

# Plenary Lecture 2

March 29, Fri., 8:50-9:50

【Room A】 1F, Conference Center

Chair: Makoto Tominaga (National Institute for Physiological Sciences, Japan)

## **PL2** Natural Products as Probes of the Pain Pathway: From Physiology to Atomic Structure



**David Julius**

Department of Biochemistry and Biophysics, The University of California,  
San Francisco, USA

## Special Lecture1

The Susumu Hagiwara Memorial Lecture

March 29, Fri., 17:20-18:10

【Room A】 1F, Conference Center

Chair: Atsushi Nambu (National Institute for Physiological Sciences, Japan)

### SL1 Beyond memory circuit: Origins of metamemory and retrospection in the primate



**Yasushi Miyashita**

RIKEN Center for Brain Science, Japan

DAY 2

## Special Lecture2

March 29, Fri., 17:20-18:10

【Room B】 3F, Conference Center

Chair: Mariko Omatsu-Kambe (Shiga University of Medical Science, Japan)

### SL2 Signaling by Mitochondrial Flashes



**Heping (Peace) Cheng**

Peking University, China

## Special Lecture3

March 29, Fri., 17:20-18:10

【Room C】 3F, Conference Center

Chair: Michisuke Yuzaki (Keio University School of Medicine, Japan)

### SL3 Tentonin 3, a Mechanosensitive Channel with Baroreceptor Function



**Uhtaek Oh**

Brain Science Institute, KIST, Korea

## Special Lecture4

March 29, Fri., 17:20-18:10

【Room D】 4F, Conference Center

Chair: Noriyuki Koibuchi (Gunma University Graduate School of Medicine, Japan)

### SL4 Finding Instructional Balance Using the Educational Triangle



**Robert Graham Carroll**

Office of Medical Education, Brody School of  
Medicine,  
East Carolina University, USA

# Symposium1 (Local Organizing Committee Symposium)

March 29, Fri., 10:00-12:00

【Room A】 1F, Conference Center

## **S1** Molecular mechanisms of aging (Co-organized by the Japanese Society of Anti-Aging Medicine)

Chairs: **Shohei Mitani** (Tokyo Women's Medical University, Japan)

**Shigeo Horie** (Juntendo University, Graduate School of Medicine, Japan)

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- S1-1** The FGF-Klotho endocrine system and aging  
Makoto Kuro-o  
Division of Anti-aging Medicine, Center for Molecular Medicine, Jichi Medical University, Japan
- S1-2** The roles and mechanisms of SASP in aging and cancer  
Eiji Hara<sup>1,2)</sup>  
<sup>1</sup>Research Institute for Microbial Diseases, Osaka University, Japan, <sup>2</sup>Immunology Frontier Research Center, Osaka University, Japan
- S1-3** Necroptosis promotes the Aging of the Male Reproductive System in Mice and Man  
Xiaodong Wang, Dianrong Li, Lingjun Meng, Tao Xu, Yaning Su  
Xiao Liu, Zhiyuan Zhang  
National Institute of Biological Sciences, China
- S1-4** Significance of NAD/Sirtuins in Non-Communicable Diseases (NCD) and Metabo-Aging  
Hiroshi Itoh  
Department of Endocrinology, Metabolism and Nephrology School of Medicine, Keio University, Japan

# Symposium2 (Local Organizing Committee Symposium)

March 29, Fri., 10:00-12:00

【Room B】 3F, Conference Center

## **S2** Thermal biology: A new world of life science (whole day symposium) part I

(Co-organized by Grant-in-Aid for Scientific Research on Innovative Areas  
'Thermal Biology' of MEXT, Japan)

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Chairs: **Makoto Tominaga** (National Institute for Physiological Sciences, Japan)  
**Masao Doi** (Kyoto University, Japan)

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### **S2-1** Physiological Significance of Thermosensitive TRP Channels

**Makoto Tominaga**<sup>1,2)</sup>

<sup>1</sup>Division of Cell Signaling, National Institute for Physiological Sciences, Japan, <sup>2</sup>Thermal Biology Group, Exploratory Research Center on Life and Living Systems, Japan

### **S2-2** Imaging intracellular temperature unveils thermal signaling in single cells

**Kohki Okabe**<sup>1,2)</sup>

<sup>1</sup>Graduate School of Pharmaceutical Sciences, University of Tokyo, Japan, <sup>2</sup>PRESTO, JST, Japan

### **S2-3** Transient intracellular acidification regulates the core transcriptional heat shock response

**David Allan Drummond**<sup>1)</sup>, **Catherine G Triandafillou**<sup>2)</sup>,

**Christopher D Katanski**<sup>1)</sup>, **Aaron R Dinner**<sup>3)</sup>

<sup>1</sup>Department of Biochemistry and Molecular Biology, The University of Chicago, USA, <sup>2</sup>Graduate Program in Biophysical Sciences, The University of Chicago, USA, <sup>3</sup>Department of Chemistry and the James Franck Institute, The University of Chicago, USA

Part II starts from 15:10 at the same room.

# Symposium3 (International Scientific Program Committee Symposium)

March 29, Fri., 10:00-12:00

【Room C】 3F, Conference Center

## S3 Gastrointestinal microbiome and immunophysiology (CPS, Taiwan)

Chairs: **Linda Chia-Hui Yu** (National Taiwan University College of Medicine, Taiwan)  
**Shinji Fukuda** (Institute for Advanced Biosciences, Keio University, Japan)

### S3-1 Metabologenomic approach reveals the function of gut microbiota in health and disease

**Shinji Fukuda**<sup>1,2,3,4,5)</sup>

<sup>1</sup>Institute for Advanced Biosciences, Keio University, Japan, <sup>2</sup>PRESTO, Japan Science and Technology Agency (JST), Japan, <sup>3</sup>Kanagawa Institute of Industrial Science and Technology (KISTEC-KAST), Japan, <sup>4</sup>Transborder Medical Research Center, University of Tsukuba, Japan, <sup>5</sup>Metabologenomics, Inc., Japan

### S3-2 Pathophysiology of the gut microbiota in digestive diseases

**Sunny Hei Wong**<sup>1,2,3)</sup>

<sup>1</sup>Department of Medicine and Therapeutics, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong, <sup>2</sup>Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong, Hong Kong, <sup>3</sup>Institute of Digestive Disease, The Chinese University of Hong Kong, Hong Kong

### S3-3 Microbiota dysbiosis and immune abnormality in colorectal carcinogenesis

**Linda Chia-Hui Yu**

National Taiwan University College of Medicine, Taiwan

### S3-4 Microbiota biofilm dysbiosis and pathobiont release induced by enteropathogens or in IBD

**Andre G. Buret**

Biological Sciences, Inflammation Research Network, Canada

# Symposium4 (Local Organizing Committee Symposium)

March 29, Fri., 10:00-12:00

【Room D】 4F, Conference Center

## **S4** Teaching physiology; International perspectives (whole day symposium) part I

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Chair: **Mei-Ling Tsai** (National Cheng Kung University, Taiwan)

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### **S4-1** Role that the 'step-by-step study of life sciences' may play in health-related higher education

Masato Shibuya<sup>1,3</sup>, Kaname Higuchi<sup>1,3</sup>, Toshikazu Yamashita<sup>2,3</sup>)

<sup>1</sup>Dept Physiol, Kagawa Nutrition Jr Col, Japan, <sup>2</sup>Dept Applied Physiol, Kagawa Nutrition Univ, Japan, <sup>3</sup>Life Science Education Sharing Group, Japan

### **S4-2** Team-based Learning - the backbone of medical education in LKCMedicine

Fabian C.L. Lim

Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

### **S4-3** The role of Indonesian Physiology Society to improve physiology teaching in Indonesia

Adrianta Surjadhana

Department of Physiology, Ciputra University, Indonesia

### **S4-4** Ethical Teaching: A Dilemma in Medical Education

Arif Siddiqui<sup>1</sup>, Kusal Kanti Das<sup>2</sup>)

<sup>1</sup>Barrett Hodgson University, Pakistan, <sup>2</sup>BLDE University, India

Part II starts from 15:10 at the same room.

# Symposium5

March 29, Fri., 10:00-12:00

【Room E】 4F, Conference Center

## S5 New Translational Insights on Cardiopulmonary Remodeling

Chair: **Masanari Umemura** (Cardiovascular Research Institute, Yokohama City University Graduate School of Medicine, Japan)

Co-Chair: **Lin Hai Kurahara** (School of Medicine, Fukuoka-University, Japan)

### S5-1 Calcium-sensing receptor and PDGF signals on vascular remodeling in pulmonary hypertension

Aya Yamamura, Motohiko Sato

Department of Physiology, Aichi Medical University, Japan

### S5-2 Relationship between Physical Stimulus and Cardiac Remodeling

Masanari Umemura, Masatoshi Narikawa, Ryo Tanaka, Yoshihiro Ishikawa

Cardiovascular Research Institute, Yokohama City University Graduate School of Medicine, Japan

### S5-3 The Neuro-Mechanical unloading limits the infarct size and prevents subsequent heart failure

Keita Saku

Department of Advanced Risk Stratification for Cardiovascular Disease, Center for Disruptive Cardiovascular Medicine, Kyushu University, Japan

### S5-4 Long noncoding RNAs: emerging players in cardiac electrical and structural remodeling

Yong Zhang, Ying Zhang, Lei Jiao, Lina Xuan, Xin Liu, Baofeng Yang

Department of Pharmacology, Harbin Medical University, China



# Symposium6

March 29, Fri., 10:00-12:00

【Room F】 5F, Conference Center

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## **S6** Facilitation of Recovery of Motor Function After Paralysis

(Co-sponsored by Uno Hospital)

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Chair: **Yukio Nishimura** (Tokyo Metropolitan Institute of Medical Science, Japan)

Co-Chair: **Takuya Takahashi** (Yokohama City University, Japan)

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**S6-1** CRMP2 Binding Compound, Edonepic Maleate, Accelerates Motor Function Recovery from Brain Damage

Takuya Takahashi

Department of Physiology Yokohama City University, Japan

**S6-2** Bypassing damaged neural pathways via a neural interface

Yukio Nishimura

Neural Prosthesis Project, Tokyo Metropolitan Institute of Medical Science, Japan

**S6-3** Repetitive facilitation exercise with non-invasive stimulation for recovery of hemiplegia

Seiji Etoh, Megumi Shimodozono, Kazumi Kawahira

Department of Rehabilitation and Physical Medicine, Kagoshima University Graduate School of Medical and Dental Sciences, Japan

**S6-4** Predicting motor outcomes for individual patients after stroke

Marie-Claire Smith, Cathy Maree Stinear

Department of Medicine, University of Auckland, New Zealand

# Symposium7 (International Scientific Program Committee Symposium)

March 29, Fri., 10:00-12:00

【Room G】 5F, Conference Center

## S7 From synaptic and network plasticity to behavior (CAPS, China)

Chairs: **Ying-Shing Chan** (The University of Hong Kong, Hong Kong)

**Tian-Le Xu** (Shanghai Jiao Tong University School of Medicine, China)

### S7-1 Fear extinction requires ASIC1a-dependent regulation of hippocampal-prefrontal correlates

Tian-Le Xu, Qin Wang, Qi Wang, Wei-Guang Li

Collaborative Innovation Center for Brain Science, Department of Anatomy and Physiology, Shanghai Jiao Tong University School of Medicine, China

### S7-2 How does social conflict affect the synaptic plasticity in habenulo-interpeduncular pathway?

Hitoshi Okamoto

Lab. for Neural Circuit Dynamics of Decision Making, RIKEN Center for Brain Science, Japan

### S7-3 Postnatal refinement of circuit plasticity for spatial navigation

Ying-Shing Chan, Kenneth Lap-Kei Wu, Wei Shi, Qiu-Fen Jiang,

Chun-Wai Ma, Daisy Kwok-Yan Shum

School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong

### S7-4 Behavioural Impact of Synaptic Kainate Receptor Protein Levels

Juan Lerma

Instituto de Neurociencias CSIC-UMH, San Juan de Alicante, Spain

DAY 2

# Symposium8

March 29, Fri., 10:00-12:00

【Room H】 5F, Conference Center

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**S8**      Biophysical mechanisms underlying nano-vibrations of the sensory epithelium in hearing organs  
(Co-sponsored by the Society for Promotion of International Oto-Rhino-Laryngology)

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Chair: **Hiroshi Hibino** (Niigata University School of Medicine, Japan)

Co-Chair: **Tobias Reichenbach** (Imperial College London, UK)

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- S8-1**      **Detection of an atypical motion in cochlear sensory epithelium**  
Takeru Ota<sup>1,2)</sup>, Fumiaki Nin<sup>1,2)</sup>, Samuel Choi<sup>2,3)</sup>, Hiroshi Hibino<sup>1,2)</sup>  
<sup>1</sup>Department of Molecular Physiology, Niigata University School of Medicine, Japan, <sup>2</sup>AMED-CREST, AMED, Japan, <sup>3</sup>Department of Electrical and Electronics Engineering, Niigata University, Japan
- S8-2**      **Sensory tissue motion and hair cell responses in the base of the gerbil cochlea**  
Elizabeth Sue Olson<sup>1)</sup>, Clark Elliott Strimbu<sup>4)</sup>, Yi Wang<sup>2)</sup>, Nathan C Lin<sup>3)</sup>, Elika Fallah<sup>2)</sup>  
<sup>1</sup>Departments of Otolaryngology and Biomedical Engineering, Columbia University, USA, <sup>2</sup>Department of Biomedical Engineering, Columbia University, USA, <sup>3</sup>Department of Electrical Engineering, Columbia University, USA, <sup>4</sup>Department of Otolaryngology, Columbia University, USA
- S8-3**      **Dual-mode OCT system for vibrometry in mammalian hearing mechanics at high frequencies**  
Fangyi Chen<sup>1)</sup>, Cuixia Guo<sup>2)</sup>, Xiaojie Yang<sup>1)</sup>, Yonghong He<sup>2)</sup>  
<sup>1</sup>Department of Biomedical Engineering, Southern Univ. of Sci. & Tech., China, <sup>2</sup>Graduate School at Shenzhen, Tsinghua University, China
- S8-4**      ***In-Vivo* Nanomechanics in the Miniaturized Hearing Organ of an Insect**  
Manuela Nowotny<sup>1)</sup>, Jan Scherberich<sup>1)</sup>, Jennifer Hummel<sup>1)</sup>, Stefan Schoneich<sup>2)</sup>  
<sup>1</sup>Institute of Cell Biology and Neurosciences, Goethe University, Germany, <sup>2</sup>Institute for Biology, University of Leipzig, Germany
- S8-5**      **Nonlinear micromechanics of the organ of Corti in the low-frequency region of the cochlea**  
Tobias Reichenbach, Nikola Ciganovic  
Imperial College London, UK

# Symposium9 (International Scientific Program Committee Symposium)

March 29, Fri., 10:00-12:00

【Room I】 5F, Conference Center

## S9 Metabolic syndrome and bone metabolism (TPS, Thailand)

Chair: Narattaphol Charoenphandhu (Center of Calcium and Bone Research (COCAB), Mahidol University, Thailand)

### S9-1 Diabetic osteopathy and impaired intestinal calcium absorption in diabetes mellitus

Narattaphol Charoenphandhu<sup>1,2,3,4)</sup>

<sup>1</sup>Center of Calcium and Bone Research (COCAB), Faculty of Science, Mahidol University, Thailand, <sup>2</sup>Department of Physiology, Faculty of Science, Mahidol University, Thailand, <sup>3</sup>Institute of Molecular Biosciences, Mahidol University, Thailand, <sup>4</sup>The Academy of Science, The Royal Society of Thailand, Thailand

### S9-2 Is Metabolic Syndrome a Concern for Osteoporosis?

Siriporn C Chattipakorn<sup>1,2)</sup>

<sup>1</sup>Neurophysiology Unit, Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Department of Oral Biology and Diagnostic Sciences, Faculty of Dentistry, Chiang Mai University, Thailand

### S9-3 The effect of high-fat diet on maternal bone microstructure and the metabolic parameters in rats

Panan Suntornsaratoon<sup>1,2)</sup>, Narattaphol Charoenphandhu<sup>1,2)</sup>

<sup>1</sup>Department of Physiology, Faculty of Science, Mahidol University, Thailand, <sup>2</sup>Center of Calcium and Bone Research, Faculty of Science, Mahidol University, Thailand

### S9-4 Proton-mediated regulation of physiological and pathological osteoclast functions

Miyuki Kuno

Department of Anesthesiology, Osaka City University, Japan

# Symposium10

March 29, Fri., 10:00-12:00

【Room J】 2F, Exhibition Hall

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## **S10** Neural circuit basis of behavioral physiology

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Chair: **Shi-Bing Yang** (Institute of Biomedical Sciences, Academia Sinica, Taiwan)

Co-Chair: **Tsung-Han Kuo** (National Tsing Hua University, Taiwan)

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### **S10-1** Functional Dissection of the Central Glucoregulatory circuits

Shi-Bing Yang, Hsin-Ju Tsai

Institute of Biomedical Sciences, Academia Sinica, Taiwan

### **S10-2** Modeling of group size dependent aggressive behavior in the cricket

Hitoshi Aonuma

Research Institute for Electronic Science, Hokkaido University, Japan

### **S10-3** Neural basis of infant attachment and separation anxiety

Kumi O Kuroda<sup>1)</sup>, Sachine Yoshida<sup>1,2)</sup>

<sup>1</sup>Lab for Affiliative Social Behavior, RIKEN Center for Brain Science, Japan, <sup>2</sup>Department of Anatomy, Faculty of Medicine, Toho University, Japan

### **S10-4** Set the threshold for surrender in social conflicts

Ming-Yi Chou<sup>1)</sup>, Hitoshi Okamoto<sup>2)</sup>

<sup>1</sup>Department of Life Science, National Taiwan University, Taiwan, <sup>2</sup>RIKEN Center for Brain Science, Japan

### **S10-5** Dissecting the neural circuits mediating female fertility in health and disease

Rebecca Campbell

Centre for Neuroendocrinology, Department of Physiology, University of Otago, New Zealand

# Symposium11

March 29, Fri., 10:00-12:00

【Room K】 2F, Exhibition Hall

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**S11** Advances in the mastication and swallowing physiology to prepare for an aging society

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Chair: **Yoshitaka Oku** (Hyogo College of Medicine, Japan)

Co-Chair: **Makito Iizuka** (Showa University School of Medicine, Japan)

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**S11-1** Properties of *Phox2b*-expressing premotor neurons targeting jaw-muscle motoneurons

Tomio Inoue

Department of Oral Physiology, Showa University School of Dentistry, Japan

**S11-2** Development of masticatory performance as a novel biomarker of general health

Takahiro Ono

Graduate School of Medical and Dental Sciences, Niigata Univ., Japan

**S11-3** Are respiratory-swallowing disturbances indicators of early dementia?

Mathias Dutschmann, Davor Stanic

Florey Institute of Neuroscience and Mental Health, Australia

**S11-4** Coordination between swallowing and breathing: pathophysiology and its clinical significance

Yoshitaka Oku

Department of Physiology, Hyogo College of Medicine, Japan

**S11-5** Non-invasive methods to evaluate the swallowing function

Makito Iizuka<sup>1)</sup>, Kazuhide Tomita<sup>2)</sup>, Reiko Takeshima<sup>3)</sup>, Masahiko Izumizaki<sup>1)</sup>

<sup>1)</sup>Department of Physiology, Showa University School of Medicine, Japan, <sup>2)</sup>Department of Physical Therapy, Ibaraki Prefectural University of Health Sciences, Japan, <sup>3)</sup>Center for Medical Sciences, Ibaraki Prefectural University of Health Sciences, Japan

# Symposium12

March 29, Fri., 10:00-12:00

【Room L】 3F, Exhibition Hall

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## **S12** New insights into baroreflex function for cerebral and cardiovascular regulation: Implications for human health and disease

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Chair: **Shigehiko Ogoh** (Toyo University, Japan)

Co-Chair: **Paul J Fadel** (University of Texas at Arlington, USA)

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### **S12-1** The effect of baroreflex function on cerebral blood flow regulation during exercise

Shigehiko Ogoh

Department of Biomedical Engineering, Toyo University, Japan

### **S12-2** Arterial and cardiopulmonary baroreflex control of sympathetic nerve activity during exercise

Paul J Fadel

Department of Kinesiology, University of Texas at Arlington, USA

### **S12-3** Sex Differences in Baroreflex Function

Qi Fu<sup>1,2)</sup>

<sup>1</sup>Internal Medicine, University of Texas Southwestern Medical Center, USA, <sup>2</sup>Institute for Exercise and Environmental Medicine at Texas Health Presbyterian Hospital, USA

### **S12-4** Exercise pressor reflex and arterial baroreflex function in cardiovascular disease

Scott Alan Smith

School of Health Professions, Department of Health Care Sciences, University of Texas Southwestern Medical Center, USA

### **S12-5** Modulation of cardiac baroreflex by central command in daily life

Kanji Matsukawa, Kei Ishii, Ryota Asahara

Department of Integrative Physiology, Hiroshima University, Japan

# Symposium13

March 29, Fri., 10:00-12:00

【Room M】 3F, Exhibition Hall

## S13 The role of the sympathetic nerves in health and disease

Chair: Rohit Ramchandra (The University of Auckland, New Zealand)

- S13-1** Longterm effects of renal denervation in an ovine model of hypertensive chronic kidney disease  
Kate M Denton, Reetu R Singh  
Department of Physiology, Monash University, Australia
- S13-2** Sympathetic regulation in anaphylactic shock or feeding suppression  
Mamoru Tanida  
Department of Physiology II, Kanazawa Medical University, Japan
- S13-3** The importance of sympathetic nervous system influences in the coronary vasculature  
James T. Pearson<sup>1,2</sup>, Daryl O. Schwenke<sup>3</sup>, Hirotsugu Tsuchimochi<sup>1</sup>, Takashi Sonobe<sup>1</sup>, Vijayakumar Sukumaran<sup>1</sup>, Mikiyasu Shirai<sup>4</sup>  
<sup>1</sup>Department of Cardiac Physiology, National Cerebral & Cardiovascular Center, Japan, <sup>2</sup>Department of Physiology, Monash University, Australia, <sup>3</sup>Department of Physiology, University of Otago, New Zealand, <sup>4</sup>Department of Advanced Medical Research for Pulmonary Hypertension, National Cerebral & Cardiovascular Center, Japan
- S13-4** Altered differential control of cardiac and renal sympathetic nerve activity in hypertension  
Rohit Ramchandra<sup>1</sup>, Darvina Mahesh<sup>1</sup>, Jaap Joles<sup>2</sup>, Tycho Tromp<sup>1,2</sup>  
<sup>1</sup>Department of Physiology, The University of Auckland, New Zealand, <sup>2</sup>University Medical Centre, Utrecht University, The Netherlands
- S13-5** Cortical and subcortical structures involved in the generation of muscle sympathetic nerve activity  
Vaughan G Macefield<sup>1,2,3</sup>, Luke A Henderson<sup>4</sup>  
<sup>1</sup>Human Autonomic Neurophysiology Lab, Baker Heart and Diabetes Institute, Australia, <sup>2</sup>School of Medicine, Western Sydney University, Australia, <sup>3</sup>Neuroscience Research Australia, Australia, <sup>4</sup>Discipline of Anatomy & Histology, Sydney Medical School, University of Sydney, Australia



# Symposium14 (Local Organizing Committee Symposium)

March 29, Fri., 15:10-17:10

【Room A】 1F, Conference Center

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## **S14** Advances in understanding cerebellar LTD and motor learning: Masao Ito Symposium

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Chairs: **Yasuo Kawaguchi** (National Institute for Physiological Sciences, Japan)

**Masanobu Kano** (Graduate School of Medicine, The University of Tokyo, Japan)

**Kazuo Kitamura** (University of Yamanashi, Japan)

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### **S14-1** Discovery and investigation of cerebellar long-term depression at Masao Ito's lab

**Masanobu Kano**<sup>1,2)</sup>

<sup>1</sup>Department of Neurophysiology, Graduate School of Medicine, The University of Tokyo, Japan, <sup>2</sup>International Research Center for Neurointelligence (WPI-IRCIN), The University of Tokyo Institutes for Advanced Study (UTIAS), The University of Tokyo, Japan

### **S14-2** Temporal aspects of cerebellar long-term synaptic depression

**Keiko Tanaka-Yamamoto, Taegon Kim, Yukio Yamamoto**

Center for Functional Connectomics (CFC), Korea Institute of Science and Technology (KIST), Korea

### **S14-3** LTD and the search for the cerebellar memory trace

**Christian Hansel**

Department of Neurobiology, University of Chicago, USA

### **S14-4** New optogenetical tool clarified that the cerebellar LTD was essential for motor learning

**Shinji Matsuda**

Department of Engineering Science, The University of Electro-Communications, Japan

### **S14-5** Specialization of the rules for cerebellar LTD at different parallel fiber- Purkinje cell synapses

**Jennifer L Raymond**

Department of Neurobiology, Stanford University School of Medicine, USA

# Symposium15 (Local Organizing Committee Symposium)

March 29, Fri., 15:10-17:10

【Room B】 3F, Conference Center

## **S15** Thermal biology: A new world of life science (whole day symposium) part II

(Co-organized By Grant-In-Aid For Scientific Research on Innovative Areas  
'Thermal Biology' of Mext, Japan)

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Chairs: **Makoto Tominaga** (National Institute for Physiological Sciences, Japan)

**Kazuhiro Nakamura** (Nagoya University Graduate School of Medicine, Japan)

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### **S15-1** Effects of temperature on seasonal adaptation: Towards the understanding of human seasonality

**Takashi Yoshimura**<sup>1,2,3)</sup>

<sup>1</sup>Institute of Transformative Bio-Molecules (WPI-ITbM), Nagoya University, Japan, <sup>2</sup>Graduate School of Bioagricultural Sciences, Nagoya University, Japan, <sup>3</sup>Division of Seasonal Biology, National Institute for Basic Biology, Japan

### **S15-2** Mechanisms of psychological impacts on thermoregulation and metabolism

**Kazuhiro Nakamura**

Department of Integrative Physiology, Nagoya University Graduate School of Medicine, Japan

### **S15-3** TRP ion channels - internal/deep-brain temperature sensors and guardians of homeostasis?

**Jan Erik Siemens**<sup>1)</sup>, **Gretel B. Kamm**<sup>1)</sup>, **Juan C. Boffi**<sup>2)</sup>, **Hong Wang**<sup>1,4)</sup>,

**Thomas Kuner**<sup>2)</sup>, **Kun Song**<sup>1,3)</sup>

<sup>1</sup>Department of Pharmacology, Heidelberg University, Germany, <sup>2</sup>Department of Functional Neuroanatomy, Heidelberg University, Germany, <sup>3</sup>Max Delbrück Center for Molecular Medicine (MDC), Germany, <sup>4</sup>The Brain Cognition & Brain Disease Institute, University Town of Shenzhen, China

# Symposium16 (International Scientific Program Committee Symposium)

March 29, Fri., 15:10-17:10

【Room C】 3F, Conference Center

## S16 Gastrointestinal Control of Energy Metabolism (CAPS, China)

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Chairs: **Weizhen Zhang** (Peking University Health Science Center, China)

**Jinxia Zhu** (Capital Medical University, China)

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**S16-1** Gastric mTORC1 as a fuel sensing mechanism and its role in lipid homeostasis

Weizhen Zhang

Department of Physiology and Pathophysiology, Peking University Health Science Center, China

**S16-2** Gut-derived Dopamine and Its Regulation on Intestinal Barrier Function

Jinxia Zhu, Xiaoyan Feng, Chenzhe Liu, Xiaoli Zhang

Department of Physiology and Pathophysiology, Capital Medical University, China

**S16-3** Hormonal and neuronal regulatory mechanisms of gastrointestinal motility in the *Suncus murinus*

Ichiro Sakata, Takafumi Sakai

Graduate school of Science and Engineering, Saitama University, Japan

**S16-4** The X/A-like cell as a regulator of food intake

Andreas Stengel<sup>1,2)</sup>

<sup>1</sup>Psychosomatic Medicine, University Tuebingen, Germany, <sup>2</sup>Psychosomatic Medicine, Charité University, Germany

**S16-5** Regulation of GLP1 secretion and mitochondrial function by Berberine in colon enterocytes

Jianping Ye

Central Lab, Shanghai Jiaotong University Affiliated 6th People's Hospital East, China

# Symposium17 (Local Organizing Committee Symposium )

March 29, Fri., 15:10-17:10

【Room D】 4F, Conference Center

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**S17** Teaching physiology; International perspectives  
(whole day symposium) part II

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Chair: **Noriyuki Koibuchi** (Gunma University Graduate School of Medicine, Japan)

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**S17-1** Integration of social practice and medical knowledge in an outcome-based curriculum at NCKU Medical School

Mei-Ling Tsai

Department of Physiology, National Cheng Kung University, Taiwan

**S17-2** PHY-STORY : Students Discovering and Telling their Stories of Physiology

Cheng Hwee Ming

Department Physiology, Faculty of Medicine, University Malaya, Malaysia

**S17-3** How to make students alert during lectures

Mangala Gunatilake

Dept. of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka

**S17-4** Teaching Physiology - Students' Voice

Noriyuki Koibuchi

Gunma University Graduate School of Medicine, Japan

# Symposium18

March 29, Fri., 15:10-17:10

【Room E】 4F, Conference Center

## S18 Dynamics of membrane trafficking and intracellular signaling

Chair: **Yoh Takuwa** (Kanazawa University, Japan)

Co-Chair: **Yusuke Ohba** (Hokkaido University, Japan)

### S18-1 Optogenetic control of diverse molecular and cellular processes in the mouse brain.

Won Do Heo<sup>1,2)</sup>

<sup>1</sup>Department of Biological Sciences, KAIST, Korea, <sup>2</sup>Center for Cognition and Sociality, IBS, Korea

### S18-2 Imaging secretory cells and molecular configurations of exocytic proteins

Noriko Takahashi<sup>1)</sup>, Hiroyasu Hatakeyama<sup>1)</sup>, Tomomi Oshima<sup>1)</sup>,  
Yuichi Morimoto<sup>2)</sup>, Haruo Kasai<sup>2)</sup>

<sup>1</sup>Department of Physiology, Kitasato University School of Medicine, Japan, <sup>2</sup>Structural Physiology, Graduate School of Medicine, The University of Tokyo, Japan

### S18-3 Fluorescence Imaging of membrane dynamics and intracellular signaling

Yusuke Ohba

Department of Cell Physiology, Faculty of Medicine, Hokkaido University, Japan

### S18-4 Essential role of class II PI3K in endocytosis and endosomal signaling

Kazuaki Yoshioka<sup>1)</sup>, Khin Thuzar Aung<sup>1)</sup>, Md Azadul Kabir Sarker<sup>1)</sup>,  
Sho Aki<sup>1)</sup>, Kuntal Biswas<sup>1)</sup>, Noriko Takuwa<sup>1,2)</sup>, Yoh Takuwa<sup>1)</sup>

<sup>1</sup>Department of Physiology, Kanazawa University, Japan, <sup>2</sup>Department of Health Science, Ishikawa Prefectural Nursing University, Japan

### S18-5 Morphological changes of plasma membrane and protein assembly during clathrin-mediated endocytosis

Shige H. Yoshimura<sup>1)</sup>, Aiko Yoshida<sup>1,2)</sup>, Yoshitsuna Itagaki<sup>1)</sup>, Yuki Suzuki<sup>3)</sup>

<sup>1</sup>Graduate School of Biostudies, Kyoto University, Japan, <sup>2</sup>Graduate School of Medicine, Hokkaido University, Japan, <sup>3</sup>Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Japan

# Symposium19 (International Scientific Program Committee Symposium)

March 29, Fri., 15:10-17:10

【Room F】 5F, Conference Center

## S19 Mitochondrial Physiology and Pathophysiology (KPS, Korea)

Chairs: **Kyu-Sang Park** (Wonju College of Medicine, Yonsei University, Korea)  
**Jin Han** (Inje University, Korea)

### S19-1 Mitochondrial quality control and its metabolic regulation by reactive persulfide species

Motohiro Nishida<sup>1,2)</sup>

<sup>1</sup>Division of Cradiocirculatory Signaling, National Institute for Physiological Sciences, National Institutes of Natural Sciences, <sup>2</sup>Department of Translational Pharmaceutical Sciences, Graduate School of Pharmaceutical Sciences, Kyushu University

### S19-2 Regulation of systemic energy metabolism in altered mitochondrial proteostasis

Minho Shong

Department of Internal Medicine, Chungnam National University, Korea

### S19-3 Roles of mitochondrial dynamics in cellular function, development, and differentiation

Naotada Ishihara<sup>1,2)</sup>, Takaya Ishihara<sup>1,2)</sup>, Emi Ogasawara<sup>1,2)</sup>, Tadato Ban<sup>2)</sup>

<sup>1</sup>Graduate School of Science, Osaka University, Japan, <sup>2</sup>Institute of Life Science, Kurume University, Japan

### S19-4 Mitochondrial oxidative stress associated with calcium and phosphate

Kyu-Sang Park<sup>1,2)</sup>

<sup>1</sup>Department of Physiology, Wonju College of Medicine, Yonsei University, Korea,

<sup>2</sup>Mitohormesis Research Center, Wonju College of Medicine, Yonsei University, Korea

# Symposium20

March 29, Fri., 15:10-17:10

【Room G】 5F, Conference Center

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## **S20** Adaptation mechanisms to external or internal environmental changes of respiratory system

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Chair: **Hiroshi Onimaru** (Showa University School of Medicine, Japan)

Co-Chair: **Keiko Ikeda** (International University of Health and Welfare, Japan)

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### **S20-1** Vaginal delivery is a strong adaptation signal to start spontaneous breathing

**Keiko Ikeda<sup>1,2)</sup>, Hiroshi Onimaru<sup>3)</sup>, Kiyoshi Kawakami<sup>2)</sup>**

<sup>1</sup>Department of Physiology, International University of Health and Welfare, Japan,

<sup>2</sup>Division of Biology, Center for Molecular Medicine, Jichi Medical University, Japan,

<sup>3</sup>Department of Physiology, Showa University School of Medicine, Japan

### **S20-2** Pontine modulation of medullary respiratory circuit activity

**Rishi R Dhingra, Mathias Dutschmann**

Division of Systems Neurophysiology, The Florey Institute of Neuroscience & Mental Health, Australia

### **S20-3** Hypoxic responses of the respiratory system

**Yasumasa Okada<sup>1)</sup>, Itaru Yazawa<sup>2)</sup>, Kotaro Takeda<sup>3)</sup>, Shuntaro Okazaki<sup>4)</sup>,**

**Makoto Uchiyama<sup>5)</sup>, Yuki Kurita<sup>5)</sup>, Isato Fukushi<sup>1)</sup>, Shigefumi Yokota<sup>6)</sup>,**

**Yasuo Mori<sup>5)</sup>, Hiroshi Onimaru<sup>7)</sup>**

<sup>1</sup>Clin. Res. Ctr., Murayama Med. Ctr., Japan, <sup>2</sup>Global Res. Ctr. for Innovative Life Sci., Hoshi

Univ. Sch. of Pharm. & Pharmaceut. Sc, Japan, <sup>3</sup>Sch. of Hlth. Sci., Fujita Hlth. Univ., Japan,

<sup>4</sup>Waseda Univ., Japan, <sup>5</sup>Dept. of Synthetic Chem. and Biol. Chem., Grad. Sch. of

Engineering, Kyoto Univ., Japan, <sup>6</sup>Dept. of Anat. and Neurosci., Shimane Univ., Japan,

<sup>7</sup>Showa Univ. Sch. of Med., Japan

### **S20-4** How hypoxia blunts respiratory arousal from sleep

**Peter George Burke**

Neuroscience Research Australia, Australia

### **S20-5** Impact of cervical spinal cord injury on respiratory motor control

**Kun-Ze Lee**

Department of Biological Sciences, National Sun Yat-sen University, Taiwan

# Symposium21

March 29, Fri., 15:10-17:10

【Room H】 5F, Conference Center

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## **S21** New Paradigm in Physiology and Pathophysiology of Coagulation-fibrinolysis System

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Chair: **Katsuya Hirano** (Kagawa University, Japan)

Co-Chair: **Tetsumei Urano** (Hamamatsu University School of Medicine, Japan)

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### **S21-1** Overview of the cross-talk between the coagulation-fibrinolysis System and cellular functions

Tetsumei Urano, Yuko Suzuki

Department of Medical Physiology, Hamamatsu University School of Medicine, Japan

### **S21-2** Cell surface-modified fibrinolysis; contribution of vascular endothelial cells and platelets

Yuko Suzuki, Hideto Sano, Naoki Honkura, Tetsumei Urano

Department of Medical Physiology, Hamamatsu University School of Medicine, Japan

### **S21-3** Novel role of coagulation factor XI as a regulator of vascular smooth muscle function

Katsuya Hirano, Wenhua Liu

Department of Cardiovascular Physiology, Faculty of Medicine, Kagawa University, Japan

### **S21-4** Endosomal Platforms for Protease Signaling

Nigel W. Bunnet

Columbia University

### **S21-5** Fibrinolysis and immunity: a new paradigm

Robert Lindsay Medcalf

Australian Centre for Blood Diseases, Monash University, Australia



# Symposium22

March 29, Fri., 15:10-17:10

【Room I】 5F, Conference Center

## S22 Proton signalings and proton-related functions

Chair: **Yoshifumi Okochi** (Graduate School of Medicine, Osaka University, Japan)

Co-Chair: **Ye Yu** (China Pharmaceutical University, China)

**S22-1** Hv1/VSOP voltage-gated proton channel inhibits migration in response to fMLF in neutrophils

Yoshifumi Okochi, Yasushi Okamura

Integrative Physiology, Graduate School of Medicine, Osaka University, Japan

**S22-2** Controlling the innate immune signaling by the proton-coupled peptide transporters

Toshihiko Kobayashi, Noriko Toyama-Sorimachi

Department of Molecular Immunology and Inflammation, Research Institute, National Center for Global Health and Medicine, Japan

**S22-3** Otopetrins constitute a new family of proton-selective ion channels

Emily Liman

Section of Neurobiology, University of Southern California, USA

**S22-4** Proton imaging in the brain using CCD-type ion image sensor

Hiroshi Horiuchi<sup>1,2,4</sup>, Junko Ishida<sup>1,4</sup>, Masakazu Agetsuma<sup>1,2,4</sup>,

Kazuaki Sawada<sup>3,4</sup>, Junichi Nabekura<sup>1,2,4</sup>

<sup>1</sup>Division for Homeostatic Development, National Institute for Physiological Sciences, Japan, <sup>2</sup>Department of Physiological Sciences, The Graduate School for Advanced Study, Hayama, Japan, <sup>3</sup>Department of Electronic and Information Engineering, Toyohashi University of Technology, Japan, <sup>4</sup>Core Research for Evolutional Science and Technology, Japan Science and Technology Agency, Japan

**S22-5** A nonproton ligand sensor in the acid-sensing ion channel

Ye Yu

China Pharmaceutical University, China

# Symposium23

March 29, Fri., 15:10-17:10

【Room J】 2F, Exhibition Hall

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## **S23**      Glia and Neurological Diseases: from Physiological to Pathological Roles of Astrocytes and Microglia

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Chair:      **Sun Kwang Kim** (College of Korean Medicine, Kyung Hee University, Korea)

Co-Chair: **Hiroaki Wake** (Kobe University Graduate School of Medicine, Japan)

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### **S23-1**      Physiological function of microglia and their effect on neuronal circuits Hiroaki Wake

Division of System Neuroscience, Kobe University Graduate School of Medicine, Japan

### **S23-2**      The roles of astrocytes and microglia in glutamate release after brain injury

Wen-Biao Gan, Sally Levinson, Joseph Cichon, Mirko Santello

Skirball Institute, New York University School of Medicine, USA

### **S23-3**      Bidirectional regulation of synapse remodeling by reactive astrocytes Schuichi Koizumi

Department of Neuropharmacology, Interdisciplinary Graduate School of Medicine, University of Yamanashi, Japan

### **S23-4**      The role of cortical astrocytes in establishing peripheral neuropathic pain

Sun Kwang Kim

Department of Physiology, College of Korean Medicine, Kyung Hee University, Korea

# Symposium24

March 29, Fri., 15:10-17:10

[Room K] 2F, Exhibition Hall

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## **S24** Complexity and Diversity of Motility Regulation in Smooth Muscle

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Chair: **Shinsuke Nakayama** (Nagoya University, Japan)

Co-Chair: **Masaru Watanabe** (Tokyo Metropolitan University, Japan)

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### **S24-1** Morphological Study of Motility Regulation Mechanisms in Gastrointestinal Tract

**Hiromi Tamada**<sup>1,2)</sup>

<sup>1</sup>Graduate School of Medicine, Nagoya University, Japan, <sup>2</sup>Japan Society for the Promotion of Science, Japan

### **S24-2** Difference of pacemaker activity of interstitial cells of Cajal between small and large intestine

**Jae Yeoul Jun**

Department of Physiology, University of Chosun, Korea

### **S24-3** Characteristic motility regulation of smooth muscle in lower urinary tract

**Shunichi Kajioka**<sup>1)</sup>, **Tomoko Maki**<sup>2)</sup>, **Maya Hayashi**<sup>2)</sup>, **Nouval Shahab**<sup>1)</sup>,  
**Shinsuke Nakayama**<sup>3)</sup>, **Toshiyuki Sasaguri**<sup>1)</sup>

