



IUPS Beacon Symposium 2026

Co-hosted by NIPS



Physiology Ahead: Orchestration of Multiple Systems

Date: September 15- 16, 2026

Venue: Okazaki Conference Center (Okazaki, Aichi, Japan)

Overseas speakers

Rui Chang (New Haven)
Shih-Kuo Chen (Taipei)
Coco Chu (Beijing)
Henning Fenselau (Köln)
Eunha Kim (Seoul)
Hong-GyunLee (Seoul)
Zhe Zhang (Shanghai)

Domestic speakers

Teppei Goto (Kyoto)
Takeshi Hiyama (Yonago)
Takako Ichiki (Niigata)
Satoshi Koba (Tottori)
Kumi Kuroda (Tokyo)
Kazuhiro Nakamura (Nagoya)
Takashi Yoshimura (Nagoya)

Organizers

Kazuhiro Nakamura (Nagoya) (Chair)
Takeshi Hiyama (Yonago) (Vice-chair)
Satoshi Koba (Tottori)
Yoshihiro Kubo (NIPS)

Secretary General

Yoshihiro Kubo (NIPS);
Email: [ykubo\(a\)nips.ac.jp](mailto:ykubo(a)nips.ac.jp)

<https://sites.google.com/nips.ac.jp/iups2026beacon/home>

International Union of Physiological Sciences (IUPS)
National Institute for Physiological Sciences (NIPS)

Preface

Welcome to the IUPS Beacon Symposium 2026, co-hosted by the National Institute for Physiological Sciences (NIPS), in Okazaki, Japan.

Physiology explores how organisms maintain, adapt, and thrive through the coordinated action of organs, cells, and molecular systems. Our theme, “Physiology Ahead: Orchestration of Multiple Systems,” emphasizes physiological function as dynamic interaction among neural, endocrine, immune, metabolic, and behavioral systems.

Advances in life science now enable investigation across scales, from molecules and cells to neural circuits, organs, behavior, and whole organisms. Meanwhile, climate change, artificial light exposure at night, changing diets and lifestyles, emerging infectious diseases, and population aging present new challenges for human and animal health. Addressing these challenges requires an integrated understanding of how organisms respond to their internal and external environments and preserve homeostasis.

The program brings together leading researchers from around the world to explore these interactions across physiological systems. Sessions cover thermoregulation and energy homeostasis; circadian and seasonal regulation; the neuro-immune-gut axis; CNS function in health and disease; maternal behavior and neurodevelopment; and the autonomic nervous system. Oral presentations, posters, and discussion will showcase advances in neural-circuit analysis, imaging, molecular and cellular biology, and integrative physiology.

We also welcome early-career researchers and students, whose posters bring diverse ideas and approaches. We hope that exchanges across expertise, backgrounds, and career stages will foster discussion, collaboration, and new directions in physiological research.

On behalf of the organizing committee, we warmly welcome all participants and thank our speakers, presenters, chairs, and colleagues at NIPS. We hope these two days in Okazaki will offer an inspiring opportunity to share discoveries, build connections, and consider the future of integrative physiology.

Kazuhiro Nakamura (Chairperson)

On behalf of the organizing committee

Kazuhiro Nakamura, Takeshi Hiyama

Satoshi Koba, Yoshihiro Kubo

General information

1. Dress code

Casual

2. Oral presentations

Presentation time including discussion is 40 minutes. Please leave 10 min for discussion.

Please connect your computer to the projector ahead of each session.

3. Poster presentations and flash talk

Poster boards are "90 cm in width & 120 cm in height".

Please display your poster from the beginning till the end of the symposium, to facilitate free time discussion for full 2 days.

The venues for poster presentation are in front of the Ohsumi Conference Hall and of the Lunch & Party room.

All the poster presenters are requested to give a flash talk for 1 min on Sep 15. One page PDF file (wide, 16:9) will be collected in advance.

4. Registration

All invited speakers and participants are requested to register at the Registration desk in the OCC entrance hall from 8:20 AM on Sep 15. Please receive your name badge.

A printed abstract will not be prepared. Please bring it with you.

Lunch box fee on Sep 15, 16, and the reception party fee on Sep 15 are included in your pre-paid registration fee.

We request to pay the lodge fee by credit card in advance after Aug 15.

Travel grants will be paid to the awardees in JPY Cash at the registration desk at lunch time on Sep 15.

5. Lunch box and Information Exchange Party

Lunch box fee on Sep 15, 16, and the party fee on Sep 15 are included in your pre-paid registration fee.

Please present your name badge to receive the lunch box and to enter the party room.

6. Internet Access

Wireless Internet Access is available in OCC. Please follow the instruction board posted in OCC. If you preinstall connection to "Eduroam" in your institution, it is most convenient.

7. Group photo

We will take a group photo of all participants before lunch on Sep 15.

