

企画シンポジウム1 C会場 ■ Planned Symposium 1 Hall C

大会第1日：3月28日(火)・March 28 (Tue) 9:50 - 11:50

日韓合同シンポジウムー FAOPS2019に向けてー
心血管の機能と病態におけるミトコンドリア恒常性制御

Japan-Korea Joint Symposium – Towards FAOPS2019 –
Mitochondrial homeostasis in cardiovascular function and disease

オーガナイザー・Organizer：

西田 基宏 (自然科学研究機構岡崎統合バイオサイエンスセンター (生理学研究所) 心循環シグナル研究部門)
Motohiro Nishida (Div Cardiocirc Signal, Okazaki Inst Integr BioSci (Natl Inst Physiol Sci), NINS)

Jin Han (Dept Physiol, Col Med, CMDC, Inje Univ)

1PS01C1-1 Cardiac mitochondrial defects in the sepiapterin reductase KO mouse
Jin Han, Hyoungkyu Kim, Taehee Ko, Nari Kim, Sung-Ryul Lee, Kyungsoo Ko, Byoungdoo Rhee
Dept Physiol, Col Med, CMDC, Inje Univ, Busan, Korea

1PS01C1-2 ミトコンドリアtRNA修飾によるタンパク質恒常性の維持機構
○魏 范研¹, 鈴木 勉², 富澤 一仁¹
¹熊大・院医・分子生理, ²東京大学大学院工学系研究科化学生命工学専攻
Regulation of cellular protein homeostasis by mitochondrial tRNA modification
Fan-Yan Wei¹, Tsutomu Suzuki², Kazuhito Tomizawa¹
¹Dept Mol Physiol, Faculty of Life Sci, Kumamoto Univ, Kumamoto, Japan, ²Dept Chem Biotech, Sch Engineering, Univ Tokyo, Tokyo, Japan

1PS01C1-3 平滑筋Ca²⁺シグナルにおけるミトフュージン2の生理機能
○山村 寿男, 川崎 桂輔, 稲垣 奏, 鈴木 良明, 今泉 祐治
名市大・院薬・細胞分子薬効解析
Physiological functions of mitofusin 2 on cytosolic Ca²⁺ signaling in smooth muscle cells
Hisao Yamamura, Keisuke Kawasaki, Sou Inagaki, Yoshiaki Suzuki, Yuji Imaizumi
Dept Mol Cell Pharmacol, Grad Sch Pharmaceut Sci, Nagoya City Univ, Nagoya, Japan

1PS01C1-4 心筋ミトコンドリア動態のレドックス制御機構
○西田 基宏^{1,2,3,4}
¹岡崎生理研統合バイオ・心循環, ²九州大・院薬・創薬育薬研究施設, ³総研大・生理科学専攻, ⁴JST さきがけ「疾患代謝」
Mechanism underlying redox regulation of cardiac mitochondria dynamics
Motohiro Nishida^{1,2,3,4}
¹Div Cardiocirc Signal, Okazaki Inst Integr BioSci (Natl Inst Physiol Sci), NINS, Okazaki, Japan, ²Dept Transl Pharm Sci, Grad Sch Pharm Sci, Kyushu Univ, Fukuoka, Japan, ³Dept Physiol, SOKENDAI, Okazaki, Japan, ⁴JST, PRESTO

Aims & Scope

Maintenance of organellar functions has been now attracted attention as a new strategy for the prevention of cardiovascular diseases. Especially, mitochondria plays pivotal roles including energy production, Ca²⁺ handling, and autophagy. Mitochondrial dysfunction causes various muscular refractory diseases. Mitochondrial dynamics are precisely regulated by various environmental factors, such as hypoxia, oxidative stress (including electrophilic environmental pollutants) and hyperglycemia, and failure of mitochondrial quality control will increase the risk of cardiovascular diseases. In this symposium, we will introduce cutting-edge researches on the molecular mechanisms underlying controlling mitochondrial quality, and consider new strategies for the prevention or treatment of cardiovascular diseases.