<sup>1</sup>Department of Clinical Pharmacology, Kyushu University, Japan, <sup>2</sup>Department of Urology, Kyushu University, Japan, <sup>3</sup>Department of Cell Physiology, Nagoya University, Japan

### **S24-4** Regulation of thick and thin filaments organization during smooth muscle contraction

**Masaru Watanabe**<sup>1)</sup>, **Naoya Nakahara**<sup>2)</sup>, **Yukisato Ishida**<sup>1,3)</sup>

<sup>1</sup>Laboratory of Physiology, Graduate School of Human Health Sciences, Tokyo Metropolitan University, Japan, <sup>2</sup>The Jikei University, Japan, <sup>3</sup>Bunkyo Gakuin University, Japan

# Symposium25

March 29, Fri., 15:10-17:10

【Room L】 3F, Exhibition Hall

## S25 Calcium signaling in heart disease

Chair: **Shi-Qiang Wang** (Peking University, China)  
Co-Chair: **Sun-Hee Woo** (Chungnam National University, Korea)

- S25-1** Alterations of shear-Ca<sup>2+</sup> signaling in atrial myocytes under chronic pressure and volume overload  
Sun-Hee Woo, Min-Jeong Son, Qui A Le, Joon-Chul Kim  
College of Pharmacy, Chungnam National University, Korea
- S25-2** Mechanisms for sex differences in drug-induced arrhythmia  
Junko Kurokawa  
School of Pharmaceutical Sciences, University of Shizuoka, Japan
- S25-3** Sarcoplasmic reticulum calcium leak promotes atrial fibrillation  
Wenjun Xie, Ying Qi, Jingjing Li, Wenjin He  
School of Life Science and Technology, Xi'an Jiaotong University, China
- S25-4** Mechanism and therapeutic strategies for arrhythmogenic diseases caused by RyR2 mutations  
Nagomi Kurebayashi  
Department of Pharmacology, Faculty of Medicine, Juntendo University, Japan
- S25-5** Conjunct JPH2-CAV3 Transcription Enhanced Ca Signaling Efficiency in Hibernating Ground Squirrels  
Shi-Qiang Wang, Lei Yang, Rong-Chang Li, Bin Xiang, Yi-Chen Li, Li-Peng Wang, Xiao-Ting Wang  
College of Life Sciences, Peking University, China

# Symposium26

March 29, Fri., 18:30-20:00

【Room A】 1F, Conference Center

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## S26 Synaptic remodeling and beyond in health and disease

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Chair: **Ryuta Koyama** (The University of Tokyo, Japan)

Co-Chair: **Naofumi Uesaka** (The University of Tokyo, Japan)

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- S26-1**      **Neuronal activity-dependent synaptic pruning by microglia**  
Ryuta Koyama  
Graduate School of Pharmaceutical Science, The University of Tokyo, Japan
- S26-2**      **Interleukin-1s-mediated effects of inflammation on visual circuit development in the zebrafish**  
Edward S Ruthazer, Cynthia M Solek, Nasr AI Farooqi, Niklas S Brake  
Montreal Neurological Institute, McGill University, Canada
- S26-3**      **Photooxygenation reduces the A $\beta$  level in the brains of Alzheimer disease model mice**  
Yukiko Hori<sup>1</sup>, Shuta Ozawa<sup>1</sup>, Youhei Sohma<sup>2</sup>, Motomu Kanai<sup>2</sup>,  
Taisuke Tomita<sup>1</sup>  
<sup>1</sup>Laboratory of Neuropathology and Neuroscience, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan, <sup>2</sup>Laboratory of Synthetic Organic Chemistry, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan
- S26-4**      **Regulation of aberrant synaptic remodeling in the thalamus triggered by peripheral nerve injury**  
Yoshifumi Ueta, Mariko Miyata  
Dept Physiol, Div Neurophysiol, Grad Sch Med, Tokyo Women's Med Univ, Japan
- S26-5**      **Activity-dependent synapse elimination in the developing cerebellum**  
Naofumi Uesaka, Tzu-Huei Kao, Masanobu Kano  
Graduate School Medicine, The University of Tokyo, Japan

# Symposium27

March 29, Fri., 18:30-20:00

【Room B】 3F, Conference Center

## S27 Regulation of cell functions by phosphoinositides

Chair: **Zhuan Zhou** (Peking University, China)

Co-Chair: **Yasushi Okamura** (Osaka University, Japan)

### S27-1 A new mechanism of Ca<sup>2+</sup>-independent voltage-dependent secretion in dorsal root ganglion neurons

Zhuan Zhou<sup>1</sup>, Yuan Wang<sup>1</sup>, Hiroki Arima<sup>2</sup>, Rong Huang<sup>1</sup>, Yuqi Hang<sup>1</sup>, Xingyu Du<sup>1</sup>, Feipeng Zhu<sup>1</sup>, Zuying Chai<sup>1</sup>, Changhe Wang<sup>1</sup>, Yasushi Okamura<sup>2</sup>

<sup>1</sup>Peking University, China, <sup>2</sup>Osaka University, Japan

### S27-2 Functional analysis of voltage-sensing phosphatase in mouse sperm

Takafumi Kawai<sup>1</sup>, Haruhiko Miyata<sup>2</sup>, Hiroki Nakanishi<sup>3</sup>, Souhei Sakata<sup>1,4</sup>, Yoshifumi Okochi<sup>1</sup>, Masahiko Watanabe<sup>5</sup>, Kenji Sakimura<sup>6</sup>, Takehiko Sasaki<sup>7,8</sup>, Masahito Ikawa<sup>2</sup>, Yasushi Okamura<sup>1</sup>

<sup>1</sup>Graduate School of Medicine, Osaka University, Japan, <sup>2</sup>RIMD, Osaka University, Japan, <sup>3</sup>Research Center for Biosignal, Akita University, Japan, <sup>4</sup>Dept. of Physiology, Osaka Medical College, Japan, <sup>5</sup>Graduate School of Medicine, Hokkaido University, Japan, <sup>6</sup>Brain Research Institute, Niigata University, Japan, <sup>7</sup>Graduate School of Medicine, Akita University, Japan, <sup>8</sup>Medical research institute, Tokyo Medical and Dental University, Japan

### S27-3 Regulation of ion channel functions by phosphoinositides

Byung C. Suh

Department of Brain and Cognitive Sciences, DGIST, Korea

### S27-4 Molecular mechanisms of phosphoinositide signaling

Junko Sasaki<sup>1</sup>, Satoshi Eguchi<sup>2</sup>, Hiroki Nakanishi<sup>3</sup>, Takehiko Sasaki<sup>1</sup>

<sup>1</sup>Medical Research Institute, Tokyo Medical and Dental University, Japan, <sup>2</sup>Department of Medical Biology, Graduate School of Medicine, Akita University, Japan, <sup>3</sup>Research Center for Biosignal, Akita University, Japan

# Symposium28

March 29, Fri., 18:30-20:00

【Room C】 3F, Conference Center

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## **S28** Molecular evidences Link Physical Exercise to Cardiovascular Improvement

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Chair: **Junjie Xiao** (Shanghai University, China)

Co-Chair: **Julie McMullen** (Baker Heart and Diabetes Institute, Australia)

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**S28-1** Non-coding RNA basis of exercise induced physiological hypertrophy  
Junjie Xiao

Institute of Cardiovascular Sciences, School of Life Science, Shanghai University, China

**S28-2** Exercise Training Prevents Cardiac Injury Induced by Sympathetic Stress

Han Xiao, Youyi Zhang

Institute of vascular medicine, Peking University Third Hospital, China

**S28-3** Targeting a critical regulator of exercise-induced cardiac hypertrophy, PI3K, in the failing heart

Julie Rae McMullen

Baker Heart and Diabetes Institute, Australia

# Symposium29

March 29, Fri., 18:30-20:00

【Room D】 4F, Conference Center

## S29 New insights into central mechanisms underlying hypertension

Chair: **Julian FR Paton** (Department of Physiology, University of Auckland, New Zealand)

Co-Chair: **Sabine S. S. Gouraud** (Ochanomizu University, Japan)

- S29-1** Central mechanisms of hypertension: brain-heart-kidney connection  
Yoshitaka Hirooka  
Department of Medical Technology and Sciences, International University of Health and Welfare, Japan
- S29-2** Visceral afferent modulation for regulating sympathetic activity in cardiorespiratory disease  
Julian FR Paton  
Department of Physiology, University of Auckland, New Zealand
- S29-3** Role of hypothalamus on the cardiovascular regulation during repeated acute psychological stress  
Jouji Horiuchi, Ena Yamamoto, Takatoshi Horiuchi, Misaki Ichikawa  
Department of Biomedical Engineering, Toyo University, Japan
- S29-4** NTS gene expression profiles underlying basal blood pressure levels: Focus on disease and gender  
Sabine S. S. Gouraud<sup>1,2)</sup>, Makiko Onishi<sup>3)</sup>, Linh Thuy Pham<sup>2,3)</sup>, Ko Yamanaka<sup>4)</sup>, Hidefumi Waki<sup>4)</sup>  
<sup>1</sup>Dept. Biology, Ochanomizu University, Japan, <sup>2</sup>Grad Sch General Educational Research, Ochanomizu University, Japan, <sup>3</sup>Grad Sch Humanities and Sciences, Ochanomizu University, Japan, <sup>4</sup>Dept. Physiology, Grad Sch Health and Sports Science, Juntendo University, Japan
- S29-5** Brain molecular mechanisms underlying anti-hypertensive effect of daily exercise  
Hidefumi Waki<sup>1)</sup>, Ko Yamanaka<sup>1)</sup>, Kei Tsukioka<sup>1)</sup>, Keisuke Tomita<sup>1)</sup>, Miwa Takagishi<sup>2)</sup>, Sabine S. S. Gouraud<sup>3)</sup>  
<sup>1</sup>Department of Physiology, Graduate School of Health and Sports Science, Juntendo University, Japan, <sup>2</sup>Department of Therapeutic Health Promotion, Kansai University of Health Sciences, Japan, <sup>3</sup>Department of Biology, Faculty of Science, Ochanomizu University, Japan



# Symposium30

March 29, Fri., 18:30-20:00

【Room E】 4F, Conference Center

**S30** Substance abuse and addiction ~ From basic science to regulatory science

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Chair: **Tomoaki Shirao** (Gunma University Graduate School of Medicine, Japan)

Co-Chair: **Bart A Ellenbroek** (Victoria University of Wellington, New Zealand)

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**S30-1** An overview of recent emergence of new psychoactive substances (NPS)

Ruri Kikura-Hanajiri

Division of Pharmacognosy, Phytochemistry and Narcotics, National Institute of Health Sciences, Japan

**S30-2** High-throughput imaging analysis using cultured neurons for detecting phencyclidine-like substances

Kenji Hanamura<sup>1)</sup>, Toshinari Mitsuoka<sup>1)</sup>, Ruri Kikura-Hanajiri<sup>2)</sup>,  
Yuko Sekino<sup>3)</sup>, Tomoaki Shirao<sup>1)</sup>

<sup>1)</sup>Department of Neurobiology and Behavior, Gunma University Graduate School of Medicine, Japan, <sup>2)</sup>Division of Pharmacognosy, Phytochemistry and Narcotics, National Institute of Health Sciences, Japan, <sup>3)</sup>Endowed Laboratory of Human Cell-Based Drug Discovery, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan

**S30-3** GIRK channels and NMDA receptor GluN2D subunit in signal pathways from addictive substances

Kazutaka Ikeda

Department of Psychiatry and Behavioral Sciences, Tokyo Metropolitan Institute of Medical Science, Japan

**S30-4** The serotonin transporter (SERT) as a genetic risk factor for drug addiction

Bart A Ellenbroek

School of Psychology, Victoria University of Wellington, New Zealand

# Symposium31

March 29, Fri., 18:30-20:00

【Room F】 5F, Conference Center

## S31 Genomics of Sports and Exercise

Chair: **Noriyuki Fuku** (Juntendo University, Japan)

Co-Chair: **Ola Hanson** (Lund University, Sweden)

### S31-1 Implication of genetic polymorphisms on sports performance

**Eri Miyamoto-Mikami**

Graduate School of Health and Sports Science, Juntendo University, Japan

### S31-2 Genomic investigations of skeletal muscle function

**Ola Hanson**<sup>1,2)</sup>

<sup>1</sup>Department of Clinical Sciences, Lund University, Sweden, <sup>2</sup>Institute for Molecular Medicine Finland (FIMM), Helsinki University, Finland

### S31-3 A Kinesio-Genomic Effect of mtDNA Polymorphism in the MOTS-c on Diabetes

**Hirofumi Zempo**<sup>1,2)</sup>

<sup>1</sup>Department of Administrative Nutrition, Faculty of Health and Nutrition, Tokyo Seiei College, Japan, <sup>2</sup>Graduate School of Health and Sports Science, Juntendo University, Japan

# Symposium32 (Local Organizing Committee Symposium)

March 29, Fri., 18:30-20:00

【Room G】 5F, Conference Center

## S32 Membrane transporters related to diseases and drug development

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Chair: **Naohiko Anzai** (Chiba University School of Medicine, Japan)

Co-Chair: **Stefan Broer** (The Australian National University, Australia)

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### S32-1 The amino acid transporter SLC6A19 as a target to improve metabolic diseases

Stefan Broer

Research School of Biology, Australian National University, Australia

### S32-2 L-type Amino Acid Transporters and Cancer

Arthit Chairoungdua<sup>1,2)</sup>

<sup>1</sup>Department of Physiology, Faculty of Science, Mahidol University, Thailand, <sup>2</sup>Excellent Center for Drug Discovery (ECDD), Mahidol University, Thailand

### S32-3 Phosphate balance in the body and epithelial phosphate transporters

Hiroko Segawa, Yuji Shiozaki, Ichiro Kaneko, Ken-Ichi Minamoto

Department of Molecular Nutrition Institute of Biomedical Sciences, Tokushima University Graduate School, Japan

### S32-4 Genomic analysis of Japanese Cystinuria patients through a next-generation sequence

Shinichi Sakamoto<sup>1)</sup>, Yukio Naya<sup>2)</sup>, Yasuhiro Shigeta<sup>3)</sup>, Masaaki Fujimura<sup>4)</sup>, Chiaki Inada<sup>1,8)</sup>, Yuzuru Ikehara<sup>6)</sup>, Yoshikatsu Kanai<sup>7)</sup>, Naohiko Anzai<sup>5)</sup>, Tomohiko Ichikawa<sup>1,8)</sup>

<sup>1</sup>Department of Urology, Chiba University Graduate School of Medicine, Japan,

<sup>2</sup>Department of Urology, Teikyo University Chiba Medical Center, Japan, <sup>3</sup>Nishifunabashi

Urology Clinic, Japan, <sup>4</sup>Department of Urology, Saiseikai Narashino Hospital, Japan,

<sup>5</sup>Department of Pharmacology, Chiba University Graduate School of Medicine, Japan,

<sup>6</sup>Department of Tumor Pathology, Chiba University Graduate School of Medicine,

Japan, <sup>7</sup>Department of Bio-system Pharmacology, Osaka University Graduate School of

Medicine, Japan, <sup>8</sup>Division of Clinical Genetics, Chiba University Graduate School of Medicine, Japan

# Symposium33

March 29, Fri., 18:30-20:00

【Room H】 5F, Conference Center

## S33 New insights into Endocrinology and Metabolism

Chair: **Izuki Amano** (Gunma University Graduate School of Medicine, Japan)

Co-Chair: **Ronny Lesmana** (Universitas Padjadjaran, Indonesia)

- S33-1**      **Effects of perinatal hypothyroidism on brain development**  
Izuki Amano, Yusuke Takatsuru, Ayane Kate Ninomiya, Hiroyuki Yajima,  
Miski Aghnia Khairinisa, Michifumi Kokubo, Machiko Suda, Asahi Haijima,  
Noriyuki Koibuchi  
Department of Integrative Physiology, Gunma University Graduate School of Medicine,  
Japan
- S33-2**      **Revealing role of thyroid hormone on autophagy regulation in skeletal muscle**  
Ronny Lesmana<sup>1,2)</sup>  
<sup>1</sup>Departement of basic science, Physiology Division, Faculty of Medicine, Universitas Padjadjaran, Indonesia, <sup>2</sup>Central Laboratory, Universitas Padjadjaran, Indonesia
- S33-3**      **The role of nuclear receptor corepressors NCoR1 and SMRT on physiologic function in the mouse**  
Megan Jean Ritter, Izuki Amano, Kristen Vella, Anthony N Hollenberg  
Weill Cornell Medicine, Department of Medicine, Division of Endocrinology, Diabetes and Metabolism, USA
- S33-4**      **The Protective Roles of Cardiac Macrophages in Heart Failure**  
Munehiko Shibata  
Division of Endocrinology, Diabetes and Metabolism, Beth Israel Deaconess Medical Center, USA

# Symposium34

March 29, Fri., 18:30-20:00

【Room I】 5F, Conference Center

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## **S34** Life Style Related Diseases in Asia: Underlying Mechanisms, Functions and Behavioural Transitions

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Chair: **Kanwal Preet Kochhar** (All India Institute of Medical Sciences, India)

Co-Chair: **Kishore Kumar Deepak** (All India Institute of Medical Sciences, India)

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### **S34-1** Obesity : a matter of fat taste

Naim A Khan

Universite de Bourgogne, France

### **S34-2** The autonomic modulation for alleviating life style diseases

Kishore Kumar Deepak

Department of Physiology, All India Institute of Medical Sciences, India

### **S34-3** Cognitive Neurophysiological Imaging and Neuromodulation in Obesity

Kanwal Preet Kochhar

Department of physiology, All India Institute of Medical Sciences, India

### **S34-4** Role of Yoga-based intervention in managing obesity and inflammation

Raj Kumar Yadav

Department of Physiology, All India Institute of Medical Sciences, India

### **S34-5** Food addiction and its link to obesity

Siddharth Sarkar

Department of Psychiatry and NDDTC, AIIMS, India

# Symposium35

March 29, Fri., 18:30-20:00

【Room J】 2F, Exhibition Hall

**S35** Frontiers in  $\text{Ca}^{2+}$  release research in skeletal muscle: 50th anniversary from discovery of  $\text{Ca}^{2+}$ -induced  $\text{Ca}^{2+}$  release

Chair: Takashi Murayama (Juntendo University School of Medicine, Japan)

Co-Chair: Zhiguang Yuchi (Tianjin University, China)

**S35-1** Identification of novel inhibitors of  $\text{Ca}^{2+}$ -induced  $\text{Ca}^{2+}$  release for RyR1-related muscle diseases

Takashi Murayama

Department of Pharmacology, Juntendo University School of Medicine, Japan

**S35-2** Interaction of junctophilins and the  $\text{Ca}_v1.1$  is essential for the skeletal muscle contraction

Tsutomu Nakada, Toshihide Kashihara, Masatoshi Komatsu,

Mitsuhiko Yamada

Department of Molecular pharmacology, Shinshu University School of Medicine, Japan

**S35-3** Analysis of disease mutants of type 1 ryanodine receptor using molecular dynamics and  $\text{Ca}^{2+}$  imaging

Toshiko Yamazawa

Department of Molecular Physiology, The Jikei University School of Medicine, Japan

**S35-4** Structural basis for the gating, insecticide binding and resistance of insect ryanodine receptor

Zhiguang Yuchi, Lianyun Lin, Zhiyuan Hao

School of Pharmaceutical Science and Technology, Tianjin University, China

# Symposium by the PSJ Committee on the Promotion of Gender Equality

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March 29, Fri., 12:20-13:20

【Room M】 3F, Exhibition Hall

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**MLS** Seeking Gender Equality in Science. A comparison of issues and initiatives in Japan and New Zealand

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Chairs: **Yasuhiko Saito** (Nara Medical University, Japan)

**Tomoe Nakamura-Nishitani** (National Cerebral and Cardiovascular Center Institute, Japan)

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**MLS-1** Making room at the table: Gender equality initiatives at the Okinawa Institute of Science and Technology (OIST) Graduate University

Gail Tripp

Okinawa Institute of Science and Technology Graduate University, Japan

**MLS-2** Summary of the 4th Large-Scale Survey of Gender-Equality status in scientific professions

Tomoe Nakamura-Nishitani

National Cerebral and Cardiovascular Center Institute, Japan

# Luncheon Seminar1

March 29, Fri., 12:20-13:20

【Room B】 3F, Conference Center

## LS1 Structural Analysis of membrane proteins by Cryo-EM

(Co-sponsored by Thermo Fisher Scientific)

Chair: **Makoto Tominaga** (National Institute for Physiological Sciences, Japan)

### LS1-1 Single particle cryo-EM of membrane proteins

Yifan Cheng<sup>1,2)</sup>

<sup>1</sup>Howard Hughes Medical Institute, USA, <sup>2</sup>Department of Biochemistry and Biophysics, The University of California, USA

DAY 2

# Luncheon Seminar2

March 29, Fri., 12:20-13:20

【Room C】 3F, Conference Center

## LS2 - Visualize Cellular Function - Application of DOJINDO Reagents

(Co-sponsored by DOJINDO LABORATORIES)

Chair: **Kazuhito Tomizawa** (Kumamoto University, Japan)

Fan-Yan Wei

Department of Molecular Physiology, Faculty of Life Sciences, Kumamoto University, Japan



## Luncheon Seminar3

🗨️ Talk in Japanese

March 29, Fri., 12:20-13:20

【Room D】 4F, Conference Center

- LS3**      Physiological role of brain glycogen in rats with prolonged exercise-induced central fatigue: Usefulness of metabolomics study  
(Co-sponsored by Human Metabolome Technologies, Inc.)

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Chair: **Kentaro Kawanaka** (University of Fukuoka, Japan)

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**Hideaki Soya**<sup>1,2,3)</sup>

<sup>1</sup>Laboratory of Exercise Biochemistry and Sport Neuroscience, Japan, <sup>2</sup>Advanced Research Initiative for Human High Performance (ARIHHP), <sup>3</sup>Faculty of Health and Sport Sciences, University of Tsukuba, Japan

## Luncheon Seminar4

March 29, Fri., 12:20-13:20

【Room G】 5F, Conference Center

- LS4**      Absorption of Rare Sugars in the Small Intestine  
(Co-sponsored by Matsutani Chemical Industry CO., LTD)

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Chair: **Masaaki Tokuda** (Kagawa University, Japan)

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**Kunihiro Kishida**

Department of Science and Technology on Food Safety, Kindai University, Japan

# Luncheon Seminar5

🗣️ Talk in Japanese

March 29, Fri., 12:20-13:20

【Room I】 5F, Conference Center

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**LS5**      Functional imaging of marmoset visual cortex

(Co-sponsored by NIKON INSTECH CO., LTD.)

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Chair: **Misuzu Nakajima** (NIKON INSTECH CO., LTD., Japan)

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**LS5-1**      Functional imaging of marmoset visual cortex

Kenichi Ohki

Department of Physiology, Graduate School of Medicine, The University of Tokyo, Japan

**LS5-2**      Next generation confocal microscope system "A1R HD25"

Tadayoshi Ogura

NIKON INSTECH CO., LTD. Bioscience Sales Division, Japan

# Technical Workshop1

🗣️ Talk in Japanese

March 29, Fri., 12:20-13:20

【Room F】 5F, Conference Center

- TW1** Cutting edge of clinical rehabilitation for the paresis to reduce the burden on patients; Repetitive Facilitative Exercise combined with vibratory, electrical, magnetic stimulation and Robotics  
(Co-sponsored by YASKAWA ELECTRIC CORPORATION)

Chairs: **Seiji Etoh** (Graduate School of Medical and Dental Sciences, Kagoshima University, Japan)  
**Yong Yu** (Graduate School of Science and Engineering, Kagoshima University, Japan)

- TW1-1** Repetitive Facilitative Exercise combined with neuromuscular electrical stimulation and vibratory stimulation for the upper hemiplegic extremity  
**Tomokazu Noma**  
Department of Rehabilitation, Faculty of Health Sciences, Nihon Fukushi University, Japan
- TW1-2** Repetitive Facilitative Exercise combined with transcranial magnetic stimulation  
**Seiji Etoh**  
Department of Rehabilitation and Physical Medicine, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan
- TW1-3** Development of Hemiplegic Limbs Rehabilitation Devices Based on Repetitive Facilitation Exercise  
**Yong Yu**  
Department of Mechanical Engineering, Graduate School of Science and Engineering, Kagoshima University, Japan

## GAKUSAI (interdisciplinary) Seminar

March 29, Fri., 12:20-13:20

【Room H】 5F, Conference Center

### GAKUSAI Frontiers of Plasma Biology

(Co-sponsored by Department of Plasmabio Science, Center for Novel Science Initiatives (CNSI), National Institutes of Natural Sciences (NINS))

Moderator: **Motohiro Nishida** (National Institute for Physiological Sciences (Exploratory Research Center on Life and Living Systems), National Institutes of Natural Sciences, Japan)

- GAKUSAI-1** Future Medicine and Innovation for Agriculture and Fisheries Opened by Low-temperature Plasma Sciences  
**Masaru Hori**  
Center for Low-temperature Plasma Sciences, Nagoya University, Japan

# Meet the Lecturers

March 29, Fri., 15:10-16:40

【Room M】 3F, Exhibition Hall

## The Secret of High-Impact Research

Planning and Management: **Association of Young Researchers of Physiology**  
(Committee of the PSJ)

Organizers: **Kaori Yamaguchi** (International University of Health and Welfare)  
**Makoto Wada** (Research Institute of National Rehabilitation Center for Persons with Disabilities)

Lecturers: **Linda B. Buck**  
Fred Hutchinson Cancer Research Center, USA

**Hideyuki Okano**  
Keio University, Japan

### [overview]

This is an event for young physiologists and students. At the event, great scientists who have great achievement in the field of physiology give participants their episodes about the big findings, lab set-up, grant application and so on. The event consists of three parts; topic providing from young researchers, Q&A with great scientists (lecturers answer to questions from young scientists) and discussion with participants (lecturers and several young scientists). Some questions are widely collected from young researchers through SNS and so on in advance and some questions are received from participants at the venue instantly.

We expect interaction with great scientists encourages young scientists who plan to have their own labs in the future.

## Educational Lecture1

🗣️ Talk in Japanese

March 29, Fri., 8:00-8:40

【Room D】 4F, Conference Center

### EDL1 Regulation of the autonomic functions

#### EDL1-1 Regulation of the autonomic functions

Mieko Kurosawa  
Center for Medical Science, International University of Health and Welfare

This lecture provides the credit in the qualification update for Physiology Educator accredited by Physiological Society of Japan.

# Poster (The 1st Poster Presentation Day)

March 29, Fri., 13:20-14:10/14:10-15:00

1F, Exhibition Hall

## PSJ Awards

### 20<sup>th</sup> Promotion Award of the Physiological Society of Japan for Young Scientists

- AP-1** Chronic stress causes excessive aggression by altering synaptic actin dynamics in the mPFC  
Hirobumi Tada<sup>1,2)</sup>, Takuya Takahashi<sup>2)</sup>  
<sup>1</sup>Section of Neuroendocrinology, National Center for Geriatrics and Gerontology, Japan,  
<sup>2</sup>Department of Physiology, Yokohama City University
- AP-2** Characterization of the secondary auditory field in the mouse auditory cortex  
Hiroaki Tsukano  
Department of Neurophysiology, Brain Research Institute, Niigata University, Japan

### 9<sup>th</sup> Hiroshi and Aya Irisawa Memorial Promotion Award for Young Physiologists: Section of channel and transporter

- AP-3** Cytoplasmic conformational changes of VSP detected by voltage clamp fluorescence spectroscopy  
Akira Kawanabe, Tomoko Yonezawa, Yasushi Okamura  
Graduate School of Medicine, Osaka University, Japan
- AP-4** Interaction of junctophilins and the Ca<sub>v</sub>1.1 is essential for the skeletal muscle contraction  
Tsutomu Nakada  
Department of Molecular pharmacology, Shinshu University School of Medicine, Japan

### 9<sup>th</sup> Hiroshi and Aya Irisawa Memorial Promotion Award for Young Physiologists: Section of heart and circulatory system

- AP-5** Physiological and pathophysiological significance of TRPC3-Nox2 coupling in the heart  
Takuro Numaga-Tomita<sup>1,2,3)</sup>, Tsukasa Shimauchi<sup>4,5)</sup>, Naoyuki Kitajima<sup>4)</sup>,  
Akiyuki Nishimura<sup>2,4)</sup>, Motohiro Nishida<sup>1,2,3,4)</sup>  
<sup>1</sup>Department of Creative Research, Exploratory Research Center on Life and Living Systems: ExCELLS, National Institutes of Natural Sciences, Japan, <sup>2</sup>National Institute for Physiological Sciences (NIPS), National Institutes of Natural Sciences, <sup>3</sup>School of life sciences, SOKENDAI, <sup>4</sup>Graduate School of Pharmaceutical Sciences, Kyushu University, <sup>5</sup>Graduate School of Medical Sciences, Kyushu University

## 9<sup>th</sup> Aya Irisawa Memorial Promotion Award for Excellence by Women Physiologists

- AP-6** Microglia permit climbing fiber pruning by promoting synaptic inhibition in the developing cerebellum

Hisako Nakayama

Department of Physiology, School of Medicine, Tokyo Women's Medical University, 8-1, Kawada-cho, Sinjuku-ku, Tokyo, Japan

## 9<sup>th</sup> Hiroshi and Aya Irisawa Memorial Award for Excellent Papers in The Journal of Physiological Sciences

- AP-7** Inhibition of ghrelin-induced feeding in rats by treatment with a novel orexin receptor antagonist

Mariko So<sup>1,2</sup>, Hirofumi Hashimoto<sup>2,4</sup>, Reiko Saito<sup>2,3</sup>, Yukiyo Yamamoto<sup>3</sup>, Yasuhito Motojima<sup>2</sup>, Hiromichi Ueno<sup>2</sup>, Satomi Sonoda<sup>2</sup>, Mitsuhiro Yoshimura<sup>2</sup>, Takashi Maruyama<sup>2</sup>, Koichi Kusuhara<sup>3</sup>, Yoichi Ueta<sup>2</sup>

<sup>1</sup>Department of Health and Nutritional Care, Faculty of Medical Science, University of East Asia, Shimonoseki 751-0807, Japan, <sup>2</sup>Department of Physiology, School of Medicine, University of Occupational and Environmental Health, 1-1 Iseigaoka, Yahatanishi-ku, Kitakyushu 807-8555, Japan, <sup>3</sup>Department of Pediatrics, School of Medicine, University of Occupational and Environmental Health, Kitakyushu 807-8555, Japan, <sup>4</sup>Department of Regulatory Physiology, Dokkyo Medical University, 880 Kitakobayashi, Mibu 321-0293, Japan.

- AP-8** Hypotonicity-induced cell swelling activates TRPA1

Fumitaka Fujita<sup>1,2,3</sup>, Kunitoshi Uchida<sup>4</sup>, Yasunori Takayama<sup>1,5</sup>, Yoshiro Suzuki<sup>1,5</sup>, Masayuki Takaishi<sup>1,6</sup>, Makoto Tominaga<sup>1,5</sup>

<sup>1</sup>Division of Cell Signaling, National Institute for Physiological Sciences, Japan, <sup>2</sup>Basic Research Institute, Mandom Corp., Japan, <sup>3</sup>Laboratory of Advanced Cosmetic Science, Graduate School of Pharmaceutical Sciences, Osaka University, Japan, <sup>4</sup>Departments of Physiological Science and Molecular Biology and Morphological Biology, Fukuoka Dental College, Japan, <sup>5</sup>Thermal Biology Group, Exploratory Research Center on Life and Living Systems, Japan; <sup>6</sup>Product Assurance Division, Mandom Corp., Japan

## 9<sup>th</sup> Hiroshi and Aya Irisawa Memorial Award for Excellent Papers on Research in Circulation in The Journal of Physiological Sciences

- AP-9** Epac activation inhibits IL-6-induced cardiac myocyte dysfunction

Huilin Jin<sup>1</sup>, Takayuki Fujita<sup>1</sup>, Meihua Jin<sup>1,2</sup>, Reiko Kurotani<sup>1,3</sup>, Yuko Hidaka<sup>1</sup>, Wenqian Cai<sup>1</sup>, Kenji Suita<sup>1</sup>, Rajesh Prajapati<sup>1</sup>, Chen Liang<sup>1</sup>, Yoshiaki Ohnuki<sup>4</sup>, Yasumasa Mototani<sup>4</sup>, Masanari Umemura<sup>1</sup>, Utako Yokoyama<sup>1</sup>, Motohiko Sato<sup>1,5</sup>, Satoshi Okumura<sup>1,4</sup>, Yoshihiro Ishikawa<sup>1</sup>

<sup>1</sup> Cardiovascular Research Institute, Yokohama City University Graduate School of Medicine, Japan, <sup>2</sup> Department of Cardiac Physiology, National Cerebral and Cardiovascular Center Research Institute, Japan, <sup>3</sup> Biochemical Engineering, Faculty of Engineering, Yamagata University, Japan, <sup>4</sup> Department of Physiology, Tsurumi University School of Dental Medicine, Japan, <sup>5</sup> Department of Physiology, Aichi Medical University, Japan

## Skeletal muscle & locomotion (1)

- 1P-001** Analysis of junctophilin2 knock out zebrafish  
Souhei Sakata, Fumihito Ono  
Department of Physiology, Division of Life Sciences, Faculty of Medicine, Osaka Medical College, Japan
- 1P-002** Evaluation of muscle contraction by electromyogram and sonography  
Masafumi Katayama  
International University of Health and Welfare, Japan
- 1P-003** Muscle representations in spinal motor circuitry in intact humans and an individual with SCI  
Toshiki Tazoe<sup>1</sup>, Koichi Iwatsuki<sup>2</sup>, Yukio Nishimura<sup>1</sup>  
<sup>1</sup>Neural Prosthesis Project, Department of Dementia and Higher Brain Function, Tokyo Metropolitan Institute of Medical Science, Japan, <sup>2</sup>Senbokuji Hospital
- 1P-004** Generation of a transgenic zebrafish for monitoring *murf1* expression  
Genri Kawahara, Mami S Nakayashiki, Yukiko K Hayashi  
Department of Pathophysiology, Tokyo Medical University, Japan
- 1P-005** Acetylcholinesterase inhibitor accelerates muscle differentiation in C2C12 myoblasts  
Hiroshi Todaka<sup>1</sup>, Mikihiko Arikawa<sup>2</sup>, Tatsuya Noguchi<sup>3</sup>, Atsushi Ichikawa<sup>1</sup>, Takayuki Sato<sup>1</sup>  
<sup>1</sup>Dept Cardiovasc Control, Kochi Med Sch, Japan, <sup>2</sup>Dept Biol Sci, Fac Sci Tech, Kochi Univ, Japan, <sup>3</sup>Dept Med Geriatr, Kochi Med Sch, Japan
- 1P-006** Emerin deficiency exacerbates skeletal muscle pathology in *Lmna*<sup>H222P/H222P</sup> mutant mice  
Eiji Wada, Megumi Kato, Kaori Yamashita, Yukiko K Hayashi  
Department of Pathophysiology, Tokyo Medical University, Japan
- 1P-007** Cell surface flip-flop of phosphatidylserine is critical for PIEZO1-mediated myotube formation  
Yuji Hara<sup>1,2</sup>, Masaki Tsuchiya<sup>1</sup>, Masaki Okuda<sup>1</sup>, Kotaro Hirano<sup>1</sup>, Seiji Takabayashi<sup>1</sup>, Masato Umeda<sup>1</sup>  
<sup>1</sup>Graduate School of Engineering, Kyoto University, Japan, <sup>2</sup>AMED, PRIME
- 1P-008** Role of Ror-family receptor tyrosine kinases in the skeletal muscle  
Koki Kamizaki<sup>1</sup>, Ayano Yamamoto<sup>1</sup>, Ryosuke Doi<sup>1</sup>, Motoi Kanagawa<sup>2</sup>, Tatsushi Toda<sup>2</sup>, Akiyoshi Uezumi<sup>3</sup>, So-Ichiro Fukada<sup>4</sup>, Mitsuharu Endo<sup>1</sup>, Yasuhiro Minami<sup>1</sup>  
<sup>1</sup>Division of Cell Physiology, Department of Physiology and Cell Biology, Graduate School of Medicine, Kobe University, Japan, <sup>2</sup>Division of Neurology/Molecular Brain Science, Graduate School of Medicine, Kobe University, Japan, <sup>3</sup>Department of Geriatric Medicine, Tokyo Metropolitan Institute of Gerontology, Japan, <sup>4</sup>Laboratory of Molecular and Cellular Physiology, Graduate School of Pharmaceutical Sciences, Osaka University, Japan
- 1P-009** Bereitschaftspotential of the interference between attention distribution and finger movement timing  
Daisuke Hirano<sup>1,2</sup>, Daisuke Jinnai<sup>1,3</sup>, Hana Nozawa<sup>1,3</sup>, Takamichi Taniguchi<sup>1,3</sup>  
<sup>1</sup>Graduate School of Health and Welfare Sciences, International University of Health and Welfare, Japan, <sup>2</sup>Department of Occupational Therapy, School of Health Sciences at

**1P-010** Control of Keber's valve at rest, foot extension and retraction of the clam *Nodularia douglasiae*

Yoshiteru Seo<sup>1</sup>, Yoshie Imaizumi-Ohashi<sup>1</sup>, Mika Yokoi-Hayakawa<sup>1</sup>, Eriko Seo<sup>2</sup>

<sup>1</sup>Department of Regulatory Physiology, Dokkyo Medical University School of Medicine, Japan, <sup>2</sup>Department of Marine Ecosystem Dynamics, Division of Marine Life Science, Atmosphere and Ocean Research Institute, The University of Tokyo, Japan

**1P-011** Suppressive Activity of Chondroitin Sulfate on Nitric Oxide Production by Knee Synoviocytes In Vitro

Takayuki Okumo<sup>1</sup>, Kazuhito Asano<sup>3</sup>, Hideshi Ikemoto<sup>1</sup>, Mana Tsukada<sup>1</sup>, Shi-Yu Guo<sup>1</sup>, Koji Kanzaki<sup>2</sup>, Tadashi Hisamitsu<sup>1</sup>, Masataka Sunagawa<sup>1</sup>

<sup>1</sup>Department of Physiology, School of Medicine, Showa University, Japan, <sup>2</sup>Department of Orthopaedic Surgery, Showa University Fujigaoka Hospital, Japan, <sup>3</sup>Department of Physiology, School of Nursing and Rehabilitation Science, Showa University, Japan

**1P-012** Upregulation of osteoclastogenic markers and impaired bone microstructure in hypertensive rats

Wacharaporn Tiyasatkulkovit<sup>1,3</sup>, Worachet Promruk<sup>2,3</sup>, Aniwat Sawangsalee<sup>1,3</sup>, Sirawich Intarapanich<sup>1,3</sup>, Jirawan Thongbunchoo<sup>2,3</sup>, Kwanchit Chaimongkolnukul<sup>4</sup>, Kanchana Kengkoom<sup>4</sup>, Nattapon Panupinthu<sup>2,3</sup>, Narattaphol Charoenphandhu<sup>2,3,5,6</sup>

<sup>1</sup>Department of Biology, Faculty of Science, Chulalongkorn University, Thailand, <sup>2</sup>Department of Physiology, Faculty of Science, Mahidol University, Thailand, <sup>3</sup>Center of Calcium and Bone Research (COBAB), Faculty of Science, Mahidol University, Thailand, <sup>4</sup>National Laboratory Animal Center, Mahidol University, Thailand, <sup>5</sup>Institute of Molecular Biosciences, Mahidol University, Thailand, <sup>6</sup>The Academy of Science, The Royal Society of Thailand, Thailand

**1P-013** Immature network function of the adult lumbosacral cord by loss of interferon regulatory factor 8

Itaru Yazawa<sup>1,2</sup>, Yuko Yoshida<sup>4</sup>, Ryusuke Yoshimi<sup>3,4</sup>, Michael J O'Donovan<sup>2</sup>, Keiko Ozato<sup>4</sup>

<sup>1</sup>Global Research Center for Innovative Life Science, Hoshi University School of Pharmacy and Pharmaceutical Sciences, Japan, <sup>2</sup>Lab. of Neural Control, National Institute of Neurological Disorders and Stroke, National Institutes of Health, USA, <sup>3</sup>Department of Stem Cell and Immune Regulation, Yokohama City University Graduate School of Medicine, Japan, <sup>4</sup>Lab. of Molecular Growth Regulation, National Institute of Child Health and Human Development, National Institutes of Health, USA

## Exercise (1)

**1P-014** Exercise is better than caloric restriction regarding improving fatigability in muscle of obese rats

Sintip Pattanakuhar<sup>1</sup>, Wissuta Sutham<sup>2,3</sup>, Jirapas Sripetchwandee<sup>2,3</sup>, Wanitchaya Minta<sup>2,3</sup>, Duangkamol Mantor<sup>2,3</sup>, Siripong Palee<sup>2,3</sup>, Wasana Pratchayasakul<sup>2,3</sup>, Nipon Chattipakorn<sup>2,3</sup>, Siriporn C. Chattipakorn<sup>2,4</sup>

<sup>1</sup>Department of Rehabilitation Medicine, Chiang Mai University, Thailand, <sup>2</sup>Neurophysiology Unit, Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>3</sup>Cardiac Electrophysiology Unit, Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>4</sup>Department of Oral Biology and Diagnostic Science, Faculty of Dentistry, Chiang Mai University, Thailand