8. Valuables

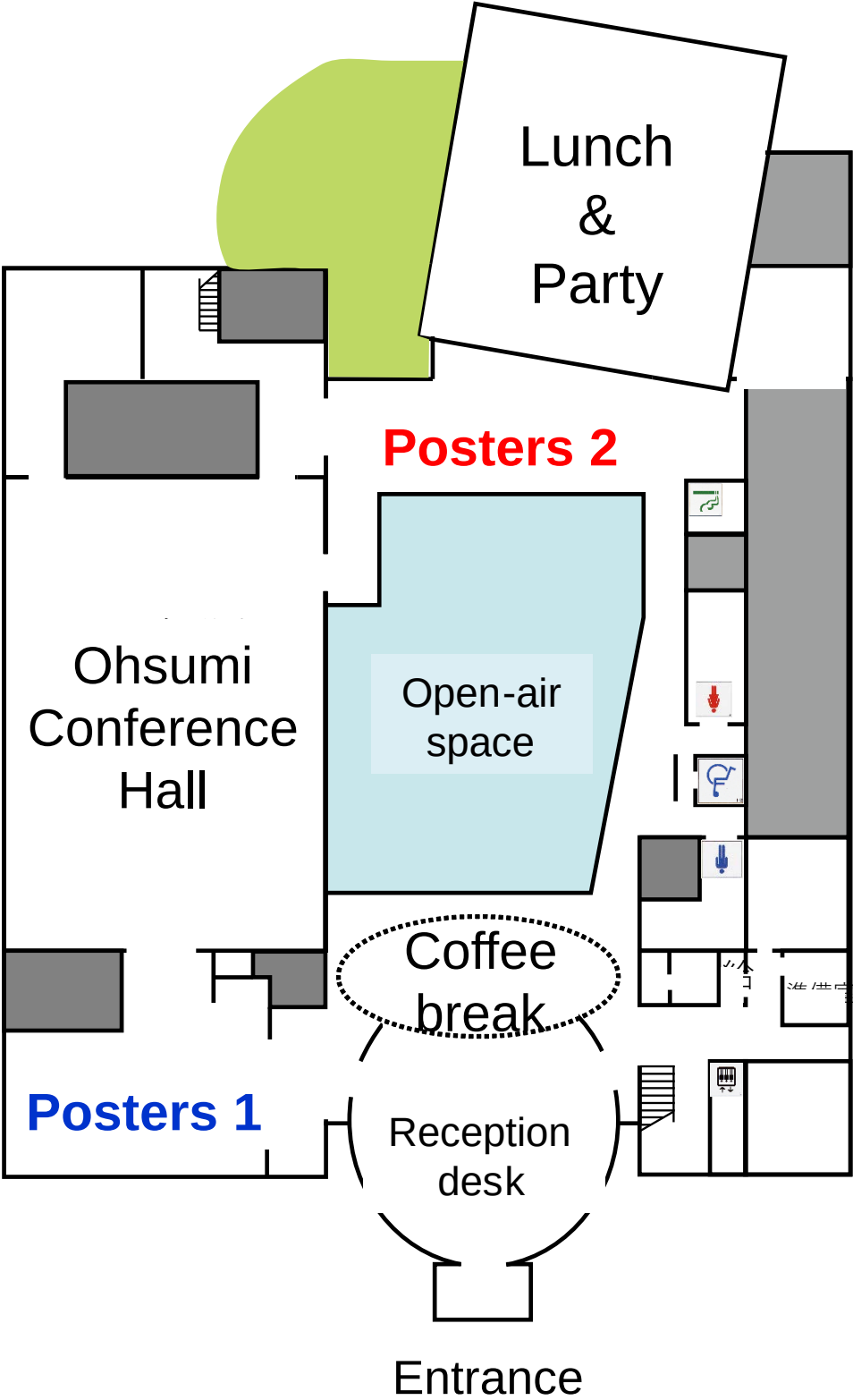
We do not have cloakroom service and we cannot take the responsibility for loss of personal valuables. Please keep your valuables in your possession.