企画シンポジウム2 A会場 ■ Planned Symposium 2 Hall A

大会第1日：3月28日(火)・March 28 (Tue) 16:40 - 18:40

【株式会社ミユキ技研協賛】

てんかん病態の基礎と臨床のtranslatability：オシロロジーからのアプローチ

[Supported by Miyuki Giken Co., Ltd.]

The translatability between basic and clinical studies for the pathophysiology of epilepsy:
approach from oscillology

オーガナイザー・Organizer：

長峯 隆 (札幌医科大学医学部 神経科学講座)

Takashi Nagamine (Department of Systems Neuroscience, School of Medicine, Sapporo Medical University)

池田 昭夫 (京都大学大学院医学研究科 てんかん・運動異常生理学講座)

Akio Ikeda (Dept Epilepsy Movement Disorders Physiol, Kyoto Univ Grad Sch Med)

1PS02A2-1 今日のとんかん病態の理解と未解決の問題点

○池田 昭夫

京都大・院医・てんかん運動異常

Overview of current state of epilepsy and unsolved problems

Akio Ikeda

Dept Epilepsy Movement Disorders Physiol, Kyoto Univ Grad Sch Med, Kyoto, Japan

1PS02A2-2 基礎研究からのアプローチ *Scn1a*遺伝子変異ラットを用いた高体温感受性痙攣の電気生理学的研究一

○大守 伊織¹, 小林 勝弘²

¹岡山大学・院教育・特別支援教育, ²岡山大学・院医菌薬・発達神経病態学

Approach from basic and molecular study -Electrophysiological study of hyperthermia-induced seizures in *Scn1a* mutant rats-

Iori Ohmori¹, Katsuhiko Kobayashi²

¹Dept Special Needs Education, Okayama Univ Grad Sch Edu, Okayama, Japan, ²Dept Child Neurol, Okayama Univ Grad Sch Med Dent Pharm Sci, Okayama, Japan

1PS02A2-3 てんかん原性と関連ネットワーク：臨床神経生理学的アプローチ

○松本 理器¹, 小林 勝哉¹, 菊池 隆幸², 吉田 和道², 國枝 武治³, 池田 昭夫⁴

¹京都大・院医・臨床神経学, ²京都大学大学院医学研究科脳神経外科学, ³愛媛大学大学院医学系研究科脳神経外科学, ⁴京都大学大学院医学研究科てんかん・運動異常生理学講座

Epileptogenicity and related network: Approach from clinical neurophysiology

Riki Matsumoto¹, Katsuya Kobayashi¹, Takayuki Kikuchi², Kazumichi Yoshida², Takeharu Kunieda³, Akio Ikeda⁴

¹Dept Neurol, Kyoto Univ Grad Sch Med, Kyoto, Japan, ²Dept Neurosurgery, Kyoto Univ Grad Sch Med, Kyoto, Japan, ³Dept Neurosurgery, Ehime Univ Grad Sch Med, Toon, Japan, ⁴Dept Epilepsy Movement Disorders Physiol, Kyoto Univ Grad Sch Med, Kyoto, Japan

1PS02A2-4 脳の動的活動状態に埋め込まれた数学的構造の発見：理論と応用

○津田 一郎, 行木 孝夫

北大・理学研究院・数学部門

Finding mathematical structures in the brain dynamics: theory and its application

Ichiro Tsuda, Takao Namiki

Dept Math, Grad Sch Sci, Hokkaido Univ, Sapporo, Japan

Aims & Scope

Epilepsy is one of the common disorders of the central nervous system, and neurons produce extraordinarily hyperexcitable activity and clinically epileptic seizures occurred. It is caused by either increased excitation or decreased inhibition depending on the various causes, and thus the treatment regimen also may depend on it. Both neurons and glia generates even very high frequency- and infraslow activity respectively which makes the analysis of physiological data much complicated. Since clinical neurophysiological data have been obtained by invasive EEG and by microelectrodes, a direct comparison between clinical situation and animal study is more plausible and translatability between the two is one of the most important approaches to solve the clinical and fundamental problems in epilepsy. In this symposium, the following different approaches are introduced. 1) Overview of current state of epilepsy and unsolved problems, 2) Approach from basic and molecular studies, 3) Approach from clinical neurophysiology, 4) Approach from mathematical analysis and modeling. Upon those translatable approaches, it is expected that both normal cortical function and epileptic symptoms may share the similar and dissimilar spectrum of physiological property as well as genetic property. It is also expected that theoretical analysis of epileptic neurophysiological property and its subsequent modeling may help establish conceptual basic principle and common framework of epileptic abnormality.

