair: Kenji Hayashi (NIPS, Japan)

14:45 – 15:00  ST2-1 Shin-ichi Higashijima (NIBB, Japan)
“Axially-confined in vivo single-cell labeling by primed conversion using blue and red lasers with conventional confocal microscopes”

15:00 – 15:15  ST2-2 Ichiro Aoki (Nagoya University, Japan)
“BK potassium channels resist premature memory overwriting in C. elegans”
15:15 – 15:30  ST2-3 Shuntaro Izawa (Nagoya University, Japan)
“MCH neurons in the hypothalamus impairs memory during sleep”

15:30 – 15:45  ST2-4 Eisuke Koya (University of Sussex, United Kingdom)
“Changes in appetitive associative strength and reward value modulate the intrinsic excitability of nucleus accumbens neuronal ensembles”

15:45 – 18:00  Flash talk, Poster Session

18:00 – 20:00  Party for all participants
November 2 (Thu)

Chair: Junichi Nabekura (NIPS, Japan)

Session 4: Learning and memory
9:00 –9:35  S4-1 Wenbiao Gan (New York University School of Medicine, USA)
“Dendritic branches are independent units for memory storage and generalization”

9:35 –10:10  S4-2 Masanori Murayama (RIKEN, Japan)
“Top-down cortical circuit for perception and memory consolidation in mice”

10:10 –10:45  S4-3 Takaki Komiyama (UCSD, USA)
“Imaging neural ensembles during learning”

10:45 – 11:00  Coffee Break

Chair: Hiromu Yawo (Tohoku University, Japan)

Session 5: Subcellular mechanisms for information processing
11:00 –11:35  S5-1 Hiroshi Kuba (Nagoya University, Japan)
“Tonotopic differentiation of dendritic computation in sound localization circuit”

11:35 –12:10  S5-2 Yoshiyuki Kubota (NIPS, Japan)
“The Diversity of Cortical Inhibitory Synapses”

12:10 – 12:15  Closing remarks
Yumiko Yoshimura (NIPS, Japan)
**Poster Presentations**

**P1, ST1-1**  
Roles of synaptic activity in climbing fiber to Purkinje cell synapse elimination in the developing cerebellum  
Tzu-Huei Kao, Kyouko Matsuyama, Naofumi Uesaka & Masanobu Kano

**P2, ST1-2**  
Pyramidal cell subtype-dependent inhibitory-excitatory circuits in layer 5 of the rat frontal cortex.  
Mieko Morishima & Yasuo Kawaguchi

**P3, ST1-3**  
Local connections of excitatory neurons to parvalbumin-containing interneurons in motor-associated cortical areas of mice  
Eriko Kuramoto, Hiroyuki Hioki, Yasuhiro R Tanaka, Haruki Iwai, Atsushi Yamanaka, Tetsuya Goto & Takeshi Kaneko

**P4, ST2-1**  
Axially-confined in vivo single-cell labeling by primed conversion using blue and red lasers with conventional confocal microscopes  
Shin-ichi Higashijima, Atsushi Taniguchi, Yukiko Kimura & Shigenori Nonaka

**P5, ST2-2**  
BK potassium channels resist premature memory overwriting in C. elegans  
Ichiro Aoki, Michihiro Tateyama, Takushi Shimomura, Kunio Ihara, Yoshihiro Kubo & Ikue Mori

**P6, ST2-3**  
MCH neurons in the hypothalamus impair memory during sleep  
Shuntaro Izawa, Ryo Inoue, Srikanta Chowdhury, Yasutaka Mukai & Akihiro Yamanaka

**P7, ST2-4**  
Changes in appetitive associative strength and reward value modulate the Intrinsic excitability of nucleus accumbens neuronal ensembles  
Joe Ziminski, Meike Sieburg, Sabine Hessler, Gabriella Margetts-Smith, Hans S Crombag & Eisuke Koya
Development of the photoactivatable depalmitoylating enzyme to manipulate PSD-95 palmitoylation states
Takashi Kanadome, Norihiko Yokoi, Yuko Fukata & Masaki Fukata

Down-regulation of Calcium/calmodulin-dependent serine protein kinase (CASK) disrupts excitatory-inhibitory balance of synapses by down-regulation of GluN2B.
Takuma Mori, Enas Ahmed Fathalla Kasem, Xueshan Cao, Xue Li, Taiga Kurihara, Takeshi Uemura, Toru Yanagawa & Katsuhiko Tabuchi

Patterned neuronal activity increases BDNF promoter activity in upper layer neurons of the developing cortex
Yumi Miyasaka & Nobuhiko Yamamoto

DNA polymerase β is required for active DNA demethylation in postnatal development of cortical neurons
Akiko Uyeda, Noriyuki Sugo, Kohei Onishi, Teruyoshi Hirayama, Takeshi Yagi & Nobuhiko Yamamoto