- 1P-015**      **Effects of Hypoxia on Skeletal Muscle Molecular Adaptations to Heavy Resistance Training**  
 Aaron Petersen<sup>1</sup>, Jackson Fyfe<sup>2</sup>, Mathew Inness<sup>1,3</sup>, Lewan Parker<sup>2</sup>, Francois Billaut<sup>4</sup>, Robert Aughey<sup>1</sup>  
<sup>1</sup>Institute for Health and Sport, Victoria University, Australia, <sup>2</sup>School of Exercise and Nutrition Sciences, Deakin University, Australia, <sup>3</sup>Western Bulldogs Football Club, Australia, <sup>4</sup>Département de Kinesiologie, Université Laval, Canada
- 1P-016**      **Enriched environment attenuates hindlimb dysfunction in neonatal white matter injury model**  
 Naoki Tajiri<sup>1</sup>, Atsunori Hattori<sup>1</sup>, Yoshitomo Ueda<sup>1</sup>, Shino Ogawa<sup>1,2</sup>, Akimasa Ishida<sup>1</sup>, Takeshi Shimizu<sup>1</sup>, Hideki Hida<sup>1</sup>  
<sup>1</sup>Department of Neurophysiology & Brain Science, Graduate School of Medical Sciences & Medical School, Nagoya City University, Japan, <sup>2</sup>Department of Obstetrics and Gynecology, Graduate School of Medical Sciences & Medical School, Nagoya City University, Japan
- 1P-017**      **Role of dopaminergic function in septum on exercise efficiency**  
 Tetsuya Shiuchi, Takuya Masuda, Noriyuki Shimizu, Sachiko Chikahisa, Hiroyoshi Sei  
 Department of Integrative Physiology, Tokushima University Graduate School, Japan
- 1P-018**      **Enhanced muscle afferent responses to mechanical/chemical stimuli in type 2 diabetic rats in vitro**  
 Rie Ishizawa<sup>1</sup>, Norio Hotta<sup>2</sup>, Gary A Iwamoto<sup>1</sup>, Han-Kyul Kim<sup>1</sup>, Wanpen Vongpatanasin<sup>1</sup>, Jere H Mitchell<sup>1</sup>, Scott A Smith<sup>1</sup>, Masaki Mizuno<sup>1</sup>  
<sup>1</sup>University of Texas Southwestern Medical Center, United States, <sup>2</sup>Chubu University, Japan
- 1P-019**      **Sex difference in mitochondrial Ca<sup>2+</sup> handling properties in mouse skeletal muscle**  
 Daiki Watanabe, Koji Hatakeyama, Hiroaki Eshima, Ryo Ikegami, Yutaka Kano  
 Department of Engineering Sciences, University of Electro-communications, Japan
- 1P-020**      **Enhanced cerebro-cardiovascular responses before voluntary cycling in physically fit men**  
 Kazumasa Manabe<sup>1,2</sup>, Shizue Masuki<sup>1,2</sup>, Koji Uchida<sup>1</sup>, Yu Takeda<sup>1</sup>, Hiroshi Nose<sup>1,2</sup>  
<sup>1</sup>Department of Sports Medical Sciences, Shinshu University Graduate School of Medicine, Japan, <sup>2</sup>Institute for Biomedical Sciences, Shinshu University, Japan
- 1P-021**      **Unloading-induced sarcopenia in relation to mitochondrial disorder in skeletal muscle of old rats**  
 Hideki Yamauchi, Shigeru Takemori  
 Div of Phys Fitness, Dept of Mol Physiol, The Jikei Univ Sch Med, Japan
- 1P-022**      **The effect of warm/cool stimulus to forearm/hand on brachial artery blood flow during leg exercise**  
 Yoshiyuki Fukuba<sup>1</sup>, Saki Namura<sup>1</sup>, Marina Morimoto<sup>1</sup>, Kohei Miura<sup>1</sup>, Hideaki Kashima<sup>1</sup>, Anna Oue<sup>2</sup>  
<sup>1</sup>Department of Exercise Science and Physiology, School of Health Sciences, Prefectural University of Hiroshima, Japan, <sup>2</sup>Faculty of Food and Nutritional Sciences, Toyo University, Japan

- 1P-023** Timing of nutrient intake after mild exercise: effects of gastrointestinal activity in humans  
Hideaki Kashima<sup>1)</sup>, Saori Kamimura<sup>1)</sup>, Masako Yamaoka Endo<sup>1)</sup>, Kohei Miura<sup>1,2)</sup>, Akira Miura<sup>1)</sup>, Yoshiyuki Fukuba<sup>1)</sup>  
<sup>1</sup>Department of Exercise Science and Physiology, School of Health Sciences, Prefectural University of Hiroshima, Japan, <sup>2</sup>Department of Health and Nutrition, Hiroshima Shudo University, Japan
- 1P-024** Effects of continuous exercise with vocalization on the oxygen dissociation states in muscles  
Hajime Arikawa<sup>1)</sup>, Toshio Matsuoka<sup>1)</sup>, Teppei Takahashi<sup>2)</sup>, Tomoyoshi Terada<sup>3)</sup>, Seiichi Era<sup>4)</sup>  
<sup>1</sup>Faculty of Sports and Health Sci, Chubu Gakuin Univ, Japan, <sup>2</sup>Dept Oral and Maxillofacial Surgery, Gifu Prefectural Gero Hospital, Japan, <sup>3</sup>United Graduate School of Drug Discovery and Medical Information Sciences, Gifu Univ, Japan, <sup>4</sup>Dept of General Internal Medicine, Gifu Univ, Japan
- 1P-025** The salivary 11 $\beta$ -HSD2 activities is beneficial for continuous strength exercises in elderly people  
Miyako Mochizuki<sup>1)</sup>, Noboru Hasegawa<sup>2)</sup>  
<sup>1</sup>Kyoto Bunkyo Junior College, Japan, <sup>2</sup>Department of Health and Medical Sciences, Ishikawa Prefectural Nursing University, Japan
- 1P-026** The differential dynamics of brachial artery and forearm skin blood flows during leg cycle exercise  
Kohei Miura<sup>1)</sup>, Ayaka Kondo<sup>2)</sup>, Yuka Kikugawa<sup>2)</sup>, Masako Y Endo<sup>2)</sup>, Hideaki Kashima<sup>2)</sup>, Anna Oue<sup>3)</sup>, Yoshiyuki Fukuba<sup>2)</sup>  
<sup>1</sup>Faculty of Health Sciences, Department of Health and Nutrition, University of Hiroshima Shudo, Japan, <sup>2</sup>Department of Exercise Science and Physiology, School of Health Sciences, Prefectural University of Hiroshima, Japan, <sup>3</sup>Faculty of Food and Nutritional Sciences, Toyo University, Japan
- 1P-027** Molecular hydrogen increases acetone excretion and changes lipid metabolism during exercise  
Amane Hori, Ryota Masuda, Masatoshi Ichihara, Hisayoshi Ogata, Takaharu Kondo, Norio Hotta  
Chubu University, Japan
- 1P-028** Combining Acute Exercise With Insulin Treatment increase Type 1 Diabetic Liver Antioxidant Capacity  
Hei-Man Yuen, Ting-Wen Lin, Shiow-Chwen Tsai  
Institute of Sports Sciences, University of Taipei, Taiwan
- 1P-029** Longitudinal changes of trunk skeletal muscle characteristics in Japanese elderly males and females  
Noriko Ishiguro Tanaka<sup>1)</sup>, Madoka Ogawa<sup>1,2)</sup>, Hisashi Maeda<sup>1,2)</sup>, Akito Yoshiko<sup>3)</sup>, Aya Tomita<sup>3)</sup>, Ryosuke Ando<sup>4)</sup>, Hiroshi Akima<sup>1)</sup>  
<sup>1</sup>Research Center of Health Physical Fitness and Sports, Nagoya University, Japan, <sup>2</sup>Japan Society for the Promotion of Science, Japan, <sup>3</sup>School of International Liberal Studies, Chukyo University, Japan, <sup>4</sup>Japan Institute of Sports Science, Japan
- 1P-030** Relationship between occlusal balance and agility in Japanese elite female junior badminton players  
Mutsumi Takahashi<sup>1,2)</sup>, Yogetsu Bando<sup>2,3)</sup>, Yoshihide Satoh<sup>1)</sup>  
<sup>1</sup>Department of Physiology, The Nippon Dental University School of Life Dentistry at Niigata, Japan, <sup>2</sup>Division of Medical Science Research, The Japan Schoolchildren

- 1P-031** Estimation of maximal oxygen uptake from oxygen uptake efficiency slope by leg or arm ergometer  
Reizo Baba, Norio Hotta, Hisako Urai, Hisayoshi Ogata, Yukiko Okamura  
College of Life and Health Sciences, Chubu University, Japan
- 1P-032** Effect of low-volume high-intensity interval exercise on post-exercise inhibitory control  
Takeshi Sugimoto<sup>1</sup>, Tadashi Suga<sup>1</sup>, Hayato Tsukamoto<sup>2</sup>, Daichi Tanaka<sup>1</sup>, Saki Takenaka<sup>1</sup>, Kento Shimoho<sup>1</sup>, Tadao Isaka<sup>1</sup>, Takeshi Hashimoto<sup>1</sup>  
<sup>1</sup>Faculty of Sport and Health Science, Ritsumeikan University, Japan, <sup>2</sup>Faculty of Life Sciences and Education, University of South Wales
- 1P-033** Atrioventricular nodal function during dynamic exercise in elite endurance athletes  
Makoto Takahashi<sup>1</sup>, Tomoko Nakamoto<sup>1</sup>, Shigemitsu Niihata<sup>2</sup>, Kanji Matsukawa<sup>1</sup>  
<sup>1</sup>Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan, <sup>2</sup>Faculty of Welfare and Health, Fukuyamaheisei University
- 1P-035** The influence of aerobics dance exercise on energy intake, appetite, and mood in young women  
Yuki Aikawa<sup>1</sup>, Yusuke Takagi<sup>2</sup>, Minoru Horiba<sup>3</sup>  
<sup>1</sup>Tsu City College, Japan, <sup>2</sup>Nara University of Education, <sup>3</sup>Nagoya University of The Arts
- 1P-036** Shortening velocity of knee extensor in frog *in vivo*  
Yoshiki Ishii<sup>1</sup>, Yuki Yamanaka<sup>1</sup>, Tomohito Mizuno<sup>1</sup>, Nobuaki Sasai<sup>2</sup>, Toshie Nagare<sup>1</sup>, Teizo Tsuchiya<sup>3</sup>  
<sup>1</sup>Faculty of Health Care Sciences, Himeji Dokkyo University, Japan, <sup>2</sup>Faculty of Health Science, Suzuka University of Medical Science, Japan, <sup>3</sup>Faculty of Science, Kobe University, Japan
- 1P-037** CO<sub>2</sub>-water bath promotes a recovery from the muscle fatigue induced by high intensity exercise  
Noriyuki Yamamoto<sup>1</sup>, Tadashi Wada<sup>2</sup>, Fumiko Takenoya<sup>3</sup>, Masaaki Hashimoto<sup>4</sup>  
<sup>1</sup>Department of Health Science, Japanese Red Cross Hokkaido College of Nursing, Japan, <sup>2</sup>Faculty of Science and Technology, Kokushikan University, <sup>3</sup>Department of Pharmacy, Hoshi University, <sup>4</sup>Physiology Laboratory, Canter for Medical Education, Teikyo University of Science
- 1P-038** How does voluntary exercise frequency affect cardiac function in dilated cardiomyopathy model mice?  
Masami Sugihara<sup>1</sup>, Ryo Kakigi<sup>3</sup>, Takashi Murayama<sup>2</sup>, Takashi Miida<sup>1</sup>, Takashi Sakurai<sup>2</sup>, Sachio Morimoto<sup>4</sup>, Nagomi Kurebayashi<sup>2</sup>  
<sup>1</sup>Department of Clinical Laboratory, Juntendo University, Japan, <sup>2</sup>Department of Pharmacology, Juntendo University, Japan, <sup>3</sup>Department of Physiology(III), Juntendo University, Japan, <sup>4</sup>Department of Health Sciences at Fukuoka, International University of Health and Welfare, Japan
- 1P-039** Effect of lower body positive pressure and walking on fluid turnover in human legs  
Satoshi Matsuo, Felix Ojeiru Ezomo, Noriko Matsuo  
Division of Adaptation Physiology, Tottori University, Japan

- 1P-040** Changes in weight bearing index (WBI) before and after skyrunning in Mt. Fuji  
 Hiroto Tsujikawa<sup>1</sup>, Koki Nagatsu<sup>2</sup>, Junichi Nagasawa<sup>3</sup>, Yutaka Iwaihara<sup>2</sup>, Shinichi Murata<sup>2</sup>, Shino Sasaki<sup>1</sup>, Koji Sugiyama<sup>2</sup>  
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## Circulation & Respiration: Cardiac Physiology (1)

- 1P-041** Electrophysiological analyses of multi-ion channel blockers in hiPSC-CMs sheets with MEA system  
 Hiroko Izumi-Nakaseko<sup>1,2</sup>, Atsuhiko T Naito<sup>1,2</sup>, Yuko Sekino<sup>3</sup>, Mihoko Hagiwara-Nagasawa<sup>1</sup>, Ai Goto<sup>2</sup>, Koki Chiba<sup>2</sup>, Yasunari Kanda<sup>4</sup>, Atsushi Sugiyama<sup>1,2</sup>  
<sup>1</sup>Department of Pharmacology, Faculty of Medicine, Toho University, Japan, <sup>2</sup>Department of Pharmacology, Toho University Graduate School of Medicine, Japan, <sup>3</sup>Endowed Laboratory of Human Cell-based Drug Discovery, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan, <sup>4</sup>Division of Pharmacology, National Institute of Health Sciences, Japan
- 1P-042** A CMOS camera depicted the excitation spread during arrhythmia in an isolated rat atrial preparation  
 Tetsuro Sakai  
 Department of Systems Physiology, University of The Ryukyus Graduate School of Medicine, Japan
- 1P-043** Potential link between Ca<sup>2+</sup>-activated cation TRPM4 channels and  $I_{st}$  in mouse cardiac pacemaker cells  
 Futoshi Toyoda, Wei-Guang Ding, Hiroshi Matsuura  
 Department of Physiology, Shiga University of Medical Science, Japan
- 1P-044** Functional role of delayed rectifier K<sup>+</sup> current in the automaticity of pulmonary vein cardiomyocytes  
 Xinya Mi, Wei-Guang Ding, Yingnan Li, Hiroshi Matsuura  
 Department of Physiol, University of Shiga Univ. Med. Sci., Japan
- 1P-045** Pacemaking ion channel remodelling underlies chronic exercise-induced atrioventricular block  
 Shu Nakao<sup>1,3</sup>, Alicia D'Souza<sup>1</sup>, Pirtro Mesirca<sup>2</sup>, Tariq Trussell<sup>1</sup>, Min Zi<sup>1</sup>, Sunil JRJ Logantha<sup>1</sup>, Elizabeth J Cartwright<sup>1</sup>, Matteo E Mangoni<sup>2</sup>, Halina Dobrzynski<sup>1</sup>, Mark R Boyett<sup>1</sup>  
<sup>1</sup>Division of Cardiovascular Sciences, University of Manchester, UK, <sup>2</sup>Département de Physiologie, Université de Montpellier, France, <sup>3</sup>Department of Biomedical Sciences, Ritsumeikan University, Japan
- 1P-046** Cardiac Iron Overload: Impacts on Cellular Electrophysiology and Calcium Handling  
 Natthaphat Siri-Angkul<sup>1,2,3</sup>, Richard Gordan<sup>3</sup>, Suwakon Wongjaikam<sup>1,2</sup>, Nadezhda Fefelova<sup>3</sup>, Judith K. Gwathmey<sup>3</sup>, Siriporn C. Chattipakorn<sup>1,4</sup>, Nipon Chattipakorn<sup>1,2</sup>, Lai-Hua Xie<sup>3</sup>  
<sup>1</sup>Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Cardiac Electrophysiology Unit, Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>3</sup>Department of Cell Biology and Molecular Medicine, Rutgers University - New Jersey Medical School, USA, <sup>4</sup>Department

- 1P-047** Species difference of the hyperpolarized-activated current in pulmonary vein cardiomyocytes  
Daichi Takagi<sup>1</sup>, Yosuke Okamoto<sup>1</sup>, Takayoshi Ohba<sup>1</sup>, Hiroshi Yamamoto<sup>2</sup>, Kyoichi Ono<sup>1</sup>  
<sup>1</sup>Dept. Cell Physiol., Akita Univ. Grad. Sch. Med., Japan, <sup>2</sup>Dept Cardiovas. Surg., Akita Univ. Grad. Sch. Med., Japan
- 1P-048** The mitochondrial Na<sup>+</sup>-Ca<sup>2+</sup> exchanger is involved in automaticity of murine sinoatrial nodal cells  
Yukari Takeda, Ayako Takeuchi, Satoshi Matsuoka  
Department of Integrative & Systems Physiology, Faculty of Medical Sciences, University of Fukui, Japan
- 1P-049** Low T-tubule density is related with vulnerability of sympathetic atrial arrhythmia  
Jieun An, Ami Kim, Tong Mook Kang  
Department of Physiology, Sungkyunkwan Univeristy, Korea
- 1P-050** Effect of Myocyte Mechanical Properties on Transmural Distribution of Stress and Energy Consumption  
Shiro Kato, Kumiko Tamura, Akira Amano  
Department of Bioinformatics, Graduate School of Life Science, University of Ritsumeikan, Japan
- 1P-051** D-galactose worsens cardiac function via aggravating mitochondrial dysfunction in obese rats  
Cherry Bo-Htay<sup>1,2,3</sup>, Thazin Shwe<sup>1,2,3</sup>, Krekwit Shinlapawittayatorn<sup>1,2,3</sup>, Siripong Palee<sup>1,3</sup>, Siriporn C Chattipakorn<sup>1,3,4</sup>, Nipon Chattipakorn<sup>1,2,3</sup>  
<sup>1</sup>Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Cardiac Electrophysiology Unit, Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>3</sup>Center of Excellence in Cardiac Electrophysiology, Chiang Mai University, Thailand, <sup>4</sup>Department of Oral Biology and Diagnostic Science, Faculty of Dentistry, Chiang Mai University, Thailand
- 1P-052** Drug Effect Estimation System that Uses Cardiac Action Potential Waveforms  
Maho Yamamoto<sup>1</sup>, Kazuki Okumura<sup>2</sup>, Yukiko Himeno<sup>2</sup>, Akira Amano<sup>2</sup>  
<sup>1</sup>Graduate School of Life Sciences, Ritsumeikan University, Japan, <sup>2</sup>Department of Bioinformatics, College of Life Sciences, University of Ritsumeikan, Japan
- 1P-053** Acute Overstretch Causes Abrupt Inner Mitochondrial Collapsing of Rat Papillary Muscles  
Naritomo Nishioka<sup>1,2</sup>, Yoichiro Kusakari<sup>1</sup>, Jun Tanihata<sup>3</sup>, Susumu Minamisawa<sup>1,3</sup>  
<sup>1</sup>Department of Cell Physiology, The Jikei University School of Medicine, Japan, <sup>2</sup>Department of Cardiac Surgery, The Jikei University School of Medicine, Japan, <sup>3</sup>Division of Aerospace Medicine, Department of Cell Physiology, The Jikei University School of Medicine, Japan
- 1P-054** PCSK9 Inhibitor Attenuates Cardiac and Mitochondrial Dysfunction in Obese-Insulin Resistant Rats  
Patchareeya Amput<sup>1,2,3</sup>, Siripong Palee<sup>1,3</sup>, Busarin Arunsak<sup>1,2,3</sup>, Wasana Pratchayasakul<sup>1,2,3</sup>, Thidarat Jaiwongkam<sup>1,3</sup>, Siriporn C Chattipakorn<sup>1,3,4</sup>, Nipon Chattipakorn<sup>1,2,3</sup>

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- 1P-055** Evaluating the Role of Individual Types of Ca<sup>2+</sup> Channels in the Sinoatrial Node Pacemaker Cell Model  
Yixin Zhang<sup>1</sup>), Yukiko Himeno<sup>1</sup>), Futoshi Toyoda<sup>2</sup>), Akira Amano<sup>1</sup>), Akinori Noma<sup>1</sup>)  
<sup>1</sup>Graduate School of Life Sciences, Bioinformatics Course, University of Ritsumeikan, Japan, <sup>2</sup>Shiga University of Medical Science, Japan
- 1P-056** Experimental Autoimmune Myocarditis (EAM) Model in Nonhuman Primates  
Shunya Nakayama<sup>1,2</sup>), Hiroshi Koie<sup>1</sup>), Yuki Ishii<sup>1,2</sup>), Chungyu Pai<sup>1,2</sup>), Yasuyo Ito-Fujishiro<sup>1,2</sup>), Kiichi Kanayama<sup>1</sup>), Yoshiko Munesue<sup>3</sup>), Tadashi Sankai<sup>2</sup>), Yasuhiro Yasutomi<sup>2</sup>), Naohide Ageyama<sup>2</sup>)  
<sup>1</sup>Laboratory of Veterinary Physiology, Nihon University, Japan, <sup>2</sup>Tsukuba Primate Research Center, NIBIOHN, Japan, <sup>3</sup>The Corporation for Production and Research of Laboratory Primates, Japan
- 1P-057** Physiological role of TRPC6 upregulation in hyperglycemia-exposed mice hearts  
Sayaka Oda<sup>1,2</sup>), Takuro Numaga-Tomita<sup>1,2</sup>), Akiyuki Nishimura<sup>3</sup>), Motohiro Nishida<sup>1,2,3</sup>)  
<sup>1</sup>Division of Cardiocirculatory Signaling, National Institute for Physiological Sciences (Exploratory Research Center on Life and Living Systems), National Institutes of Natural Sciences, Japan, <sup>2</sup>Department of Physiological Sciences, SOKENDAI (School of Life Science, The Graduate University for Advanced Studies), <sup>3</sup>Department of Translational Pharmaceutical Sciences, Graduate School of Pharmaceutical Sciences, Kyushu University
- 1P-058** IL-6 may have protective roles in Lmna-related cardiomyopathy  
Megumi Kato<sup>1</sup>), Mizuyo Kojima<sup>2</sup>), Kaori Yamashita<sup>1</sup>), Eiji Wada<sup>1</sup>), Yukiko Hayashi<sup>1</sup>)  
<sup>1</sup>Department of Pathophysiol, Grad Sch Med, Tokyo Medical Univ, Japan, <sup>2</sup>Sopport Center of Medical Doctors and Researchers, Tokyo Medical University, Japan
- 1P-059** Sonic hedgehog signaling regulates the mammalian cardiac regenerative response  
Hiroyuki Kawagishi<sup>1,2,3</sup>), Jianhua Xiong<sup>2</sup>), Mitsuhiko Yamada<sup>3</sup>), Toren Finkel<sup>2,4</sup>)  
<sup>1</sup>Institute for Biomedical Sciences, Shinshu University, Japan, <sup>2</sup>Center for Molecular Medicine, National Heart, Lung and Blood Institute/NIH, USA, <sup>3</sup>Department of Molecular Pharmacology, Shinshu University School of Medicine, Japan, <sup>4</sup>Aging Institute of UPMC and The University of Pittsburgh, USA
- 1P-060** Analysis of Diabetic Cardiomyopathy with type 2 Diabetes Mellitus in Nonhuman Primate  
Yuuki Ishii<sup>1,2</sup>), Shunya Nakayama<sup>1,2</sup>), Hiroshi Koie<sup>1</sup>), Chungyu Pai<sup>1,2</sup>), Yasuyo Ito-Fujishiro<sup>1,2</sup>), Kiichi Kanayama<sup>1</sup>), Yoshiko Munesue<sup>3</sup>), Tadashi Sankai<sup>2</sup>), Yasuhiro Yasutomi<sup>2</sup>), Naohide Ageyama<sup>2</sup>)  
<sup>1</sup>Laboratory of Veterinary Physiology, Nihon University, Japan, <sup>2</sup> Tsukuba Primate Research Center, NIBIOHN, Japan, <sup>3</sup>CPRLP, Japan
- 1P-061** Role of Cardiac Hormones in a Nonhuman Primate Model of Cardiac Disease

Chungyu Pai<sup>1,2)</sup>, Hiroshi Koie<sup>1)</sup>, Yuki Ishii<sup>1,2)</sup>, Yasuyo Ito-Fujishiro<sup>1,2)</sup>,  
Kiichi Kanayama<sup>1)</sup>, Yoshiko Munesue<sup>3)</sup>, Tadashi Sankai<sup>2)</sup>,  
Yasuhiro Yasutomi<sup>2)</sup>, Naohide Ageyama<sup>2)</sup>

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**1P-062** Activation of SIRT1 Attenuates Cardiac fibrosis via preventing Endothelial-to-Mesenchymal Transition

Zhenhua Liu, Yanhong Zhang, Yongsheng Gong, Xu Li, Liping Han  
Wenzhou Medical University, China

**1P-063** Insulin signaling deficiency is responsible for diastolic dysfunction of diabetic cardiomyopathy

Yoshinori Mikami<sup>1)</sup>, Masanori Ito<sup>1)</sup>, Shogo Hamaguchi<sup>2)</sup>,  
Shingo Murakami<sup>1,3)</sup>, Taichiro Tomida<sup>1)</sup>, Daisuke Ohshima<sup>1)</sup>,  
Iyuki Namekata<sup>2)</sup>, Hikaru Tanaka<sup>2)</sup>, Satomi Adachi-Akahane<sup>1)</sup>

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**1P-064** Vitamin B1 pretreatment prevents cardiac mitochondrial morphology from ischemia/reperfusion injury

Yoichiro Kusakar<sup>1)</sup>, Naritomo Nishioka<sup>1,2)</sup>, Jun Tanihata<sup>1)</sup>,  
Susumu Minamisawa<sup>1)</sup>

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**1P-065** Regulation of Orai1 in Angiotensin II-Induced Cardiac Hypertrophy

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**1P-066** Plasma Proteomic Analysis of Acute Myocardial Infarction in Young Adults

Norbaiyah Mohamed Bakrim<sup>1)</sup>, Aszrin Abdullah<sup>1)</sup>,  
Azarisman Shah Mohd Shah<sup>2)</sup>, Norlelawati A Talib<sup>3)</sup>,  
Aida Nur Sharini Mohd Shah<sup>2)</sup>, Jamalludin A Rahman<sup>4)</sup>,  
Noraslinda Muhamad Bunnori<sup>5)</sup>, Siti Khairani Zainal Abidin<sup>6)</sup>,  
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**1P-067** Angiotensin-(1-5)-mediated cardioprotection via AT2R-PI3K-Akt-eNOS pathway

Byung Mun Park, Weijian Li, Suhn Hee Kim

Department of Physiology, Research Institute for Endocrine Sciences, Chonbuk National University Medical School, Korea

**1P-068** Palmitic Acid Contributes to the Development of Ca<sup>2+</sup> Oscillations in Adult Rat Cardiomyocyte

Yan-Jhih Shen<sup>1)</sup>, Kun-Ta Yang<sup>2,3)</sup>

- 1P-069** Insights into signaling mechanism of ANP receptor by x-ray crystallography  
Haruo Ogawa, Masami Kodama  
IQB, The University of Tokyo, Japan
- 1P-070** (AP-5) Physiological and pathophysiological significance of TRPC3-Nox2 coupling in the heart  
Takuro Numaga-Tomita<sup>1,2,3</sup>, Tsukasa Shimauchi<sup>4,5</sup>, Naoyuki Kitajima<sup>4</sup>, Akiyuki Nishimura<sup>2,4</sup>, Motohiro Nishida<sup>1,2,3,4</sup>  
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- 1P-071** Nuclear connectin novex-3 is essential for proliferation of hypoxic fetal cardiomyocytes  
Ken Hashimoto<sup>1</sup>, Aya Kodama<sup>1</sup>, Miki Sugino<sup>1</sup>, Tomoko Yobimoto<sup>1</sup>, Takeshi Honda<sup>2</sup>, Akira Hanashima<sup>1</sup>, Yoshihiro Ujihara<sup>1</sup>, Satoshi Mohri<sup>1</sup>  
<sup>1</sup>First Department of Physiology, Kawasaki Medical School, Japan, <sup>2</sup>Department of Cardiovascular Surgery, Kawasaki Medical School, Japan
- 1P-072** Effect of autonomic nervous system on early and late repolarization intervals in children  
Hiroyuki Kusuki<sup>1</sup>, Yuri Mizutani<sup>2</sup>, Yuka Tsuchiya<sup>1</sup>, Tadayoshi Hata<sup>1</sup>  
<sup>1</sup>Graduate School of Health Science, Fujita Health University, Japan, <sup>2</sup>Division of Clinical Laboratory, Fujita Health University Hospital, Japan
- 1P-073** Pilocarpine but not Ach permeate the mouse footpads and induce perspiration, sedation and arrhythmia  
Shinichi Sato, Yosuke Okamoto, Kyoichi Ono  
Department of Cell Physiology, Akita University, Japan
- 1P-074** Expression change of cytokine in principal organ during cardiopulmonary bypass  
Yutaka Fujii<sup>1</sup>, Haruo Hanawa<sup>2</sup>  
<sup>1</sup>Department of Clinical Engineering and Medical Technology, Niigata University of Health and Welfare, Japan, <sup>2</sup>Department of Health and Sports, Niigata University of Health and Welfare
- 1P-075** Irregular division of the nucleus without cytokinesis in cardiac progenitor cells of mouse heart  
Ryo Fukunaga, Mariko Omatsu-Kanbe, Hiroshi Matsuura  
Department of Physiology, Shiga University of Medical Science, Japan
- 1P-076** Usefulness of anti-arrhythmic drug therapy targeting cardiac adenylyl cyclase  
Kenji Suita<sup>1</sup>, Takayuki Fujita<sup>2</sup>, Satoshi Okumura<sup>1</sup>, Yoshihiro Ishikawa<sup>2</sup>  
<sup>1</sup>Department of Physiology, Tsurumi University School of Dental Medicine, Japan, <sup>2</sup>Cardiovascular Research Institute, Yokohama City University Graduate School of Medicine
- 1P-077** Stress intensity exhibited by E-PASS score and development of atrial fibrillation



Takashi Kikuchi<sup>1)</sup>, Takahide Kodama<sup>2)</sup>, Masaki Ueno<sup>3)</sup>, Minae Kamata<sup>1)</sup>,  
Yukimi Nakano<sup>1)</sup>, Haruo Mitani<sup>2)</sup>

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**1P-078** Initiation of the heartbeat in rat embryonic heart precedes sarcomere formation

Nobutoshi Ichise, Tatsuya Sato, Yoshinori Terashima, Mitsumasa Chiba,  
Hiroya Yamazaki, Syunsuke Jimbo, Noritsugu Tohse

Department of Cellular Physiology and Signal Transduction, Sapporo Medical University, Japan

**1P-079** Contribution of the rostroventral midbrain to movement-related cardiovascular activation

Kei Ishii<sup>1)</sup>, Ryota Asahara<sup>2)</sup>, Nan Liang<sup>2)</sup>, Hidehiko Komine<sup>1)</sup>,  
Kanji Matsukawa<sup>2)</sup>

<sup>1)</sup>Automotive Human Factors Research Center, National Institute of Advanced Industrial Science and Technology, Japan, <sup>2)</sup>Department of Integrative Physiology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

**1P-080** Mechanism of augmentation of hydrogen sulfide-induced ANP secretion in hypoxic condition

Weijian Li<sup>1)</sup>, Lamei Yu<sup>2)</sup>, Byung Mun Park<sup>1)</sup>, Sun Hee Kim<sup>1)</sup>

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## Circulation & Respiration: Lung Physiology (1)

**1P-081** In vitro generation of goblet cell hyperplasia model using iPS cells and cigarette smoking solution

Susumu Yoshie, Masao Miyake, Akihiro Hazama

Department of Cellular and Integrative Physiology, Fukushima Medical University, Japan

**1P-082** Pulmonary Hypertension Downregulated Mitochondria Associated Membrane Tethering Proteins In Rat

Shunsuke Baba, Satoko Shinjo, Yoshitaka Fujimoto, Mariko Okada,  
Toru Akaike, Yoichiro Kusakari, Susumu Minamisawa

Department of Cell Physiology, Jikei Medical University, Japan

**1P-083** NF- $\kappa$ B-mediated upregulation of miR-335-3p contributes to the induction of hypoxic PAH in mice

Xiaofang Fan, Junming Fan, Hui Guang, Xiaoqiong Shan, Yongyu Wang,  
Lianggang Hu, Yongsheng Gong

Institute of Hypoxia Medicine, Wenzhou Medical University, PR China

**1P-084** The role of vascular smooth muscle NCX1 in the pathogenesis of pulmonary arterial hypertension

Hideaki Tagashira<sup>1)</sup>, Asahi Nagata<sup>1,2)</sup>, Satomi Kita<sup>1,3)</sup>, Tomo Kita<sup>1)</sup>,  
Sari Suzuki<sup>1)</sup>, Kohtaro Abe<sup>4)</sup>, Akinori Iwasaki<sup>2)</sup>, Takahiro Iwamoto<sup>1)</sup>

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<sup>2)</sup>Department of General Thoracic, Breast and Pediatric Surgery, Faculty of Medicine, Fukuoka University, Japan, <sup>3)</sup>Department of Pharmacology, Faculty of Pharmaceutical Sciences, Tokushima Bunri University, Japan, <sup>4)</sup>Department of Cardiovascular Medicine,

**1P-085** Inflammatory effects of menthol versus non-menthol cigarette smoke on the mouse lungs

Yu Ru Kou<sup>1</sup>), Tzong-Shyuan Lee<sup>2</sup>)

<sup>1</sup>Department of Physiology, School of Medicine, National Yang-Ming University, Taiwan,

<sup>2</sup>Graduate Institute and Department of Physiology, College of Medicine, National Taiwan University, Taiwan

**1P-086** Nerve growth factor contributes laryngeal airway hyperreactivity in rats with intermittent hypoxia

Ping-Hsun Ou<sup>1</sup>), Yan-Jhih Shen<sup>2</sup>), Ching Jung Lai<sup>1</sup>)

<sup>1</sup>Master Program in Medical Physiology, School of Medicine, Tzu Chi University, Taiwan,

<sup>2</sup>PhD program in Pharmacology and Toxicology, School of Medicine, Tzu Chi University, Taiwan

**1P-088** Successful cigarette smoke extract-induced emphysema model defined by histology and inflammation

Siriporn V Siriphorn<sup>1,3</sup>), Supitsara Thorsuwan<sup>1</sup>), Julalux Thongam<sup>1</sup>),  
Poungpetch Hussarin<sup>1</sup>), Thanaporn Rungruang<sup>2</sup>), Sorachai Srisuma<sup>1</sup>)

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**Circulation & Respiration: Vascular Physiology (1)**

**1P-089** Functional Role of TRPC5 in Platelets

Zhuo Duan<sup>1</sup>), Lau Eva<sup>2</sup>), Lo Chun Yin<sup>1</sup>), Yao Xiao Qiang<sup>1</sup>)

<sup>1</sup>School of Biomedical Sciences, The Chinese University of Hong Kong, Hong Kong,

<sup>2</sup>Institute of Neuroscience, University of Louvain, Belgium

**1P-090** Decreased expression of KATP channel in human umbilical smooth muscle during gestational diabetes

Won Sun Park, Ji Hye Jang, Mi Seon Seo

Department of Physiology, Kangwon National University School of Medicine, Korea

**1P-091** Vildagliptin induces vasodilation via SERCA pump and Kv channel activation in aortic smooth muscle

Mi Seon Seo, Won Sun Park

Department of Physiology, Kangwon National University School of Medicine, Korea

**1P-092** Withdrawn

**1P-093** Roles of K<sup>+</sup> channels in synchronising spontaneous Ca<sup>2+</sup> transients in mural cells of rectal arteriole

Retsu Mitsui, Hikaru Hashitani

Department of Cell Physiology, Nagoya City University Graduate School of Medical Sciences, Japan

**1P-094** Periodic assessment of (ET-1) and Nitric Oxide (NO) in hypertensive disorders of pregnancy (HDP)

Hidayatul Radziah Ismawi<sup>1</sup>), Tariq Abd. Razak<sup>1</sup>), Nurjasmine Aida Jamani<sup>2</sup>),  
Maizura Mohd Zainudin<sup>1</sup>)

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- 1P-095** L-Cysteine's carotid flow responses mapped in pre-sympathetic areas of the rat ventral medulla  
Yumi Takemoto  
Physiology II, Biomedical Sciences Major, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan
- 1P-096** Role of c-Abl/YAP<sup>357</sup> in integrin  $\alpha 5$  activation in endothelial atherogenic responses  
Bochuan Li, Jinlong He  
Department of Physiology and Pathophysiology, Tianjin Medical University, China
- 1P-097** Different effects of  $\alpha$  and  $\beta_1$  blockers on Beta in the elastic and muscular arteries in rabbits  
Shi-ichiro Katsuda<sup>1</sup>), Yuko Horikoshi<sup>2</sup>), Yuko Fujikura<sup>3</sup>), Akihiro Hazama<sup>1</sup>), Tsuyoshi Shimizu<sup>4</sup>), Koji Shirai<sup>5</sup>)  
<sup>1</sup>Department of Cellular and Integrative Physiology, Fukushima Medical University School of Medicine, Japan, <sup>2</sup>Department of Laboratory Medicine, Fukushima Medical University School of Medicine, Japan, <sup>3</sup>5th-year Medical Student, Fukushima Medical University School of Medicine, Japan, <sup>4</sup>Shimizu Institute of Space Physiology, Suwa Maternity Clinic, Japan, <sup>5</sup>Seiinkai Mihama Hospital, Japan
- 1P-098** Angiopietin-2 is released after vascular leak onset during anaphylaxis in un- and anesthetized rats  
Toshishige Shibamoto<sup>1</sup>), Mamoru Tanida<sup>1</sup>), Tao Zhang<sup>1,2</sup>), Wei Yang<sup>1,3</sup>), Yuhichi Kuda<sup>1</sup>), Yasutaka Kurata<sup>1</sup>)  
<sup>1</sup>Department of Physiology 2, Kanazawa Medical University, Japan, <sup>2</sup>Department of Colorectal and Hernia Surgery, The Fourth Affiliated Hospital of China Medical University, <sup>3</sup>Department of Infectious Disease, Shengjing Hospital of China Medical University
- 1P-099** Apolipoprotein C3-rich LDL induces endothelial dysfunction and vascular cells senescence *in vivo*  
Ming-Yi Shen<sup>1,2,3</sup>), Li-Zhen Chen<sup>3</sup>), Ping-Hsuan Tsai<sup>4</sup>), Fang-Yu Chen<sup>1,2,3</sup>)  
<sup>1</sup>Department of Pharmacology, School of Medicine, China Medical University, Taiwan, <sup>2</sup>Department of Medicine Research, China Medical University Hospital, Taiwan, <sup>3</sup>Graduate Institute of Biomedical Science, China Medical University, Taiwan, <sup>4</sup>Department of Biological Science and Technology, China Medical University, Taiwan
- 1P-100** The Role of KLF1 in Mediating Immune Response  
Chun Ju Yang<sup>1,2</sup>), Yu Chiau Shyu<sup>2,3,4,5</sup>)  
<sup>1</sup>Institute of Biopharmaceutical Sciences, University of Yang-Ming, Taiwan, <sup>2</sup>Community Medicine Research Center, Chang Gung Memorial Hospital, Taiwan, <sup>3</sup>Institute of Molecular Biology, Academia Sinica, Taiwan, <sup>4</sup>Department of Nursing, Research Center for Food and Cosmetic Safety, College of Human Ecology, Chang Gung University of Science and Technology, Taiwan, <sup>5</sup>Department of Nutrition and Health Sciences, Research Center for Chinese Herbal Medicine, College of Human Ecology, Chang Gung University of Science and Technology, Taiwan
- 1P-101** YAP promotes angiogenesis via STAT3 in endothelial cells  
Jinlong He, Ding Ai, Yi Zhu  
Tianjin Medical University, China
- 1P-102** Inhibition of PRC2 Protects against Restenosis via Suppressing Trimethylation of H3K27 in SMCs  
Jing Liang  
Department of Physiology, Tianjin Medical University, China