企画シンポジウム3 B会場 ■ Planned Symposium 3 Hall B

大会第1日：3月28日(火)・March 28 (Tue) 16:40 - 18:40

生理学におけるメカノバイオロジーのインパクト

The impact of mechanobiology in physiology

オーガナイザー・Organizer：

曾我部 正博 (名古屋大学大学院医学系研究科 メカノバイオロジー・ラボ)
Masahiro Sokabe (Mechanobiology Lab, Nagoya Univ Grad Sch Med)

1PS03B2-1 接着斑において細胞骨格で制御される機械受容チャネルのメカノトランスダクション

○曾我部 正博

名古屋大・院医・メカノバイオ

Mechanotransduction by cytoskeleton-regulated MS channels at focal adhesions

Masahiro Sokabe

Mechanobiology Lab, Nagoya Univ Grad Sch Med, Nagoya, Japan

1PS03B2-2 血流センシングと血管の生理・病理

○山本 希美子¹, 安藤 譲二²

¹東大・院医・システム生理, ²獨協医大・医・生体医工

Blood-flow sensing mechanism and their role in vascular physiology and pathology

Kimiko Yamamoto¹, Joji Ando²

¹System Physiol, Grad Sch Med, Univ Tokyo, Japan, ²Biomed Eng, Dokkyo Med Univ, Japan

1PS03B2-3 骨恒常性とメカノバイオロジー

○中島 友紀^{1,2,3}

¹医科歯科大・院医歯学・分子情報, ²AMED-CREST, ³JSTさきがけ

Bone homeostasis and mechano-biology

Tomoki Nakashima^{1,2,3}

¹Dept Cell Signaling, Tokyo Medical and Dental Univ, Tokyo, Japan, ²AMED-CREST, Tokyo, Japan, ³JST, Tokyo, Japan

1PS03B2-4 遺伝子発現を制御するメカノトランスダクション

○小椋 利彦

東北大・加齢研・神経機能情報

Mechanotransduction and transcriptional control of gene expression

Toshihiko Ogura

Dept Dev Neurobiol, IDAC, Tohoku Univ Sendai, Japan

Aims & Scope

Mechanobiology is an emerging interdisciplinary field aiming at understanding roles and mechanisms underlying the action of forces in organisms. Over the past decade mechanobiology has unveiled that not only specialized mechanosensory cells including inner ear hair cells and baroreceptors, but also virtually all types of cells are equipped with a variety of mechanosensing machineries which regulate fundamental cell functions such as cell cycle, proliferation, differentiation, apoptosis, shape and migration. Furthermore, molecular identification of a variety of cell mechanosensors made it possible to study their mechanotransduction processes using cutting edge technologies. These achievements have promoted mechanobiology as a fundamental discipline across life sciences. One of the pressing issues in mechanobiology is to understand detailed molecular and biophysical mechanisms underlying the cell mechano-sensing and -signaling that lead to physiological and pathological responses. This symposium focuses on biophysical mechanisms of tension/shear stress sensing, and biochemical mechanisms of bone/muscle metabolism driven and/or modulated by mechanical stresses.

企画シンポジウム4 A会場 ■ Planned Symposium 4 Hall A

大会第2日：3月29日(水)・March 29 (Wed) 8:50 - 10:50

遺伝学と生理学の融合 –疾患研究から迫る分子機能の理解–

From genetics to physiology:
for understanding molecular functions and disease mechanisms

オーガナイザー・Organizer :

才津 浩智 (浜松医科大学医学部医学科 医化学講座)

Hiroতোমo Saitsu (Dept Biochem, Hamamatsu Univ, Sch Med)

秋田 天平 (浜松医科大学医学部医学科 神経生理学講座)

Tenpei Akita (Dept Neurophysiol, Hamamatsu Univ Sch Med)