Long-term in vivo imaging of neonates reveals a dynamic mechanism of dendritic refinement of cortical neuron
Shingo Nakazawa, Hidenobu Mizuno & Takuji Iwasato

Three transgenic reporter rat strains for connectomics and optogenetics studies of the brain.
Hiroyuki Igarashi, Keiko Ikeda, Hiroshi Onimaru, Ryosuke Kaneko, Kyo Koizumi, Kaoru Beppu, Kayo nishizawa, Ko Matsui, Kazuto Kobayashi, Yuchio Yanagawa, Shin-Ichi Muramatsu, Toru Ishizuka, Hiromu Yawo

Cross-modal reorganization of the whisker-barrel conditioning–optogenetic analysis
Kenta Abe & Hiromu Yawo
Distant area-targeting axonal branches of layer 2/3 neurons develop more rapidly than locally targeting branches in mouse neocortex

Yuichiro Oka, Yuka Lin, Sheena Y.X. Tiong, Miyuki Doi, Tatsuya Sasaki, Tokuichi Iguchi & Makoto Sato

Targeting enveloped viruses to multiple, distinct populations for neural circuit analysis.

Toshiaki Suzuki & Fumitaka Osakada

Balanced inhibition controls the output of neurons tuned to low-frequency sound at avian cochlear nucleus

Mohammed AL-Yaari, Rei Yamada & Hiroshi Kuba

Parvalbumin-positive interneurons regulate neuronal ensembles in visual cortex

Masakazu Agetsuma, Jordan P. Hamm, Kentaro Tao, Shigeyoshi Fujisawa & Rafael Yuste

Functional analysis of layer 5 microcolumns in mouse primary visual cortex

Taisuke Yoneda, Hisato Maruoka, Seiichiro Sakai, Nao Nakagawa & Toshihiko Hosoya

Connexin-43 in postnatal excitatory neurons regulate spine density and reliable response

Kenji Hayashi & Kenichi Ohki

Multiscale Calcium imaging in visual cortex of marmoset monkeys

Takayuki Hashimoto, Masato Uemura, Teppei Matsu, Tomonari Murakami & Kenichi Ohki

Visual experience is required for establishing feature-selective synchronization in the upper but not lower layer in primary visual cortex

Ayako W Ishikawa, Yukio Komatsu & Yumiko Yoshimura
Influence of the postnatal experience on the cortical neural connections predetermined by the gene-regulation during the embryonic stage.

Etsuko Tarusawa, Makoto Sanbo, Masumi Hirabayashi, Takeshi Yagi & Yumiko Yoshimura

Developmental role of endocannabinoids for binocular correspondence in mouse visual cortex

Katsuro Kameyama, Taisuke Yoneda, Takahiro Gotou, Keiko Terata, Kenji Sakimura, Masanobu Kano & Yoshio Hata

Revealing a ventral stream extending to temporal cortex in mice

Nana Nishio, Hiroaki Tsukano, Atsushi Aiba, Manabu Abe, Meiko Kawamura, Kenji Sakimura, Junichi Nakai & Katsuei Shibuki

Corticocortical projection-dependent subcircuits in layer 2/3 of rat frontal cortex

Yoshifumi Ueta & Yasuo Kawaguchi

Conserved properties of dendrites in pyramidal cell

Alsayed A. Mohamed, Noboru Yamaguchi, Sayuri Hatada, Hiroko Kita, Joachim Lübke, Yasuo Kawaguchi & Yoshiyuki Kubota

Direct corticomotoneuronal connections are transiently formed in a juvenile subprimate mammal: phylogenetic implication

Naoyuki Murabe, Takuma Mori, Satoshi Fukuda, Noriko Isoo, Takaeh Ohno, Hiroaki Mizukami, Keiya Ozawa, Yumiko Yoshimura & Masaki Sakurai

Cortical astrocytes prime the induction of spine plasticity and mirror image pain

Kei Eto, Tatsuya Ishikawa & Junichi Nabekura
P30
Downregulation of KCC2 accelerates motor functional recovery after axonal injury
Takuya Toda & Junichi Nabekura

P31
Melanin-concentrating hormone neurons negatively regulates hippocampal pyramidal cells and memory
Srikanta Chowdhury, Shuntaro Izawa & Akihiro Yamanaka

P32
Olfactory neural circuits involved in physiological changes
Kunio Kondoh, Zhonghua Lu, Xiaolan Ye, David P. Olson, Bradford B. Lowell & Linda B. Buck

P33
Tuning properties of goldfish olfactory receptor neurons to food odors and sex pheromones
Koji Sato & Peter W. Sorensen