10. The way from “Grand Inn Higashi-Okazaki” Hotel to OCC

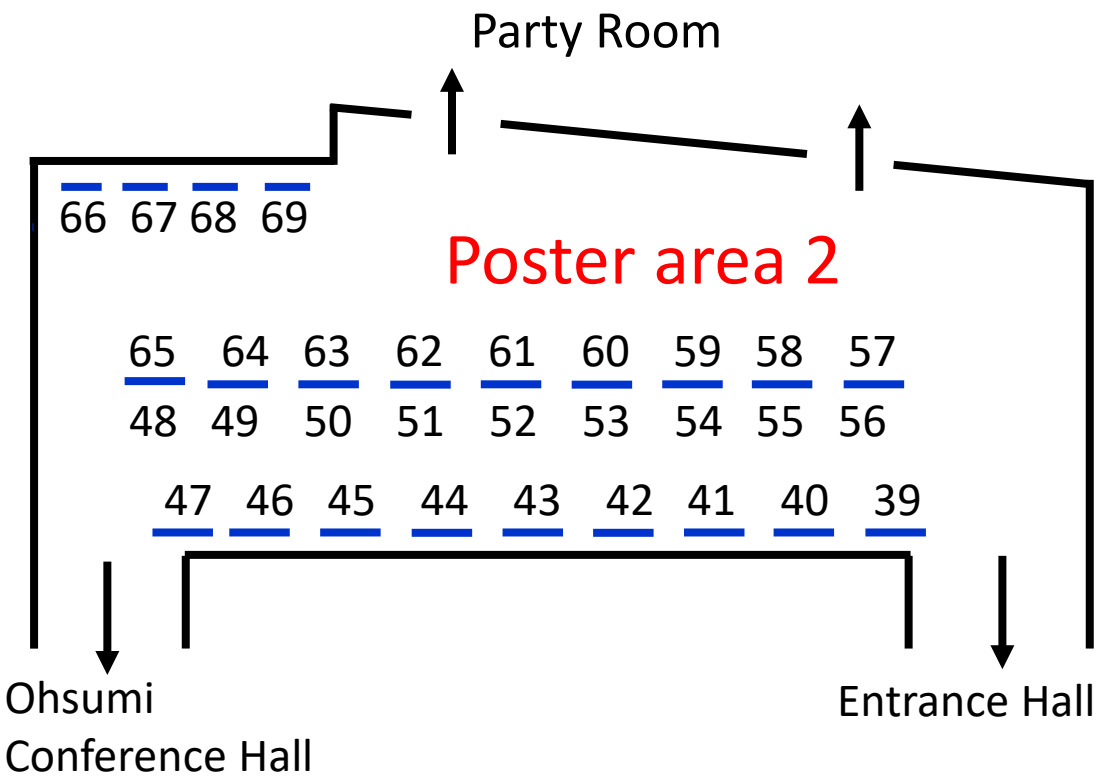
For invited speakers only

An organizing group member will see you at the lobby at AM 8:10 (sharp!) on Sep 15 (only!) and take you to OCC on foot. It is 15 minutes' walk.

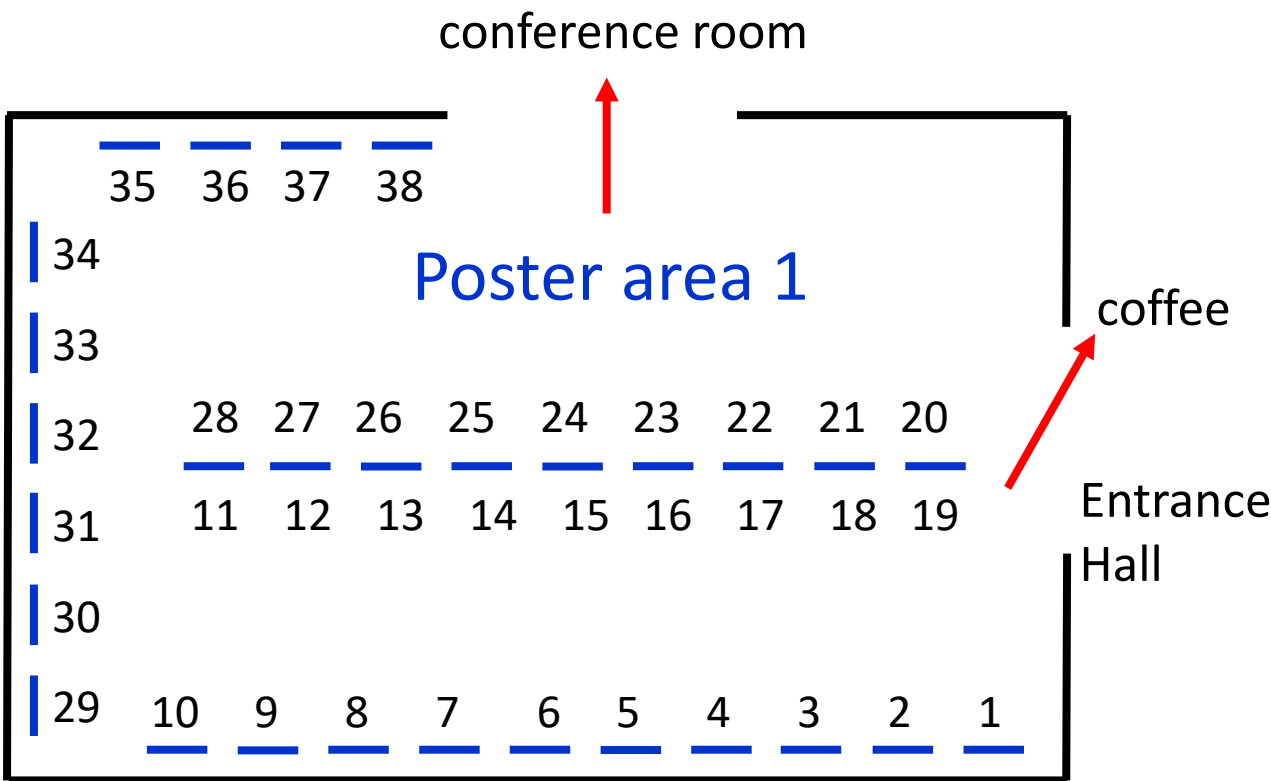
Floor map of Okazaki Conference Center (OCC)