2PS04A1-1 次世代シーケンス解析によるヒト疾患を引き起こす原因遺伝子(分子)の同定

○才津 浩智

浜松医科大学・医化学

Next-Generation Sequencing uncovers molecules essential for human physiology

Hiroতোমo Saitsu

Dept Biochem, Hamamatsu Univ, Sch Med, Hamamatsu, Japan

2PS04A1-2 神経K⁺-Cl⁻共輸送体KCC2の両アレル変異による軽度機能低下が遊走性焦点発作を伴う重篤な発達遅滞の原因となる

○秋田 天平¹, 才津 浩智², 渡部 美穂¹, 松本 直通³, 福田 敦夫¹

¹浜松医大・医・神経生理学, ²浜松医大・医・医化学, ³横浜市大・医・遺伝学

Mild functional impairment of neuronal K⁺-Cl⁻ cotransporter KCC2 by biallelic mutations causes migrating focal seizures and severe developmental delay

Tenpei Akita¹, Hiroতোমo Saitsu², Miho Watanabe¹, Naomichi Matsumoto³, Atsuo Fukuda¹

¹Dept Neurophysiol, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²Dept Biochem, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ³Dept Hum Genet, Yokohama City Univ Grad Sch Med, Yokohama, Japan

2PS04A1-3 てんかん関連リガンド-受容体LGI1-ADAM22：疾患原因変異から分子機能・治療戦略の理解へ

○深田 優子

生理研・生体膜

Epilepsy-related ligand-receptor, LGI1 and ADAM22: from disease-causing mutations to molecular functions and therapeutic strategies

Yuko Fukata

Membrane Physiology, NIPS, Okazaki, Japan

2PS04A1-4 MIRAGE症候群：SAMD9変異とモノソミー7のミステリー

○鳴海 覚志

国立成育医療研究セ・分子内分泌

MIRAGE syndrome: a mystery of *SAMD9* mutations and acquired monosomy 7

Satoshi Narumi

Dept Mol Endocrinol, Natl Res Inst Child Health & Dev, Tokyo, Japan

Aims & Scope

Recent advances in next-generation sequencing (NGS) technology enable us to screen mutations in all the genes at once, revealing pathogenic mutations in many human disorders. This "forward genetics" in humans uncovers the genes essential for normal physiological functions. However, critical gaps remain in our understanding of how identified mutations affect our physiology. In this symposium, four speakers from genetics and physiology show their attempts to fill the gaps by reviewing the advantages of NGS and its recent applications (Saito), by reporting new examples of gene mutations causing migrating focal seizures and severe developmental delay (Akita) and a multisystem disorder due to growth restriction and generalized organ hypoplasia (Narumi), and by providing a possible therapeutic option ameliorating the seizure susceptibility due to a single gene mutation (Fukata). This symposium will provide a novel physiological insight into molecular functions, indicating the importance of close collaboration between geneticists and physiologists.

企画シンポジウム5 B会場 ■ Planned Symposium 5 Hall B

大会第2日：3月29日(水)・March 29 (Wed) 8:50 - 10:50

日本薬理学会連携シンポジウム

光遺伝学の新展開～非興奮性細胞への活用と新ツールの開発

Joint Symposium with the Japanese Pharmacological Society
Innovation of optogenetics ~ application to non-excitable cells and
development of the new tools

オーガナイザー・Organizer :

日比野 浩(新潟大学大学院 医歯学総合研究科)

Hiroshi Hibino (Niigata University School of Medicine)

山崎 良彦(山形大学 医学部)

Yoshihiko Yamazaki (Dept Physiol, Yamagata Univ Sch Med)

2PS05B1-1 内耳の非興奮性細胞の光操作を駆使した変動性難聴モデル動物の確立

○任 書晃¹, 佐藤 バウロ 満雄², 樋口 大河¹, 田中 謙二³, 日比野 浩

¹新潟大・医・分子生理, ²近畿大・医・耳鼻咽喉科, ³慶應大・医・精神神経

Reconstitution of short-term hearing fluctuation by application of the
optogenetic approach to non-excitable, non-glia cells in the inner ear