- 1P-103** Gaseous components of cigarette smoke upregulate prostaglandin E2 receptor EP4 in aortic aneurysm  
Taro Hiromi<sup>1,2</sup>, Utako Yokoyama<sup>1</sup>, Al Mamun<sup>1</sup>, Tsunehito Higashi<sup>3</sup>, Takahiro Horinouchi<sup>3</sup>, Souichi Miwa<sup>4</sup>, Ichiro Takeuchi<sup>2</sup>, Yoshihiro Ishikawa<sup>1</sup>  
<sup>1</sup>Cardiovascular Research Institute, Yokohama City University, Japan, <sup>2</sup>Department of Emergency Medicine, Yokohama City University, Japan, <sup>3</sup>Department of Cellular Pharmacology, Hokkaido University Graduate School of Medicine, Japan, <sup>4</sup>Toyouka Hospital, Japan
- 1P-104** Central command increases oxygenation of the non-contracting arm muscles during fine hand movement  
Ryota Asahara, Kanji Matsukawa, Kei Ishii, Izumi Okamoto, Yuki Sunami, Hironobu Hamada, Tsuyoshi Kataoka, Wakana Oshita, Tae Watanabe  
Department of Integrative Physiology, Hiroshima University, Japan
- 1P-105** Cold stimulation for the tympanic membrane decreases heart rate  
Kunihiko Tanaka<sup>1</sup>, Akihiro Sugiura<sup>2</sup>  
<sup>1</sup>Graduate School of Health and Medicine, Gifu University of Medical Science, Japan, <sup>2</sup>Department of Radiological Technology, Gifu University of Medical Science
- 1P-106** mGluR2/3 Agonist Suppresses Hypertension Development in SHR  
Julia Chu-Ning Hsu, Shin-ichi Sekizawa, Masayoshi Kuwahara  
Department of Veterinary Medical Sciences, Graduate School of Agricultural and Life Sciences, The University of Tokyo
- 1P-107** Standard-dose gentamicin does not increase a risk of patent ductus  
Toru Akaike, Ayana Kishibuchi, Susumu Minamisawa  
Department of Cell Physiology, The Jikei University, Japan
- 1P-108** Role of TRPV4 on the spontaneous electrical properties of guinea pig mesenteric lymphatic vessel  
Hiromichi Takano, Hikaru Hashitani  
Department of Cell Physiology, Nagoya City University, Japan
- 1P-109** Physiological evidence that mesenteric lymph has been called as white blood  
Tomomi Watanabe-Asaka<sup>1,2</sup>, Daisuke Maejima<sup>2</sup>, Moyuru Hayashi<sup>1,2</sup>, Yoshiko Kawaj<sup>1,2</sup>, Toshio Ohhashi<sup>2</sup>  
<sup>1</sup>Department of Physiology, Faculty of Medicine, Tohoku Medical and Pharmaceutical University, Japan, <sup>2</sup>Department of Innovation of Medical and Health Sciences Research, Shinshu University School of Medicine, Japan

## Endocrine, Reproduction & Development (1)

- 1P-110** Mutual interaction of orexin-A and glucagon-like peptide-1 on reflex swallowing in anesthetized rats  
Motoi Kobashi<sup>1</sup>, Yuichi Shimatani<sup>2</sup>, Masako Fujita<sup>1</sup>, Yoshihiro Mitoh<sup>1</sup>, Ryuji Matsuo<sup>1</sup>  
<sup>1</sup>Department of Oral Physiology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan, <sup>2</sup>Department of Medical Engineering, Faculty of Engineering, Tokyo City University, Japan
- 1P-111** Age-dependent attenuation of hypothalamic sensitivity to thermogenic melanocortin signals  
Manami Oya, Kazuhiro Nakamura

- 1P-112** Intake of caffeine in the morning exhibits anti-obesity effect on mice fed with high-fat diet  
Atsushi Haraguchi, Tomohiro Yamazaki, Konomi Tamura, Shuhei Sato, Shigenobu Shibata  
Laboratory of Physiology and Pharmacology, School of Advanced Science and Engineering, Waseda University, Japan
- 1P-113** Effect of suppression of oral sweet-sensing with gymnema sylvestre on food motivation in humans  
Naomi Sano Kashima<sup>1</sup>), Kanako Kimura<sup>2</sup>), Natsumi Nishitani<sup>2</sup>), Masako Yamaoko Endo<sup>2</sup>), Yoshiyuki Fukuba<sup>2</sup>), Hideaki Kashima<sup>2</sup>)  
<sup>1</sup>Department of Health and Nutrition, Hiroshima Shudo University, Japan, <sup>2</sup>Department of Exercise Science and Physiology, School of Health Sciences, Prefectural University of Hiroshima, Japan
- 1P-114** Impact of Aerobic Exercises on Hunger, Satiety and Food Intake in Type 2 Diabetes Mellitus (T2DM)  
Dinithi Vidanage<sup>1</sup>), Sudarshani Wasalanthri<sup>2</sup>), Priyadarshika Hettiarachchi<sup>3</sup>)  
<sup>1</sup>Department of Nursing and Midwifery, General Sir John Kotelawala Defence University, Sri Lanka, <sup>2</sup>Department of Physiology, University of Colombo, Sri Lanka, <sup>3</sup>Department of Physiology, University of Sri Jayewardenepura, Sri Lanka
- 1P-115** Possible improvement of cognitive function by long-term dark chocolate ingestion in young subjects  
Eri Sumiyoshi<sup>1</sup>), Kentaro Matsuzaki<sup>1</sup>), Naotoshi Sugimoto<sup>3</sup>), Yoko Tanabe<sup>1</sup>), Toshiko Hara<sup>1</sup>), Masanori Katakura<sup>4</sup>), Mayumi Miyamoto<sup>2</sup>), Seiji Mishima<sup>5</sup>), Osamu Shido<sup>1</sup>)  
<sup>1</sup>Department of Environmental Physiology, Shimane University, Japan, <sup>2</sup>Fundamental Nursing, Shimane University, Japan, <sup>3</sup>Department of Physiology, Kanazawa University, Japan, <sup>4</sup>Department of Pharmaceutical Sciences, Josai University, Japan, <sup>5</sup>Central Clinical Laboratory, Shimane University Hospital, Japan
- 1P-116** Maternal low-protein-diet alters the glucose metabolism and its intestinal mechanism of offspring  
Nan Wang<sup>1</sup>), Ke Chen<sup>1</sup>), Bo Lv<sup>2</sup>), Hu Qiao<sup>3</sup>), Bo Hu<sup>3</sup>), Qun jian Yan<sup>1</sup>)  
<sup>1</sup>Department of Physiology and Pathophysiology, School of Basic Medical Sciences, Xi'an Jiaotong University Health Science Center, China, <sup>2</sup>School of Humanities, Xidian University, China, <sup>3</sup>Key Laboratory of Shaanxi Province for Craniofacial Precision Medicine Research, Xi'an Jiaotong University College of Stomatology, China
- 1P-117** Importance of RANTES/CCR5 signaling in lipid oxidation and adaptive thermogenesis in mice  
Pei-Chi Chan<sup>1</sup>), Po-Shiuan Hsieh<sup>1,2</sup>)  
<sup>1</sup>Department of Physiology & Biophysics, National Defense Medical Center, Taiwan, <sup>2</sup>Institute of Preventive Medicine, National Defense Medical Center, Taiwan
- 1P-118** Estradiol protects decrease in energy intake under psychosocial stress in ovariectomized rats  
Miho Nishimura, Sayaka Nishihara, Mariko Kawahara, Mizuho Kawakami, Naoko Nakagi, Yuki Uchida, Akira Takamata, Keiko Morimoto  
Dept. Environm. Health, Facult. Human Life & Environm, Sci., Nara Women's Univ., Japan

- 1P-119** Involvement of phosphoinositide 3-kinase in leptin signaling in sweet sensitive taste cells  
Ryusuke Yoshida<sup>1</sup>, Robert F. Margolskee<sup>2</sup>, Yuzo Ninomiya<sup>2,3</sup>  
<sup>1</sup>Department of Oral Physiology, Graduate School of Medicine, Dentistry and Pharmaceutical Science, Okayama University, Japan, <sup>2</sup>Monell Chemical Senses Center, USA, <sup>3</sup>Division of Sensory Physiology, Research and Development Center for Taste and Odor Sensing, Kyushu University, Japan
- 1P-120** CRF circuit involved in the regulation of food intake  
Shuhei Horio<sup>1</sup>, Satoshi Yamagata<sup>2</sup>, Kenta Kobayashi<sup>3</sup>, Shigeki Kato<sup>4</sup>, Kenji Sakimura<sup>5</sup>, Kazuto Kobayashi<sup>6</sup>, Yasuhiko Minokoshi<sup>1</sup>, Keiichi Itoi<sup>6</sup>  
<sup>1</sup>Division of Endocrinology and Metabolism, National Institute for Physiological Sciences, Japan, <sup>2</sup>Graduate School of Medicine, Hirosaki University, Japan, <sup>3</sup>Section of Viral Vector Development, National Institute for Physiological Sciences, Japan, <sup>4</sup>Department of Molecular Genetics, Fukushima Medical University, Japan, <sup>5</sup>Brain Research Institute, Niigata University, Japan, <sup>6</sup>Graduate School of Information Sciences, Tohoku University, Japan
- 1P-121** Association between Birth weigh and some Metabolic Syndrome Parameters among Medical Students  
Tasabeeh Abd Allah Alnoor<sup>1</sup>, Lamis Abd Algadir Kaddam<sup>2</sup>, Marwa Mohammed Ali<sup>3</sup>, Faris Jamal Altekana<sup>4</sup>, Humeda Suiket Humeda<sup>5</sup>  
<sup>1</sup>Department of Human Physiology, lecturer, University of Aneelain, Sudan, <sup>2</sup>Department of Human Physiology, associate professor, University of Aneelain, Sudan, <sup>3</sup>Department of Human Physiology, master candidate, University of Aneelain, Sudan, <sup>4</sup>Department of Human Physiology, medical student, University of Aneelain, Sudan, <sup>5</sup>Department of Human Physiology, assistant professor, International University of Africa, Sudan
- 1P-122** EID1 inhibits adipogenesis through reduction of GPDH expression  
Tomohiko Sato<sup>1,2,3</sup>, Diana Vargas<sup>1,2</sup>, Saki Kawano<sup>2</sup>, Tomomi Maeyama<sup>2</sup>, Amu Maruyama<sup>2</sup>, Kaoru Uchida<sup>2</sup>, Noriyuki Koibuchi<sup>1</sup>, Noriaki Shimokawa<sup>1,2</sup>  
<sup>1</sup>Department of Integrative Physiology, Gunma University Graduate School of Medicine, Japan, <sup>2</sup>Department of Nutrition, Takasaki University of Health and Welfare, Japan, <sup>3</sup>Department of Physical Therapy, Ota College of Medical Technology, Japan
- 1P-123** Macrophage Raptor deficiency-induced lysosome dysfunction exacerbates non-alcoholic steatohepatitis  
Chunjong Wang, Wenli Liu, Chenji Ye, Yi Zhu, Ding Ai  
Department of Physiology and Pathophysiology, Tianjin Medical University, China
- 1P-124** Capsaicinoid Nonivamide ameliorates hepatic injury on non-alcoholic fatty liver disease in rat model  
Naruemon Wikan<sup>1</sup>, Jiraporn Tocharus<sup>2</sup>, Sivanan Sivasinprasasn<sup>1</sup>, Aphisek Kongkaew<sup>3</sup>, Waraluck Chaichompo<sup>4</sup>, Apichart Suksamrarn<sup>4</sup>, Chainarong Tocharus<sup>1</sup>  
<sup>1</sup>Department of Anatomy, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>3</sup>Research Administration Section, Faculty of Medicine, Chiang Mai University, Thailand, <sup>4</sup>Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Ramkhamhaeng University, Thailand
- 1P-125** Regulation of mitochondrial respiration, energy metabolism, and obesity by neuronal Ca<sup>2+</sup>-sensor-1  
Tomoe Y Nakamura-Nishitani<sup>1</sup>, Shu Nakao<sup>2</sup>, Shigeo Wakabayashi<sup>3</sup>  
<sup>1</sup>Dept. of Mol. Physiol., Natl. Cereb & Cardiovasc. Ctr., Japan, <sup>2</sup>Stem Cell Regen. Med. Lab.,

- 1P-126** Pioglitazone ameliorates senescence related markers in visceral adipose tissue of obese mice  
Masaki Kimura, Risako Ishii, Natsumi Hirano, Ryoei Uchida, Shoji Yamada, Yoshimasa Saito, Hidetsugu Saito  
Division of Pharmacotherapeutics, Faculty of Pharmacy, Keio University, Japan
- 1P-127** Remote ischemic preconditioning affects gluconeogenesis via the brain-liver route  
Yoshihiko Kakinuma<sup>1</sup>, Atsushi Kurabayashi<sup>2</sup>  
<sup>1</sup>Department of Bioregulatory Science, Nippon Medical School Graduate School of Medicine, Japan, <sup>2</sup>Department of Pathology, Kochi Medical School
- 1P-128** Systemic glucose oxidation is enhanced in acquired liver and muscle insulin receptor knockout mice  
Kei Takahashi<sup>1</sup>, Tetsuya Yamada<sup>2</sup>, Takashi Sugisawa<sup>1</sup>, Keiko Kawata<sup>3</sup>, Yoichiro Asai<sup>1</sup>, Yuichiro Munakata<sup>1</sup>, Shinjiro Kodama<sup>1</sup>, Shojiro Sawada<sup>1</sup>, Junta Imai<sup>1</sup>, Makoto Inada<sup>3</sup>, Hideki Katagiri<sup>1</sup>  
<sup>1</sup>Department of Metabolism and Diabetes, Tohoku University Graduate School of Medicine, Japan, <sup>2</sup>Department of Molecular Endocrinology and Metabolism, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, <sup>3</sup>Diagnostic Division, Otsuka Pharmaceutical Co., Ltd.
- 1P-129** CCL5 Deficiency Protect against High-fat Diet-induced Insulin Resistance  
Chao-Yu Kuo, Li-Man Hung  
Department and Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Taiwan
- 1P-130** The effects of insulin signaling on mouse taste bud organoid  
Shingo Takai<sup>1</sup>, Peihua Jiang<sup>2</sup>, Robert F Margolskee<sup>2</sup>, Yuzo Ninomiya<sup>2,3</sup>, Noriatsu Shigemura<sup>1,3</sup>  
<sup>1</sup>Section of Oral Neuroscience, Faculty of Dental Science, Kyushu University, Japan, <sup>2</sup>Monell Chemical Senses Center, <sup>3</sup>Division of Sensory Physiology, Research and Development Center for Taste and Odor Sensing, Kyushu University, Japan
- 1P-131** Anti-hyperglycemic Effect *Gynura Procumbens* (Lour.) Merr. in *In vivo* and *In vitro* Studies  
Cho Lwin Aung<sup>1</sup>, Fumitaka Kawakami<sup>2</sup>, Motoki Imai<sup>2</sup>, Thet Thet Lwin<sup>3</sup>, Ohnmar<sup>4</sup>, Khin Phyu Phyu<sup>5</sup>, Mya Mya Thwin<sup>1</sup>, Hiroko Maruyama<sup>6</sup>  
<sup>1</sup>Department of Physiology, University of Medicine 2, Myanmar, <sup>2</sup>Department of Biochemistry, Graduate School of Medical Sciences, Kitasato University, Japan, <sup>3</sup>Department of Radiology, Graduate School of Medical Sciences, Kitasato University, Japan, <sup>4</sup>Department of Physiology, University of Medicine, Myanmar, <sup>5</sup>Department of Medical Research (DMR), Myanmar, <sup>6</sup>Department of Cytopathology, Graduate School of Medical Sciences, Kitasato University, Japan
- 1P-132** Whole organism chemical screening identifies modulators of pancreatic  $\beta$  cell function  
Hiroki Matsuda<sup>1,2</sup>, Sri Teja Mullapudi<sup>2</sup>, Carol Yang<sup>2</sup>, Hideki Masaki<sup>3</sup>, Daniel Hesselson<sup>4</sup>, Didier Stainier<sup>2</sup>  
<sup>1</sup>College of Life Sciences, Ritsumeikan University, Japan, <sup>2</sup>Max Planck Institute for Heart and Lung Research, <sup>3</sup>The Institute of Medical Science, University of Tokyo, <sup>4</sup>Garvan Institute of Medical Research
- 1P-133** Colonic smooth muscle injury ameliorates via SIRT1 activator in STZ-Induced Diabetic Mice

Hongli Lu<sup>1,2)</sup>, Xu Huang<sup>1)</sup>, Jie Chen<sup>2)</sup>, Wenxie Xu<sup>1)</sup>

<sup>1</sup>Department of Anatomy and Physiology, Shanghai Jiaotong University, School of Medicine, China, <sup>2</sup>Department of Pediatric Surgery, Xin Hua Hospital, Affiliated to Shanghai Jiao Tong University School of Medicine, China

**1P-134** Evaluation of anti-hyperglycemic efficacy of *Lactobacillus paracasei* HII01 in type 2 diabetic rat

Parichart Toejing<sup>1)</sup>, Nuntawat Khat-Udomkiri<sup>2)</sup>, Sasithorn Sirilun<sup>2)</sup>,  
Chaiyavat Chaiyasut<sup>2)</sup>, Narissara Lailerd<sup>1)</sup>

<sup>1</sup>Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand,  
<sup>2</sup>Innovation Center for Holistic Health, Nutraceuticals and Cosmeceuticals, Faculty of Pharmacy, Chiang Mai University, Thailand

**1P-135** White-skinned sweet potato stimulates insulin secretion from pancreatic  $\beta$  cells

Takuma Nagata, Takumi Shimada, Tetsuya Okuyama, Mikio Nishizawa,  
Eri Mukai

Graduate School of Life Sciences, Ritsumeikan University, Japan

**1P-136** Correlation between hie-sho score and progesterone, fat intake in the pre- and post-menopausal women

Yuki Uchida, Kyoko Ueshima, Koko Kano, Mayuko Minami, Yuri Mizukami,  
Keiko Morimoto

Department of Health Sciences, Faculty of Human Life and Environment, Nara Women's University, Japan

**1P-137** Action mechanisms of sex steroids during puberty on sexual differentiation of the brain in mice

Masahiro Morishita, Shinji Tsukahara

Division of Life Science, Graduate School of Science and Engineering, Saitama University, Japan

**1P-138** Role of Sphingosine-1-phosphate on the proliferative effect of Estrogen in Human Osteoblast cells

Duangrat Tatikanlayaporn<sup>1)</sup>, Pawinee Piyachaturawat<sup>2)</sup>, Michelle R Witt<sup>3)</sup>,  
Irina C Tourkova<sup>4)</sup>, Harry C Blair<sup>4)</sup>

<sup>1</sup>Division of Cell Biology, Faculty of Medicine, Thammasat University, Thailand,  
<sup>2</sup>Department of Physiology, Faculty of Sciences, Mahidol University, Thailand,  
<sup>3</sup>Departments of Pathology and of Microbiology, Immunology & Cell Biology, West Virginia University School of Medicine, <sup>4</sup>Department of Pathology, University of Pittsburgh

**1P-139** Neonatal motor coordination is impaired by moderate perinatal hypothyroidism in mice

Michifumi Kokubo<sup>1)</sup>, Izuki Amano<sup>1)</sup>, Wataru Miyazaki<sup>1)</sup>, Yusuke Takatsuru<sup>2)</sup>,  
Asahi Haijima<sup>1)</sup>, Shogo Haraguchi<sup>3)</sup>, Noriyuki Koibuchi<sup>1)</sup>

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**1P-140** Mifepristone upregulates vimentin expression in human hepatic stellate cells

Takeshi Hashimoto, Katsuya Hirano

Department of Cardiovascular Physiology, Faculty of Medicine, Kagawa University, Japan

**1P-141** CDK5 regulates estrogen receptor and breast cancer cell growth



Chia Wei Huang<sup>1</sup>), Yueh-Tsung Lee<sup>2</sup>), Wei-Huan Huang<sup>3</sup>), Mei-Chih Chen<sup>3,4</sup>), Ho Lin<sup>1</sup>)

<sup>1</sup>Department of Life Sciences, National Chung Hsing University, Taiwan, <sup>2</sup>Division of General Surgery, Chang Bing Show Chwan Memorial Hospital, Taiwan, <sup>3</sup>Medical Research Center for Exosomes and Mitochondria Related Diseases, China Medical University Hospital, Taiwan, <sup>4</sup>Department of Nursing, Asia University, Taiwan

- 1P-142**    **Effect of Blood Donation on Insulin Resistance and Lipid Peroxidation Product**  
Thet Khaing Lei Maung, Zin Maung Tun  
Department of Physiology, University of Medicine Mandalay, Myanmar
- 1P-143**    **Ghrelin modulates duration or number of wakefulness, NREM and REM sleep event**  
Ryosuke Okumura, Toshiki Tajima, Takuya Mukai, Taiga Yamashita, Taichi Kakizawa, Juhyon Kim, Kazuki Nakajima  
Division of Bio-Information Engineering, Faculty of Engineering, University of Toyama, Japan
- 1P-144**    **Estrogen deficiency leads to decreased water channel aquaporin 4 expression in skeletal muscle**  
Yung-Li Hung<sup>1</sup>), Keigo Ota<sup>2</sup>), Minenori Ishido<sup>3</sup>), Shuichi Machida<sup>2</sup>)  
<sup>1</sup>Institute of Health and Sports Science & Medicine, Juntendo University, Japan, <sup>2</sup>Graduate School of Health and Sports Science, Juntendo University, <sup>3</sup>Section for Health-related Physical Education, Division of Human Sciences, Faculty of Engineering, Osaka Institute of Technology
- 1P-146**    **The expression of the arginine vasopressin gene in the rat hypothalamus of EAE model**  
Kentaro Tanaka, Haruki Nishimura, Kazuaki Nishimura, Satomi Sonoda, Hiromichi Ueno, Takanori Matsuura, Reiko Saito, Mitsuhiko Yoshimura, Takashi Maruyama, Koichi Kusuhara, Yoichi Ueta  
Department of Physiology, School of Medicine, University of Occupational and Environmental Health, Japan
- 1P-147**    **Effect of persistent nicotine exposure on cell differentiation in rat pituitary gland**  
Masashi Higuchi, Takahiro Yamaguchi, Ayaka Hibara, Yoshiaki Yamano  
Laboratory of Veterinary Biochemistry, Joint Department of Veterinary Medicine, Faculty of Agriculture, Tottori University, Japan
- 1P-148**    **Identification and functional analysis of inhibin  $\beta E$  (*INHBE*) as a hepatokine**  
Akihiro Kikuchi<sup>1,2</sup>), Hirofumi Misu<sup>2</sup>), Hirobumi Igawa<sup>2</sup>), Yasuhiko Minokoshi<sup>1</sup>), Toshinari Takamura<sup>2</sup>)  
<sup>1</sup>Division of Endocrinology and Metabolism, National Institute for Physiological Sciences, Japan, <sup>2</sup>Department of Endocrinology and Metabolism, Kanazawa University Graduate School of Medical Sciences, Japan
- 1P-149**    **Serum leptin adiponectin and their effects on obesity among adolescents in Colombo district Sri Lanka**  
Thilini Abeyratne<sup>1</sup>), Sharaine Fernando<sup>2</sup>), Rasika Perera<sup>3</sup>)  
<sup>1</sup>Department of Allied Health Sciences, University of Sri Jayewardanapura, Sri Lanka, <sup>2</sup>Department of Physiology, University of Sri Jayewardanapura, Sri Lanka, <sup>3</sup>Department of Biochemistry, University of Sri Jayewardanapura, Sri Lanka
- 1P-151**    **Targeting FGF/FGFR axis ameliorates endometriosis progression**

Pei-Chin Chuang<sup>3</sup>), Wen-Hong Su<sup>1</sup>), Shaw-Jenq Tsai<sup>3</sup>), Meng-Hsing Wu<sup>2</sup>)

<sup>1</sup>Department of Medical Research, Chang Gung Memorial Hospital, Taiwan,

<sup>2</sup>Department of Obstetrics & Gynecology, College of Medicine, National Cheng Kung University, Taiwan, <sup>3</sup>Department of Physiology, College of Medicine, National Cheng

Kung University, Taiwan

**1P-152** Subepithelial synchronous interstitial cells drive spontaneous contractions in the seminal vesicle

Mitsue Takeya<sup>1</sup>), Hikaru Hashitani<sup>2</sup>), Tokumasa Hayashi<sup>3</sup>), Ryuhei Higashi<sup>4</sup>), Kei-Ichiro Nakamura<sup>5</sup>), Makoto Takano<sup>1</sup>)

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**1P-153** Chronological change in concepts and symptoms of premenstrual syndrome of female university students

Ayaka Matsuo, Shunta Maruo, Takayoshi Hosono

Department of Biomedical Engineering, Osaka Electro-Communication University, Japan

**1P-154** Expression and function of GLUT1-4 in mouse endometrium during the preimplantation period

Long Yun, Li Nie, Yuan Dong Zhi, Liu Min, Zhao Dan, Wang Yi Cheng, Zhang Xue Qing, Lei Yi, Wang Mei Jiao, Zhang Jin Hu, Yue Li Min

Department of Physiology, University of SiChuan, China

**1P-155** The dynamic expression of PTEN in the development of mouse spiral limbus

Youyi Dong, Kazuyo Kamitori

Department of Molecular Physiology, Faculty of Medicine, Kagawa University, Japan

**1P-156** The effect of post-natal PFOS exposure on cerebellar development and motor coordination

Abdallah Mshaty, Asahi Haijima, Wataru Miyazaki, Noriyuki Koibuchi

Integrative Physiology Department, Gunma University, Japan

**1P-157** The effects of thyroid hormone on development of hippocampal neurons in vitro

Hiroyuki Yajima<sup>1</sup>), Izuki Amano<sup>1</sup>), Wataru Miyazaki<sup>1</sup>), Yusuke Takatsuru<sup>2</sup>), Noriyuki Koibuchi<sup>1</sup>)

<sup>1</sup>Department of Integrative Physiology, Gunma University, Japan, <sup>2</sup>Department of Medicine, Johmoh Hospital, Japan

**1P-158** Perceptions towards health and care giving among elderly with loneliness, living in aged-care homes

Hapuarachchige Sewvandi Maliga Sampath Kumari Wijesiri<sup>1</sup>), Kerstin Samarasinghe<sup>2</sup>)

<sup>1</sup>Department of Nursing and Midwifery, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka, <sup>2</sup>Department of Health Sciences, Kristianstad University, Sweden

**1P-159** Krüppel-like factor 5 regulates proliferation of neural precursor cells in the developing brain

Takahiro Fuchigami<sup>1</sup>), Yoshitaka Hayashi<sup>1</sup>), Anri Kuroda<sup>1</sup>), Takuya Azami<sup>2</sup>), Masatsugu Ema<sup>2</sup>), Seiji Hitoshi<sup>1</sup>)

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**1P-160** Rescue of craniofacial defects with therapeutic hedgehog target chemical in ECO syndrome mouse model

Jeong-Oh Shin<sup>1</sup>, Jieun Song<sup>2</sup>, Hyuk Wan Ko<sup>3</sup>, Jinwoong Bok<sup>1</sup>

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**Neuroscience: Synapse & neural cellular communication (1)**

**1P-161** Nicotine layer-specifically modulates synaptic plasticity in the mouse insular cortex

Hiroki Toyoda, Hajime Sato, Dong-Xu Yin, Takafumi Kato

Department of Oral Physiology, Osaka University Graduate School of Dentistry, Japan

**1P-162** Large volume electron microscopy and neural microcircuit analysis

Yoshiyuki Kubota<sup>1,2</sup>, Jaerin Sohn<sup>1,3</sup>, Yasuo Kawaguchi<sup>1,2</sup>

<sup>1</sup>Div Cerebral Circuitry, National Institute for Physiological Sciences, Japan, <sup>2</sup>Dept Physiological Sciences, The Graduate University for Advanced Studies (SOKENDAI),

<sup>3</sup>Research Fellow of Japan Society for the Promotion of Science (JSPS), Japan

**1P-163** Stimulated single fiber electromyography in orbicularis oculi muscle in profenofos poisoned patients

Chanika Alahakoon<sup>1</sup>, Tharaka Lagath Dassanayake<sup>1</sup>,

Indika Bandara Gawarammana<sup>2</sup>, Vajira Senaka Weerasinghe<sup>1</sup>

<sup>1</sup>Department of Physiology, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Medicine, University of Peradeniya, Sri Lanka

**1P-164** Conduction filtering of synaptic currents via dendrites by SK channels in cerebellar Purkinje cells

Gen Ohtsuki

Hakubi Center / Department of Biophysics, Kyoto University, Japan

**1P-165** Bidirectional dopamine-dependent synaptic plasticity at IPSC of SNR GABA neurons in young rat slice

Takefumi Miyazaki

Department of Physiology, Tokyo Medical University, Japan

**1P-166** Miniature inhibitory postsynaptic current in cerebellar Purkinje cells of old dystrophic *mdx* mice

Chek Ying Tan, Sindy Lyn Ling Kueh, Stewart Ian Head,

John William Morley

School of Medicine, Western Sydney University, Australia

**1P-167** Src kinase regulates the presynaptic transmitter release in avian cochlear nucleus

Takayuki Furuta, Rei Yamada, Hiroshi Kuba

Department of Cell Physiology, University of Nagoya, Japan

**1P-168** The mGluR1 contributes strengthening and maintenance of developing lemniscal synapses

Madoka Narushima<sup>1,2</sup>, Yuki Yagasaki<sup>1</sup>, Yuichi Takeuchi<sup>1</sup>, Mariko Miyata<sup>1</sup>

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**1P-169** Inhibition expands dynamic range of inputs in low-tuning frequency neurons in avian cochlear nucleus

Mohammed Al-Yaari, Rei Yamada, Hiroshi Kuba  
Department of Cell Physiology, Japan

- 1P-170** 5-HT-induced inhibition of excitatory transmission onto basal forebrain cholinergic neurons  
Takuma Nishijo, Toshihiko Momiyama  
Department of Pharmacology, Jikei University School of Medicine, Japan
- 1P-171** Electrophysiological comparison between zebrin-positive and -negative Purkinje cells  
Viet Tuan Nguyen-Minh, Anh Khoa Tran, Yuanjun Luo, Izumi Sugihara  
Department of Systems Neurophysiology, Tokyo Medical and Dental University, Japan
- 1P-172** Actin-associated tropomyosins in the dendritic spine play a role in synaptic function  
Chanchanok Chaichim<sup>1</sup>, Holly Stefen<sup>1</sup>, Merryn Brettell<sup>1</sup>, Peter W Gunning<sup>1</sup>, Edna C Hardeman<sup>1</sup>, Thomas Fath<sup>1,2</sup>, John M Power<sup>1</sup>  
<sup>1</sup>School of Medical Sciences, UNSW Sydney, Australia, <sup>2</sup>Department of Biomedical Sciences, Macquarie University, Australia
- 1P-173** New method to prevent the visually-evoked somatic depolarization for spine imaging  
Satoru Kondo<sup>1,2</sup>, Kenichi Ohki<sup>1,2</sup>  
<sup>1</sup>IRCN, The University of Tokyo Institutes for Advanced Study, The University of Tokyo, Japan, <sup>2</sup>Department of Physiology, School of Medicine, The University of Tokyo
- 1P-174** Fndc3b promotes climbing fiber synapse elimination partly by inhibiting STAT3 in the cerebellum  
Kushibe Kyoko<sup>1</sup>, Celine Mercier<sup>1</sup>, Takaki Watanabe<sup>1</sup>, Taisuke Miyazaki<sup>2</sup>, Miwako Yamasaki<sup>2</sup>, Masahiko Watanabe<sup>2</sup>, Naofumi Uesaka<sup>1</sup>, Masanobu Kano<sup>1</sup>  
<sup>1</sup>Dept of Neurophysiol, University of Tokyo, Japan, <sup>2</sup>Dept of Anat, Hokkaido Univ Grad Sch of Med, Japan
- 1P-175** Distinct kinetics of synaptic vesicle replenishment mediated by synaptotagmin 1, 2 and 7  
Shota Tanifuji<sup>1</sup>, Ken Kojima<sup>2</sup>  
<sup>1</sup>Department of Physiology, Tokyo Medical University, Japan, <sup>2</sup>Pre-clinical Research Center, Tokyo Medical University, Tokyo, Japan
- 1P-176** Synaptic clustering regulates the auditory coincidence detection in low tuning frequency neurons  
Rei Yamada, Hiroshi Kuba  
Department of Cell Physiology, Graduate School of Medicine, Nagoya University, Japan

### Neuroscience: Neural cell signalling

- 1P-177** Function of type 1 metabotropic glutamate receptors in the neonatal rat hippocampal marginal zone  
Megumi Taketo  
Department of Cellular and Functional Biology Institute of Biomedical Science, Faculty of Medicine, Kansai Medical University, Japan
- 1P-178** Sodium channel-independent components of axonal afterdepolarization in hippocampal mossy fibers  
Shunsuke Ohura, Haruyuki Kamiya

- 1P-179** Different taste sensitivity to salt and amiloride relates localization in the rat rNST neurons  
Tatsuko Yokota, Katsunari Hiraba  
Department of Physiology, School of Dentistry, Aichi-Gakuin University, Japan
- 1P-180** Olfactory marker protein controls cAMP-throughput capacity via cAMP-gated channels in normosmia  
Noriyuki Nakashima<sup>1</sup>), Kie Nakashima<sup>2</sup>), Akiko Taura<sup>3</sup>), Akiko Nakashima<sup>4</sup>), Harunori Ohmori<sup>5</sup>), Makoto Takano<sup>1</sup>)  
<sup>1</sup>Department of Physiology, Kurume University School of Medicine, Japan, <sup>2</sup>Laboratory of Developmental Neurobiology, Graduate School of Biostudies, Kyoto University, Japan, <sup>3</sup>Department of Medical Engineering, Faculty of Health Science, Aino University, Japan, <sup>4</sup>Post Graduate Training Program, The University of Tokyo Hospital, Japan, <sup>5</sup>Department of Physiology, School of Medicine, Kanazawa Medical University, Japan
- 1P-181** Melatonin does not protect the brain against cardiac ischemia/reperfusion injury  
Nattayaporn Apajai<sup>1,2</sup>), Kodchanan Singhanat<sup>1,2,3</sup>), Thidarat Jaiwongkam<sup>1,2</sup>), Siriporn C Chattipakorn<sup>1,2,4</sup>), Nipon Chattipakorn<sup>1,2,3</sup>)  
<sup>1</sup>Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Center of Excellence in Cardiac Electrophysiology Research, Chiang Mai University, Thailand, <sup>3</sup>Cardiac Electrophysiology Unit, Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>4</sup>Department of Oral Biology and Diagnostic Sciences, Faculty of Dentistry, Chiang Mai University, Thailand
- 1P-182** Developmental regulation of Ca channel expression in avian cochlear nucleus  
Kensuke Muto, Rei Yamada, Hiroshi Kuba  
Department of Cell Physiology, Graduate School of Medicine, Nagoya University, Japan
- 1P-183** Mechanisms underlying WNK3 kinase mediated regulation of neuronal excitability in prefrontal cortex  
Adya Saran Sinha<sup>1</sup>), Tianying Wang<sup>1</sup>), Yasushi Hosoi<sup>1</sup>), Eisei Sohara<sup>2</sup>), Tenpei Akita<sup>1</sup>), Shinichi Uchida<sup>2</sup>), Atsuo Fukuda<sup>1</sup>)  
<sup>1</sup>Department of Neurophysiology, Hamamatsu University School of Medicine, Japan, <sup>2</sup>Department of Nephrology, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Japan
- 1P-184** Ca<sup>2+</sup> signaling and ion channel activation in embryonic neurons in the medial ganglionic eminence  
Tenpei Akita, Atsuo Fukuda  
Department of Neurophysiology, Hamamatsu University School of Medicine, Japan
- 1P-185** GABA in the suprachiasmatic nucleus refines circadian behavioral rhythms  
Daisuke Ono<sup>1</sup>), Ken-Ichi Honma<sup>2</sup>), Yuchio Yanagawa<sup>3</sup>), Akihiro Yamanaka<sup>1</sup>), Sato Honma<sup>2</sup>)  
<sup>1</sup>Research Institute of Environmental Medicine, Nagoya University, Japan, <sup>2</sup>Research and Education Center for Brain Science, Hokkaido University Graduate School of Medicine, Japan, <sup>3</sup>Department of Genetic and Behavioral Neuroscience, Gunma University Graduate School of Medicine, Japan
- 1P-186** Calpain inhibition modulates NMDAR responsiveness to calcium increases in midbrain dopamine neurons  
Shinhye Kim, Sun Hee Jeon, Hyung Seo Park, Se Hoon Kim

**1P-187** P2X7 receptor-pannexin-1 channel interaction in rat trigeminal ganglion neuron

Hiroyuki Inoue<sup>1</sup>), Hidetaka Kuroda<sup>2</sup>), Noboru Ishikawa<sup>3</sup>), Sadao Ohyama<sup>4</sup>), Asuka Higashikawa<sup>4</sup>), Maki Himura<sup>4</sup>), Hitoshi Yamamoto<sup>3</sup>), Yoshiyuki Shibukawa<sup>4</sup>), Tatsuya Ichinohe<sup>1</sup>)

<sup>1</sup>Department of Dental Anesthesiology, Tokyo Dental College, Japan, <sup>2</sup>Department Critical Care Medicine and Dentistry, Kanagawa Dental University Graduate School of Dentistry, Japan, <sup>3</sup>Department of Histology and Developmental Biology, Tokyo Dental College, <sup>4</sup>Department of Physiology, Tokyo Dental College, Japan

**Neuroscience: Brain circuits**

**1P-188** Oxygen affects simple circuit for cold acclimation via KQT potassium channel and HADH in *C. elegans*

Atsushi Kuhara<sup>1,3</sup>), Mayu Fujita<sup>1</sup>), Misaki Okahata<sup>1</sup>), Yohei Minakuchi<sup>2</sup>), Atsushi Toyoda<sup>2</sup>), Akane Ohta<sup>1</sup>)

<sup>1</sup>Inst. for Integrative Neurobio., Konan University, Japan, <sup>2</sup>National Institute of Genetis, Japan, <sup>3</sup>PRIME, AMED

**1P-189** Corticocortical mechanisms underlying perceptual memory consolidation during NREM sleep

Daichi Hirai<sup>1,2</sup>), Daisuke Miyamoto<sup>1</sup>), Yasuhiro Oisi<sup>1</sup>), Maya Odagawa<sup>1</sup>), Chie Matsubara<sup>1</sup>), Kanako Ueno<sup>1</sup>), Kenta Kobayashi<sup>3</sup>), Akiko Hayashi-Takagi<sup>4</sup>), Masanori Murayama<sup>1</sup>)

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**1P-190** Physiological and anatomical organization of cortico-striatal inputs in the basal ganglia

Hiromi Sano<sup>1,2</sup>), Kenta Kobayashi<sup>2,3</sup>), Shigeki Kato<sup>4</sup>), Satomi Chiken<sup>1,2</sup>), Kazuto Kobayashi<sup>4</sup>), Atsushi Nambu<sup>1,2</sup>)

<sup>1</sup>Division of System Neurophysiology, NIPS, Japan, <sup>2</sup>Department of Physiological Sciences, SOKENDAI, Japan, <sup>3</sup>Section of Viral Vector Development, NIPS, Japan, <sup>4</sup>Department of Molecular Genetics, Fukushima Med. Univ., Japan

**1P-191** Effects of acute kidney dysfunction on arginine vasopressin in transgenic rats

Hiromichi Ueno, Kenya Sanada, Kentaro Tanaka, Haruki Nishimura, Kazuaki Nishimura, Satomi Sonoda, Yoshihiro Yoshimura, Takashi Maruyama, Yutaka Otsuji, Yoichi Ueta

Department of Physiology, University of Occupational and Environmental Health, Japan

**1P-192** How does the cerebellum control thalamocortical activity?

Satomi Chiken<sup>1,2</sup>), Hiromi Sano<sup>1,2</sup>), Kenta Kobayashi<sup>2,3</sup>), Atsushi Nambu<sup>1,2</sup>)

<sup>1</sup>Division of System Neurophysiology, National Institute for Physiological Sciences, Japan, <sup>2</sup>Department of Physiological Sciences, SOKENDAI, Japan, <sup>3</sup>Section of Viral Vector Development, National Institute for Physiological Sciences, Japan

**1P-193** The perioral sensory signaling pathway for complex spike generation in cerebellar Purkinje cells

Reika Kubo<sup>1</sup>), Atsu Aiba<sup>2</sup>), Kouichi Hashimoto<sup>1</sup>)

<sup>1</sup>Department of Neurophysiology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan, <sup>2</sup>Laboratory of Animal Resources, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, The University of Tokyo, Japan

**1P-194** Examination into effects of stimulation of the lateral habenula on cardiovascular responses in rats

Tri Huu Doan<sup>1,2,4</sup>, Yuma Sato<sup>1,3</sup>, Masayuki Matsumoto<sup>1</sup>,  
Tadachika Koganezawa<sup>1</sup>

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**1P-195** NMDA receptor-mediated activation of excitatory networks in rat interstitial nucleus of Cajal

Yasuhiko Saito

Department of Neurophysiology, Nara Medical University, Japan

**1P-196** Topographic representation of saccade vector in frontal eye field of common marmoset

Chih-Yang Chen, Denis Matrov, Kuan-Ting Ho, Tadashi Isa

Division of Physiology and Neurobiology, Department of Neuroscience, Graduate School of Medicine, Kyoto University, Japan

**1P-197** Measurement of multiple cerebellar mossy fiber activities by calcium imaging in mouse

Satoshi Manita<sup>1</sup>, Koji Ikezoe<sup>1</sup>, Masaaki Sato<sup>2,3</sup>, Masamichi Ohkura<sup>2,3</sup>,  
Junichi Nakai<sup>2,3</sup>, Yasunori Hayashi<sup>4</sup>, Kazuo Kitamura<sup>1</sup>

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**1P-198** Activity-dependent formation and restoration of callosal axon projections in developing neocortex

Yoshiaki Tagawa<sup>1,2</sup>, Yuta Tezuka<sup>2</sup>, Kenta Hagihara<sup>3</sup>, Kenichi Ohki<sup>4</sup>,  
Tomoo Hirano<sup>2</sup>

<sup>1</sup>Department of Physiology, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan, <sup>2</sup>Department of Biophysics, Graduate School of Science, Kyoto University, Japan, <sup>3</sup>Friedrich Miescher Institute, Neurobiology, Switzerland, <sup>4</sup>Department of Physiology, Graduate School of Medicine, University of Tokyo, Japan