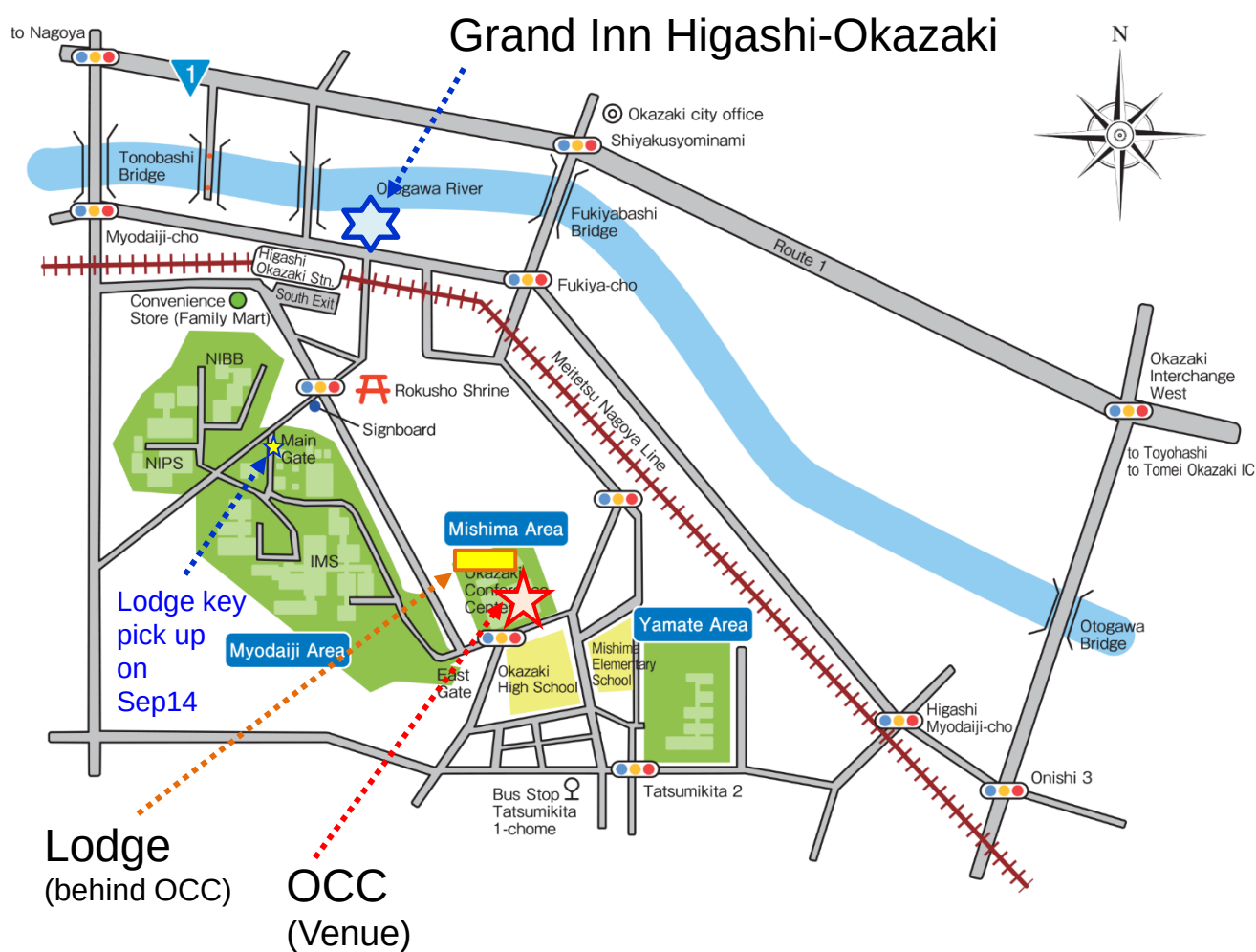
Allocation of poster boards



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Map of OCC, Institutional Lodge, and