Fumiaki Nin¹, Mitsuo Paulo Sato², Taiga Higuchi¹, Kenji F Tanaka³, Hiroshi Hibino¹

¹Dept Mol Physiol, Niigata Univ Sch Med, Niigata, Japan, ²Dept Otorhinolaryngol, Faculty Med, Kindai Univ, Osakasayama, Japan, ³Dept Neuropsychi, Sch Med, Keio Univ, Tokyo, Japan

2PS05B1-2 オリゴデンドロサイトの膜電位変化による有髄線維の軸索伝導と出力先シナプス伝達に対する修飾効果

○山崎 良彦

山形大・医・生理

Modulatory effects of the changes in membrane potential of oligodendrocytes
on axonal conduction and synaptic responses in the hippocampus

Yoshihiko Yamazaki

Dept Physiol, Yamagata Univ Sch Med, Yamagata, Japan

2PS05B1-3 In vitroおよびin vivoにおける光活性化アデニル酸シクラーゼの利用

○小山 隆太, 池谷 裕二

東京大・院薬・薬品作用

The use of photoactivated adenylyl cyclase (PAC) in vitro and in vivo

Ryuta Koyama, Yuji Ikegaya

Lab Chem Pharmacol, Grad Sch Pharmaceut Sci, Univ Tokyo, Japan

2PS05B1-4 オルガネラ・オプトジェネティクスー細胞内Ca²⁺ダイナミクスの光制御

○五十嵐 敬香¹, 吉川 彩香², 浅野 豪文³, 今野 歩⁴, 櫻木 繁雄², 石塚 徹², 平井 宏和⁴, 八尾 寛^{1,2}

¹東北大・院医・神経細胞制御学, ²東北大・院生命・生命, ³東京医科歯科大・院医歯学総合・細胞生物学, ⁴群馬大学・院医・脳神経再生医学

Organelle-optogenetics – Intervention of intracellular Ca²⁺ dynamics by light–

Hiroyuki Igarashi¹, Ayaka Yoshikawa², Toshifumi Asano³, Ayumu Konno⁴,
Shigeo Sakuragi², Toru Ishizuka², Hirokazu Hirai⁴, Hiromu Yawo^{1,2}

¹Dept Physiol Pharmacol, Grad Sch Med, Tohoku Univ, Sendai, Japan, ²Dept Dev Biol Neurosci, Grad Sch Life Sci, Tohoku Univ, Sendai, Japan, ³Dept Cell Biol, Grad Sch Med Den Sci, Tokyo Med and Den Univ, Tokyo, Japan, ⁴Dept Neurophysiol Neural Repair, Grad Sch Med, Gunma Univ, Maebashi, Japan

2PS05B1-5 ゲノムの光操作技術

○佐藤 守俊

東大・院総合文化

Optical control of the genome

Moritoshi Sato

Grad Sch Arts and Sciences, Univ Tokyo, Tokyo, Japan

Aims & Scope

Optogenetics has been used in a variety of field in neuroscience for these ten years and clarified the mechanisms underlying numerous physiological phenomena in the brain. In this approach, particular neuronal cell types are genetically engineered to harbor light-gated cation or anion channels. Optical stimulation of the brain activates or inactivates these cells by inducing ionic flows, which results in selectively modulating the function of certain network. Recent technologies have targeted myoblasts as well and succeeded in controlling their differentiation. Besides these studies for excitable cells, advances of the optogenetics have allowed the researchers to express the channels in non-excitabile compartments such as epithelial-like tissue and glial cells. Furthermore, intracellular signal transductions as well as genomic elements can be currently analyzed with novel light-sensitive tools to investigate cellular physiological architectures. In this symposium, the speakers will show these achievements and state-of-the-art techniques and discuss the application of the optogenetic approaches to open the next generation of life science.