**1P-199** Neural ensemble dynamics during P-waves in mice

Tomomi Tsunematsu<sup>1,2,3,4</sup>, Arno Onken<sup>5</sup>, Shuzo Sakata<sup>1</sup>

<sup>1</sup>Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Japan, <sup>2</sup>Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, <sup>3</sup>Super-network Brain Physiology, Graduate School of Life Sciences, Tohoku University, <sup>4</sup>JST, PRESTO, <sup>5</sup>School of Informatics, University of Edinburgh

**1P-200** The neural connections between the oculomotor neural integrators and the vestibulo-cerebellum

Taketoshi Sugimura, Yasuhiko Saito

Department of Neurophysiology, Nara Medical University, Japan

**1P-201** Serotonin regulated the fetal movement-like activity in the spinal cord

Reona Furukawa<sup>1</sup>, Chiaki Uchida<sup>1</sup>, Hiroataka Ooka<sup>1</sup>, Yoshiyuki Ohmura<sup>3</sup>,

Akiko Arata<sup>1)</sup>

<sup>1</sup>Department of Physiology, Hyogo College of Medicine, Japan, <sup>2</sup>Lab. for Intell. Sys. & Informatics, Dept. Mechano-Informatics, School of Information Science & Technology, Univ. of Tokyo, Japan

- 1P-202**    **Function of inhibitory neurons in the solitary nucleus in the control of respiration**  
 Noriyuki Hama<sup>1)</sup>, Shigefumi Yokota<sup>2)</sup>, Masashi Fujitani<sup>1,2)</sup>, Yasumasa Okada<sup>3)</sup>, Naohiro Koshiya<sup>4)</sup>, Hidehiko Koizumi<sup>4)</sup>  
<sup>1</sup>Department of Neural and Muscular Physiology, Shimane University School of Medicine, Japan, <sup>2</sup>Department of Anatomy and Neuroscience, Shimane University School of Medicine, <sup>3</sup>Clinical Research Center, Murayama Medical Center, <sup>4</sup>Cellular and Systems Neurobiology Section, NINDS, NIH
- 1P-203**    **Information processing in brainstem bitter taste-relaying neurons**  
 Makoto Sugita, Kuniyo Yamamoto  
 Department of Physiology and Oral Physiology, Graduate School of Biomedical & Health Sciences, Hiroshima University, Japan
- 1P-204**    **Inhibitory local connection of parvalbumin-expressing neurons in the rat globus pallidus**  
 Tetsuya Higashiyama<sup>1)</sup>, Fuyuki Karube<sup>1)</sup>, Yasuharu Hirai<sup>1)</sup>, Kenta Kobayashi<sup>2)</sup>, Fumino Fujiyama<sup>1)</sup>  
<sup>1</sup>Department of Brain Science, Doshisha University, Japan, <sup>2</sup>Section of Viral Vector Development, Center for Genetic Analysis of Behavior, NIPS, Japan
- 1P-205**    **Effects of hypovolemia and osmotic challenge on arginine vasopressin synthesis in transgenic rats**  
 Kenya Sanada<sup>1,2)</sup>, Hiromichi Ueno<sup>1,2)</sup>, Hiroki Beppu<sup>1)</sup>, Kentaro Tanaka<sup>1)</sup>, Haruki Nishimura<sup>1)</sup>, Kazuaki Nishimura<sup>1)</sup>, Satomi Sonoda<sup>1)</sup>, Mitsuhiro Yoshimura<sup>1)</sup>, Takashi Maruyama<sup>1)</sup>, Yutaka Otsuji<sup>2)</sup>, Yoichi Ueta<sup>1)</sup>  
<sup>1</sup>Department of Physiology, University of Occupational and Environmental Health, Japan, <sup>2</sup>Department of Cardiovascular Medicine and Nephrology
- 1P-206**    **Sex difference of oxytocin and vasopressin dynamics in the hypothalamus of rats**  
 Kazuaki Nishimura<sup>1,2)</sup>, Kenya Sanada<sup>1)</sup>, Hiroki Beppu<sup>1)</sup>, Haruki Nishimura<sup>1)</sup>, Kentaro Tanaka<sup>1)</sup>, Satomi Sonoda<sup>1)</sup>, Hiromichi Ueno<sup>1)</sup>, Mitsuhiro Yoshimura<sup>1)</sup>, Takashi Maruyama<sup>1)</sup>, Kiyoshi Yoshino<sup>2)</sup>, Yoichi Ueta<sup>1)</sup>  
<sup>1</sup>Department of Physiology, School of Medicine, University of Occupational and Environmental Health, Japan, <sup>2</sup>Department of Obstetrics and Gynecology, School of Medicine, University of Occupational and Environmental Health, Japan
- 1P-207**    **Projection-specific cortico-cortical transformations in the mouse visual system**  
 Fumitaka Osakada<sup>1,2,3)</sup>  
<sup>1</sup>Laboratory of Cellular Pharmacology, Graduate School of Pharmaceutical Sciences, Nagoya University, Japan, <sup>2</sup>Laboratory of Neural Information Processing, Institute for Advanced Research, Nagoya University, Japan, <sup>3</sup>PRESTO, Japan Science and Technology Agency, Japan
- 1P-208**    **Presynaptic H3 heteroreceptor in nucleus accumbens mediates anxiolytic effect of histamine**  
 Jing-Ning Zhu<sup>1,2)</sup>, Shi-Yu Peng<sup>1)</sup>, Bin Li<sup>1)</sup>, Qian-Xing Zhuang<sup>1)</sup>, Shu-Tao Xie<sup>1)</sup>, Jian-Jun Wang<sup>1,2)</sup>  
<sup>1</sup>State Key Laboratory of Pharmaceutical Biotechnology and Department of Physiology, School of Life Sciences, Nanjing University, China, <sup>2</sup>Institute for Brain Sciences, Nanjing University, China



- 1P-209** VTA neurons targeting cortical motor areas exhibit highly diffuse collateral projections  
 Yoshinori Koshimizu<sup>1,3</sup>, Kenta Kobayashi<sup>2,3</sup>, Kaoru Isa<sup>1,3</sup>, Tadashi Isa<sup>1,3</sup>  
<sup>1</sup>Department of Neurophysiology, Graduated School of Medicine, University of Kyoto, Japan, <sup>2</sup>Laboratory of Viral Vector Development, National Institute for Physiological Sciences, Japan, <sup>3</sup>CREST, JST, Japan
- 1P-210** Phasic increase of interleukin 1 in the dorsal raphe nucleus affects inter-male aggressive behavior  
 Aki Takahashi<sup>1,2,3</sup>, Hossein Aleyasin<sup>2</sup>, Mihaela A Stavarache<sup>4</sup>, Meghan E Flanigan<sup>2</sup>, Caroline Menard<sup>2</sup>, Madeline L Pfau<sup>2</sup>, Georgia E Hodes<sup>2</sup>, Sonoko Ogawa<sup>1</sup>, Bruce S Mcewen<sup>3</sup>, Scott J Russo<sup>2</sup>  
<sup>1</sup>Laboratory of Behavioral Neuroendocrinology, University of Tsukuba, Japan, <sup>2</sup>Center for Affective Neuroscience and Friedman Brain Institute, Icahn School of Medicine at Mount Sinai, <sup>3</sup>Laboratory of Neuroendocrinology, The Rockefeller University, <sup>4</sup>Department of Neurological Surgery, Weill Cornell Medical College
- 1P-211** Cerebellar integration of neocortical somatosensory signals  
 Misa Shimuta<sup>1</sup>, Izumi Sugihara<sup>2</sup>, Taro Ishikawa<sup>1</sup>  
<sup>1</sup>Dept. Pharmacology, Jikei Univ. Sch. of Med., Japan, <sup>2</sup>Dept. Systems Neurophysiol., Tokyo Med. Dent. Univ., Japan
- 1P-212** Phox2b-expressing neurons in the rat reticular formation dorsal to the trigeminal motor nucleus  
 Shiro Nakamura<sup>1</sup>, Kouta Nagoya<sup>2</sup>, Keiko Ikeda<sup>3</sup>, Hiroshi Onimaru<sup>4</sup>, Kiyoshi Kawakami<sup>5</sup>, Kiyomi Nakayama<sup>1</sup>, Ayako Mochizuki<sup>1</sup>, Masanori Dantsuji<sup>1</sup>, Tomio Inoue<sup>1</sup>  
<sup>1</sup>Department of Oral Physiology, Showa University School of Dentistry, Japan, <sup>2</sup>Division of Dysphagia Rehabilitation, Department of Oral Biological Science, Faculty of Dentistry Niigata University, <sup>3</sup>Department of Physiology, School of Medicine, International University of Health and Welfare, <sup>4</sup>Department of Physiology, Showa University School of Medicine, <sup>5</sup>Division of Biology, Center for Molecular Medicine, Jichi Medical University
- 1P-213** Neural activity underlying mismatch negativity generation in macaque temporal and frontal cortices  
 Yuki Suda<sup>1</sup>, Mariko Tada<sup>2</sup>, Takeshi Matsuo<sup>3</sup>, Keisuke Kawasaki<sup>4</sup>, Takafumi Suzuki<sup>5</sup>, Isao Hasegawa<sup>4</sup>, Kenji Matsumoto<sup>1</sup>, Kiyoto Kasai<sup>2</sup>, Takanori Uka<sup>6</sup>  
<sup>1</sup>Brain Science Institute, Tamagawa University, Tokyo, Japan, <sup>2</sup>Department of Neuropsychiatry, Graduate School of Medicine, University of Tokyo, <sup>3</sup>Department of Neurosurgery, Tokyo Metropolitan Neurological Hospital, Tokyo, <sup>4</sup>Department of Neurophysiology, Niigata University School of Medicine, <sup>5</sup>Center for Information and Neural Networks (CiNet), National Institute of Information and Communications Technology, and Osaka University, <sup>6</sup>Department of Integrative Physiology, Graduate School of Medicine, University of Yamanashi
- 1P-214** CRH release regulation by GABAergic projection from arcuate nucleus using chemogenetic model  
 Ruksana Yesmin, Miho Watanabe, Atsuo Fukuda  
 Department of Neurophysiology, Hamamatsu University School of Medicine, Japan
- 1P-215** Exploring the roles of calbindin-D28K in the medial preoptic nucleus in sexual behavior of male rats  
 Sho Maejima<sup>1</sup>, Masahiro Morishita<sup>2</sup>, Kanna Ueno<sup>2</sup>, Arisa Kamada<sup>2</sup>, Shinji Tsukahara<sup>1,2</sup>  
<sup>1</sup>Area of Life-NanoBio, Division of Strategy Research, Graduate School of Science and

**1P-216** ASIC1a mediates striatal synapse remodeling and procedural motor learning

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Department of Anatomy and Physiology, Shanghai Jiao Tong University School of Medicine, China

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**1P-218** Effects of ELF-EMF on learning and memory, anxiety-like behavior and stress oxidative in male rats

Iraj Salehi<sup>1,2)</sup>, Seyed Asaad Karimi<sup>1,2)</sup>, Alireza Komaki<sup>1,2)</sup>

<sup>1</sup>Neurophysiology Research Center, Hamadan University of Medical Sciences, Iran,

<sup>2</sup>Department of Neuroscience, School of Advanced Technologies in Medicine, Hamadan University of Medical Sciences, Iran

**1P-219** Ventral hippocampus inactivation facilitates the attenuation of olfactory neophobia in rats

Keisuke Shinohara, Yasunobu Yasoshima

Division of Behavioral Physiology, Department of Human Sciences, Osaka University, Japan

**1P-220** Effect of Castration on Electrophysiological Properties of LMAN Neurons in Adult Male Zebra Finches

Dongfeng Li, Li Wu

School of Life Science, South China Normal University, China

**1P-221** MMP-9 activity is required for the NMDA induced endocytosis of AMPA receptor

Shinnosuke Kohara<sup>1)</sup>, Shinji Matsuda<sup>1,2)</sup>

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<sup>2</sup>Brain Science Inspired Life Support Research Center (BLSC), The University of Electro-Communications

**1P-222** Impairment of Long-term Plasticity in Purkinje Cell with Dominant-negative Thyroid Hormone Receptor

Ayane Ninomiya<sup>1)</sup>, Nobutake Hosoi<sup>2)</sup>, Michifumi Kokubo<sup>1)</sup>, Izuki Amano<sup>1)</sup>, Asahi Haijima<sup>1)</sup>, Wataru Miyazaki<sup>1)</sup>, Hirokazu Hirai<sup>2)</sup>, Noriyuki Koibuchi<sup>1)</sup>

<sup>1</sup>Dept. Integrative Physiology, Grad. Sch. Med., Gunma Univ., Japan, <sup>2</sup>Dept. Neurophysiology and Neural Repair, Grad. Sch. Med., Gunma Univ., Japan

**1P-223** Remote memory traces in the mouse hippocampus revealed by Arc-based functional labeling

Hiroyuki Okuno<sup>1,2)</sup>, Anna Araki<sup>2)</sup>, Keiichiro Minatohara<sup>1,2)</sup>, Haruhiko Bito<sup>4)</sup>, Itaru Imayoshi<sup>2,3)</sup>

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**1P-224** Plasmalogens enhance spatial memory in mice by increasing the gene expression in hippocampus

Md Shamim Hossain<sup>1)</sup>, Sanyu Sejimo<sup>1)</sup>, Yutaka Oomura<sup>1)</sup>, Takehiko Fujino<sup>2)</sup>

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- 1P-225** Reaction time property of visual working memory to adjacent two-lever task in standing rats  
 Masatoshi Takita<sup>1,2</sup>, Sei-etsu Fujiwara<sup>3</sup>, Yukio Ichtani<sup>4</sup>  
<sup>1</sup>Human Informatics Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>2</sup>Brain Science Inspired Life Support Research Center, The University of Electro-Communications, Japan, <sup>3</sup>Department of Physiology, St Marianna University School of Medicine, Japan, <sup>4</sup>Faculty of Human Sciences, University of Tsukuba, Japan
- 1P-226** Gut Dysbiosis Induced Brain Pathological Changes and Cognitive Decline in HFD-Fed Rats  
 Napatsorn Saiyasit<sup>1,2</sup>, Dillon Prus<sup>1</sup>, Kanokphong Suparan<sup>1</sup>,  
 Sasiwan Kredphoo<sup>1,2</sup>, Thidarat Jaiwongkum<sup>1,2</sup>, Jirapas Sripetchwandee<sup>1,2</sup>,  
 Nipon Chattipakorn<sup>1,2</sup>, Siriporn C Chattipakorn<sup>1,3</sup>  
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- 1P-227** PKD1 promotes functional synapse formation coordinated with N-cadherin in hippocampus  
 Cen Cheng, Luo Li-Da  
 Neuroscience Research Institute, Peking University, China
- 1P-228** Dynamics of cell assemblies in hippocampus during memory consolidation and recall  
 Shogo Takamiya, Shoko Yuki, Junya Hirokawa, Yoshio Sakurai  
 Graduate School of Brain Science, Doshisha University, Japan
- 1P-229** Hippocampal-prefrontal plasticity with transcranial direct current stimulation  
 Yumiko Watanabe<sup>1</sup>, Hiroyuki Takei<sup>1,2</sup>, Kazuaki Nagasaka<sup>1</sup>,  
 Ichiro Takashima<sup>1,2</sup>  
<sup>1</sup>Human Informatics Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>2</sup>Graduate School of Comprehensive Human Sciences, University of Tsukuba, Japan
- 1P-230** D-galactose induced aging aggravates hippocampal oxidative stress in obese-insulin resistant rats  
 Thazin Shwe<sup>1,2,3</sup>, Cherry Bo-Htay<sup>1,2,3</sup>, Wasana Pratchayasakul<sup>1,2,3</sup>,  
 Nipon Chattipakorn<sup>1,2,3</sup>, Siriporn C Chattipakorn<sup>1,3,4</sup>  
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- 1P-231** Exercise, not calorie restriction, improves cognitive function in obese rats  
 Wasana Pratchayasakul<sup>1,2,3</sup>, Duangkamol Mantor<sup>1,2,3</sup>, Wanitchaya Minta<sup>1,2,3</sup>,  
 Wissuta Sutham<sup>1,2,3</sup>, Siripong Palee<sup>1,3</sup>, Jirapas Sripetchwandee<sup>1,2,3</sup>,  
 Sasiwan Kerdphoo<sup>1,3</sup>, Thidarat Jaiwongkum<sup>1,3</sup>, Nipon Chattipakorn<sup>1,2,3</sup>,  
 Siriporn C Chattipakorn<sup>1,3,4</sup>  
<sup>1</sup>Neurophysiology Unit, Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Cardiac Electrophysiology Unit,

- 1P-232** Mitochondrial ATP-linked respiration in PBMCs is associated with cognition in Aged-EGAT population  
Sirawit Sriwichaiin<sup>1,2,4</sup>), Nattayaporn Apaijai<sup>1,2)</sup>, Thidarat Jaiwongkam<sup>1,2)</sup>, Sasiwan Kerdphoo<sup>1,2)</sup>, Wasana Pratchayasakul<sup>1,2,4)</sup>, Siripong Palee<sup>1,2)</sup>, Arintaya Phrommintikul<sup>1,2,5)</sup>, Chrigriya Kitiyakara<sup>6)</sup>, Piyamitr Sritara<sup>6)</sup>, Nipon Chattipakorn<sup>1,2,4)</sup>, Siriporn Chattipakorn<sup>1,2,3)</sup>  
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- 1P-233** Temporal dynamics of reward cue representation in the rat paraventricular nucleus  
Munkhaya Unur, Chinzorig Chojiljav, Jumpei Matsumoto, Hiroshi Nishimaru, Yusaku Takamura, Taketoshi Ono, Hisao Nishijo  
Department of System Emotional Science, University of Toyama, Japan
- 1P-234** Modulation of Synaptic Plasticity in Hippocampal CA1 Region by Basolateral Amygdala  
Yee Song Chong<sup>1,2)</sup>, Cai Shan Goh<sup>1)</sup>, Sreedharan Sajikumar<sup>1,2)</sup>  
<sup>1</sup>Department of Physiology, School of Medicine, National University of Singapore, Singapore, <sup>2</sup>Neurobiology/Aging Program, Life Sciences Institute, Singapore
- 1P-235** Depotential at the hippocampal CA1 synapse depends on the basal synaptic transmission  
Jun-Ichi Goto<sup>1,2)</sup>, Satoshi Fujii<sup>1,2)</sup>, Kenya Kaneko<sup>1)</sup>, Hiroki Fujiwara<sup>1)</sup>, Yoshihiko Yamazaki<sup>1)</sup>, Katsuhiko Mikoshiba<sup>2)</sup>  
<sup>1</sup>Department of Physiology, Yamagata University School of Medicine, Japan, <sup>2</sup>Laboratory for Developmental Biology, Center for Brain Science, RIKEN, Japan
- 1P-236** Population Spike-Timing-Dependent Plasticity and Synaptic Tagging and Capture in hippocampal CA1  
Ka Lam Karen Pang<sup>1,2)</sup>, Mahima Sharma<sup>1,2)</sup>, Thomas Behnisch<sup>3)</sup>, Sreedharan Sajikumar<sup>1,2)</sup>  
<sup>1</sup>Department of Physiology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, <sup>2</sup>Neurobiology/Aging Programme, Life Sciences Institute, Centre for Life Sciences, <sup>3</sup>The Institutes of Brain Science, The State Key Laboratory of Medical Neurobiology, The Collaborative Innovation Centre for Brain Science, Fudan University, China
- 1P-237** p75 neurotrophin receptor regulates hippocampal associative plasticity in aging  
Lik Wei Wong, Yee Song Chong, Sajikumar Sreedharan  
Department of Physiology, National University of Singapore, Singapore
- 1P-238** Role of dopamine D<sub>3</sub> receptor on hyper-dopamine activity-altered novel object recognition memory  
Jin-Chung Chen<sup>1,2)</sup>, Pi-Kai Chang<sup>1,2)</sup>

- 1P-239**    **Role of olfactory tubercle in the weaning of neonatal mice**  
Yasutaka Chikuda, Masahiro Yamaguchi  
Department of Physiology, Kochi Medical School, Japan
- 1P-240**    **The analysis of neuropeptide-dependent and-independent late associativity**  
Yasuyuki Ishikawa, Yuka Suzuki  
Department of Systems Life Engineering, Maebashi Institute of Technology, Japan
- 1P-241**    **Differentiation of spatially overlapping routes and reward zones in the monkey hippocampus**  
Rafael Bretas Vieira<sup>1,2)</sup>, Jumpei Matsumoto<sup>2)</sup>, Hiroshi Nishimaru<sup>2)</sup>,  
Yusaku Takamura<sup>2)</sup>, Etsuro Hori<sup>2)</sup>, Taketoshi Ono<sup>2)</sup>, Hisao Nishijo<sup>2)</sup>  
<sup>1</sup>Laboratory for Symbolic Cognitive Development, Center for Biosystems Dynamics Research, RIKEN, Japan, <sup>2</sup>System Emotional Science, Graduate School of Medical and Pharmaceutical Sciences, University of Toyama, Japan
- 1P-242**    **(-)-Festidinol: Potential Effect on Preventing Neurodegeneration in Mice**  
Jittiporn Wongpun<sup>1)</sup>, Ratchanaporn Chokchaisiri<sup>2)</sup>, Jiraporn Tocharus<sup>3)</sup>,  
Apichart Suksamrarn<sup>4)</sup>, Chainarong Tocharus<sup>1)</sup>  
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- 1P-243**    **Effect of agomelatine on neurogenesis in D-galactose-induced brain aging**  
Teera Chanmanee<sup>1)</sup>, Piyarat Govitrapong<sup>2)</sup>, Jiraporn Tocharus<sup>3)</sup>,  
Chainarong Tocharus<sup>1)</sup>  
<sup>1</sup>Department of Anatomy, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Chulabhorn Graduate Institute, Thailand, <sup>3</sup>Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand
- 1P-244**    **Effects of 5,6,7,4'-TMF on neurodegeneration and neurogenesis in dexamethasone-induced mice**  
Kanet Pakdeepak<sup>1)</sup>, Ratchanaporn Chokchaisiri<sup>2)</sup>, Chainarong Tocharus<sup>3)</sup>,  
Pranglada Jearjaroen<sup>1)</sup>, Apichart Suksamrarn<sup>4)</sup>, Jiraporn Tocharus<sup>1)</sup>  
<sup>1</sup>Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Department of Chemistry, School of Science, University of Phayao, <sup>3</sup>Department of Anatomy, Faculty of Medicine, Thailand, <sup>4</sup>Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Ramkhamhaeng University

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- 1P-246**    **Salicylate-induced changes of tuning function in AI of guinea pigs observed by optical recording.**  
Yutaka Hosokawa<sup>1)</sup>, Michinori Kubota<sup>2)</sup>, Shunji Sugimoto<sup>3)</sup>,  
Junsei Horikawa<sup>4)</sup>  
<sup>1</sup>Dept. of Systems Physiol., Grad. Sch. Univ. of Ryukyus, Japan, <sup>2</sup>Med. Res. Inst., Tokyo Medical and Dental Univ., <sup>3</sup>Dept. of Comp. Sci. and Eng., Grad. Sch. of Eng., Toyohashi Univ. of Technology, <sup>4</sup>Senior Researcher, Toyohashi Univ. of Technology

- 1P-247** Laterality effects of the visual information processing on the sensorimotor gating system  
 Daisuke Ishii<sup>1,2</sup>, Kotaro Takeda<sup>3</sup>, Satoshi Yamamoto<sup>4</sup>, Akira Noguchi<sup>5</sup>, Kiyoshige Ishibashi<sup>6</sup>, Kenya Tanamachi<sup>6</sup>, Arito Yozu<sup>1</sup>, Yutaka Kohno<sup>1</sup>  
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- 1P-248** Neural substrates of action timing decisions  
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<sup>1</sup>Department of Neurophysiology, Division of Medicine, University of Yamaguchi, Japan, <sup>2</sup>Champalimaud Research, Champalimaud Centre for the Unknown, Portugal
- 1P-249** Ongoing motor information embedded in a network dynamics of primate primary somatosensory neurons  
 Kei Mochizuki<sup>1</sup>, Katsumi Nakajima<sup>2</sup>, Masahiko Inase<sup>1</sup>, Akira Murata<sup>1</sup>  
<sup>1</sup>Dept Physiol, Facult Med, Kindai Univ, Japan, <sup>2</sup>Dept Physiol, Facult Med, Iwate Medical Univ, Japan
- 1P-250** Chronic mild stress increases aggressive behavior in mice  
 Sachiko Chikahisa, Tetsuya Shiuchi, Daisuke Tanioka, Noriyuki Shimizu, Airi Otsuka, Hiroyoshi Sei  
 Department of Integrative Physiology, Institute of Biomedical Sciences, Tokushima University Graduate School, Japan
- 1P-251** Body ownership and agency altered by a robotic arm controlled by electromyography of elbow muscles  
 Toshihiro Kawase<sup>1,2,3</sup>, Kenta Kono<sup>1</sup>, Kenichi Cho<sup>1</sup>, Eiko Kato<sup>1</sup>, Kenji Kansaku<sup>1,4</sup>  
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- 1P-252** Hypoxia effect on daily activity is daily activity dependent wavelike response in mice  
 Satoru Masubuchi<sup>1</sup>, Takako Yano<sup>1</sup>, Kouji Komatsu<sup>1</sup>, Wataru Nakamura<sup>2</sup>, Akinobu Ota<sup>3</sup>, Sivasundaram Karnan<sup>3</sup>, Kosei Takeuchi<sup>4</sup>, Yoshitaka Hosokawa<sup>3</sup>, Takeshi Todo<sup>5</sup>, Toshiaki Shiomi<sup>6</sup>  
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- 1P-253** Recency of pattern repetition degrades monkeys' performance in pattern recognition with visual noise  
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<sup>1</sup>Grad. Sch. of Comprehensive Human Sci., University of Tsukuba, Japan, <sup>2</sup>Human Info.

- 1P-255** Lower c-Fos expressions in the posterior parietal cortex during rubber tail task in Caps2 KO mice  
Makoto Wada<sup>1,2</sup>, Masakazu Ide<sup>1</sup>, Takeshi Atsumi<sup>1</sup>, Kouji Takano<sup>3</sup>, Yoshitake Sano<sup>4</sup>, Yo Shinoda<sup>5</sup>, Teiichi Furuichi<sup>4</sup>, Kenji Kansaku<sup>3,6,7</sup>  
<sup>1</sup>Dev Disorders Sect, Dept Brain Rehab, Res Inst of NRCD, Japan, <sup>2</sup>Dept Informatics, Shizuoka Univ, <sup>3</sup>Sys Neurosci Sect, Dept Brain Rehab, Res Inst of NRCD, <sup>4</sup>Tokyo Univ of Sci, <sup>5</sup>Tokyo Univ of Pharmacy and Life Science, <sup>6</sup>Brain Sci Inspired Life Supp Res Cent, Univ of Electro-Communications, <sup>7</sup>Dept Physiol & Biol Info, Dokkyo Med Univ Sch of Med
- 1P-256** Interval timing of visual and auditory cues for duration discrimination in monkey prefrontal cortex  
Atsushi Chiba<sup>1</sup>, Kazunori Morita<sup>2</sup>, Ken-ichi Oshio<sup>1</sup>, Masahiko Inase<sup>1</sup>  
<sup>1</sup>Department of Physiology, Kindai University, Japan, <sup>2</sup>Department of Physiology, Iwate Medical University, Japan
- 1P-257** Haptic material perception in macaque monkeys, estimated by the material discrimination task  
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Department of Biofunctional System Engineering, Tokyo Medical and Dental University (TMDU), Japan
- 1P-258** Physiological effects of two types of sitting positions on the brain and autonomic nerve activities  
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<sup>1</sup>Department of Nursing Physiology, Chiba University Graduate School of Nursing, Japan, <sup>2</sup>Yokohama Municipal Citizen's Hospital, Japan
- 1P-259** Prefrontal-enriched *SLIT1* expression in primate cortex established during the postnatal development  
Tetsuya Sasaki<sup>1,2</sup>, Yusuke Komatsu<sup>3</sup>, Akiya Watakabe<sup>4</sup>, Tetsuo Yamamori<sup>4</sup>  
<sup>1</sup>Department of Anatomy and Neuroscience, Faculty of Medicine, University of Tsukuba, Japan, <sup>2</sup>Department of Kansei, Behavioral, and Brain Sciences, Graduate School of Comprehensive Human Sciences, <sup>3</sup>ACD Corporation, <sup>4</sup>Laboratory for Molecular Analysis of Higher Brain Function, CBS, RIKEN
- 1P-260** Response preference to artificial and environmental natural sounds in higher auditory cortices  
Sohei Chimoto  
Department of Neurophysiology, University of Yamanashi, Japan
- 1P-261** Neural properties of macaque SII bimodal neurons and their functional role for self-body awareness  
Miki Taoka, Sayaka Hihara, Rafael Bretas, Atsushi Iriki  
Laboratory for Symbolic Cognitive Development, Center of Biosystematics Dynamics Research, RIKEN, Japan

- 1P-262** The relation between the NMDA receptor/NO/cGMP pathway and the antidepressant-like effects of GLP-2  
 Sachie Sasaki-Hamada<sup>1,2)</sup>, Yuya Nakamura<sup>2)</sup>, Kenichi Koizumi<sup>2)</sup>,  
 Rena Nabeta<sup>2)</sup>, Jun-Ichiro Oka<sup>2)</sup>  
<sup>1</sup>Department of Physiology, Kitasato University, Japan, <sup>2</sup>Laboratory of Pharmacology, Tokyo University of Science, Japan
- 1P-263** Systematic analysis on the seeding activity of familial mutant forms of  $\alpha$ -synuclein  
 Ning Xu<sup>1)</sup>, Genta Ito<sup>2)</sup>, Airi Tarutani<sup>1)</sup>, Taisuke Tomita<sup>1,2)</sup>  
<sup>1</sup>Laboratory of Neuropathology and Neurosciences, Graduate School of Pharmaceutical Science, The University of Tokyo, Japan, <sup>2</sup>Laboratory of Brain and Neurological Disorders, Graduate School of Pharmaceutical Science, The University of Tokyo, Japan
- 1P-264** Olfactory impairment associated with left hippocampus volumes at earliest stages of schizophrenia  
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 Stephen J Wood<sup>3,4)</sup>, Christos Pantelis<sup>2,5)</sup>  
<sup>1</sup>Department of Physiology, Showa University School of Medicine, Japan, <sup>2</sup>Melbourne Neuropsychiatry Centre, Department of Psychiatry, University of Melbourne and Melbourne Health, Australia, <sup>3</sup>Orygen Youth Health Research Centre, Centre for Youth Mental Health, University of Melbourne, Australia, <sup>4</sup>School of Psychology, University of Birmingham, UK, <sup>5</sup>Centre for Neural Engineering, Department of Electrical and Electronic Engineering, University of Melbourne, Australia
- 1P-265** Atypical Motility Patterns in Gut Preparation of LRRK2 Knockout Mice  
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 Joel Bornstein<sup>2)</sup>, Jaime Foong<sup>2)</sup>, Takafumi Ichikawa<sup>1)</sup>  
<sup>1</sup>Department of Regulation Biochemistry, Graduate School of Medical Sciences, Kitasato University, Japan, <sup>2</sup>Department of Physiology, The University of Melbourne, Australia
- 1P-266** Histone Deacetylase 1, 3 as a novel target for anti-seizure drug discovery  
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 Paola Meza Santoscoy<sup>1,3)</sup>, Jong Micheal Rho<sup>2,3)</sup>, Deborah Marie Kurrasch<sup>1,3)</sup>  
<sup>1</sup>Department of Medical Genetics, University of Calgary, Canada, <sup>2</sup>Department of Pediatrics, University of Calgary, Canada, <sup>3</sup>Alberta Children's Hospital Research Institute, University of Calgary, Canada
- 1P-267** Hyperventilation test with indocyanine green kinetics predicts cerebral hyperperfusion after CAS  
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 Department of Neurosurgery, Nara Medical University, Japan
- 1P-268** Electrophysiological study of epilepticus recovering effect and mechanism of JBPOS0101 using MEA  
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 Jae-Ho Khil<sup>2)</sup>, Ji-Ho Park<sup>1)</sup>  
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- 1P-269** ROS generation, Neuronal degeneration and Neurologic dysfunction after Ischemic Stroke in Mice  
Nobuo Nagai<sup>1)</sup>, Yasuki Matano<sup>1)</sup>, Riku Kawazu<sup>1)</sup>, Yasuhiro Suzuki<sup>2)</sup>, Kazuo Umemura<sup>3)</sup>  
<sup>1</sup>Laboratory of Animal Physiology, Nagahama Institute of Bio-Science and Technology, Japan, <sup>2</sup>School of Pharmaceutical Sciences, Ohu University, Japan, <sup>3</sup>Department of Pharmacology, Hamamatsu University School of Medicine, Japan
- 1P-270** Effect of orexin on the firing pattern of serotonergic dorsal raphe neurons  
Masaru Ishibashi<sup>1,2)</sup>, Nancy E Molina<sup>2)</sup>, Atsuo Fukuda<sup>1)</sup>, Christopher S Leonard<sup>2)</sup>  
<sup>1</sup>Department of Neurophysiology, Hamamatsu University School of Medicine, Japan, <sup>2</sup>Department of Physiology, New York Medical College
- 1P-271** Would skin resistance be a novel neurophysiological marker for transcranial electrical stimulation?  
Hanna Lu<sup>1,2,3)</sup>, Harriet Tang<sup>1)</sup>, Linda Chiu Wa Lam<sup>1)</sup>  
<sup>1</sup>Department of Psychiatry, The Chinese University of Hong Kong, China, <sup>2</sup>Shenzhen Research Institute, The Chinese University of Hong Kong, <sup>3</sup>The Affiliated Brain Hospital of Guangzhou Medical University
- 1P-272** Proposal for the classification sweating disorders based on lesion site  
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Department of Physiology, Aichi Medical University School of Medicine, Japan
- 1P-273** Reduced synaptic inputs in prefrontal cortex by lack of a mental disorder-related epigenetic factor  
Kenichiro Nagahama<sup>1,2)</sup>, Kazuto Sakoori<sup>1,2)</sup>, Takaki Watanabe<sup>1,2)</sup>, Naofumi Uesaka<sup>1,2)</sup>, Masanobu Kano<sup>1,2)</sup>  
<sup>1</sup>Dept. Neurophysiol, Gran. Sch. of Med., The Univ Tokyo, Japan, <sup>2</sup>WPI-IRCIN, URIAS, The Univ. Tokyo
- 1P-274** Common behavioral characteristics in the mice maternally exposed to different types of dioxins  
Fumihiko Maekawa<sup>1)</sup>, Eiki Kimura<sup>1,2)</sup>, Naoto Uramaru<sup>3)</sup>, Go Suzuki<sup>4)</sup>  
<sup>1</sup>Center for Health and Environmental Risk Research, National Institute for Environmental Studies, Japan, <sup>2</sup>Japan Society for the Promotion of Science, <sup>3</sup>Nihon Pharmaceutical University, <sup>4</sup>Center for Material Cycles and Waste Management Research, National Institute for Environmental Studies, Japan
- 1P-275** TSPO-targeting compound ameliorates the abnormal behaviors of mice received social defeat stress  
Kanako Nozaki<sup>1)</sup>, Hikaru Ito<sup>1)</sup>, Masahiro Ohgidani<sup>2)</sup>, Yosuke Yamawaki<sup>3)</sup>, Takashi Kitajima<sup>4)</sup>, Seishi Katsumata<sup>4)</sup>, Shigeto Yamawaki<sup>5)</sup>, Takahiro Kato<sup>2)</sup>, Hidenori Aizawa<sup>1)</sup>  
<sup>1</sup>Department of Neurobiology, Hiroshima University, Japan, <sup>2</sup>Department of Neuropsychiatry, Kyushu University, Japan, <sup>3</sup>Department of Cellular and Molecular Pharmacology, Hiroshima University, Japan, <sup>4</sup>Discovery Research Laboratories, Drug Discovery Division, Discovery & Research ONO Pharmaceutical Co., Ltd., Japan, <sup>5</sup>Department of Psychiatry and Neurosciences, Hiroshima University, Japan
- 1P-276** Investigation of the effect of seaweed on the metabolic dysfunction-associated neurodegeneration

Motoki Imai<sup>1)</sup>, Fumitaka Kawakami<sup>1)</sup>, Hiroko Maruyama<sup>2)</sup>

<sup>1</sup>Department of Regulation Biochemistry, Graduate School of Medical Sciences, Kitasato University, Japan, <sup>2</sup>Department of Cytopathology, Graduate School of Medical Science, Kitasato University

- 1P-277** The expression and activation of Smad in the rat hippocampus following global cerebral ischemia  
Yusuke Takahashi, Takayuki Nakajima  
Department of Veterinary Anatomy, Osaka Prefecture University, Japan
- 1P-278** Abnormalities in synaptic structure and function in valproate-induced autism model marmosets  
Satoshi Watanabe<sup>1)</sup>, Tohru Kurotani<sup>2)</sup>, Tomofumi Oga<sup>1)</sup>, Keiko Nakagaki<sup>1)</sup>, Jun Noguchi<sup>1)</sup>, Noritaka Ichinohe<sup>1,2)</sup>  
<sup>1</sup>Department of Ultrastructural Research, National Center of Neurology and Psychiatry, Japan, <sup>2</sup>Ichinohe Group, Laboratory for Molecular Analysis of Higher Brain Function, RIKEN Center for Brain Science, Japan
- 1P-279** Neonatal dexamethasone treatment suppresses hippocampal ERα expression in adolescent female rats  
Kwok-Tung Lu<sup>1)</sup>, Hui-Fang Chiu<sup>1)</sup>, Michael W.Y. Chan<sup>2)</sup>, Chiung-Yin Cheng<sup>1)</sup>, Jian-Liang Chou<sup>3)</sup>, Jora Meng-Ju Lin<sup>2)</sup>, Yi-Ling Yang<sup>4)</sup>  
<sup>1</sup>Department of Life Science, University of Taiwan Normal University, Taiwan, <sup>2</sup>Department of Life Science, National Chung Cheng University, Taiwan, <sup>3</sup>Division of Gastroenterology, Chang Gung Memorial Hospital, Taiwan, <sup>4</sup>Institute of Biochemical Science and Technology, National Chia-Yi University, Taiwan
- 1P-280** Rosmarinic acid protects against MPTP-induced toxicity and inhibits iron-induced α-syn aggregation  
Wenting Jia, Le Qu, Huamin Xu, Junxia Xie  
Department of Physiology, Medical College of Qingdao University, China
- 1P-281** Automated, closed-loop stimulation of the medial septum alleviates temporal lobe epilepsy in rats  
Yuichi Takeuchi<sup>1,2)</sup>, Márk Harangozó<sup>1)</sup>, Lizeth Pedraza<sup>1)</sup>, Tamás Földi<sup>1)</sup>, Gábor Kozák<sup>1)</sup>, Antal Berényi<sup>1,3)</sup>  
<sup>1</sup>MTA-SZTE 'Momentum' Oscillatory Neuronal Networks Research Group, Department of Physiology, University of Szeged, Hungary, <sup>2</sup>Department of Neuropharmacology, Graduate School of Pharmaceutical Sciences, Nagoya City University, Japan, <sup>3</sup>Neuroscience Institute, New York University, USA
- 1P-282** The effect of anti-arrhythmic drugs on glioma stem cells  
Kohei Ofune<sup>1)</sup>, Ryoichi Iwata<sup>1)</sup>, Mikio Hayashi<sup>2)</sup>, Kunikazu Yoshimura<sup>1)</sup>, Masahiro Nonaka<sup>1)</sup>, Akio Asai<sup>1)</sup>  
<sup>1</sup>Department of Neurosurgery, Kansai Medical University, Japan, <sup>2</sup>Department of Cell Physiology, Kansai Medical University, Japan
- 1P-283** TRPV4 is critical to brain edema after traumatic brain injury  
Yi-Ling Yang<sup>1)</sup>, Kwok-Tung Lu<sup>2)</sup>, Tai-Chung Huang<sup>2)</sup>, Ya-Hsin Tsai<sup>2)</sup>  
<sup>1</sup>Department of Biochemical Science and Technology, National Chia-Yi University, Taiwan, <sup>2</sup>Department of Life Science, National Taiwan Normal University, Taiwan
- 1P-284** Three-dimensional kinematical gait analysis of hindlimbs in rats with focal cerebral infarction  
Tatsuro Kumada<sup>1)</sup>, Akira Yoshikawa<sup>2)</sup>, Saho Morishita<sup>3,4)</sup>, Kazuya Hokamura<sup>3)</sup>, Masahiko Izumizaki<sup>2)</sup>, Kazuo Umemura<sup>3)</sup>  
<sup>1</sup>Faculty of Health and Medical Sciences, Tokoha University, Japan, <sup>2</sup>Department of Physiology, Showa University, School of Medicine, Japan, <sup>3</sup>Department of Pharmacology,

**1P-285** TrkB activation promotes neuronal survival via Akt-ASK1 signaling after intracerebral hemorrhage

Chun-Hu Wu<sup>1</sup>, Yen-Chieh Chuang<sup>2</sup>, Chien-Cheng Chen<sup>3</sup>, Chia-Hua Ke<sup>3</sup>, Chun-Yen Lee<sup>3</sup>, Song-Kun Shyue<sup>4</sup>, Szu-Fu Chen<sup>2,3</sup>