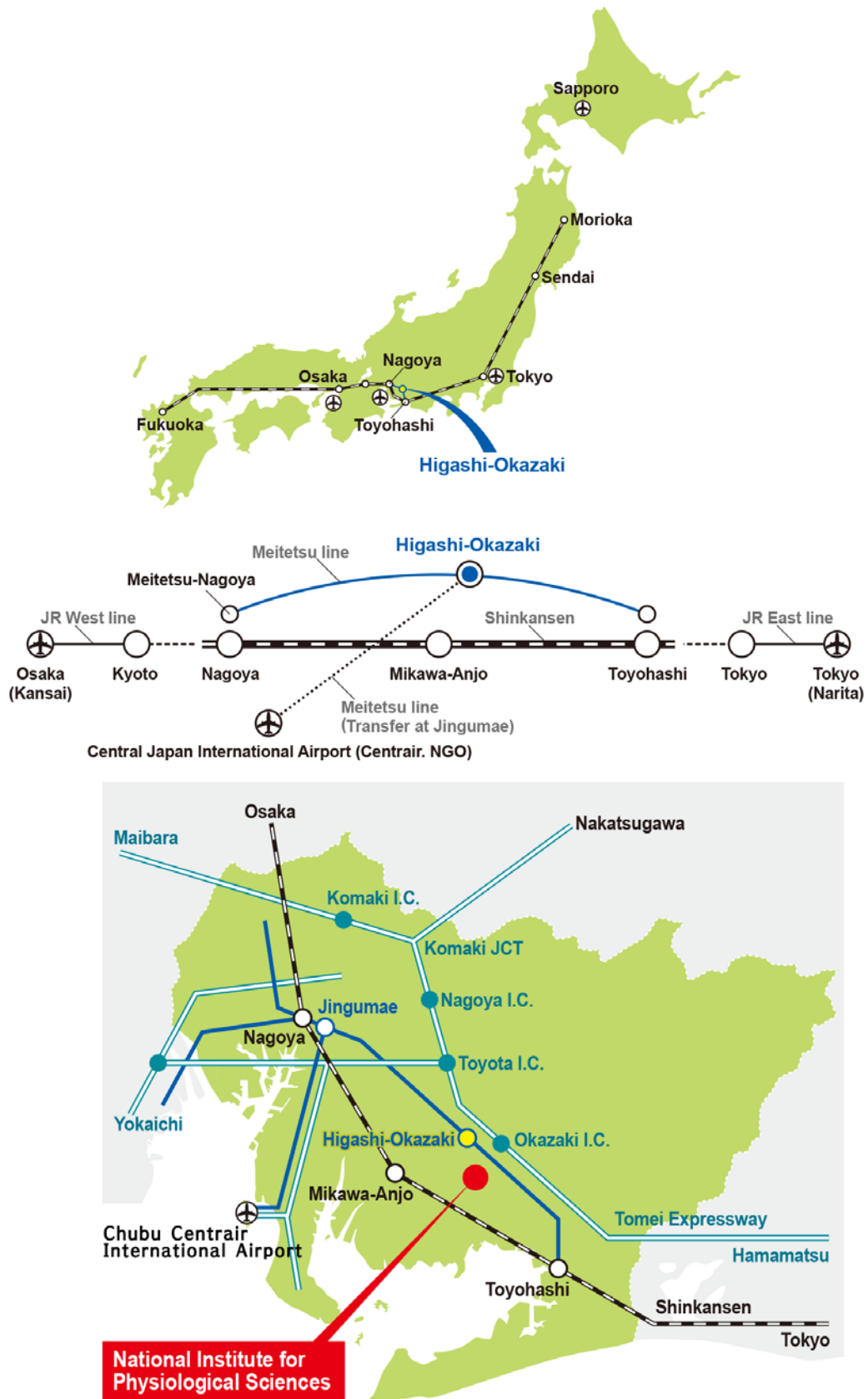
Real Map with distance indication



- ① Meitetsu Train
Higashi-Okazaki station
- ② South Exit
- ③ Long mild upslope
- ④ Guidance board of Inst
- ⑤ Main gate and Guard
Lodge key pick up on Sep 14
- ⑥ OCC (Venue)
- ⑦ Institutional Lodge
- ⑧ Higashi-Okazaki Grand Inn
Hotel for invited speakers
- ⑨ Convenience Store
Family Mart

Direction to Okazaki

<https://www.nips.ac.jp/eng/profile/access.html>



How to get to OKAZAKI

Okazaki-city lies 40 km southeast of Nagoya (which is located between Tokyo and Osaka). The nearest railway station is **Higashi-Okazaki station of Meitetsu line** running between Toyohashi and Nagoya, both of which are JR (Japan Railways) Shinkansen stations.

From Central Japan (Nagoya) International Airport

By train (approximately every 15 min)

Take the Meitetsu train from Central Japan International Airport to Higashi Okazaki Station.

You need to change trains once at Jingu-mae Station.

There is no limousine bus service from the airport to Higashi-Okazaki.

Meitetsu Higashi-Okazaki station is currently under renovation.

“**Grand Inn Higashi-Okazaki**” is on the north of Higashi-Okazaki station; just a 5-min walk from the station. **It is strongly recommended to use the Exit on the 2nd floor** (not the one on the basement floor).

The institutional lodge and the venue (OCC) is on a small hill on the south of Higashi-Okazaki station; 10 min gentle uphill walk from the station.

From the train station, it is recommended to use the Exit on the 2nd floor, move to the train station building on the south side, and go out from the exit on the ground floor.

On September 14, please pick up your lodge key from the security guard at the main entrance indicated on the map.

On September 15, please pick up your lodge key at the reception desk at the symposium venue.

Schedule and Oral Presentations (Updated on August 25)

The IUPS Beacon Symposium 2026 (Co-hosted by NIPS)

"Physiology Ahead: Orchestration of Multiple Systems"

Note: Presentation (+ discussion) time is 30 (+ 10) min, if not stated otherwise.