企画シンポジウム6 C会場 ■ Planned Symposium 6 Hall C

大会第2日：3月29日(水)・March 29 (Wed) 8:50 - 10:50

細胞代謝-機能連関研究の最前線

Recent advances in cellular metabolism-function coupling

オーガナイザー・Organizer：

鈴木 優子 (浜松医科大学 医生理学講座)

Yuko Suzuki (Dept of Medical Physiology, Hamamatsu University School of Medicine)

田久保 圭誉 (国際医療センター研究所 生体恒常性プロジェクト)

Keiyo Takubo (Dept of Stem Cell Biology, Res Institute, National Center for Global Health and Medicine)

2PS06C1-1 造血幹細胞の機能発揮に必要な代謝シグナル

○田久保 圭誉

国際医療研セ研・生体恒常性プロ

Metabolic regulation of hematopoietic stem cell function

Keiyo Takubo

Dept Stem Cell Biol, Research Institute, National Center for Grobal Health and Medicine, Tokyo, Japan

2PS06C1-2 多能性幹細胞の代謝と心臓再生医療

○遠山 周吾

慶應義塾大・医・循環器内科

Manipulation of pluripotent stem cell metabolism for cardiac regenerative medicine

Shugo Tohyama

Dept Cardiol, Keio Univ Sch Med, Tokyo, Japan

2PS06C1-3 アポトーシスにおける細胞内ATPダイナミクスのイメージング

○今村 博臣

京大・生命科学・高次生体統御

Imaging of intracellular ATP dynamics during apoptosis

Hiromi Imamura

Dept Funct Biol, Grad Sch Bio, Kyoto Univ, Kyoto, Japan

2PS06C1-4 GTPセンサーの発見

○千田 俊哉¹, 竹内 恒², 千田 美紀¹, 佐々木 敦朗³

¹高エネ機構・物構研・構造生物, ²産総研創薬分子プロファイリング研究セ, ³シンシナティ大

Discovery of a GTP sensor with a structural reverse genetic approach

Toshiya Senda¹, Koh Takeuchi², Miki Senda¹, Atsuo T Sasaki³

¹SBRC, IMSS, KEK, Tsukuba, Japan, ²Molprof, AIST, Tokyo, Japan, ³Dept Internal Medicine, Univ Cincinnati Col Med, Ohio, USA

Aims & Scope

"The Warburg effect" is a well-known phenomenon that cancer cells metabolize glucose to generate the energy in a distinct manner from that of normal cells, which was reported by Otto Warburg in 1924. Warburg found that unlike most normal tissues, cancer cells tend to "ferment" glucose into lactate even in the presence of sufficient oxygen to support mitochondrial oxidative phosphorylation. Originating from the reports that oncogenic mutations are responsible for the modification in the uptake of nutrients and cellular metabolism, recent excellent studies on the maintenance of the stem cell homeostasis, the advantage of unique metabolic properties of cardiomyocyte for cardiac regenerative therapy, the imaging of intracellular ATP distribution in podocyte, and a newly identified intracellular GTP sensor for metabolism and tumorigenesis will be discussed. Advanced understandings of the mechanistic links between cellular metabolism and cell function such as growth, differentiation, etc. may ultimately lead to better understanding of the logic of life.

企画シンポジウム7 B会場 ■ Planned Symposium 7 Hall B

大会第2日：3月29日(水)・March 29 (Wed) 13:30 - 15:30

【新学術「オシロロジー」共催】

パーキンソン病の生理と臨床

[Co-sponsored by the MEXT “Oscillology”]

Parkinson’s disease: from basic neuroscience to clinical application

オーガナイザー・Organizer：

美馬 達哉 (立命館大学大学院 先端総合学術研究科)

Tatsuya Mima (The Graduate School of Core Ethics and Frontier Sciences, Ritsumeikan University)

南部 篤 (生理学研究所 生体システム研究部門)

Atsushi Nambu (Natl Inst Physiol Sci)

2PS07B2-1 GABA interneurons generate oscillations in the dopamine-depleted striatum