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<sup>2</sup>Departments of Physiology and Biophysics, National Defense Medical Center, Taiwan, Republic of China, <sup>3</sup>Department of Physical Medicine and Rehabilitation, Cheng Hsin General Hospital, Taiwan, Republic of China, <sup>4</sup>Institute of Biomedical Sciences, Academia Sinica, Taiwan, Republic of China

**1P-286** Neuroprotective effects of COPPIX against dopaminergic neurons degeneration in MPTP-intoxicated mice

Ning Song, Xiaofeng Xu, Xiaojun Yu, Junxia Xie

Department of Physiology, Qingdao University, China

**1P-287** Investigation of the antidepressant agomelatine and ketamine on the synaptic plasticity in mice

Chi-Wei Lee<sup>1,2</sup>, Yueh-Jung Chung<sup>2</sup>, Yi-Chao Lee<sup>1</sup>, Hui-Ching Lin<sup>1,2,3</sup>

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**1P-288** Prenatal stress on *Gad1*-heterozygotes perturbs development of GABAergic networks affecting behavior

Tianying Wang<sup>1</sup>, Adya Saran Sinha<sup>1</sup>, Hiroki Mutoh<sup>1</sup>, Tenpei Akita<sup>1</sup>, Yuchio Yanagawa<sup>2</sup>, Tomoko Kawai<sup>3</sup>, Kenichiro Hata<sup>3</sup>, Atsuo Fukuda<sup>1</sup>

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**1P-289** Suppression of FoxO1 by leptin enhances tyrosine hydroxylase and leads to anxiolytic behavior

Seul Ki Kim<sup>1</sup>, Dong Hwee Son<sup>1</sup>, Khanh Van Doan<sup>2</sup>, Dong Joo Yang<sup>1,3</sup>, Ji Su Sun<sup>1</sup>, Yun-Hee Choi<sup>1</sup>, Dong Min Shin<sup>1</sup>, Ki Woo Kim<sup>1</sup>

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**1P-290** Nociceptor-mediated outcomes under hydroxyphenyl octanediamide exposure via TRPV4 modulation

Pyeong Sun Cho<sup>1,2</sup>, Geunyeol Choi<sup>1</sup>, Minseok Kim<sup>1</sup>, Seung-In Choi<sup>1</sup>, Ji Yeon Lim<sup>1</sup>, Im Joo Rhyu<sup>1</sup>, Sun Wook Hwang<sup>1,2</sup>

<sup>1</sup>Department of Biomedical Sciences, Korea University, Korea, <sup>2</sup>Neuroscience Research Institute, Korea University, Korea

**1P-291** Effects of *Toxoplasma gondii* infection on motor and non-motor symptoms of rat model of Parkinson

Mahnaz Taherianfard, Moslem Riyahi

- 1P-292** Increase of histone acetylation in the RVM in the rat with stress-induced hyperalgesia  
Hiroki Imbe, Akihisa Kimura  
Department of Physiology, Wakayama Medical University, Japan
- 1P-293** Psychological stress modulates On- and Off-cell activity in the rostral ventromedial medulla  
Masayuki Kurose<sup>1</sup>, Mana Hasegawa<sup>2</sup>, Yosuke Nakatani<sup>1,3</sup>, Shiho Shimizu<sup>1,3</sup>, Noritaka Fujii<sup>2</sup>, Yoshihide Satoh<sup>4</sup>, Kensuke Yamamura<sup>1</sup>, Keiichiro Okamoto<sup>1</sup>  
<sup>1</sup>Division of Oral Physiology, Department of Oral Biological Sciences, Niigata University, Graduate School of Medical and Dental Sciences, Japan, <sup>2</sup>General Dentistry and Clinical Education Unit, Niigata University Medical and Dental Hospital, Japan, <sup>3</sup>Division of Oral and Maxillofacial Surgery, Department of Oral Biological Sciences, Niigata University, Graduate School of Medical and Dental Sciences, Japan, <sup>4</sup>Department of Physiology, The Nippon Dental University School of Life Dentistry at Niigata, Japan
- 1P-294** Descending orexinergic inhibition contributes to the linalool odor-induced analgesia in mice  
Yurina Higa<sup>1,2</sup>, Mitutaka Sugimura<sup>1</sup>, Tomoyuki Kuwaki<sup>2</sup>, Hideki Kashiwadani<sup>2</sup>  
<sup>1</sup>Department of Dental Anesthesiology, Graduate School of Medical and Dental Sciences Kagoshima University, Japan, <sup>2</sup>Department of Physiology, Graduate School of Medical and Dental Sciences Kagoshima University
- 1P-295** Modulation of nociception via Endothelin-1 signaling in early-stage tongue cancer in rats  
Masamichi Shinoda<sup>1</sup>, Akihiko Furukawa<sup>2</sup>, Ryuta Akasaka<sup>2</sup>, Yoshiyuki Yonehara<sup>2</sup>, Koichi Iwata<sup>1</sup>  
<sup>1</sup>Department of Physiology, Nihon University School of Dentistry, Japan, <sup>2</sup>Department of Clinical Medicine, Nihon University School of Dentistry, Japan
- 1P-296** TRPV1 Expression in the TG and Spinal Trigeminal Nucleus Following Dental Pulp Inflammation  
Myeounghoon Cha<sup>1</sup>, Imene Sallem<sup>2</sup>, Il-Young Jung<sup>2</sup>, Bae Hwan Lee<sup>1</sup>  
<sup>1</sup>Department of Physiology, Yonsei University College of Medicine, Korea, <sup>2</sup>Department of Conservative Dentistry and Oral Science Research Center, Yonsei University College of Dentistry
- 1P-297** TRPV1 inhibition by  $\alpha_2$  adrenergic receptors on peripheral sensory neurons causes analgesia  
Yumi Matsushita, Miki Manabe, Naoki Kitamura, Izumi Shibuya  
Faculty of Agriculture, Tottori University, Japan
- 1P-299** Effects of QX314 / Flagellin (Q/F) on the conduction of the peripheral nerve in rats  
Yoshiyuki Tsuboi, Akihiro Kaizu  
Department Physiology, Nihon University School of Dentistry, Japan
- 1P-300** Investigation of the antipruritic mechanisms of nalfurafine in the murine spinal cord  
Kotaro Honda<sup>1</sup>, Mitsutoshi Tominaga<sup>1</sup>, Fumiya Kusube<sup>1,2</sup>, Fumiyuki Yamakura<sup>3</sup>, Hisashi Naito<sup>3</sup>, Yasushi Suga<sup>5</sup>, Kenji Takamori<sup>1,5</sup>  
<sup>1</sup>Institute for Environmental and Gender Specific Medicine, Juntendo University, Japan, <sup>2</sup>Department of Biological Science and Technology, Faculty of Industrial Science and

Technology, Tokyo University of Science, Japan, <sup>3</sup>Faculty of International Liberal Arts, Juntendo University, Japan, <sup>4</sup>Institute of Health and Sports Science & Medicine, Juntendo University, Japan, <sup>5</sup>Department of Dermatology, Juntendo University Urayasu Hospital, Japan

**1P-301** Enhanced basal pain sensitivities observed in mice lacking interleukin-27

Toshiharu Yasaka<sup>1</sup>), Tomoko Sasaguri<sup>2</sup>), Toru Taguchi<sup>3,4</sup>), Yuzo Murata<sup>5</sup>), Kimiko Kobayashi<sup>6</sup>), Sayaka Iizasa<sup>7</sup>), Ei'ichi Iizasa<sup>1</sup>), Makoto Tsuda<sup>8</sup>), Naomi Hirakawa<sup>2</sup>), Hiromitsu Hara<sup>1</sup>), Hiroki Yoshida<sup>9</sup>)

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**1P-302** Withdrawn

**1P-303** Astrocytes are a novel target for treatment of the chronic pain

Ikuko Takeda, Kei Eto, Kohei Yoshihara, Junichi Nabekura

Division of Homeostatic Development, National Institute for Physiological Sciences, Japan

**1P-304** IFN- $\gamma$  signaling in trigeminal spinal subnucleus caudalis is involved in orofacial neuropathic pain

Sayaka Asano<sup>1,2</sup>), Masamichi Shinoda<sup>2</sup>), Akiko Ogawa-Okada<sup>1</sup>), Yoshiki Imamura<sup>1</sup>), Koichi Iwata<sup>2</sup>)

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**1P-305** Analgesic effects of calcitonin on radicular pain in rats

Yoshinori Terashima<sup>1,2</sup>), Shunsuke Jimbo<sup>2</sup>), Tatsuya Sato<sup>1</sup>), Nobutoshi Ichise<sup>1</sup>), Toshihiko Yamashita<sup>2</sup>), Noritsugu Tohse<sup>1</sup>)

<sup>1</sup>Department of Cellular Physiology and Signal Transduction, Sapporo Medical University School of Medicine, Japan, <sup>2</sup>Department of Orthopaedic Surgery, Sapporo Medical University School of Medicine, Japan

**1P-306** Effect of intraarticular hyaluronic acid in a rat monoiodoacetate-induced ankle osteoarthritis model

Shunsuke Jimbo<sup>1,2</sup>), Yoshinori Terashima<sup>1,2</sup>), Atsushi Teramoto<sup>2</sup>), Tatsuya Sato<sup>1</sup>), Izaya Ogon<sup>2</sup>), Nobutoshi Ichise<sup>1</sup>), Kota Watanabe<sup>3</sup>), Tsuneo Takebayashi<sup>4</sup>), Toshihiko Yamashita<sup>2</sup>), Noritsugu Tohse<sup>1</sup>)

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**1P-307** Chronic pain model alters GABAergic synaptic transmission in the mice anterior cingulate cortex

Kohei Koga<sup>1,2</sup>), Shuji Shimoyama<sup>1</sup>), Akihiro Yamada<sup>2</sup>), Hidemasa Furue<sup>2</sup>), Kazuhiro Nakamura<sup>3</sup>), Shinya Ueno<sup>1</sup>)

<sup>1</sup>Department of Neurophysiology, Hirosaki University, Japan, <sup>2</sup>Department of

- 1P-308** NGF induces constitutive activity of TRPV1 triggering spontaneous firing in sensory neurons  
Naoki Kitamura, Erika Nagami, Yumi Matsushita, Tomohiko Kayano, Izumi Shibuya  
Faculty of Agriculture, Tottori University, Japan
- 1P-309** Characterization of mechanically-insensitive afferents and sympathetic efferents in skeletal muscle  
Hiroki Ota<sup>1</sup>, Takanori Matsubara<sup>2</sup>, Harumi Hotta<sup>3</sup>, Kazue Mizumura<sup>4</sup>, Toru Taguchi<sup>5</sup>  
<sup>1</sup>Dept. Judo Ther., Fac. Med. Tech., Teikyo Univ., Japan, <sup>2</sup>Dept. Neural Regul., Grad. School Med., Nagoya Univ., Japan, <sup>3</sup>Dept. Auton. Neurosci., Tokyo Metropol. Inst. Gerontol., Japan, <sup>4</sup>Dept. Phys. Sch. Dent. Nihon Univ., Japan, <sup>5</sup>Dept. Phys. Ther., Fac. Rehabil., Niigata Univ. Health Wel., Japan
- 1P-310** An alteration of gut microbiota is associated with pain in fibromyalgia patients: a pilot study  
Passakorn Sawaddiruk<sup>1</sup>, Nattayaporn Apaijai<sup>2</sup>, Sasiwan Kerdphoo<sup>2</sup>, Nipon Chattipakorn<sup>3</sup>, Siriporn Chattipakorn<sup>2</sup>  
<sup>1</sup>Department of Anesthesiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Neurophysiology Unit, Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Thailand, <sup>3</sup>Center of Excellence in Cardiac Electrophysiology Research, Chiang Mai University, Thailand
- 1P-311** In vivo two-photon imaging of thermo-sensing at the skin of living rats  
Atsunori Kamiya<sup>1</sup>, Kazuo Kobayashi<sup>2</sup>  
<sup>1</sup>Department of Cellular Physiology, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Japan, <sup>2</sup>Department of Molecular Genetics, Institute of Biomedical Sciences, Fukushima Medical University School of Medicine
- 1P-312** Cisplatin-induced intraoral neuropathy due to TRPA1 sensitization in rats  
Suzuro Hitomi<sup>1</sup>, Kiichiro Yamaguchi<sup>1</sup>, Yuji Seta<sup>2</sup>, Izumi Ujihara<sup>1</sup>, Kentaro Ono<sup>1</sup>  
<sup>1</sup>Division of Physiology, Kyushu Dental University, Japan, <sup>2</sup>Division of Anatomy, Kyushu Dental University
- 1P-313** Amitriptyline-induced suppression of spinal dorsal horn neurons in a rat model of fibromyalgia  
Toru Taguchi<sup>1</sup>, Daisuke Uta<sup>2</sup>, Katsuyuki Tsuboshima<sup>3</sup>, Hisao Nishijo<sup>3</sup>, Kazue Mizumura<sup>4</sup>  
<sup>1</sup>Department of Physical Therapy, Niigata University of Health and Welfare, Japan, <sup>2</sup>Department of Applied Pharmacology, Graduate School of Medicine and Pharmaceutical Sciences, University of Toyama, Japan, <sup>3</sup>System Emotional Sciences, Graduate School of Medicine and Pharmaceutical Sciences, University of Toyama, Japan, <sup>4</sup>Department of Physiology, School of Dentistry, Nihon University, Japan
- 1P-314** Presynaptic inhibition of muscle afferent in awake, behaving monkeys: task-dependent modulation  
Saeka Tomatsu<sup>1,2</sup>, Geehee Kim<sup>2</sup>, Shinji Kubota<sup>2</sup>, Kazuhiko Seki<sup>2</sup>  
<sup>1</sup>Department of System Neuroscience, National Institute for Physiological Science, Japan, <sup>2</sup>Department of Neurophysiology, National Institute of Neuroscience, National Center of Neurology and Psychiatry, Japan

- 1P-315** Tentonin 3/TMEM150c, a mechanotransduction channel for Arterial-pressure sensing baroreceptors  
Huanjun Lu<sup>1,2)</sup>, Luan Thien Nguyen<sup>1,2)</sup>, Hyungsup Kim<sup>1)</sup>, Hyesu Kim<sup>1)</sup>, Uhtaek Oh<sup>1)</sup>  
<sup>1</sup>Brain Science Institute, Korea Institute of Science and Technology (KIST), Korea, <sup>2</sup>College of Pharmacy, Seoul National University, Korea
- 1P-316** The role of Cdkal1-mediated tRNA modification in peripheral neuropathy  
Korin Sakakida<sup>1,2)</sup>, Fan-Yan Wei<sup>1)</sup>, Eiichi Araki<sup>2)</sup>, Kazuhito Tomizawa<sup>1)</sup>  
<sup>1</sup>Department of Molecular Physiology, University of Kumamoto, Japan, <sup>2</sup>Department of Metabolic Medicine, University of Kumamoto, Japan
- 1P-317** Mild traumatic brain injury induce sensitization of neurovascular system: Relevance for migraine  
Akimasa Tashiro, Hiroyuki Ohta, Yuji Morimoto  
Department of Physiology, National Defense Medical College, Japan
- 1P-318** Mechanical and reactive oxygen species-sensitive TRP channels mediate tooth movement-induced pain  
Aoi Morii<sup>1,2)</sup>, Suzuro Hitomi<sup>1)</sup>, Izumi Ujihara<sup>1)</sup>, Misa Sago-Ito<sup>2)</sup>, Masahiro Mizuhara<sup>2)</sup>, Kaori Gunjigake<sup>2)</sup>, Tatuo Kawamoto<sup>2)</sup>, Kentaro Ono<sup>1)</sup>  
<sup>1</sup>Division of Physiology, Kyushu Dental University, Japan, <sup>2</sup>Division of Orofacial Functions and Orthodontics, Kyushu Dental University, Japan
- 1P-319** Therapeutic effects of highly-residual ointments on oral ulcerative mucositis  
Mako Naniwa<sup>1,2)</sup>, Suzuro Hitomi<sup>1)</sup>, Izumi Ujihara<sup>1)</sup>, Kazunari Matsuda<sup>3)</sup>, Kenichi Yoshino<sup>4)</sup>, Atsuko Nakamichi<sup>2)</sup>, Kentaro Ono<sup>1)</sup>  
<sup>1</sup>Division of Physiology, Kyushu Dental University, Japan, <sup>2</sup>Division of Oral Health Sciences, Kyushu Dental University, Japan, <sup>3</sup>Daiichi Sankyo Healthcare Co. Ltd., Japan, <sup>4</sup>Section of Primary Dental Education, Kyushu Dental University, Japan
- 1P-320** mGluR5 in the dysgranular zone of primary somatosensory cortex mediates neuropathic pain in the rat  
Geehoon Chung<sup>1,2)</sup>, Sang Jeong Kim<sup>2)</sup>, Sun Kwang Kim<sup>1)</sup>  
<sup>1</sup>Department of Physiology, College of Korean Medicine, Kyung Hee University, Korea, <sup>2</sup>Department of Physiology, College of Medicine, Seoul National University, Korea
- 1P-321** Thermosensory processing in excitatory and inhibitory neurons of the primary somatosensory cortex  
Kei Eto, Junichi Nabekura  
Division of Homeostatic Development, National Institute for Physiological Sciences, Japan

- 1P-322** Electrophysiological characterization of bradykinin B<sub>2</sub> receptors in rat intracardiac neurons  
 Shiho Arichi<sup>1)</sup>, Sachie Hamada<sup>2)</sup>, Masanori Ogata<sup>2)</sup>, Hitoshi Ishibashi<sup>2)</sup>  
<sup>1</sup>Department of Brain Science, Graduate School of Medical Science, Kitasato University, Japan, <sup>2</sup>Department of Physiology, School of Allied Health Science, Kitasato University, Japan
- 1P-323** Cell type-based activation timing and order in the sequence in the preBotzinger Complex  
 Yoshihiko Oke<sup>1)</sup>, Fumikazu Miwakeichi<sup>2,3)</sup>, Yoshitaka Oku<sup>1)</sup>,  
 Johannes Hirrlinger<sup>4,5)</sup>, Swen Hülsmann<sup>6,7)</sup>  
<sup>1</sup>Division of Physiome, Department of Physiology, Hyogo College of Medicine, Japan, <sup>2</sup>Department of Statistical Modeling, The Institute of Statistical Mathematics, Japan, <sup>3</sup>Department of Statistical Science, School of Multidisciplinary Sciences, The Graduate University for Advanced Studies, Japan, <sup>4</sup>Carl-Ludwig-Institute for Physiology, Faculty of Medicine, University of Leipzig, Germany, <sup>5</sup>Department of Neurogenetics, Max Planck Institute of Experimental Medicine, Germany, <sup>6</sup>Clinic for Anesthesiology, University Medical Center Gottingen, Germany, <sup>7</sup>Research Center for Nanoscale Microscopy and Molecular Physiology of the Brain, University Medical Center Gottingen, Germany
- 1P-324** Respiratory fluctuations in pupil diameter are not maintained during cognitive tasks  
 Nozomu H Nakamura<sup>1)</sup>, Masaki Fukunaga<sup>2)</sup>, Yoshitaka Oku<sup>1)</sup>  
<sup>1</sup>Div. Physiome, Dept. Physiology, Hyogo College of Medicine, Japan, <sup>2</sup>Div. Cerebral Integration, Dept. System Neuroscience, National Institute of Physiological Sciences, Japan
- 1P-325** Morphology and vanilloid-susceptibility of sensory neurons innervating perirenal adipose tissue  
 Bo-Xun Liu, Peng-Yu Zong, Xu-Guan Chen, Wei Sun, Xiang-Qing Kong  
 Department of Cardiology, The First Affiliated Hospital of Nanjing Medical University, China
- 1P-326** The central nNOS uncoupling contributes to cardiovascular dysfunction in hypertensive rats  
 Wei-Zhong Wang, Xing Tan, Yang-Kai Wang, Ya-Hong Yang  
 Department of Physiology, Naval Medical University, China
- 1P-327** Involvement of PVN neurons projecting to the RVLM in sympathetic dysfunction in heart failure  
 Satoshi Koba, Eri Hanai, Nao Kumada, Tatsuo Watanabe  
 Tottori University Faculty of Medicine, Japan
- 1P-328** Responses to hypercapnia and hypoxia of Phox2b-positive cells in the ventral medulla of newborn rats  
 Hiroshi Onimaru<sup>1)</sup>, Keiko Ikeda<sup>2)</sup>, Hiroyuki Igarashi<sup>3)</sup>, Hiromu Yawo<sup>4)</sup>,  
 Kazuto Kobayashi<sup>5)</sup>, Satoru Arata<sup>6)</sup>, Kiyoshi Kawakami<sup>7)</sup>,  
 Masahiko Izumizaki<sup>1)</sup>  
<sup>1</sup>Department of Physiology, Showa University School of Medicine, Japan, <sup>2</sup>Department of Physiology, International University of Health and Welfare (IUHW), <sup>3</sup>Department of Physiology and Pharmacology, Schulich School of Medicine and Dentistry, Robarts Research Institute, Western University, <sup>4</sup>Department of Integrative Life Sciences, Tohoku University Graduate School of Life Sciences, <sup>5</sup>Dept Mol Genet, (Inst Bio Sic.) Fukushima Med Univ, <sup>6</sup>Center for Biotechnology, Showa University, <sup>7</sup>Division of Biology, Center for Molecular Medicine, Jichi Medical University



- 1P-329** Involvement of the lateral parabrachial nucleus in the pressor responses to pinching of the hindpaw  
 Hana Nozawa<sup>1,2)</sup>, Rie Shimoku<sup>1,3)</sup>, Takamichi Taniguchi<sup>1,2)</sup>, Hideshi Shibata<sup>4)</sup>, Mieko Kurosawa<sup>1,5)</sup>  
<sup>1</sup>Grad. Sch. Health & Sci., Int. Univ. Health & Welfare, Japan, <sup>2</sup>Dept. Occupational Ther., Intl. Univ. Health & Welfare, Japan, <sup>3</sup>Dept. Physical Ther., Intl. Univ. Health & Welfare, Japan, <sup>4</sup>Lab. Vet. Anat., Ins. Agric., Tokyo Univ. Agric & Tech., Japan, <sup>5</sup>Center Med. Sci., Intl. Univ. Health & Welfare, Japan
- 1P-330** Raphe-projecting oxytocinergic hypothalamic neurons stimulate brown adipose tissue thermogenesis  
 Akihiro Fukushima, Kazuhiro Nakamura  
 Department of Integrative Physiology, Nagoya University Graduate School of Medicine, Japan
- 1P-331** Strychnine enhances inspiratory-related calcium rise in the thoracic inspiratory interneuron  
 Yoshihiro Mikami, Makito Iizuka, Hiroshi Onimaru, Masahiko Izumizaki  
 Dept. Physiol., Showa Univ. Sch. Med., Japan
- 1P-332** Effects of feeding-promoting peptides on excitability of the superior salivatory nucleus neurons  
 Yoshihiro Mitoh<sup>1)</sup>, Tadasu Sato<sup>2)</sup>, Masako Fujita<sup>1)</sup>, Hiroyuki Ichikawa<sup>2)</sup>, Motoi Kobashi<sup>1)</sup>, Ryusuke Yoshida<sup>1)</sup>  
<sup>1</sup>Department of Oral Physiology, Okayama University Graduate School of Medicine and Dentistry and Pharmaceutical Sciences, Okayama, Japan, <sup>2</sup>Division of Oral and Craniofacial Anatomy, Tohoku University Graduate School of Dentistry, Japan
- 1P-333** Patch-clamp recordings from CRF+ neuron in the Barrington's nucleus using CRF-Venus $\Delta$ neo mice  
 Masahiro Kawatani<sup>1)</sup>, Keiichi Itoi<sup>2,3)</sup>, Katsuya Uchida<sup>2,3)</sup>, Kenji Sakimura<sup>4)</sup>  
<sup>1</sup>Department of Neurophysiology, School of Medicine, University of Akita, Japan, <sup>2</sup>Laboratory of Information Biology, Graduate School of Information Sciences, Tohoku University, Japan, <sup>3</sup>Department of Neuroendocrinology, Graduate School of Medicine, Tohoku University, Japan, <sup>4</sup>Department of Cellular Neurobiology, Brain Research Institute, Niigata University, Japan
- 1P-334** Edible sesquiterpene alcohols suppress cytotoxic chemotherapy side effects  
 Young-Ho Jin, Eunhee Yang  
 Department of Physiology, School of Med. Kyung Hee University, Korea
- 1P-335** Opposite effects of peripheral warming on autonomic nerve activities in the anesthetized rat  
 Takehito Kemuriyama<sup>1)</sup>, Yoshiaki Sato<sup>2)</sup>, Hokyoo Lee<sup>3)</sup>, Takuto Nagashima<sup>4)</sup>, Megumi Tandai-Hiruma<sup>2)</sup>  
<sup>1</sup>Department of Nursing, Kiryu University, Japan, <sup>2</sup>Department of Physiology, National Defense Medical College, Japan, <sup>3</sup>Department of Engineering, Niigata Institute of Technology, Japan, <sup>4</sup>SIT Research Laboratories, Shibaura Institute of Technology, Japan
- 1P-336** Is sympathoexcitation by PVN-RVLM neurons augmented in heart failure?  
 Eri Hanai, Nao Kumada, Tatsuo Watanabe, Satoshi Koba  
 Division of Integrative Physiology, Tottori University Faculty of Medicine, Japan

- 1P-337** Role of Orexin neurons in the hypothalamus during social defeat stress in the rat  
Ena Yamamoto, Takatoshi Horiuchi, Misaki Ichikawa, Jouji Horiuchi  
Department of Biomedical Engineering, Toyo University, Japan
- 1P-338** Effects of anaphylaxis on the gastric autonomic nerve activities in anesthetized rats  
Yuhichi Kuda, Mamoru Tanida, Yasutaka Kurata, Toshishige Shibamoto  
Department of Physiology 2, Kanazawa Medical University, Japan

### Neuroscience: Brain-machine interface

- 1P-339** The efficacy of prosthetic retinal stimulation  
Tomomitsu Miyoshi<sup>1)</sup>, Hiroyuki Kanda<sup>2)</sup>, Takeshi Morimoto<sup>2)</sup>, Takashi Fujikado<sup>2)</sup>  
<sup>1</sup>Department of Integrative Physiology, Graduate School of Medicine, Osaka University, Japan, <sup>2</sup>Department of Applied Visual Science, Graduate School of Medicine, Osaka University
- 1P-340** A possibility of intracortical neural prostheses with carbon-nanotube-based electrodes  
Yuki Hayashida, Rira Ohta, Shohei Suga  
Grad. Engineering, Osaka University, Japan

### Neuroscience: Others (1)

- 1P-341** The neuroprotective effects of Metformin after severe traumatic brain injury in male rats:  
Ali Siahposht-Khachaki<sup>1)</sup>, Ahmadreza Ferdowsi<sup>2)</sup>  
<sup>1</sup>Department of Physiology and Pharmacology, Mazandaran University of Medical Sciences, Ramsar International Branch, Iran, <sup>2</sup>medicine Students, Mazandaran University of Medical Sciences, Ramsar International Branch, Iran
- 1P-342** In vivo otolith organs: clinical significance of its shape between normal and Meniere's disease  
Hisaya Tanioka<sup>1)</sup>, Kimitaka Kaga<sup>2)</sup>, Sayaka Tanioka<sup>3)</sup>  
<sup>1</sup>Department of Radiology, Tanioka Clinic, Japan, <sup>2</sup>National Institute of Sensory Organs, Tokyo Medical Center, <sup>3</sup>Tanioka Clinic, Japan
- 1P-343** A newly synthesized adenosine analogue COA-CI increases dopamine secretion in mouse brain  
Ikuko Tsukamoto<sup>1)</sup>, Mostofa Jamal<sup>1)</sup>, Maki Takata<sup>1)</sup>, Asuka Ito<sup>1)</sup>, Junsuke Igarashi<sup>2)</sup>, Yasuo Kubota<sup>1)</sup>, Hiroshi Kinoshita<sup>1)</sup>, Norikazu Sakakibara<sup>3)</sup>, Ryoji Konishi<sup>1)</sup>  
<sup>1</sup>Faculty of Medicine, Kagawa University, Japan, <sup>2</sup>Morinomiya University of Medical Sciences, Japan, <sup>3</sup>Kagawa School of Pharmaceutical Sciences, Tokushima Bunri University, Japan
- 1P-344** Neurotrophic Role of Glucagon-like Peptide-1 Promotes Neuronal Differentiation via PI3K-AKT Axis  
Yun-Ru Yang, Sun Shu-Fang, Yang Jenq-Lin  
Institute for Translational Research in Biomedicine, Kaohsiung Chang Gung Memorial Hospital, Taiwan

- 1P-345** Cholinergic induction of network oscillations in the slug olfactory neuron *in vitro*  
Suguru Kobayashi  
Kagawa School of Pharmaceutical Sciences, Tokushima Bunri University, Japan
- 1P-346** Cycle duration-modulated information transfer of olfactory and vomeronasal sensory neurons in mice  
Tomohiro Noguchi, Sadaharu Miyazono, Makoto Kashiwayanagi  
Department of Sensory Physiology, Asahikawa Medical University, Japan
- 1P-347** The Neuro-protective Role of Parkin-mediated Mitophagy in Ethambutol-induced Toxic Optic Neuropathy  
Jin Hyoung Kim<sup>1</sup>, Byung Joo Lee<sup>1</sup>, Jeong Hun Kim<sup>1,2</sup>  
<sup>1</sup>FARB Laboratory, Clinical Research Institute, Seoul National University Hospital, Korea, <sup>2</sup>Department of Biomedical Sciences and Ophthalmology, Seoul National University College of Medicine, Korea
- 1P-348** Tregs Protect Dopaminergic Neurons against MPP<sup>+</sup> Neurotoxicity via CD47-SIRPA Interaction  
Yan Huang, Zhan Liu, Yuping Peng  
Department of Physiology, School of Medicine Nantong University, China
- 1P-349** Pathology-dependent mitochondria-cytoskeleton interaction in amyotrophic lateral sclerosis (ALS)  
Tomohiro Tanaka<sup>1,2</sup>, Akiyuki Nishimura<sup>3</sup>, Okiru Komine<sup>4</sup>, Koji Yamanaka<sup>4</sup>, Motohiro Nishida<sup>1,2,3</sup>  
<sup>1</sup>National Institute for Physiological Sciences (NIPS), National Institutes of Natural Sciences, Japan, <sup>2</sup>Exploratory Research Center on Life and Living Systems (EXCELLS), National Institutes of Natural Sciences, Japan, <sup>3</sup>Graduate School of Pharmaceutical Sciences, Kyushu University, Japan, <sup>4</sup>Research Institute of Environmental Medicine, Nagoya University, Japan
- 1P-350** Continuous laryngeal TRPV1 activation modulates swallowing initiation in anesthetized rats  
Midori Yoshihara, Takanori Tsujimura, Makoto Inoue  
Division of Dysphagia Rehabilitation, Niigata University Graduate School of Medical and Dental Sciences, Japan
- 1P-351** Prevention of Dry-Eye Pain by Diquafosol Sodium Administration  
Ayano Katagiri<sup>1</sup>, Koichi Iwata<sup>2</sup>  
<sup>1</sup>Department of Oral Physiology, Osaka University Graduate School of Dentistry, Japan, <sup>2</sup>Department of Physiology, Nihon University School of Dentistry
- 1P-352** Analysis of activated cortical area caused by food restriction in mice  
Jihao Ma, Sakurako Yanase, Lisa Udagawa, Tomoyuki Kuwaki, Ikue Kusumoto-Yoshida  
Department of Physiology, University of Kagoshima, Japan
- 1P-353** TLR2-dependent signaling relay of glial-neuronal circuits to regulate thermoregulation  
Saki Murayama, Erkin Kurganov, Seiji Miyata  
Department of Applied Biology, Kyoto Institute of Technology, Japan
- 1P-354** A novel TRPM8 expressing “cold-neuron” in mouse hypothalamus and medulla  
Erkin Kurganov, Kaho Okamoto, Seiji Miyata

**1P-355** Sensitivity of voltage-dependent Ca<sup>2+</sup> channels in rat AVP neurons to an anthranilic acid derivative

Kaori Sato<sup>1,2)</sup>, Tomohiro Numata<sup>1)</sup>, Yoichi Ueta<sup>3)</sup>, Yasunobu Okada<sup>4,5)</sup>

<sup>1</sup>Department of Physiology, Fukuoka University, Japan, <sup>2</sup>Japan Society for the Promotion of Science, Japan, <sup>3</sup>Department of Physiology, School of Medicine, University of Occupational and Environmental Health, Japan, <sup>4</sup>Department of Physiology and Systems Bioscience, Kyoto Prefectural University of Medicine, Japan, <sup>5</sup>National Institute for Physiological Science, Japan

**1P-356** Behavioral and neural characteristics of recognition of the binary taste mixture in rats

Tomoki Yamamura, Yoshihisa Katagawa, Toshiaki Yasuo, Takeshi Suwabe, Noritaka Sako

Dept. Oral Physiol., Asahi Univ. Sch. Dent., Japan

**1P-357** An imaging system for 3D detection of nano-vibrations in sensory epithelium of the inner ear

Fumiaki Nin<sup>1)</sup>, Samuel Choi<sup>2)</sup>, Takeru Ota<sup>1)</sup>, Hiroshi Hibino<sup>1)</sup>

<sup>1</sup>Department of Molecular Physiology, Niigata University, Japan, <sup>2</sup>Department of Electrical and Electronics Engineering, Niigata University, Japan

**1P-358** Effects of self-motion on the hippocampal CA1 place cell activities in the freely behaving monkey

Yutaro Hazama, Takashi Asano, Ryoji Tamura

Department of Integrative Neuroscience, Graduate School of Medicine and Pharmaceutical Sciences, University of Toyama, Japan

**1P-359** Massage-like stroking stimulation induces 50-kHz ultrasonic vocalizations

Rie Shimoju<sup>1)</sup>, Miyo Hori<sup>2)</sup>, Hideshi Shibata<sup>3)</sup>, Mieko Kurosawa<sup>4,5)</sup>

<sup>1</sup>Dept. Physical Ther., Intl. Univ. Health & Welfare, Japan, <sup>2</sup>Foundation for Advancement of Intl. Sci., Japan, <sup>3</sup>Lab. Vet. Anat., Ins. Agric., Tokyo Univ. Agric & Tech., Japan, <sup>4</sup>Center Med. Sci., Intl. Univ. Health & Welfare, Japan, <sup>5</sup>Dept. Pharm. Sci., Intl. Univ. Health & Welfare, Japan

**1P-360** Retinal circadian rhythm is entrained by the SCN via corticosterone secretion from the adrenal gland

Keisuke Ikegami<sup>1,2)</sup>, Mamoru Nagano<sup>2)</sup>, Satoru Masubuchi<sup>1)</sup>, Yasufumi Shigeyoshi<sup>2)</sup>

<sup>1</sup>Department of Physiology, School of Medicine, Aichi Medical University, Japan, <sup>2</sup>Department of Anatomy and Neurobiology, Faculty of Medicine, Kindai University

**1P-361** Exercise capacity and intelligence in adults after betamethasone given to 4-day-old infant rats

Shunta Maruo, Ayaka Matsuo, Takayoshi Hosono

Department of Biomedical Engineering, Osaka Electro-Communication University, Japan

**1P-362** Characteristics of motor and memory functions in cerebral hypoperfusion model rat by microspheres

Naoyuki Himi<sup>1)</sup>, Naohiko Okabe<sup>1)</sup>, Emi Maruyama Nakamura<sup>1)</sup>, Hisashi Takahashi<sup>2)</sup>, Norito Hayashi<sup>1)</sup>, Issei Sakamoto<sup>1)</sup>, Tomoshige Koga<sup>2)</sup>, Osamu Miyamoto<sup>1)</sup>

<sup>1</sup>Department of Physiology 2, Kawasaki Medical School, Japan, <sup>2</sup>Department of Rehabilitation, Kawasaki University of Medical Welfare, Japan

- 1P-363** H<sub>2</sub>S Attenuates Maternal Cigarette Smoke Exposure-Induced Oxidative Stress in pFRG in Neonatal Rats  
Fang Lei, Wen Wang, Yating Fu, Ji Wang, Yu Zheng  
Department of Physiology, West China School of Basic Medical Sciences and Forensic Medicine, Sichuan University, China
- 1P-364** Maternal Cigarette Smoke Exposure Disturbs Excitatory/Inhibitory Balance in pFRG of Neonatal Rats  
Fu Yating, Fang Lei, Wang Ji, Zheng Yu  
Department of Physiology, West China School of Basic Medical Sciences and Forensic Medicine, Sichuan University, China
- 1P-365** Brown adipose tissue is involved in anti-obesity effects of royal jelly in high fat diet-fed mice  
Akira Terao<sup>1</sup>, Takeshi Yoneshiro<sup>2</sup>, Ryuji Kaede<sup>2</sup>, Kazuki Nagaya<sup>2</sup>, Julia Aoyama<sup>2</sup>, Mana Saito<sup>2</sup>, Yuko Okamatsu-Ogura<sup>2</sup>, Kazuhiro Kimura<sup>2</sup>  
<sup>1</sup>School of Biological Sciences, Tokai University, <sup>2</sup>Laboratory of Biochemistry, Department of Biomedical Sciences, Graduate School of Veterinary Medicine, Hokkaido University
- 1P-366** Effect of LH stimulation on formalin-induced orofacial pain: role of orexin1 receptors in the VTA  
Laleh Rezaee Nazifi, Abbas Haghparast  
Neuroscience Research Center Shahid Beheshti University of Medical Sciences
- 1P-367** Ischemic postconditioning induced by opening of mK<sup>+</sup><sub>ATP</sub> channels and NMDAR silencing by mPTP opening  
Yudai Morisaki<sup>1</sup>, Ichiro Nakagawa<sup>1</sup>, Shohei Yokoyama<sup>1</sup>, Yoichi Ogawa<sup>2</sup>, Yasuhiko Saito<sup>2</sup>, Hiroyuki Nakase<sup>1</sup>  
<sup>1</sup>Department of Neurosurgery, Nara medical university, Japan, <sup>2</sup>Department of Physiology I, Nara medical university, Japan
- 1P-368** Effect of cannabinoids in prefrontal on decision making mediates via change in p-CREB and p-GSK3  
Zahra Fatahivanani, Abbas Haghparast, Fariba Khodaghohi  
Neuroscience Research Center, Shahid Beheshti University of Medical Science, Iran
- 1P-369** Low frequency stimulation targeting the subiculum reverses drug resistance in temporal lobe epilepsy  
Fan Fei, Cenglin Xu, Yi Wang, Yao Liu, Ying Wang, Fang Ding, Kai Zhong, Shuang Wang, Zhong Chen  
Department of Pharmacology, University of Zhejiang, China
- 1P-370** Utilizing the TRPV1 and TRPM8 channels to facilitate the swallowing  
Mohammad Zakir Hossain<sup>1</sup>, Hiroshi Ando<sup>2</sup>, Shumpei Unno<sup>3</sup>, Yuji Masuda<sup>3</sup>, Junichi Kitagawa<sup>1</sup>  
<sup>1</sup>Department of Oral Physiology, Matsumoto Dental University, Japan, <sup>2</sup>Department of Biology, Matsumoto Dental University, Japan, <sup>3</sup>Institute for Oral Science, Matsumoto Dental University, Japan
- 1P-371** Mating with SFPs deficient males cause the suppression of NaCl intake in females in *Drosophila*  
Akira Furuyama  
Department of Oral Function and Molecular Biology, Ohu University School of Dentistry, Japan

- 1P-372** Mood stabilizing drugs activate adult neural stem cell-neurogenesis system  
Keita Nakaji<sup>1</sup>, Natsu Koyama<sup>2</sup>, Takahiro Fuchigami<sup>2</sup>, Seiji Hitoshi<sup>2</sup>  
<sup>1</sup>Department of Medical Science, Shiga University of Medical Science, Japan, <sup>2</sup>Dept. Physiology, Shiga Univ. of Medical Science
- 1P-373** Chebulinic acid negated the development of streptozotocin induced experimental dementia in rats  
Rimpi Arora, Arjun Singh, Rahul Deshmukh  
Dept. of Pharmacology, ISF College of Pharmacy, India
- 1P-374** Chronic EEG recording from rodents using ceramic-guided wire electrodes  
Tomokazu Ohshiro<sup>1</sup>, Yuchio Yanagawa<sup>2</sup>, Hajime Mushiake<sup>1</sup>  
<sup>1</sup>Department of Physiology, School of Medicine, Tohoku university, Japan, <sup>2</sup>Department of Genetic and Behavioral Neuroscience, Graduate School of Medicine, Gunma University, Japan
- 1P-375** Retinal ON pathways contribute to temporal characteristics of visual motion processing in mice  
Yuko Sugita<sup>1,2</sup>, Kenichiro Miura<sup>2</sup>, Takahisa Furukawa<sup>1</sup>  
<sup>1</sup>Laboratory for Molecular and Developmental Biology, Institute for Protein Research, Osaka University, Japan, <sup>2</sup>Department of Integrative Brain Science, Graduate School of Medicine, Kyoto University, Japan
- 1P-376** Distribution of Smad mRNA and proteins in the rat brain  
Takayuki Nakajima  
Department of Veterinary Anatomy, Graduate School of Life and Environmental Sciences, Osaka Prefecture University, Japan
- 1P-377** Event related potentials in the first-person shooter game with virtual reality environment  
Masashi Arake<sup>1,2</sup>, Hiroyuki Ohta<sup>3</sup>, Aki Tsuruhara<sup>3</sup>, Yuji Morimoto<sup>3</sup>, Nariyoshi Shinomiya<sup>1</sup>  
<sup>1</sup>Department of Integrative Physiology and Bio-Nano Medicine, National Defense Medical College, Japan, <sup>2</sup>Aeromedical Laboratory, Japan Air Self Defense Force, Japan, <sup>3</sup>Department of Physiology, National Defense Medical College, Japan
- 1P-378** Changes in reproductive hormones-related genes in hippocampus of cognitive impaired male rats  
Patteera Wititsuwankul, Sukanya Jaroenporn, Taratorn Fainanta, Suchinda Malaivijitnond  
Department of Biology, Faculty of Science, Chulalongkorn University, Thailand
- 1P-379** Agomelatine protects against on permanent cerebral ischemia model through Nrf2-HO-1 pathway  
Wijitra Chumboatong<sup>1</sup>, Chainarong Tocharus<sup>2</sup>, Piyarat Govitrapong<sup>3</sup>, Jiraporn Tocharus Tocharus<sup>1</sup>  
<sup>1</sup>Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Department of Anatomy, Faculty of Medicine, Chiang Mai University, Thailand, <sup>3</sup>Chulabhorn Graduate Institute, Thailand
- 1P-380** Effects of taurine supplementation with exercise on antioxidant enzymes activities in aging rat brain  
Jiraporn Onsri, Rungrudee Srisawat  
School of Preclinic, Institute of Science, Suranaree University of Technology, Thailand