Sep 15 (Tue), 2026	
8:50 - 9:00	Opening remarks
	Kazuhiro Nakamura (Chair of OC), Tadashi Isa (Director General, NIPS)
Session 1 Thermoregulation and Energy Homeostasis (Chair : Takeshi Hiyama)	
9:00 - 9:40	Fundamental central circuit controlling body temperature and energy balance
	Kazuhiro Nakamura (Nagoya University)
9:40 - 10:20	Hypothalamic Regulation of Body Temperature: From Physiological Mechanisms to Targeted Interventions
	Zhe Zhang (Chinese Academy of Sciences)
10:20 -10:30	Short break
10:30 - 11:10	Plasticity in melanocortin neurocircuits and long-term appetite control
	Henning Fenselau (Max Planck Institute for Metabolism Research)
11:10 - 11:50	Dietary availability acutely impacts puberty onset via a hypothalamic neural circuit
	Teppei Goto (Kyoto University)
11:50 -12:00	Group Photo
12:00 -13:00	Lunch and Poster viewing
Session 2 Rhythm Regulation of Physiological Functions (Chair : Satoshi Koba)	
13:00 - 13:40	Neural circuits of retinal ganglion photoreceptors in the control of non-image forming functions: Circadian clocks and social behavior
	Shih-Kuo Chen (National Taiwan University)
13:40 - 14:20	Regulatory mechanisms of seasonal rhythms and development of a blood metabolite calendar
	Takashi Yoshimura (Nagoya University)
14:20 -14:40	Coffee break
Session 3 Flash talks of poster presentations	
14:40 - 16:00	1 min each x 69 presentations
16:00 - 16:10	Announcement of IUPS2029 Congress (Kobe)
	Yoshihiro Kubo (President of IUPS)
Session 4 Poster session	
16:20 - 17:20	Odd numbers
17:20 - 18:20	Even numbers
18:30 - 20:30	Information exchange party

Sep 16 (Wed), 2026

Session 5 Neuro-Immune-Gut Axis (Chair : Kazuhiro Nakamura)

9:00 - 9:40 [In vivo imaging reveals inflammation-dependent plasticity in gut-brain sensory pathways](#)

Takako Ichiki (Niigata University)

9:40 - 10:20 [Bi-directional communication between intrinsic enteric neurons and ILC2s inhibits host defense against helminth infection](#)

Coco Chu (Tsinghua University)

10:20 -10:30 **Short break**

Session 6 CNS in Health and Diseases (Chair : Kazuhiro Nakamura)

10:30 - 11:10 [Astrocyte Inflammatory Memory Promotes CNS Inflammation](#)

Hong-Gyun Lee (Seoul National University)

11:10 - 11:50 [Orchestration of multiple systems by sensory circumventricular organs](#)

Takeshi Hiyama (Tottori University)

11:50 -13:00 **Lunch and Poster viewing**

Session 7 Maternal Behavior and Neurodevelopment (Chair : Takashi Yoshimura)

13:00 - 13:40 [Medial preoptic regulation of infant care in mice and primates](#)

Kumi Kuroda (Institute of Science Tokyo)

13:40 - 14:20 [Placental Contributions to Offspring Neurodevelopment](#)

Eunha Kim (Korea University College of Medicine)

14:20 -14:40 **Coffee Break**

Session 8 New Perspectives of Autonomic Nervous System (Chair : Yoshihiro Kubo)

14:40 - 15:20 [The "little brain" on the heart](#)

Rui Chang (Yale University)

15:20 - 16:00 [Central command circuits orchestrating autonomic cardiovascular regulation](#)

Satoshi Koba (Tottori University)

16:00 - 16:10 **Closing remarks**

Satoshi Koba (OC), Takeshi Hiyama (Vice-Chair of OC)

List of Poster Presentations

(Note: Poster # might change due to cancellation)

Poster # 1 (Registration # 02)

Human Brain Cell State Dynamics and Neuroimmune Network Dysregulation Across Prodromal, Early and Late Parkinson's Disease Progression

Le Zhang

Poster # 2 (Registration # 03)

Relationship Between Heart Rate Variability and Spirometry Indices in Healthy Adults: An Assessment of Autonomic-Respiratory Interactions

PI BASNAYAKE

Poster # 3 (Registration # 04)

DNMT3L translocates to mitochondria to reprogram oxidative metabolism and control megakaryocyte differentiation

Shuoh-Wen Chen

Poster # 4 (Registration # 05)

Determinants of Motor Unit Conduction Velocity Adaptations to Muscle Disuse and Subsequent Active Recovery in Healthy Humans

Giuseppe De Vito

Poster # 5 (Registration # 06)

The Role of RNA Modifications in Alcohol-Impaired Early Development of Cardiac Organoids

Jiun Cheng Liang

Poster # 6 (Registration # 08)

Visualizing Sensory Processing in Synthetic Hibernation

CHANG Ching-Pu

Poster # 7 (Registration # 09)

Central glucose-sensing regulates body temperature

Ming-liang LEE

Poster # 8 (Registration # 12)

Cold exposure modulates innate immune responses in an influenza-like model

Min-Hui Chen

Poster # 9 (Registration # 13)

Protective Regulatory Mechanisms of Hepcidin in Early Atherosclerosis

Guan-Lin Wu

Poster # 10 (Registration # 14)

To investigate the role of soluble epoxide hydrolase in the pathogenesis of migraine in mouse models

Li-En Hsiao

Poster # 11 (Registration # 15)

Effect of Aqueous Extract of Carrot (*Daucus carota* L.) on Cerebrum and Hippocampus Involved in Learning and Memory in Wistar Rats

Komolafe Oluwaseyi Merci

Poster # 12 (Registration # 16)

Integrated PBMC and Ovarian Single-Cell Transcriptomic Analysis Reveals Immune and Metabolic Remodeling in Polyendocrine Metabolic Ovarian Syndrome

Kyu-Won Seo

Poster # 13 (Registration # 17)