Constance Hammond

INMED, INSERM, Marseille, France

2PS07B2-2 中脳ドーパミン神経シグナルの多様性

○松本 正幸

筑波大・医学医療・認知行動神経

Multiple signals transmitted by midbrain dopamine neurons

Masayuki Matsumoto

Lab Cogn & Behav Neurosci, Fac Med, Univ Tsukuba, Japan

2PS07B2-3 D1 ドーパミン受容体を介する神経伝達は運動情報の伝達と運動の発現に不可欠である

○笹岡 俊邦^{1,2,3}, 佐藤 朝子^{2,3}, 知見 聡美⁴, 大久保 直³, 前島 純³, 新井 慧³, 砂山 智子^{2,5}, 小田 佳奈子¹, 酒井 清子¹, 前田 宜俊¹, 神保 幸弘¹, 中尾 聡宏¹, 佐藤 俊哉^{1,3}, 藤澤 信義¹, 南部 篤⁴

¹新潟大・脳研, ²基生研, ³北里大・医, ⁴生理研, ⁵東大院

Dopamine D1 receptor-mediated transmission maintains information flow through the cortico-striato-entopeduncular direct pathway to release movements

Toshikuni Sasaoka^{1,2,3}, Asako Sato^{2,3}, Satomi Chiken⁴, Tadashi Okubo³, Jun Maeshima³, Satoshi Arai³, Tomoko Sunayama^{2,5}, Kanako Oda¹, Seiko Sakai¹, Yoshitaka Maeda¹, Yukihiro Jinbo¹, Satohiro Nakao¹, Toshiya Sato^{1,3}, Nobuyoshi Fujisawa¹, Atsushi Nambu⁴

¹Brain Res Inst Niigata Univ, Niigata, ²Natl Inst Basic Biol, ³KIitasato Univ Sch Med, ⁴Natl Inst Physiol Sci, ⁵Grad Sch Art Sci, Univ Tokyo, Japan

2PS07B2-4 ジストニアにおける視床運動核の神経振動

○村瀬 永子¹, 松橋 眞生², 前田 裕仁³, 平林 秀裕⁴

¹京都医療センター・神経内科, ²京都大学・教育研究推進センター, ³神戸大学・災害・救急医学分野, ⁴奈良医療センター・脳神経外科

Oscillatory neurons of the motor thalamus in dystonia

Nagako Murase¹, Masao Matsuhashi², Yuji Maeda³, Hidehiro Hirabayashi⁴

¹Dept Neurol, NHO Kyoto medical Center, Kyoto, Japan, ²Research and Educational Unit of Leaders for Integrated Medical System, Kyoto Univ, Kyoto, Japan, ³Dept Emergency and Critical Care Medicine, Kobe Univ Grad Sch Med, Kobe, Japan, ⁴Dept Neurosurgery, National Hospital Organization Nara Medical Center, Nara, Japan

Aims & Scope

Since the introduction of the “direct and indirect pathways model” of the basal ganglia in early 1990s, there has been tremendous progress in understanding the normal functions of the basal ganglia and pathophysiology of movement disorders. The basic knowledge has helped new development of the therapy of basal ganglia disorders, such as Parkinson’s disease and dystonia. In the present symposium, we will invite basic and clinical neuroscientists, summarize recent progress of the basal ganglia functions, including the dopamine and higher brain functions, and discuss future therapeutic strategies for basal ganglia disorders.

企画シンポジウム8 C会場 ■ Planned Symposium 8 Hall C

大会第2日：3月29日(水)・March 29 (Wed) 13:30 - 15:30

日台合同シンポジウムー FAOPS2019に向けて
イオンチャネルの生理・病態生理

Japan-Taiwan Joint Symposium– Towards FAOPS2019 –
Ion channels in physiology and patho-physiology

オーガナイザー・Organizer：

樽野 陽幸 (京都府立医科大学大学院医学研究科 細胞生理学)

Akiyuki Taruno (Dept Mol Cell Physiol, Grad Sch Med, Kyoto Pref Univ Med)

Pei-Chun Chen (Dept Physiol, Grad Sch Basic Med, Natl Cheng Kung Univ)

2PS08C2-1 CALHMチャネルによる味覚の神経伝達

○樽野 陽幸¹, 丸中 良典^{1,2}

¹京都府立医大・院医・細胞生理, ²京都府立医大・院医・バイオイオノミクス

Neurotransmission of taste mediated by calcium homeostasis modulator ion channels