- 1P-381** Effects of quercetin on neuronal activity in the hypothalamic food intake regulating areas  
Naiyana Nontamart, Rungrudee Srisawat  
School of Preclinic, Institute of Science, Suranaree University of Technology, Thailand
- 1P-382** Dihydrocapsaicin improves functional recovery after cerebral ischemia and reperfusion in rat model  
Jiraporn Tocharus<sup>1</sup>, Adchara Janyou<sup>2</sup>, Chainarong Tocharus<sup>2</sup>, Apichart Suksamrarn<sup>3</sup>  
<sup>1</sup>Department of Physiology, Chiang Mai University, Thailand, <sup>2</sup>Department of Anatomy, Chiang Mai University, Thailand, <sup>3</sup>Department of Chemistry and Center of Excellence for Innovation in Chemistry, Ramkhamhaeng University
- 1P-383** The Effect of difference of cognitive control levels in SRK model on EEG frontal theta band  
Satoshi Kawashima<sup>1</sup>, Asako Yoda<sup>2</sup>  
<sup>1</sup>Graduate School of Literature and Social Sciences, Nihon University, Japan, <sup>2</sup>College of Humanities and Sciences, Nihon University
- 1P-384** Parvalbumin positive neurons in the basolateral amygdala and anxiety-like behavior in OLETF rats  
Ryosuke Ochi<sup>1</sup>, Naoto Fujita<sup>1</sup>, Natsuki Goto<sup>1</sup>, Hisao Nishijo<sup>2</sup>, Susumu Urakawa<sup>1</sup>  
<sup>1</sup>Dept. of Musculoskeletal Functional Res. and Regeneration, Grad. Sch. of Biomedical and Health Sci., Hiroshima Univ., Japan, <sup>2</sup>Dept. of System Emotional Sci., Grad. Sch. of Medical and Pharmaceutical Sci., Univ. of Toyama, Japan
- 1P-385** Role of the medulla in the regulation of slow wave sleep  
Yoshimasa Koyama, Kazuki Kobayashi, Hayato Iwata, Tatsuya Suzuki, Kaname Mochizuki, Yoshifumi Arai  
Department of Science and Technology, Fukushima University, Japan
- 1P-386** The Protective Effect of Neferine on Permanent Ischemic Brain Injury in Rats  
Jirakhamoln Sengking<sup>1</sup>, Jiraporn Tocharus<sup>3</sup>, Ratchanaporn Chokchaisiri<sup>2</sup>, Apichart Suksamrarn<sup>4</sup>, Chainarong Tocharus<sup>1</sup>  
<sup>1</sup>Department of Anatomy, Faculty of Medicine, Chiang Mai University, Thailand, <sup>2</sup>Department of Chemistry, School of Science, University of Phayao, Thailand, <sup>3</sup>Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand, <sup>4</sup>Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Ramkhamhaeng University, Thailand
- 1P-387** Effects of NSAIDs on cerebral glucose metabolism measured by [<sup>18</sup>F] FDG uptake in rat brain slices  
Tatsuya Asai<sup>1,2</sup>, Yasuki Narita<sup>1</sup>, Yasushi Kiyono<sup>2</sup>, Hidehiko Okazawa<sup>2</sup>  
<sup>1</sup>Department of Human and Artificial Intelligence Systems, University of Fukui, Japan, <sup>2</sup>Biomedical Imaging Research Center, University of Fukui, Japan

## Epithelial Transport, Secretion & Absorption: Epithelium (1)

- 1P-388** MLCK isoforms regulate intestinal epithelial hyperpermeability under inflammatory stress  
Yu Chen Pai, Tsung-Chun Lee, Chia-Hui Yu  
Graduate Institute of Physiology, National Taiwan University College of Medicine, Taiwan

- 1P-389** TRPV6 mutations cause neonatal transient hyperparathyroidism  
Yoshiro Suzuki<sup>1,2)</sup>, David Chitayat<sup>3)</sup>, Hirotake Sawada<sup>4)</sup>, Gen Nishimura<sup>5)</sup>, Makoto Tominaga<sup>1,2)</sup>  
<sup>1</sup>Division of Cell Signaling, National Institute for Physiological Sciences, Japan, <sup>2</sup>Department of Physiological Sciences, SOKENDAI, Japan, <sup>3</sup>University of Toronto, Canada, <sup>4</sup>Miyazaki University School of Medicine, Japan, <sup>5</sup>Saitama Medical University Hospital, Japan
- 1P-390** Involvement of EP receptors in the regulation of Short circuit current by prostaglandins in A6 cells  
Sun Hongxin<sup>1,2)</sup>, Marunaka Yoshinori<sup>2)</sup>, Asano Shinji<sup>1,2)</sup>  
<sup>1</sup>Dept Mol. Physiol, Coll. Pharm. Sci., Ritsumeikan Univ., Japan, <sup>2</sup>Research Organization of Sci. and Tech., Ritsumeikan Univ.
- 1P-391** Oligomerization of Na<sup>+</sup>/H<sup>+</sup> exchanger isoform 3 (NHE3) and its role in the transport mechanism  
Noriko Ishizuka, Shino Koido, Hisayoshi Hayashi  
School of Food and Nutritional Sciences, University of Shizuoka, Japan
- 1P-392** Computer simulation of intracellular HCO<sub>3</sub><sup>-</sup>/CO<sub>2</sub> buffering in pancreatic duct cell  
Makoto Yamaguchi<sup>1)</sup>, Martin Steward<sup>2)</sup>, Yoshiro Sohma<sup>3)</sup>, Akiko Yamamoto<sup>1)</sup>, Hiroshi Ishiguro<sup>1)</sup>  
<sup>1</sup>Department of Human Nutrition, Nagoya University Graduate School of Medicine, Japan, <sup>2</sup>School of Medical Sciences, University of Manchester, UK, <sup>3</sup>Department of Pharmaceutical Sciences, International University of Health and welfare, Japan
- 1P-393** Secretory reflex pathway of Xenin-25 in the rat ileum  
Atsukazu Kuwahara<sup>1)</sup>, Yuko Kuwahara<sup>2)</sup>, Ikuo Kato<sup>3)</sup>, Toshio Inui<sup>3)</sup>, Yoshinori Marunaka<sup>1,2,5)</sup>  
<sup>1</sup> Research Unit for Epithelial Physiology, Research Organization of Science and Technology, Ritsumeikan University, Japan, <sup>2</sup>Department of Molecular Cell Physiology, Graduate School of Medical Science, Kyoto Prefectural University of Medicine, <sup>3</sup>Department of Medical Biochemistry, Kobe Pharmaceutical University, <sup>4</sup>Saisei Mirai Clinics, <sup>5</sup>Research Institute for Clinical Physiology, Kyoto Industrial Health Association
- 1P-394** Secretory reflex pathway of SCFA in the rat distal colon  
Daiki Harata<sup>1)</sup>, Shinji Asano<sup>1,2)</sup>, Atsukazu Kuwahara<sup>2)</sup>, Toshio Inui<sup>3)</sup>, Yoshinori Marunaka<sup>2,4,5)</sup>  
<sup>1</sup>Dept of Mol Physiol, Coll Pharm Sci, Ritsumeikan Univ, Japan, <sup>2</sup>Res Unit for Epithelial Physiol, Res Org of Sci and Tech, Ritsumeikan Univ, Japan, <sup>3</sup>Saisei Mirai Clinics, Japan, <sup>4</sup>Dept Mol Cell Physiol, Grad Sch Med Sci Kyoto Pref Univ Med, Japan, <sup>5</sup>Res Inst for Clin Physiol, Kyoto Ind Health Assoc, Japan
- 1P-395** Epithelial ion secretion of human bronchial ciliary epithelium  
Shigekuni Hosogi<sup>1,2)</sup>, Leonardo Puppulin<sup>2)</sup>, Nobuyo Tamiya<sup>4)</sup>, Hideo Tanaka<sup>3)</sup>, Koichi Takayama<sup>4)</sup>, Eishi Ashihara<sup>1)</sup>  
<sup>1</sup>Department of Clinical and Translational Physiology, Kyoto Pharmaceutical University, Japan, <sup>2</sup>Department of Molecular Cell Physiology, Graduate School of Medical Sciences, Kyoto Prefectural University of Medicine, Japan, <sup>3</sup>Department of Pathology and Cell Regulation, Graduate School of Medical Sciences, Kyoto Prefectural University of Medicine, Japan, <sup>4</sup>Department of Respiratory Medicine, Graduate School of Medical Sciences, Kyoto Prefectural University of Medicine, Japan



## Epithelial Transport, Secretion & Absorption: G-I tract (1)

- 1P-396** Zinc finger protein 521 involved in small intestinal function and stem cell differentiation  
Nazuna Morisada, Kotone Miyake, Mamoru Aoto, Noriaki Mitsuda, Nobutaka Ohkubo  
Department of Circulatory Physiology, Graduate School of Medicine, Ehime University, Japan
- 1P-397** Role of cysteine protease inhibitors in malignancy of oral squamous cell carcinoma  
Junko Fujita-Yoshigaki, Megumi Yokoyama, Osamu Katsumata-Kato  
Department of Physiology, Nihon University School of Dentistry at Matsudo, Japan
- 1P-398** Renal impairment disturbs the intestinal microbiota and alters intestinal motility  
Kazuhiro Nishiyama<sup>1</sup>, Yasu-Taka Azuma<sup>2</sup>, Hidemitsu Nakajima<sup>2</sup>, Tadayoshi Takeuchi<sup>2</sup>  
<sup>1</sup>Department of Translational Pharmaceutical Sciences Kyushu University, Japan, <sup>2</sup>Laboratory of Veterinary Pharmacology, Division of Veterinary Science, Osaka Prefecture University Graduate School of Life and Environmental Science, Japan
- 1P-399** Down-regulation of PDGFR $\alpha$ + cells caused colonic dysmotility in DSS-induced colitis mice  
Wenxie Xu<sup>1,2</sup>, Chen Lu<sup>1</sup>, Hongli Lu<sup>1</sup>, Xu Huang<sup>1</sup>, Jie Chen<sup>2</sup>  
<sup>1</sup>Department of anatomy and physiology, Shanghai Jiaotong University, School of Medicine, China, <sup>2</sup>Department of Pediatric Surgery, Xin Hua Hospital, Affiliated to Shanghai Jiao Tong University School of Medicine, China
- 1P-400** Neurogenic relaxation of Xenin on spontaneous circular muscle contractions in rat distal colon  
Yuko Kuwahara<sup>1</sup>, Ikuo Kato<sup>2</sup>, Atsukazu Kuwahara<sup>3</sup>, Yoshinori Marunaka<sup>3,4</sup>, Toshio Inui<sup>5</sup>  
<sup>1</sup>Department of Molecular Cell Physiology, Kyoto Prefectural University of Medicine, Japan, <sup>2</sup>Department of Medical Biochemistry, Kobe Pharmaceutical University, <sup>3</sup>Research Unit for Epithelial Physiology, Research Organization of Science and Technology, Ritsumeikan University, <sup>4</sup>Research Institute for Clinical Physiology, Kyoto Industrial Health Association, <sup>5</sup>Saisei Mirai Clinics
- 1P-401** CRF regulates colonic motility through CRF-PDGFR $\alpha$ /ICC pathway  
Xu Huang, Hong-Li Lu, Han-Yue Fu, Chen Lu, Wen-Xie Xu  
Department of Anatomy and Physiology, Shanghai Jiao Tong University School of Medicine, China
- 1P-402** Regulation of gastric motility by histamine via interstitial cells of Cajal in the Syrian hamster  
Takahiko Shiina<sup>1</sup>, Kazuhiro Horii<sup>1</sup>, Satoru Naganuma<sup>1</sup>, Shohei Yasuda<sup>1</sup>, Yasutake Shimizu<sup>1,2</sup>  
<sup>1</sup>Department of Basic Veterinary Science, Laboratory of Physiology, The United Graduate School of Veterinary Sciences, Gifu University, Japan, <sup>2</sup>Center for Highly Advanced Integration of Nano and Life Sciences, Gifu University (G-CHAIN)
- 1P-403** Changes of colonic transit in feeding state after abdominal open surgery in conscious rat  
Misaki Okada<sup>1</sup>, Sazu Taniguchi<sup>2</sup>, Hiroshi Taniguchi<sup>3</sup>, Hiroshi Kitakoji<sup>4</sup>, Kazunori Itoh<sup>5</sup>, Kenji Imai<sup>6</sup>  
<sup>1</sup>Graduate School of Acupuncture and Moxibustion, Meiji University of Integrative

Medicine, Japan, <sup>2</sup>The Japan School of Acupuncture, Moxibustion and Physiotherapy, <sup>3</sup>Department of Acupuncture and Moxibustion, Tokyo Ariake University of Medical and Health Sciences, <sup>4</sup>Department of Acupuncture and Moxibustion, Takarazuka University of Medical and Health Care, <sup>5</sup>Department of Acupuncture and Moxibustion, Meiji University of Integrative Medicine, <sup>6</sup>Department of Acupuncture and Moxibustion, Faculty of Health Science, Teikyo Heisei University

**1P-404** The mechanism of sexually dimorphic responses of colorectal motility by noxious stimulation in rats

Kazuhiro Hori<sup>1</sup>\*, Yuka Ehara<sup>1</sup>\*, Kiyotada Naitou<sup>1</sup>\*, Hiroyuki Nakamori<sup>1</sup>\*, Takahiko Shiina<sup>1</sup>\*, Yasutake Shimizu<sup>1,2</sup>\*

<sup>1</sup>Lab Vet Physiol, Unit Grad Sch Vet Sci, Gifu Univ, Japan, <sup>2</sup>Center for Highly Advanced Integration of Nano and Life Sciences, Gifu University (G-CHAIN)

**Epithelial Transport, Secretion & Absorption: Renal Physiology (1)**

**1P-405** Recovery of tight junctional localization and Mg<sup>2+</sup> transport of claudin-16 mutant by primaquine

Akira Ikari<sup>1</sup>\*, Kana Marunaka<sup>1</sup>\*, Toru Kimura<sup>2</sup>\*, Hajime Hasegawa<sup>3</sup>\*, Satoshi Endo<sup>1</sup>\*, Toshiyuki Matsunaga<sup>1</sup>\*

<sup>1</sup>Laboratory of Biochemistry, Gifu Pharmaceutical University, Japan, <sup>2</sup>School of Medicine, Kyorin University, Japan, <sup>3</sup>Saitama Medical Center, Saitama Medical University, Japan

**1P-406** Endocytosis of NKCC2 is impaired in renal tubule in moesin knockout mice

Kotoku Kawaguchi<sup>1</sup>\*, Ryo Hatano<sup>2</sup>\*, Shinji Asano<sup>1</sup>\*

<sup>1</sup>College of Pharmaceutical Sciences, Ritsumeikan University, Japan, <sup>2</sup>Graduate School of Medicine, Chiba University, Japan

**1P-407** Quantitative analysis of epithelial transport in proximal tubule with mathematical model

Taiki Nishizuka<sup>1</sup>\*, Junichi Taniguchi<sup>2</sup>\*, Akinori Noma<sup>1</sup>\*, Yukiko Himeno<sup>1</sup>\*, Akira Amano<sup>1</sup>\*

<sup>1</sup>Graduate School of Life Science, Ritsumeikan University, Japan, <sup>2</sup>Div. Mol. Pharmacol. Dept. Pharmacol. Jichi Med. Univ

**1P-408** Low-Pi diet-induced metabolic acidosis with alkaluria was reversed in the Pendrin KO mice

Yukiko Yasuoka<sup>1</sup>\*, Tomomi Oshima<sup>1</sup>\*, Yuichi Sato<sup>2</sup>\*, Hiroshi Noguchi<sup>3</sup>\*, Noriko Takahashi<sup>1</sup>\*, Katsumasa Kawahara<sup>1,4</sup>\*

<sup>1</sup>Department of Physiology, Kitasato University, School of Medicine, Japan, <sup>2</sup>Department of Molecular Diagnostics, Kitasato University, School of Allied Health Sciences, Japan, <sup>3</sup>Division of Internal Medicine, Kitasato University Medical Center, Japan, <sup>4</sup>Department of Health and Nutrition, Sendai Shirayuri Women's College, Japan

**1P-409** Atorvastatin ameliorates renal injury in high-fat diet-induced obese rats

Anusorn Lungkaphin, Nattavadee Pengrattanachot, Rada Chengwelling, La-ongdao Thongnak, Anchalee Pongchaidecha

Department of Physiology, Faculty of Medicine, Chiang Mai University, Thailand

**1P-410** Protective role of COUP-TFII against cisplatin-induced acute kidney injury

Sumiyasu Ishii, Noriyuki Koibuchi

Department of Integrative Physiology, Gunma University Graduate School of Medicine, Japan

- 1P-411** Possible Role of Garlic Oil in Ameliorating Renal Injury after Liver Ischemia/Reperfusion in Rats  
 Noha Nooh Lasheen, Wael Alayat, Mohamed Fathy  
 Associate Professor of Physiology, Physiology Department, Faculty of Medicine, Ain Shams University, Egypt
- 1P-412** A novel NEU mutagenesis model rat of chronic kidney disease  
 Iori Ohmori<sup>1)</sup>, Tomoji Mashimo<sup>2)</sup>, Mamoru Ouchida<sup>3)</sup>, Shinya Toyokuni<sup>4)</sup>  
<sup>1</sup>Department of special education, Okayama University, Japan, <sup>2</sup>The Institute of Experimental Animal Sciences Department of Medicine, Osaka University, Japan, <sup>3</sup>Department of Molecular Oncology, Graduate School of Medicine, Dentistry, and Pharmaceutical Sciences, Okayama University, Japan, <sup>4</sup>Department of Pathology and Biological Responses Nagoya University Graduate School of Medicine, Japan
- 1P-413** Pathogenic role of ERK1/2-mTORC1 axis in adriamycin-induced glomerulosclerosis  
 Soo-Jin Kim<sup>1)</sup>, Ranjan Das<sup>1)</sup>, Nhung Thi Nguyen<sup>1)</sup>, Luong Dai Ly<sup>1)</sup>, Ji-Hee Kim<sup>1)</sup>, Kyu-Hee Hwang<sup>1)</sup>, Dat Da Ly<sup>1)</sup>, Eunha Chang<sup>1)</sup>, Hyeong Ju Kwon<sup>2)</sup>, Seung-Kuy Cha<sup>1)</sup>, Kyu-Sang Park<sup>1)</sup>  
<sup>1</sup>Department of Physiology, Wonju College of Medicine, Yonsei University, Korea, <sup>2</sup>Department of Pathology, Wonju College of Medicine, Yonsei University, Korea

## Molecular & Cellular Biology: Channels & Transporters (1)

- 1P-414** Role of TRPV3-ANO1 interaction in keratinocyte wound healing  
 Yu Yamanoi<sup>1,2,3)</sup>, Yasunori Takayama<sup>2,3)</sup>, Makoto Tominaga<sup>2,3)</sup>  
<sup>1</sup>Research Laboratory, Ikedamohando Co., Ltd., Japan, <sup>2</sup>Division of Cell Signaling, National Institute for Physiological Sciences, <sup>3</sup>Thermal Biology Group, Exploratory Research Center on Life and Living Systems(ExCELLS)
- 1P-415** Functional analyses for a Ca<sup>2+</sup> binding site of TRPM4 and TRPM5 channels  
 Soichiro Yamaguchi<sup>1)</sup>, Akira Tanimoto<sup>2)</sup>, Shinsuke Iwasa<sup>2)</sup>, Ken-Ichi Otsuguro<sup>2)</sup>  
<sup>1</sup>Laboratory of Physiology, Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine, Hokkaido University, Japan, <sup>2</sup>Laboratory of Pharmacology, Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine, Hokkaido University, Japan
- 1P-416** Enhanced activity by NKCC1 and SLC26A6 in cardioplegic arrest of db/db heart  
 Minjeong Ji  
 Department of Physiology, College of Medicine, Gachon University, Lee Gil Ya Cancer and Diabetes Institute, Korea
- 1P-417** Involvement of thermosensitive TRP channels in temperature-dependent microglia movement  
 Sandra Derouiche<sup>1)</sup>, Rei Nishimoto<sup>1)</sup>, Kei Eto<sup>2)</sup>, Makoto Tominaga<sup>1)</sup>  
<sup>1</sup>Division of Cell signaling, NIPS, Thermal biology group ExCELLS, Japan, <sup>2</sup>Division of Homeostatic development, NIPS, Japan
- 1P-418** Characterization of TRPA1 from disease vector mosquitoes  
 Tianbang Li<sup>1,2,3)</sup>, Claire Tanaka Saito<sup>2,3)</sup>, Shigeru Saito<sup>1,2,3)</sup>, Makoto Tominaga<sup>1,2,3)</sup>  
<sup>1</sup>Department of Physiological Sciences, SOKENDAI, Japan, <sup>2</sup>Division of Cell signaling, National Institute for Physiological Sciences, Japan, <sup>3</sup>Thermal Biology Group, Exploratory

**1P-419** Simultaneous intracellular temperature imaging during patch-clamp recording of TRPV1 activity

Tomoyo Ujisawa<sup>1,2</sup>, Kunitoshi Uchida<sup>3</sup>, Kohki Okabe<sup>4</sup>, Takeharu Nagai<sup>5</sup>, Makoto Tominaga<sup>1,2</sup>

<sup>1</sup>Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences, Japan, <sup>2</sup>National Institute for Physiological Sciences, National Institutes of Natural Sciences, Japan, <sup>3</sup>Department of Physiological Science and Molecular Biology, Fukuoka Dental College, Japan, <sup>4</sup>Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan, <sup>5</sup>The Institute of Scientific and Industrial Research, Osaka University, Japan

**1P-420** A key interaction for modulation of voltage dependence by phosphoinositides in two-pore channel 3

Takushi Shimomura<sup>1,2</sup>, Yoshihiro Kubo<sup>1,2</sup>

<sup>1</sup>Division of Biophysics and Neurobiology, Natl Inst Physiol Sci, Japan, <sup>2</sup>Department of Physiological Sciences, SOKENDAI, Japan

**1P-421** Inhibition of IL-10 transcription by K<sub>Ca</sub>3.1 K<sup>+</sup> channel activation in human T-cell lymphoma

Susumu Ohya<sup>1</sup>, Miki Matsui<sup>1,2</sup>, Junko Kajikuri<sup>1</sup>, Hiroaki Kito<sup>1</sup>, Kyoko Endo<sup>1,2</sup>, Yuki Hasagawa<sup>2</sup>, Shin-ya Murate<sup>1</sup>

<sup>1</sup>Department of Pharmacology, Graduate School of Medical Sciences, Nagoya City University, Japan, <sup>2</sup>Department of Pharmacology, Kyoto Pharmaceutical University

**1P-422** Ion Permeation of Voltage Sensor and its Foundation Structure  
Ayako Katagi, Yuichiro Fujiwara

Molecular Physiology and Biophysics, Kagawa University, Faculty of Medicine, Japan

**1P-423** Identification of amino acids involved in the 4-isopropylcyclohexanol action on TRP channels

Hong Dung Thi Nguyen<sup>1,2,3</sup>, Yasunori Takayama<sup>1,2,3</sup>, Makoto Tominaga<sup>1,2,3</sup>

<sup>1</sup>Division of Cell Signaling, National Institute for Physiological Sciences, National Institutes of Natural Sciences, Japan, <sup>2</sup>Department of Physiological Sciences, the Graduate University for Advanced Studies, Japan, <sup>3</sup>Thermal Biology group, Exploratory Research Center on Life and Living Systems National Institutes of Natural Sciences, Japan

**1P-424** TRPV1 and ANO1/TMEM16A interaction in inflammatory pain conditions

Yasunori Takayama, Makoto Tominaga

Thermal Biology Group, Exploratory Research Center on Life and Living Systems (ExCELLS), National Institutes of Natural Sciences, Japan

**1P-425** DNA origami scaffolds as templates for Kir3.1/3.4 heterotetrameric channels

Tatsuki Kurokawa<sup>1,2</sup>, Shigeki Kiyonaka<sup>3</sup>, Eiji Nakata<sup>3</sup>, Masayuki Endo<sup>4</sup>, Emiko Mori<sup>2</sup>, Nam Ha Tran<sup>2</sup>, Chikara Sato<sup>6</sup>, Hiroshi Sugiyama<sup>4,5</sup>, Takashi Morii<sup>3</sup>, Yasuo Mori<sup>2</sup>

<sup>1</sup>Department of Pathophysiology, Faculty of Medicine, Oita University, Japan, <sup>2</sup>Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University, <sup>3</sup>Institute of Advanced Energy, Kyoto University, <sup>4</sup>Institute for Integrated Cell-Material Sciences (WPI-iCeMS), Kyoto University, <sup>5</sup>Department of Chemistry, Graduate School of Science, Kyoto University, <sup>6</sup>Biomedical Research Institute, National Institute of Advanced Industrial Science and Technology

- 1P-426** A tension-modulated modality of the KcsA channel exclusive for acid-activated state  
Masayuki Iwamoto, Shigetoshi Oiki  
Department of Molecular Physiology & Biophysics, University of Fukui Faculty of Medical Sciences, Japan
- 1P-427** Determinants of Ba<sup>2+</sup> sensitivity in zebrafish ROMK channels  
Yuriko Takeda<sup>1</sup>, Fumihito Ono<sup>1</sup>, Koichi Nakajo<sup>1,2</sup>  
<sup>1</sup>Department of Physiology, Osaka Medical College, Japan, <sup>2</sup>Division of Integrative Physiology, Department of Physiology, Jichi Medical University, Japan
- 1P-428** Functional Interaction between TRPM8 and ANO1  
Mingyi Dong<sup>1,2</sup>, Hong Dung Thi Nguyen<sup>1,2,3</sup>, Tominaga Makoto<sup>1,2,3</sup>, Yasunori Takayama<sup>1,2,3</sup>  
<sup>1</sup>National Institute for Physiological Sciences, Japan, <sup>2</sup>Thermal Biology Group, Exploratory Research Center on Life and Living Systems (EXCELLS), <sup>3</sup>Department of Physiological Sciences, The Graduate University for Advanced Studies (SOKENDAI), Japan
- 1P-429** Analysis of dynamic structural rearrangements of Two-Pore Na<sup>+</sup> Channel 3 by voltage clamp fluorometry  
Ki-Ichi Hirazawa<sup>1,2</sup>, Takushi Shimomura<sup>1,2</sup>, Yoshihiro Kubo<sup>1,2</sup>  
<sup>1</sup>Division of Biophysics and Neurobiology, National Institute for Physiological Sciences, Japan, <sup>2</sup>Department of Physiological Sciences, The Graduate University for Advanced Studies, Japan
- 1P-430** Mechano-gating of Piezo1 mutants identified in patients affected by Hereditary Xerocytosis  
Yohei Yamaguchi<sup>1,2</sup>, H el ene Guizouarn<sup>3</sup>, Olivier Soriani<sup>3</sup>, Akira Takai<sup>1</sup>, Peter Kohl<sup>2</sup>, R emi Peyronnet<sup>2</sup>  
<sup>1</sup>Department of Physiology, Asahikawa Medical University, Japan, <sup>2</sup>Institute for Experimental Cardiovascular Medicine, University Heart Centre Freiburg - Bad Krozingen, Faculty of Medicine, University of Freiburg, Germany, <sup>3</sup>University C ote d'Azur, CNRS, Inserm, Insitut for Biology Valrose, France.
- 1P-431** Involvement of TRPA1 channel in FK506-incuded pain sensation  
Kunitoshi Uchida<sup>1</sup>, Tomo Kita<sup>1</sup>, Kenichi Kato<sup>1</sup>, Yoshiro Suzuki<sup>2</sup>, Makoto Tominaga<sup>2,3</sup>, Jun Yamazaki<sup>1</sup>  
<sup>1</sup>Dept of Physiol Sci and Mol Biol, Fukuoka Dental College, Japan, <sup>2</sup>Div of Cell Signal, NIPS, Japan, <sup>3</sup>Thermal Biol Group, EXCELLS, Japan
- 1P-432** What is the pH-gradient Sensing in the Voltage-Gated H<sup>+</sup> Channel?  
Yuichiro Fujiwara  
Molecular Physiology & Biophysics, Faculty of Medicine / Graduate School of Medicine, Kagawa University, Japan
- 1P-433** Withdrawn
- 1P-434** Magnesium ion influx in H9c2 cells with TRPM7 gene silencing  
Michiko Tashiro<sup>1</sup>, Hana Inoue<sup>1</sup>, Ryo Kobayashi<sup>2</sup>, Masato Konishi<sup>1</sup>  
<sup>1</sup>Department of Physiology, Tokyo Medical University, Japan , <sup>2</sup>Department of Microbiology, Tokyo Medical University, Japan
- 1P-435** The role of TRPM4 in immune responses in keratinocytes and the novel TRPM4 agonist  
Kaori Otsuka Saito<sup>1,2</sup>, Fumitaka Fujita<sup>1,2</sup>, Manami Toriyama<sup>2</sup>,

Ratna Annisa Utami<sup>3)</sup>, Yoshiro Suzuki<sup>4,5,6)</sup>, Fumihiro Okada<sup>1,2)</sup>,  
Makoto Tominaga<sup>4,5,6)</sup>, Ken J Ishii<sup>7,8)</sup>

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- 1P-436** Analysis of chondrocytes anion channel activity in vitro model of osteoarthritis  
Kosuke Kumagai<sup>1,2)</sup>, Futoshi Toyoda<sup>2)</sup>, Caroline Staunton<sup>3)</sup>,  
Tsutomu Maeda<sup>1)</sup>, Hitoshi Tanigawa<sup>1)</sup>, Noriaki Okumura<sup>1)</sup>,  
Mitsuhiko Kubo<sup>1)</sup>, Takahumi Yayama<sup>1)</sup>, Hiroshi Matsuura<sup>2)</sup>, Shinji Imai<sup>1)</sup>,  
Richard Barrett-Jolley<sup>3)</sup>  
<sup>1</sup>Department of Orthopaedic Surgery, Shiga University of Medical Science, Japan, <sup>2</sup>Department of Physiology, Shiga University of Medical Science, Japan, <sup>3</sup>Department of Musculoskeletal Biology, University of Liverpool, United Kingdom
- 1P-437** The Ca<sup>2+</sup>-permeable cation TRPV3 channel: an emerging pivotal target for itch and skin diseases  
Kewei Wang  
Department of Pharmacology, School of Pharmacy, Qingdao University, China
- 1P-438** (AP-3) Cytoplasmic conformational changes of VSP detected by voltage clamp fluorescence spectroscopy  
Akira Kawanabe, Tomoko Yonezawa, Yasushi Okamura  
Graduate School of Medicine, Osaka University, Japan
- 1P-439** The regulation of TRPV1 channel gating by intracellular ATP  
Takahiro Shimizu, Nobuhiro Yanase, Takuto Fujii, Haruka Sakakibara,  
Hideki Sakai  
Department of Pharmaceutical Physiology, University of Toyama, Japan
- 1P-440** Recognition of capsaicin via transient receptor potential channel and transmembrane protein  
Yuma Unno<sup>1)</sup>, Kanami Moriya<sup>2)</sup>, Naomi Osakabe<sup>1,2)</sup>, Yoshihisa Hirota<sup>1,2)</sup>  
<sup>1</sup>Systems Engineering and Science, Graduate School of Engineering and Science, Shibaura Institute of Technology, Japan, <sup>2</sup>Department of Bioscience and Engineering, College of Systems Engineering and Sciences, Shibaura Institute of Technology
- 1P-441** Regulation of TRPM7 channel activity by its kinase domain  
Hana Inoue<sup>1)</sup>, Takashi Murayama<sup>2)</sup>, Takuya Kobayashi<sup>2)</sup>, Masato Konishi<sup>1)</sup>  
<sup>1</sup>Department of Physiology, Tokyo Medical University, Japan, <sup>2</sup>Department of Cellular and Molecular Pharmacology, Juntendo University Graduate School of Medicine
- 1P-442** Mapping the agonist binding site of the FMRFamide-gated Na<sup>+</sup> channel  
Yasuo Furukawa, Iori Tagashira  
Laboratory of Neurobiology, Graduate School of Integrated Arts and Sciences, Hiroshima University, Japan

- 1P-443** Development of tonotopic differentiation of axon initial segment in avian nucleus magnocellularis  
Nargis Akter, Ryota Adachi, Ryota Fukaya, Hiroshi Kuba  
Department of Cell Physiology, University of Nagoya, Japan
- 1P-444** A calcium-binding protein S100A10 is a regulator of Maxi-Cl channel activity  
Rafiqul Md. Islam<sup>1</sup>), Toshiaki Okada<sup>1</sup>), Abduqodir Toychiev<sup>1</sup>), Ravshan Z. Sabirov<sup>1,2)</sup>, Yasunobu Okada<sup>1,3)</sup>  
<sup>1</sup>Div. Cell Signal, National Institute for Physiological Sciences, Japan, <sup>2</sup>Lab. Mol. Physiol., Inst. Bioorg. Chem, Uzb. Acad. Sci., Uzbekistan, <sup>3</sup>Dept. Physiol., Kyoto Pref. Univ. Med., Japan
- 1P-445** Toward the understanding of hexose specificity of Na<sup>+</sup>D-glucose cotransporters SGLT1 and SGLT2  
Kazuho Kamitori<sup>1,2)</sup>, Yuichiro Fujiwara<sup>1</sup>  
<sup>1</sup>Department of Molecular Physiology and Biophysics, Faculty of Medicine, Kagawa University, Japan, <sup>2</sup>International Institute of Rare Sugar Research and Education, Kagawa University
- 1P-446** The comparison of sensitivity between NaPi-IIa and NaPi-IIb activity to phosphoinositides  
Natsuki Mizutani, Yoshifumi Okochi, Yasushi Okamura  
Integrative Physiol, Grad Sch Med, Osaka Univ, Japan
- 1P-447** An endosome-resident zinc transporter negatively regulates systemic dsRNA spreading in *C. elegans*  
Katsufumi Dejima, Rieko Imae, Yuji Suehiro, Shohei Mitani  
Department of Physiology, Tokyo Women's Medical University School of Medicine
- 1P-448** Evaluation of effects of empagliflozin on mouse ventricular myocytes  
Hinako Suzuki<sup>1</sup>), Takuma Yoshizawa<sup>2</sup>), Shunsuke Aoki<sup>3</sup>), Saki Watanabe<sup>4</sup>), Yukari Takeda<sup>5</sup>), Ayako Takeuchi<sup>5</sup>), Satoshi Matsuoka<sup>5</sup>)  
<sup>1</sup>Fukui Senior High School, <sup>2</sup>Fujishima High School, <sup>3</sup>Yokohama Science Frontier High School, <sup>4</sup>Aomori High School, <sup>5</sup>Department of Integrative and Systems Physiology, Faculty of Medical Sciences, University of Fukui
- 1P-449** A united chemotherapy to reverse drug resistance in ovarian cancer  
Libo Yu  
School of Biomedical Sciences, The Chinese University of Hong Kong, Hong Kong
- 1P-450** AMP-activated protein kinase dissociates vesicle association of clathrin heavy chain CHC22  
Kazuho Sakamoto<sup>1</sup>), Stéphane M Camus<sup>2</sup>), Frances M Brodsky<sup>2</sup>)  
<sup>1</sup>Department of Bio-Informational Pharmacology, University of Shizuoka, Japan, <sup>2</sup>Division of Biosciences, University College London
- 1P-451** Function analysis of NHE1 using a strategy of cardiomyocyte differentiation from human iPS cells  
Shigeo Wakabayashi, Kiichiro Tomoda, Shunichi Yokoe, Hirofumi Morihara, Michio Asahi  
Department of Pharmacology, Osaka Medical College
- 1P-452** Developmental regulation of KCC2 phosphorylation is essential for GABA signaling and survival  
Miho Watanabe<sup>1</sup>), Jinwei Zhang<sup>2</sup>), Mohammad Mansuri<sup>3</sup>), Jingjing Duan<sup>3</sup>),

Kristopher T Kahle<sup>3,4)</sup>, Atsuo Fukuda<sup>1)</sup>

<sup>1)</sup>Dept Neurophysiol, Hamamatsu Univ Sch Med, Japan, <sup>2)</sup>Inst Biomed Clinical Sci, Univ Exeter Med Sch, UK, <sup>3)</sup>Dept Neurosurgery, Yale Sch Med, <sup>4)</sup>Depts of Pediatrics and Cell. and Mol Physiol; Centers for Mendelian Genomics, Yale Sch Med

**1P-453 Characterization of transgenic mice overexpressing dominant negative TRPM7 mutant**

Tomo Kita<sup>1)</sup>, Hideaki Tagashira<sup>1)</sup>, Tomohiro Numata<sup>2)</sup>, Satomi Kita<sup>1,3)</sup>, Takahiro Iwamoto<sup>1)</sup>

<sup>1)</sup>Department of Pharmacology, Faculty of Medicine, Fukuoka University, Japan,

<sup>2)</sup>Department of Physiology, Faculty of Medicine, Fukuoka University, Japan,

<sup>3)</sup>Department of Pharmacology, Faculty of Pharmaceutical Sciences, Tokushima Bunri University, Japan

**1P-454 Characterizations of the HCO<sub>3</sub><sup>-</sup> transport activities of a choroid plexus-specific variant of NBC4**

Hidekazu Fukuda, Noriko Takahashi

Department of Physiology, Kitasato University School of Medicine, Japan

**Molecular & Cellular Biology: Cellular Physiology (1)**

**1P-455 Glycative stress influences skeletal muscle growth and cell growth signaling in mice**

Tatsuro Egawa<sup>1,2)</sup>, Yoshitaka Ohno<sup>2)</sup>, Shingo Yokoyama<sup>2)</sup>, Ayumi Goto<sup>1,3)</sup>, Satoshi Tsuda<sup>1)</sup>, Katsumasa Goto<sup>2)</sup>, Tatsuya Hayashi<sup>1)</sup>

<sup>1)</sup>Graduate School of Human and Environmental Studies, Kyoto University, Japan,

<sup>2)</sup>Department of Physiology, Toyohashi SOZO University, Japan, <sup>3)</sup>Graduate School of Medical Sciences, Juntendo University, Japan

**1P-456 Intracellular cAMP induces Ca<sup>2+</sup> influx in odontoblasts**

Maki Kimura<sup>1)</sup>, Asuka Higashikawa<sup>1)</sup>, Sadao Ohyama<sup>1,2)</sup>, Wataru Ofusa<sup>1)</sup>, Miyuki Shimada<sup>1)</sup>, Hidetaka Kuroda<sup>3)</sup>, Hiroyuki Mochizuki<sup>1)</sup>, Masayuki Ando<sup>1)</sup>, Kyosuke Kono<sup>1)</sup>, Yoshiyuki Shibukawa<sup>1)</sup>

<sup>1)</sup>Department of Physiology, Tokyo Dental College, Japan, <sup>2)</sup>Department of Oral Surgery, Tokyo Metropolitan Komagome Hospital, <sup>3)</sup>Department of Critical Care Medicine and Dentistry, Division of Anesthesiology, Kanagawa Dental University

**1P-457 P2Y6 receptor antagonist MRS2578 induces atypical signaling**

Kakeru Shimoda<sup>1,2)</sup>, Caroline Sunggip<sup>1)</sup>, Akiyuki Nishimura<sup>3)</sup>, Tomohiro Tanaka<sup>1)</sup>, Takuro Numaga-Tomita<sup>1,2)</sup>, Kazuhiro Nishiyama<sup>3)</sup>, Motohiro Nishida<sup>1,2,3)</sup>

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**1P-458 PDGF signals contribute to proliferation and migration of human prostate cancer cell**

Md Junayed Nayeem, Aya Yamamura, Rie Takahashi, Hisaki Hayashi, Motohiko Sato

Department of Physiology, Aichi Medical University, Japan

**1P-459 Single-cell imaging analysis of inflammatory JNK signaling**

Taichiro Tomida<sup>1)</sup>, Kimitaka Yamaguchi<sup>1)</sup>, Masanori Ito<sup>1)</sup>, Yoshinori Mikami<sup>1)</sup>, Daisuke Ohshima<sup>1)</sup>, Shingo Murakami<sup>2)</sup>,