Lobelanidine overcomes EGFR-TKI resistance in lung cancer by reversing the *SLC43A2*-associated adaptive stress response

Heerim Yeo

Poster # 14 (Registration # 18)

Functional characterization of thermosensitive TRPM4 in mouse temperature sensing

Rei NISHIMOTO

Poster # 15 (Registration # 19)

Luteolin Attenuates Vascular-Renal Dysfunction and Fibrosis in Hypertensive Rats by Targeting Oxidative Stress, Inflammation, and Fibrotic Pathways

Sudarat Rongpan

Poster # 16 (Registration # 20)

Effects of Lunar Phases on Glycemic Status, Cardiovascular Functions, Foot Temperature, Oxidative Stress, and Inflammation in Type 2 Diabetic Subjects

Sutanu Dutta Chowdhury

Poster # 17 (Registration # 21)

FOXO1 Acts as a Master Regulator of Endothelium-dependent Vascular Function in Hypertensive Mice

Peihua Dong

Poster # 18 (Registration # 22)

Reproductive Stimulatory Potential of *Cordyceps militaris*: Preclinical Verification via Experimental Animal Models

Nguyen Trong Hong Phuc

Poster # 19 (Registration # 23)

Development of a Versatile Flow Chamber for the Simulation of Multiple Hemodynamic Conditions

Zhiming WU

Poster # 20 (Registration # 24)

ipRGC-driven feedforward inhibition of supraoptic oxytocin neurons tunes luminance-dependent avoidance

Yu-Fan Huang

Poster # 21 (Registration # 25)

GABAergic inhibitory inputs to the spinal defecation center suppress noxious stimuli-induced colorectal motility response

Tomoya Sawamura

Poster # 22 (Registration # 26)

Astilbin Disrupts the Oxidative Stress–Inflammation–Lipogenesis Axis Through Mitochondrial–AMPK Metabolic Reprogramming in MAFLD Models

Saharat Kattiyanon

Poster # 23 (Registration # 27)

Enhanced Treg cells and IL-10 levels of dendritic cells in response to *Candida glabrata* beta-glucan particulates

Truc Thi Huong Dinh

Poster # 24 (Registration # 28)

Small Fibre Pathology Is Associated with Pain and Anxiety Symptoms in Individuals with Chronic Whiplash-Associated Disorder

Nayomi Ranathunga

Poster # 25 (Registration # 29)

SMAD4-LGALS9 signaling promotes atherosclerosis progression through endothelial dysfunction

Jinzhao Yang

Poster # 26 (Registration # 30)

Effects of crocins on intracerebroventricular streptozotocin induced neuroinflammation and neurodegeneration in experimental rats of Alzheimer's Disease

Rupsa Ghosh

Poster # 27 (Registration # 31)

Effect of Sprint Interval Training on Cardiometabolic Risk Factors: Randomised Trial

Khaled M Badaam

Poster # 28 (Registration # 33)

In Vivo Neuronal Activity Study of Suprachiasmatic Nucleus Neurons Under Varying Light Intensities Using Gradient-Index Lenses

Cheng-Han Wang

Poster # 29 (Registration # 34)

Environmental Light Modulation Mitigates Parkinson's Disease Progression

He-Syun Chu

Poster # 30 (Registration # 35)

Ventral Mossy Cells Encode Conditioned Threat-Prediction Signals During Fear Memory Retrieval

Cheng-Chang Lien

Poster # 31 (Registration # 36)

Prostaglandin E₂ in the Spinal Cord as a Negative Regulator of Colonic Motility in Rats
Ayuna Mori

Poster # 32 (Registration # 38)

Social Jetlag and its relation with sleep and academic performance in medical students: Circadian Misalignment
SHAZIA NAZAR

Poster # 33 (Registration # 39)

Impact of hypothermia on delaying the onset of symptoms and lethality after rabies virus infection: experimental validation in mice
Rikushi Kaneuchi

Poster # 34 (Registration # 40)

Age specific differences in upper limb nerve conduction study: A normative reference study among young healthy individuals
J. AJOLA

Poster # 35 (Registration # 41)

A preoptic circuit triggers rewarming from torpor
Akinobu Ohba

Poster # 36 (Registration # 42)

Gallic Acid Mitigates Diabetic Glomerulopathy in Diabetic Mice via Modulation of p47phox and TGF- β 1
Kritsada Sertiantuk

Poster # 37 (Registration # 43)

Kir6.2-Containing K_{ATP} Channels in TH-Expressing Neurons Link High-Fat Diet-Induced Metabolic Dysfunction to Reward-Related and Depression-Like Behaviors
Hao-Yeh Tsai

Poster # 38 (Registration # 44)

Intranasal Diazoxide-Loaded Polymeric Micelles Alleviate L-DOPA-Induced Dyskinesia via Modulation of Neuronal Excitability and Glial Responses
Zheng-Yang Ho

Poster # 39 (Registration # 45)

PCSK9 inhibitor attenuates H₂O₂-induced apoptosis in PSMCs through decreased surface expression of K_{ATP} channels
Yi-Chun Lin

Poster # 40 (Registration # 46)

Activity and Molecular Dynamics of Prolactin-Regulatory Neurons in Female Mice
Haruna Kobayashi

Poster # 41 (Registration # 47)

Strain-Specific Metabolism of L-DOPA by *Enterococcus faecalis* in a Preclinical Model of Parkinson's Disease

Po-Cheng HUANG

Poster # 42 (Registration # 49)

Neural circuit basis of fat-specific hedonic and homeostatic feeding by PVH MC4R neurons

Nawarat Rattanajearakul

Poster # 43 (Registration # 50)

Prepubertal SARS-CoV-2 ssRNA Exposure Impairs Spermatogenesis and Male Fertility

Yu-Xuan Wu

Poster # 44 (Registration # 52)

The Effect of Intermittent Fasting on Stress Response and Its Associated Physiological Outcomes

Zakir Ullah

Poster # 45 (Registration # 55)

Single-Lysosome Electrophysiology Reveals O-Linked Glycosylation as a Key Regulator of TPC2 Function

Cheng-Chang Chen

Poster # 46 (Registration # 56)

Understanding the mechanisms that trigger seasonal reproduction in medaka

Koki Ito

Poster # 47 (Registration # 57)

Maternal nutrition shapes metabolic traits in rat offspring by modulating MC4R-bearing primary cilia length in hypothalamic neurons

Yuri Kitagawa

Poster # 48 (Registration # 60)

Investigation of the Molecular Mechanisms Underlying Short-term Kisspeptin Exposure-induced inhibition of Glucose-Stimulated Insulin Secretion in Pancreatic β -cells

Wen-Chi Huang

Poster # 49 (Registration # 61)

***Photoperiod decoder 1* links photoperiodic information to growth hormone signaling and seasonal metabolic adaptation in medaka**

Tomoya Nakayama

Poster # 50 (Registration # 62)

Seasonal differences in alcohol tolerance in mice

Kai Fukawa

Poster # 51 (Registration # 65)

Identification of 12hr Tidal Genes in Fish and Mammals

Nagisa Takai

Poster # 52 (Registration # 68)

Developmental reorganization of fast- and slow-release vesicle pools in hippocampal autaptic neurons

Kouya Uchino

Poster # 53 (Registration # 71)

Oral administration of the Nrf2-activating water-soluble monophenol TS-13 as a preventive strategy in A53T α -synuclein transgenic mice: a longitudinal study

A. E. Serykh

Poster # 54 (Registration # 72)

From Brain to Spleen: Integrated Physiological Responses to Chronic Restraint Stress

Nia Kurnianingsih

Poster # 55 (Registration # 74)

Identification and Characterisation of VGLUT2-Expressing Sympathetic Neurons in the Stellate Ganglion Innervating Interscapular Brown Adipose Tissue

Robby Alkhusairy

Poster # 56 (Registration # 75)

Analysis of Dopamine β -Hydroxylase Expressing Neurons in Enteric Nervous System

Muhammad Dzulkha Ikhsanul Fikri

Poster # 57 (Registration # 76)

Microbiota-dependent mucosal hyperinnervation and intestinal hyperalgesia in mouse models of visceral hypersensitivity

Linda Chia-Hui Yu

Poster # 58 (Registration # 77)

The role of enkephalin neurons in the intergeniculate leaflet/ ventral lateral geniculate nucleus in regulating light masking

Yi-Te Liao

Poster # 59 (Registration # 79)

Analysis of seasonal temperature sensing mechanism for switching reproductive state of medaka

Taiki Yamaguchi

Poster # 60 (Registration # 81)

Transforming Growth Factor-Beta 1 Enhances Airway Reflexes in Rats

Yueh-Yin Chen

Poster # 61 (Registration # 82)

A Vagal iNTS–CeA Circuit Links Umami Intake to Reduced Aggression in an ADHD Rat Model

Dewi Mustika

Poster # 62 (Registration # 85)

Investigate functionally monosynaptic connections between intrinsically photosensitive retinal ganglion cells and arginine vasopressin neurons in the suprachiasmatic nucleus
Yi-Chen Chen

Poster # 63 (Registration # 89)

Hypothalamic NPFFR2 Exacerbates Obesity-Associated Dysregulation via TCPTP-Dependent Disruption of Metabolic Homeostasis

Ya-Tin Lin

Poster # 64 (Registration # 90)

Small Signals, Big Impact: TPC1-mediated Ca^{2+} Nanodomains Regulate Trafficking and Iron Homeostasis

Alice Lin

Poster # 65 (Registration # 91)

Convergent maternal immune activation and peripubertal stress disrupt cerebellar learning via microglial epigenetic remodeling of Purkinje cells.

Momoka Hikosaka

Poster # 66 (Registration # 96)

The mesencephalic locomotor region orchestrates exercise responses

Moeko Koga

Poster # 67 (Registration # 97)

Epigenetic priming of macrophages by HP1a-mediated heterochromatin drives innate immunity

Shian-Jang Yan

Poster # 68 (Registration # 98)

Single-Cell Spatial Proteogenomic Analysis of Human Alzheimer's Disease Brains

Gen Ohtsuki

Poster # 69 (Registration # 100)

Partial Involvement of the Prostaglandin E_2 -EP3 Receptor Pathway in Fever Induced by Intracerebral Hemorrhage

Kiyoshi Matsumura