Satomi Adachi-Akahane<sup>1)</sup>

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**1P-460** LMHFV promotes BMSCs to Differentiate into osteoblast via a Novel lincRNA-7140 in osteoporosis rat

Liang Li<sup>1)</sup>, Chengjian Cao<sup>1)</sup>, Xiaoqin Yu<sup>1)</sup>, Huiming Li<sup>1)</sup>, Xiaojing Liu<sup>2)</sup>, Wenchao Wu<sup>2)</sup>, Xueling He<sup>1)</sup>

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**1P-461** Effect of hydrogen sulfide and L-cysteine on the principal cells of rat cortical collecting ducts

You Komagiri

Department of Physiology, School of Medicine, Iwate Medical University, Japan

**1P-462** Voltage-dependent Ionic Channels in Human Cementoblast

Satomi Kamata<sup>1)</sup>, Asuka Higashikawa<sup>2)</sup>, Maki Kimura<sup>2)</sup>, Sadao Oyama<sup>2)</sup>, Yoshiyuki Shibukawa<sup>2)</sup>, Shuichiro Yamashita<sup>1)</sup>

<sup>1</sup>Department of Removable Partial Prosthodont, Tokyo Dent Coll, Japan, <sup>2</sup>Department of Physiology, Tokyo Dent Coll

**1P-463** Insulin Regulates Adrenal Steroidogenesis by Stabilizing SF-1 Activity

Dong Joo Yang<sup>1,2)</sup>, Ann Wambui Kinyua<sup>2)</sup>, Ji Su Sun<sup>1)</sup>, Seul Ki Kim<sup>1)</sup>, Yun-Hee Choi<sup>1)</sup>, Dong Min Shin<sup>1)</sup>, Ki Woo Kim<sup>1)</sup>

<sup>1</sup>Department of Oral Biology, Yonsei University, Korea, <sup>2</sup>Departments of Pharmacology and Global Medical Science, Wonju College of Medicine, Yonsei University

**1P-464** The 2<sup>nd</sup> Residue of GPCR Helix 8 May Control Transient and Specific Interaction with its G Protein

Takaaki Sato<sup>1)</sup>, Hiroyoshi Matsumura<sup>2)</sup>

<sup>1</sup>Biomed Res Inst, Natl. Inst. Adv. Indust. Sci. & Technol., Japan, <sup>2</sup>Dept Biotech, Coll Life Sci, Ritsumeikan Univ, Japan

**1P-465** The role for O-linked N-acetylglucosamine cycling in macrophage Toll-like receptor signaling

Ken Shirato<sup>1)</sup>, Junetsu Ogasawara<sup>2)</sup>, Takuya Sakurai<sup>1)</sup>, Kazuhiko Imaizumi<sup>3)</sup>, Hideki Ohno<sup>4)</sup>, Takako Kizaki<sup>1)</sup>

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**1P-466** Hypotonic Stress Induces ATP Release via Volume-regulated Anion Channels in Breast Cell Lines

Kishio Furuya<sup>1,2)</sup>, Yuko Takahashi<sup>1)</sup>, Masahiro Sokabe<sup>1)</sup>

<sup>1</sup>Mechanobiology Lobo, Nagoya University Graduate School of Medicine, Japan, <sup>2</sup>Research Center of Health, Physical Fitness and Sports, Nagoya University, Japan

**1P-467** Estrogen deficiency compromised the  $\beta_2$ AR-Gs/Gi: implications for arrhythmia and cardiac injury

Yu Zhang<sup>1)</sup>, Hongjian Hou<sup>1)</sup>, Zhiwei Zhao<sup>2)</sup>, Jeremiah Ong'achwa Machuki<sup>1)</sup>, Lin Zhang<sup>1)</sup>, Yan Zhang<sup>1)</sup>, Lu Fu<sup>1)</sup>, Jinxia Wu<sup>1)</sup>, Yuyu Liu<sup>2)</sup>, Sian E. Harding<sup>3)</sup>, Hong Sun<sup>1)</sup>

<sup>1</sup>Physiology Department, Xuzhou Medical University, China, <sup>2</sup>Institute of Cardiovascular

- 1P-468** Inhibition of HSC activation by caffeine is elicited by antagonizing adenosine receptor-Akt1 pathway  
Momoka Yamaguchi, Tomoya Morishita, Shin-ya Saito, Tomohisa Ishikawa  
Department of Pharmacology, University of Shizuoka, Japan
- 1P-469** Phosphorylation analysis in renal arterioles by advanced phos-tag SDS-PAGE method  
Kosuke Takeya  
Department of Veterinary Medicine, Okayama University of Science, Japan
- 1P-470** IL-6 promotes CDK5-induced STAT3/androgen receptor activation in prostate cancer cells  
Wan-Chen Yu<sup>1</sup>, Pei-Chi Li<sup>1</sup>, Fu-Ning Hsu<sup>1</sup>, Chieh-Lin Jerry Teng<sup>2</sup>, Hsin-Yi Wang<sup>3</sup>, Mei-Chih Chen<sup>4,5</sup>, Ho Lin<sup>1</sup>  
<sup>1</sup>Department of Life Sciences, National Chung Hsing University, Taiwan, <sup>2</sup>Department of Division of Hematology/Medical Oncology, Taichung Veterans General Hospital, Taiwan, <sup>3</sup>Department of Nuclear Medicine, Taichung Veterans General Hospital, Taiwan, <sup>4</sup>Medical Research Center for Exosomes and Mitochondria Related Diseases, China Medical University Hospital, Taiwan, <sup>5</sup>Department of Nursing, Asia University, Taiwan
- 1P-471** Acute exposure to PRMT1 inhibitor can regulate contraction in isolated mouse ventricular myocytes  
Xue An<sup>1</sup>, Hyun Ji Kim<sup>1</sup>, Jung Hoon Pyun<sup>2</sup>, Jong Sun Kang<sup>2</sup>, Hana Cho<sup>1</sup>  
<sup>1</sup>Department of Physiology, Single Cell Network Resarch Center, Sungkyunkwan University School of Medicine, Korea, <sup>2</sup>Department of Molecular Cell Biology, Single Cell Network Resarch Center, Sungkyunkwan University School of Medicine, Korea
- 1P-472** Conditional deletion of PRMT1 in adult brain reveals its neuronal cell type-specific roles  
Yoo Bin Kim<sup>1</sup>, Hyun Kyung So<sup>2</sup>, Jong Sun Kang<sup>2</sup>, Hana Cho<sup>1</sup>  
<sup>1</sup>Department of Physiology, Single Cell Network Resarch Center, Sungkyunkwan University School of Medicine, Korea, <sup>2</sup>Department of Molecular Cell Biology, Single Cell Network Resarch Center, Sungkyunkwan University School of Medicine, Korea
- 1P-473** Procathepsin B without mannose-6-phosphaste is released from secretory granules  
Osamu Katsumata-Kato, Megumi Yokoyama, Junko Fujita-Yoshigaki  
Department of Physiology, Nihon University School of Dentistry at Matsudo, Japan
- 1P-474** Pathophysiological roles of an actin-binding protein ezrin in the kidney  
Shinji Asano<sup>1</sup>, Kotoku Kawaguchi<sup>1</sup>, Tomonori Okazaki<sup>1</sup>, Ryo Hatano<sup>2</sup>  
<sup>1</sup>College of Pharmacy, Ritsumeikan University, Japan, <sup>2</sup>Chiba University Graduate School of Medicine
- 1P-475** The efflux characteristics of mitochondrial calcium  
Jeong Hoon Lee<sup>1</sup>, DuongDuc Pham<sup>1</sup>, ChaeHun Leem<sup>1,2</sup>  
<sup>1</sup>Department Physiology, University of Ulsan, Korea, <sup>2</sup>ASAN medical center, Korea
- 1P-476** Role of mito-K<sub>ATP</sub> channel in Formation of the De-energized Mitochondrial Membrane Potential  
ChaeHun Leem<sup>1,2</sup>, JeongHoon Lee<sup>1</sup>, QuynhMai Ho<sup>1</sup>, DuongDuc Pham<sup>1</sup>  
<sup>1</sup>Department of Physiology University of Ulsan College of Medicine, Korea, <sup>2</sup>ASAN Medical Center, Korea

- 1P-477** Multistep adaptation of nuclear transport system depending on varying heat stress  
Yutaka Ogawa, Naoko Imamoto  
Cellular Dynamics Laboratory, RIKEN Cluster for Pioneering Research, Japan
- 1P-478** Physiological functions of Hikeshi, a nuclear import carrier of molecular chaperone HSP70  
Shingo Kose, Ai Watanabe, Naoko Imamoto  
Cellular Dynamics Laboratory, RIKEN Cluster for Pioneering Research, Japan
- 1P-479** Palmitate induces ER Ca<sup>2+</sup> depletion and defective lysosomal Ca<sup>2+</sup> release in insulin-secreting cells  
Luong Dai Ly<sup>1,2</sup>, Dat Da Ly<sup>1,2</sup>, Nhung Thi Nguyen<sup>1,2</sup>, Soo-Jin Kim<sup>1,2</sup>,  
Seung-Kuy Cha<sup>1,2</sup>, Myungsik Lee<sup>3</sup>, Kyu-Sang Park<sup>1,2</sup>  
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<sup>2</sup>Mitohormesis Research Center, Wonju College of Medicine, Yonsei University,  
<sup>3</sup>Department of Internal Medicine, College of Medicine, Yonsei University, Korea
- 1P-480** Direct Fyn-paxillin binding controls migration of coronary artery smooth muscle cells  
Ying Zhang, Min Zhang, Bochao Lyu, Hiroko Kishi, Tomoka Morita,  
Qian Lu, Nan Li, Sei Kobayashi  
Dept Mol Cell Physiol, Yamaguchi Univ, Grad Sch Med, Japan
- 1P-481** Fascia related muscle contracture  
Akihiro Kaizu, Yoshiyuki Tsuboi  
Department of Physiology, Nihon University School of Dentistry, Japan
- 1P-482** Inhibitory effects of chloride intracellular channel protein 2 on distant metastasis of tumor cells  
Akihiro Umakoshi<sup>1</sup>, Saya Ozaki<sup>2</sup>, Yutaro Sumida<sup>1</sup>, Shota Ohsumi<sup>1</sup>,  
Erika Hayase<sup>1</sup>, Yoshitomo Ueno<sup>3</sup>, Yasutsugu Takada<sup>3</sup>, Takeharu Kunieda<sup>2</sup>,  
Hajime Yano<sup>1</sup>, Junya Tanaka<sup>1</sup>  
<sup>1</sup>Department of Molecular and Cellular Physiology, Graduate School of Medicine, Ehime University, Japan, <sup>2</sup>Department of Neurosurgery, Graduate School of Medicine, Ehime University, Japan, <sup>3</sup>Department of Hepato Gallblad Pancreatic, Graduate School of Medicine, Ehime University, Japan
- 1P-483** Gelatin alters the TGF-beta signaling for RANKL induced osteoclastogenesis  
Yingming Liou, Wei-Ting Lin  
Department of Life Sciences, National Chung Hsing University, Taiwan
- 1P-484** Evaluation of cell damage during cold-stress and re-warming  
Daisuke Kobayashi, Keisuke Yoshida, Shingo Tsuji, Tomoki Nagae,  
Akihiro Hazama  
Department of Cellular and Integrative Physiology, Fukushima Medical University, Japan
- 1P-485** The role of BAG3 on the heat-induced cell death in human cancer cells  
Yoshiaki Tabuchi<sup>1,2</sup>, Tatsuya Yunoki<sup>3</sup>, Yukihiro Furusawa<sup>4</sup>,  
Tetsushi Hirano<sup>1</sup>, Atsushi Hayashi<sup>3</sup>  
<sup>1</sup>Life Science Research Center, University of Toyama, Japan, <sup>2</sup>Graduate School of Innovative Life Science, University of Toyama, Japan, <sup>3</sup>Department of Ophthalmology, Graduate School of Medicine and Pharmaceutical Sciences, University of Toyama,

- 1P-486** Lysosomal Proton Sponge Effect by a Cationic Gold Nanorod-Doxorubicin in Cancer Cells  
Dongun Lee<sup>1</sup>, Jun-Young Park<sup>1</sup>, Song Kwon<sup>1</sup>, Jun Young Park<sup>1</sup>, Dongwoo Khang<sup>1,2</sup>, Jeong Hee Hong<sup>1,2</sup>  
<sup>1</sup>Lee Gil Ya Cancer and Diabetes Institute, Gachon University, Korea, <sup>2</sup>Department of Physiology, Gachon University, South Korea
- 1P-487** Periodontitis elicits salivary gland atrophy via plasma TNF- $\alpha$  and infiltration of B-cells  
Takemi Shikayama<sup>1,3</sup>, Misa Sago-Ito<sup>2</sup>, Suzuro Hitomi<sup>1</sup>, Izumi Ujihara<sup>1</sup>, Mako Naniwa<sup>1</sup>, Michihiko Usui<sup>3</sup>, Keisuke Nakashima<sup>3</sup>, Kentaro Ono<sup>1</sup>  
<sup>1</sup>Division of Physiology, Kyushu Dental University, Japan, <sup>2</sup>Division of Orofacial Functions Ortho, Kyushu Dental University, <sup>3</sup>Division of Periodontol, Kyushu Dental University
- 1P-488** N-terminal region of apoptosis-inducing factor stabilizes formation of charge transfer complex  
Tetsuo Yamashita<sup>1</sup>, Takeshi Hashimoto<sup>1</sup>, Junsuke Igarashi<sup>1,2</sup>, Hiroaki Kosaka<sup>1</sup>, Katsuya Hirano<sup>1</sup>  
<sup>1</sup>Dept. of Cardiovasc. Physiol., Kagawa Univ., Japan, <sup>2</sup>Dept. of Med. Engineer., Morinomiya Univ. of Med. Sci., Japan
- 1P-490** Loss of GPx4 in vascular endothelial cells induces accumulation of lipid peroxide and cell death  
Toshinori Yasuzawa<sup>1</sup>, Yoshie Sumikawa<sup>2</sup>, Osamu Sakai<sup>3</sup>, Shigeru Ueshima<sup>1,2,4</sup>  
<sup>1</sup>Department of Food Science and Nutrition, Faculty of Agriculture, Kindai University, Japan, <sup>2</sup>Major in Applied Biological Chemistry, Graduated school of Agriculture, Kindai University, <sup>3</sup>Senju Laboratory, Senju Pharmaceutical Co., Ltd., <sup>4</sup>Antianging Center, Kindai University
- 1P-491** Synergistic inhibition of Dinaciclib and Paclitaxel on breast cancer cell growth  
Yu-Hsuan Li<sup>1</sup>, Hsin-Shun Tseng<sup>2</sup>, Mei-Chih Chen<sup>3,4</sup>, Ho Lin<sup>1</sup>  
<sup>1</sup>Department of Life Sciences, National Chung Hsing University, Taiwan, <sup>2</sup>Comprehensive Breast Cancer Center, Changhua Christian Hospital, Taiwan, <sup>3</sup>Medical Research Center for Exosomes and Mitochondria Related Diseases, China Medical University Hospital, Taiwan, <sup>4</sup>Department of Nursing, Asia University, Taiwan
- 1P-492** Bitter tastant and bacterial metabolite modulate glucagon-like peptide-1 secretion  
Kazuki Harada<sup>1</sup>, Hidekazu Sakaguchi<sup>2</sup>, Shoko Sada<sup>1</sup>, Takashi Tsuboi<sup>1,2</sup>  
<sup>1</sup>Department of Life Sciences, Graduate School of Arts and Sciences, The University of Tokyo, Japan, <sup>2</sup>Department of Biological Sciences, Graduate School of Science, The University of Tokyo
- 1P-493** Sequential phosphoinositide conversion is required for TGF $\beta$ -induced receptor endocytosis in ECs  
Sho Aki<sup>1</sup>, Kazuaki Yoshioka<sup>1</sup>, Noriko Takuwa<sup>2</sup>, Yoh Takuwa<sup>1</sup>  
<sup>1</sup>Department of Physiology Kanazawa University School of Medicine, Japan, <sup>2</sup>Department of Health and Medical Sciences, Ishikawa Prefectural Nursing University
- 1P-494** The roles of p11 for the localization and heteromeric channel formation of TASK1 and TASK3 isoforms  
Hidetada Matsuoka, Keita Harada, Masumi Inoue  
Department of Cell and Systems Physiology, University of UOEH, Japan

- 1P-495** Astrocytic spontaneous hormone exocytosis modulated by spontaneous cytosolic Ca<sup>2+</sup> increase  
Mai Takizawa, Kazuki Harada, Takashi Tsuboi  
Department of Life Sciences, Graduate School of Arts and Sciences, The University of Tokyo, Japan
- 1P-496** Molecular mechanisms of deoxycholic acid induced glucagon-like peptide-1 secretion  
Maoko Takashima, Kazuki Harada, Taichi Kamiya, Takashi Tsuboi  
Department of Life Sciences, Graduate School of Arts and Sciences, The University of Tokyo, Japan
- 1P-497** Effect of temperature on raft-dependent endocytosis during activation of T cells by concanavalin A  
Masahiro Takagi, Neha Sharma, Naofumi Shimokawa  
School of Materials Science, Japan Advanced Institute of Science and Technology, Japan
- 1P-498** Electrophysiological evidence for increased thrombopoiesis in the bone marrow in CRF rat model  
Itsuro Kazama<sup>1,2)</sup>  
<sup>1</sup>Miyagi University, Japan, <sup>2</sup>Tohoku University, Japan
- 1P-499** The outer BRB in diabetic retina is regulated by interaction between microglia and RPE cells  
Jeong Hun Kim<sup>1,2,3)</sup>, Jin Hyoung Kim<sup>3)</sup>, Dong Hyun Jo<sup>3)</sup>, Jang-Hyuk Yun<sup>1)</sup>, Chung-Hyun Cho<sup>1)</sup>  
<sup>1</sup>Department of Biomedical Sciences, Seoul National University College of Medicine, Korea, <sup>2</sup>Department of Ophthalmology, Seoul National University College of Medicine, Korea, <sup>3</sup>FARB Laboratory, Clinical Research Institute, Seoul National University Hospital
- 1P-500** Expression of Tyrosine Hydroxylase in CD4<sup>+</sup> T Cells Alleviates Collagen-Induced Arthritis  
Xiao-Qin Wang, Yan Liu, Yi-Hua Qiu  
Department of Physiology, School of Medicine, Nantong University, China
- 1P-501** Effects of 405 nm light by using light emitting diodes on cultured HeLa cells  
Toshitaka Ikehara<sup>1,2)</sup>, Mutsumi Nakahashi<sup>3)</sup>, Takahiro Emoto<sup>5)</sup>, Masatake Akutagawa<sup>5)</sup>, Koichiro Tsuchiya<sup>4)</sup>, Akira Takahashi<sup>6)</sup>, Yohsuke Kinouchi<sup>5)</sup>  
<sup>1</sup>Department of Human Welfare, Faculty of Health and Welfare, Tokushima Bunri University, Japan, <sup>2</sup>Division of Biomolecular and Structural Biology, Institute for Health Sciences, Tokushima bunri University, <sup>3</sup>Tokushima Agriculture, Forestry and Fisheries Technology Support Center, <sup>4</sup>Department of Medical Pharmacology, Department of Institute of Biomedical Sciences, Tokushima University, <sup>5</sup>Graduate School of Technology, Industrial and Social Sciences, Tokushima University, <sup>6</sup>Department of Preventive Environment and Nutrition, Institute of Biomedical Sciences, Tokushima University
- 1P-502** Inhibitory effect of Corylifol C on RANKL-induced osteoclast differentiation and bone resorption  
Jung Yun Kang, Dong Min Shin  
Department of Oral Biology, Yonsei University College of Dentistry, Korea
- 1P-503** Sestrin 2 regulates osteoclast differentiation through interaction with p62 and TRAF6

Namju Kang, Sue Young Oh, Dong Min Shin

Department of Oral Biology, BK21 PLUS project, Yonsei University College of Dentistry, Korea

- 1P-504** A novel screening system to predict injured organs using cell-free DNA in serum  
Wataru Miyazaki, Hiroyuki Yajima, Michifumi Kokubo, Noriyuki Koibuchi  
Department of Integrative Physiology, Graduate School of Medicine, Gunma University, Japan
- 1P-505** The stress-induced stress tolerance acquisition in ciliated protozoan *Paramecium caudatum*  
Mikihiko Arikawa<sup>1</sup>, Yasutaka Chikuda<sup>2</sup>, Tatsuomi Matsuoka<sup>1</sup>  
<sup>1</sup>Department of Biological Sciences, Faculty of Science and Technology, Kochi University, Japan, <sup>2</sup>Department of Physiology, Kochi Medical School, Japan
- 1P-506** Calcium-dependent regulation of cortical actin filaments in mouse eggs  
Shunta Arakawa, Takashi Yoshida, Hideki Shirakawa  
Department of Engineering Science, The University of Electro-Communications, Japan
- 1P-507** Target-gene disruption by CRISPR/xCas9 system in *Drosophila melanogaster*  
Xuyang Ni, Gongyin Ye, Jia Huang  
Institute of Insect Sciences, Zhejiang University, China
- 1P-508** Electrophysiological properties of inwardly rectifying K<sup>+</sup> channel in glioblastoma stem-like cells  
Mikio Hayashi<sup>1</sup>, Ryoichi Iwata<sup>2</sup>, Naaz Andharia<sup>1</sup>, Kohei Ofune<sup>2</sup>, Kunikazu Yoshimura<sup>2</sup>, Masahiro Nonaka<sup>2</sup>, Akio Asai<sup>2</sup>, Hiroko Matsuda<sup>1</sup>  
<sup>1</sup>Department of Physiology, Kansai Medical University, Japan, <sup>2</sup>Department of Neurosurgery, Kansai Medical University, Japan
- 1P-509** Downregulating CXCR4 by miR-139 to restrain breast cancer stem cell-like phenotypes  
Chun-Wen Cheng<sup>1,2</sup>, Po-Ming Chen<sup>1</sup>, Hui-Ping Shiau<sup>1</sup>, Yi-Hsien Hsieh<sup>1</sup>, Jyh-Cherng Yu<sup>3</sup>, Chen-Yang Shen<sup>4</sup>  
<sup>1</sup>Institute of Biochemistry, Microbiology and Immunology, Chung Shan Medical University, Taiwan, <sup>2</sup>Clinical Laboratory, Chung Shan Medical University Hospital, Taiwan, <sup>3</sup>National Defense Medical College, Department of Surgery, Tri-Service General Hospital, Taiwan, <sup>4</sup>Institute of Biomedical Sciences, Academia Sinica, Taiwan
- 1P-510** CHIP-mediated ubiquitination of Gal1 predicts prognosis of colorectal cancer  
Wei min Wang<sup>1,2,3</sup>  
<sup>1</sup>Department of oncology, Yangzhou University, China, <sup>2</sup>Department of Oncology, Yixing Hospital Affiliated to Medical College of Yangzhou University, China, <sup>3</sup>Department of Physiology, School of Medicine, Showa University, Japan
- 1P-511** CD105 maintains the thermogenic program of beige adipocyte  
Ryoko Higa<sup>1</sup>, Toshikatsu Hanada<sup>2</sup>, Reiko Hanada<sup>1</sup>  
<sup>1</sup>Department of Neurophysiology, Oita University Faculty of Medicine, Japan, <sup>2</sup>Department of Cell Biology, Oita University Faculty of Medicine, Japan
- 1P-512** Leucine and Caffeine induce mitochondrial biogenesis and down-regulation of miRNAs in C2C12 myotubes  
Claudia Perez Lopez<sup>1</sup>, Tsubasa Shibaguchi<sup>2</sup>, Kazumi Masuda<sup>1</sup>

- 1P-513** Effects of supplementation of fatty acids on viability of B16F10 and neural stem cells  
Naomi Ohuchi, Masanori Katakura  
Department of Pharmaceutical Sciences, University of Josai, Japan
- 1P-514** STAT6 promotes myoblast differentiation and fusion  
Mitsutoshi Kurosaka, Yuji Ogura, Kazuhisa Koda, Toshiya Funabashi  
Department of Physiology, St. Marianna University School of Medicine, Japan
- 1P-515** Analysis of Molecular and Cellular Roles of the GON domain in ER-to-Golgi transport  
Swako Yoshina<sup>1)</sup>, Shohei Mitani<sup>1,2)</sup>  
<sup>1</sup>Department of Physiology, TWU, Japan, <sup>2</sup>TIIMS, TWU, Japan

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Shu-Chuan Yang<sup>1)</sup>, Hsien-Yong Lai<sup>2)</sup>, Kun-Ruey Shieh<sup>3)</sup>  
<sup>1</sup>Holistic Education Center, Tzu Chi University of Science and Technology, Taiwan, <sup>2</sup>Division of Anesthesiology, Mennonite Christian Hospital, Taiwan, <sup>3</sup>Department of Physiology, Tzu Chi University, Taiwan
- 1P-518** Exploratory behaviors related to central dopaminergic activities in male Formosan wood mice  
Kun-Ruey Shieh<sup>1)</sup>, Shu-Chuan Yang<sup>2)</sup>, Hsien-Yong Lai<sup>3)</sup>  
<sup>1</sup>Department of Physiology, Tzu Chi University, Taiwan, <sup>2</sup>Holistic Education Center, Tzu Chi University of Science and Technology, Taiwan, <sup>3</sup>Division of Anesthesiology, Mennonite Christian Hospital, Taiwan
- 1P-519** Characterization of splicing variants of frog TRPA1 revealed divergence in their thermal property  
Claire Saito<sup>1,2)</sup>, Shigeru Saito<sup>1,2,3)</sup>, Makoto Tominaga<sup>1,2,3)</sup>  
<sup>1</sup>Thermal Biology Group, Exploratory Research Center on Life and Living Systems (ExCELLS), Japan, <sup>2</sup>Division of Cell Signaling, National Institute for Physiological Sciences, Japan, <sup>3</sup>Department of Physiological Sciences, SOKENDAI (The Graduate University for Advanced Studies), Japan
- 1P-520** Fos expression in the hypothalamic nuclei after changes from hypergravity to normal gravity in mice (AP-7)  
Yoichi Ueta<sup>1)</sup>, Mitsuhiro Yoshimura<sup>1)</sup>, Satomi Sonoda<sup>1)</sup>, Takashi Maruyama<sup>1)</sup>, Chikara Abe<sup>2)</sup>, Hironobu Morita<sup>2)</sup>  
<sup>1</sup>Department of Physiology, School of Medicine, University of Occupational and Environmental Health, Japan, <sup>2</sup>Department of Physiology, Gifu University Graduate School of Medicine, Japan
- 1P-522** Impact of long-term stay in micro-gravity on vestibular function  
Hironobu Morita<sup>1)</sup>, Chikara Abe<sup>1)</sup>, Kunihiko Tanaka<sup>2)</sup>  
<sup>1</sup>Department of Physiology, Gifu University Graduate School of Medicine, Japan, <sup>2</sup>Gifu University of Medical Sciences
- 1P-523** Effect of RBM3 on Glycolysis and Apoptosis in the Liver After Acute Cold Exposure  
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College of Animal Science and Veterinary Medicine, Heilongjiang Bayi Agricultural University, China

- 1P-524** Different adaptation of Chinese expeditioners during prolonged Antarctic and sub-Antarctic residence  
Chengli Xu<sup>1</sup>, Shiyang Liu<sup>1</sup>, Nan Chen<sup>1</sup>, Quan Wu<sup>2</sup>, Hao Li<sup>3</sup>, Tao Zhang<sup>4</sup>  
<sup>1</sup>Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences, China, <sup>2</sup>Department of General Surgery, Beijing Jishuitan Hospital, China, <sup>3</sup>Beijing Friendship Hospital, China, <sup>4</sup>Beijing Tongren Hospital, China
- 1P-525** Circadian Rhythm and Sleep during Prolonged Antarctic Residence at Chinese Zhongshan Station  
Yanlei Xiong<sup>1</sup>, Chengli Xu<sup>1</sup>, Nan Chen<sup>1</sup>, Quan Wu<sup>2</sup>, Guang Chen<sup>3</sup>, Dandan Chen<sup>3</sup>  
<sup>1</sup>Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences, China, <sup>2</sup>Department of General Surgery, Beijing Jishuitan Hospital, China, <sup>3</sup>Beijing Institute of Technology, China
- 1P-526** The sleep parameter and autonomic nervous response in menopausal women  
Michiko Tanaka<sup>1</sup>, Mou Nagasaka<sup>1</sup>, Chiyomi Egami<sup>2</sup>, Miyuki Matsuyama<sup>2</sup>, Kiyoka Yamashita<sup>2</sup>, Yukiko Ogata<sup>2</sup>, Aki Nozue<sup>3</sup>, Yoshikazu Sakakibara<sup>4</sup>  
<sup>1</sup>School of Nursing, Miyazaki Prefectural Nursing University, Japan, <sup>2</sup>Fukuoka Prefectural University, <sup>3</sup>Miyazaki University, <sup>4</sup>Kanazawa Institute of Technology
- 1P-527** Time since injury and thermoregulatory responses in hyperthermic person with spinal cord injury  
Yoshi-Ichiro Kamijo<sup>1,3</sup>, Manabu Shibasaki<sup>2</sup>, Tokio Kinoshita<sup>3</sup>, Takashi Moriki<sup>3</sup>, Yasunori Umemoto<sup>1</sup>, Ken Kouda<sup>1</sup>, Fumihiro Tajima<sup>1,3</sup>  
<sup>1</sup>Department of Rehabilitation Medicine, Wakayama Medical University, Japan, <sup>2</sup>Department of Health Sciences, Nara Women's University, Japan, <sup>3</sup>Medical Center for Health Promotion and Sport Science, Wakayama Medical University, Japan
- 1P-528** Neural network during cognitive tasks during whole body heat stress  
Manabu Shibasaki, Hiroki Nakata  
Department of Health Sciences, Nara Women's University, Japan
- 1P-529** A study of ultradian rhythm expression with a mathematical model  
Hiroko Sawai, Tetsuo Kurahashi  
Toyota Central R&D Labs., Inc., Japan
- 1P-530** Ultradian Calcium Rhythms in the PVN and SPZ in the Hypothalamus  
Ryosuke Enoki<sup>1</sup>, Yu-Er Wu<sup>2</sup>, Yoshiaki Oda<sup>3</sup>, Zhi-Li Huang<sup>2</sup>, Ken-Ichi Honma<sup>4</sup>, Sato Honma<sup>4</sup>  
<sup>1</sup>Laboratory of Molecular and Cellular Biophysics, Research Institute for Electronic Science, Hokkaido University, Japan, <sup>2</sup>State Key Laboratory of Medical Neurobiology, School of Basic Medical Sciences, Fudan University, China, <sup>3</sup>Department of Oral Chrono-Physiology, Graduate School of Biomedical Sciences, Nagasaki University, Japan, <sup>4</sup>Research and Education Center for Brain Science, Hokkaido University Graduate School of Medicine, Japan
- 1P-531** Thermosensors and neural circuit regulating temperature-dependent negative masking behavior in mice  
Wataru Ota<sup>1,2</sup>, Yusuke Nakane<sup>1,2</sup>, Makiko Kashio<sup>4</sup>, Yoshiro Suzuki<sup>5,6</sup>, Kazuhiro Nakamura<sup>7</sup>, Yasuo Mori<sup>8</sup>, Makoto Tominaga<sup>5,6</sup>, Takashi Yoshimura<sup>1,2,3,9</sup>  
<sup>1</sup>Institute of Transformative Bio-Molecules (WPI-ITbM), Nagoya University, Japan,



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**1P-532 Real time recording of clock gene expression in multiple tissues of freely moving mice**

Toshiyuki Hamada, Kazuko Hamada

Department of Pharmaceutical Sciences, International University of Health and Welfare, Japan

**1P-533 The evaluation of activity and body temperature fluctuation in animal model of shift work**

Hiroaki Fujihara, Nobuhiro Fujiki

Department of Ergonomics, Institute of Industrial Ecological Science, University of Occupational and Environmental Health, Japan

**1P-534 Optical imaging of circadian calcium rhythm in a solitary supra-chiasmatic neuron**

Yoshihiro Hirata<sup>1</sup>, Ryosuke Enoki<sup>1,2</sup>), Kaori Kuribayashi-Shigetomi<sup>4</sup>), Yoshiaki Oda<sup>5</sup>), Sato Honma<sup>3,5</sup>), Ken-Ichi Honma<sup>3,5</sup>)

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**1P-535 Chemical and thermal sensitivity of axolotl TRPA1**

Mai Oda<sup>1,2</sup>), Hajime Ogino<sup>1</sup>), Yoshihiro Kubo<sup>3</sup>), Koji Shibasaki<sup>2</sup>), Osamu Saitoh<sup>1</sup>)

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**1P-536 Innate and acquired cold tolerant properties in hibernating Syrian hamsters (*Mesocricetus auratus*)**

Hiroki Shimaoka<sup>1</sup>), Yuuma Yoshida<sup>1</sup>), Manami Kurata<sup>1</sup>), Yuuki Horii<sup>1</sup>), Hiroki Sakai<sup>2</sup>), Takahiko Shiina<sup>1</sup>), Yasutake Shimizu<sup>1,3</sup>)

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**1P-537 Effect of blue light blocking glass on melatonin secretion and sleep quality in humans**

Sayo Oishi<sup>1</sup>), Maki Sato<sup>2</sup>), Chihiro Kodama<sup>2</sup>), Yoko Inukai<sup>2</sup>), Mika Kamiya<sup>2</sup>), Naoki Nishimura<sup>2</sup>), Satoshi Iwase<sup>2</sup>)

**1P-538 Cell autonomous cold resistance of a mammalian hibernator, Syrian hamster**

Daisuke Anegawa<sup>1,2</sup>), Yuichi Chayama<sup>2</sup>), Lisa Ando<sup>2</sup>), Hiroki Taii<sup>2</sup>), Shuji Shigenobu<sup>3</sup>), Yuya Sato<sup>1,2</sup>), Masayuki Miura<sup>2</sup>), Yoshifumi Yamaguchi<sup>1</sup>)

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**1P-539 Alternative splicing of cold-inducible RNA-binding protein mRNA in hypothermic animals**

Yuuki Horii<sup>1</sup>), Hiroki Shimaoka<sup>1</sup>), Takahiko Shiina<sup>1</sup>), Yasutake Shimizu<sup>1,2</sup>)

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## Physiome

**1P-540 Weighted gene co-expression network analysis in chronic kidney disease and hemodialysis patients**

Tomoyoshi Terada<sup>1,2</sup>), Hiromichi Akahori<sup>2</sup>), Yoshinori Muto<sup>1,2</sup>)

<sup>1</sup>United Graduate School of Drug Discovery and Medical Information Sciences, Gifu University, Japan, <sup>2</sup>Department of Functional Biosciences, Gifu University School of Medicine

**1P-541 Reflected conduction caused by subcellular sodium channel redistributions**

Kunichika Tsumoto<sup>1,3</sup>), Takashi Ashihara<sup>2</sup>), Yasutaka Kurata<sup>1</sup>), Yoshihisa Kurachi<sup>3</sup>)

<sup>1</sup>Department of Physiology, Kanazawa Medical University, Japan, <sup>2</sup>Department of Cardiovascular Medicine, Shiga University of Medical Science, Japan, <sup>3</sup>Department of Pharmacology, Graduate school of Medicine, Osaka University, Japan

**1P-542 Simulation study on the nitrogen homeostasis disturbed by defect of glutamine synthase in liver**

Yuki Sasahara<sup>1,2</sup>), Masaru Tomita<sup>1,2,3</sup>), Yasuhiro Naito<sup>1,2,3</sup>)

<sup>1</sup>Department of Environment and Information Studies, Keio University, Japan, <sup>2</sup>Institute for Advanced Biosciences, Keio University, <sup>3</sup>Systems Biology Program, Graduation School of Media and Governance, Keio University

## Alternative Medicine (1)

**1P-543 Cortical cerebral blood flow response induced by manual acupuncture of the auricular region in rats**

Sae Uchida<sup>1</sup>, Hiroshi Taniguchi<sup>1,2</sup>, Yoshie Ito<sup>1,3</sup>, Fusako Kagitani<sup>1,3</sup>)

<sup>1</sup>Department of Autonomic Neuroscience, Tokyo Metropolitan Institute of Gerontology, Japan, <sup>2</sup>Tokyo Ariake Univ, Japan, <sup>3</sup>Univ Human Art Sci, Japan

**1P-544 Influence of press tack needle acupuncture on the secretion of orexin**

Aki Fujiwara<sup>1,2</sup>), Mana Tsukada<sup>1</sup>), Hideshi Ikemoto<sup>1</sup>), Toku Takahashi<sup>1,3</sup>), Chiaki Tezuka<sup>1</sup>), Kana Takahashi<sup>1</sup>), Takuji Izuno<sup>1</sup>), Tadashi Hisamitsu<sup>1</sup>), Masataka Sunagawa<sup>1</sup>)

<sup>1</sup>Department of Physiology, School of Medicine, Showa University, Japan, <sup>2</sup>Acupuncture

- 1P-546** Family history of hypertension has an effect on blood pressure response with fragrance inhalation  
Eriko Kawai<sup>1</sup>, Ryosuke Takeda<sup>2</sup>, Kosuke Saho<sup>1</sup>, Akemi Ota<sup>1</sup>, Emiko Morita<sup>1</sup>, Daiki Imai<sup>1,2</sup>, Yuta Suzuki<sup>1,2</sup>, Hisayo Yokoyama<sup>1,2</sup>, Kazunobu Okazaki<sup>1,2</sup>  
<sup>1</sup>Department of Environmental Physiology for Exercise, Osaka City University Graduate School of Medicine, Japan, <sup>2</sup>Research Center for Urban Health and Sports, Osaka City University, Japan
- 1P-547** Physiological effects in CNS and the autonomic nervous system by drinking jasmine tea  
Mitsuyuki Ichinose, Yumi Shigihara  
Department of Chemistry and Biological Science, Iwate University, Japan
- 1P-548** Contribution of oxytocin to the anti-stress effect of Kampo medicine *Kamikihito*  
Mana Tsukada<sup>1</sup>, Tadashi Ikemoto<sup>1</sup>, Xiao Pen Lee<sup>2</sup>, Takaaki Matsuyama<sup>2</sup>, Takuji Izuno<sup>1</sup>, Toki Takahashi<sup>1,3</sup>, Tadashi Hisamitsu<sup>1</sup>, Masataka Sunagawa<sup>1</sup>  
<sup>1</sup>Department of Physiology, School of Medicine, Showa University, Japan, <sup>2</sup>Department of Legal Medicine, School of Medicine, Showa University, Japan, <sup>3</sup>Department of Surgery, Medical College of Wisconsin, USA
- 1P-549** Asymmetric Dimethylarginine and Endothelin B Receptor Modulation in *Piper Sarmentosum* Treated Rats  
Maizura MOHD Zainudin, Taher Ft Elshami, Hidayatul Radziah Ismawi, Fatimatuzzahra Hashim Fauzy, Tariq Abd Razak  
Bms, Kulliyyah Medicine, International Islamic University Malaysia
- 1P-550** Theobromine increases plasma cholesterol levels by increasing ABCA1 protein  
Natsuki Hiruma<sup>1</sup>, Naotoshi Sugimoto<sup>2</sup>, Kentaro Matsuzaki<sup>3</sup>, Eri Sumiyoshi<sup>3</sup>, Osamu Shido<sup>3</sup>, Masanori Katakura<sup>1</sup>  
<sup>1</sup>Department of Pharmaceutical Sciences, University of Josai, Japan, <sup>2</sup>Kanazawa University, Department of Physiology, Japan, <sup>3</sup>Shimane University, Department of Environmental Physiology, Japan
- 1P-551** Nonequivalent effect of CO<sub>2</sub>-water bath on muscle fatigue caused by isotonic- and isometric-exercise  
Masaaki Hashimoto<sup>1</sup>, Noriyuki Yamamoto<sup>2</sup>  
<sup>1</sup>Physiology Laboratory, Center for Medical Education, Teikyo University of Science, Japan, <sup>2</sup>Department of Health Science, Japanese Red Cross Hokkaido College Nursing, Japan
- 1P-552** Change in the foot pressure distribution to dental occlusion adjustment by micro tapping with paper  
Masanori Takemura<sup>1</sup>, Akio Kawamura<sup>2</sup>, Kenichi Ichihashi<sup>1</sup>, Mitsuharu Kaya<sup>3</sup>, Junzo Tsujita<sup>4</sup>  
<sup>1</sup>Ichihashi Clinic, Japan, <sup>2</sup>Kawamura Dental Clinic, <sup>3</sup>Hyogo University of Health Science, <sup>4</sup>Institute of Health & Sports Medical Science
- 1P-553** Analysis of Ultrasound Changes in Vastus Lateralis Muscle following Transcutaneous Vacume Treatment  
Junzo Tsujita<sup>1</sup>, Tomonari Shibutani<sup>2,6</sup>, Hiroshi Ueno<sup>3</sup>, Yoichiro Yamashita<sup>4</sup>, Arijit Banerjee<sup>5</sup>, Mitsuharu Kaya<sup>6</sup>, Masanori Takemura<sup>7</sup>, Kenichi Ichihashi<sup>7</sup>

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**1P-554** **Changes of HRV and resting-state amygdala functional connectivity after SKY practicing**

Ting-Wei Hsu<sup>1</sup>, Sheng-Kai Lee<sup>3</sup>, Chun-Yu Lin<sup>4</sup>, A-Min Huang<sup>2</sup>

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