Akiyuki Taruno¹, Yoshinori Marunaka^{1,2}

¹Dept Mol Cell Physiol, Grad Sch Med, Kyoto Pref Univ Med, Kyoto, Japan, ²Dept Bio-Ionomics, Grad Sch Med, Kyoto Pref Univ Med, Kyoto, Japan

2PS08C2-2 Concerted trafficking regulation of Kv2.1 and K_{ATP} channels by leptin in pancreatic β-cells

Pei-Chun Chen¹, Yi Wu², Show-Ling Shyng²

¹Dept Physiol, Grad Sch Basic Med, Natl Cheng Kung Univ, Tainan, Taiwan, ²Dept Biochem and Mol Biol, OHSU, USA

2PS08C2-3 少数の分子による嗅覚情報伝達チャネルの修飾

○竹内 裕子, 倉橋 隆

阪大・院・生命・生理

Modification of the olfactory transduction channel by small molecules

Hiroko Takeuchi, Takashi Kurahashi

Grad Sch Front Biosci, Osaka Univ, Japan

2PS08C2-4 Regulation of adult neurogenesis in the mouse SGZ by Kv1.1 potassium channel

Shi-Bing Yang

Inst Biomed Sci, Academia Sinica, Taipei, Taiwan

Aims & Scope

Towards the success of FAOPS 2019 in Japan, the Physiological Society of Japan (PSJ) has been organizing joint symposia with FAOPS countries. Here, we would like to propose a joint symposium with the Chinese Physiological Society (CPS) (Taiwan). This CPS-PSJ joint symposium is focused on "ion channels in physiology and patho-physiology" and consists of 4 talks by 2 CPS speakers and 2 PSJ speakers.

Growing evidence has demonstrated that ion channels play important roles in health and diseases throughout our body. Since ion channels mediate many physiological processes, malfunction of ion channels lead to diseases (a.k.a. channelopathy). Thus, knowing ion channels involved in physiological systems and their regulatory mechanisms is crucial for treating channelopathies. In this symposium, we would like to introduce recent advances in ion channel researches lead by Taiwanese and Japanese researchers. Taruno will talk about discovery of a novel ion channel that mediates neurotransmission of tastes. Chen will present their work on concerted trafficking regulation of Kv2.1 and K_{ATP} channels by leptin in pancreatic β-cells. Takeuchi will introduce how the olfactory transduction channels are modified by small molecules. And finally, Yang will discuss regulation of adult neurogenesis by Kv1.1 channel.

企画シンポジウム9 H会場 ■ Planned Symposium 9 Hall H

大会第2日：3月29日(水)・March 29 (Wed) 13:30 - 15:30

**【文部科学省 先端研究基盤共用促進事業 原子・分子の顕微イメージングプラットフォーム共催】
マスイメージング技術講習会**

**[Co-sponsored by the MEXT National Program for Advanced Research Platforms
“Imaging Platform”]**

Mass imaging technical workshop

オーガナイザー・Organizer :

瀬藤 光利 (浜松医科大学国際マスイメージングセンター)

Mitsutoshi Setou (Intl Mass Imaging Ctr, Hamamatsu Univ Sch Med)

山崎 文義 (浜松医科大学国際マスイメージングセンター)

Fumiyoshi Yamazaki (Intl Mass Imaging Ctr, Hamamatsu Univ Sch Med)

2PS09H2-1 Improvements in MALDI imaging used to drive new frontiers of biological hypothesis testing

○マイケル イースターリング

ブルカー・ダルトニクス株式会社

Improvements in MALDI imaging used to drive new frontiers of biological hypothesis testing

Easterling L Michael

Bruker Daltonics, Inc., MA, USA

2PS09H2-2 Rapid matrix-free molecular imaging of drugs and metabolites in tissues using desorption electrospray ionization (DESI) mass spectrometry

○パクストン タナイ, 佐藤 太, 寺崎 真樹

日本ウオーターズ

Rapid matrix-free molecular imaging of drugs and metabolites in tissues using desorption electrospray ionization (DESI) mass spectrometry

Thanai Paxton, Futoshi Sato, Maki Terasaki

Analytical and Measuring Instruments Division, Nihon Waters K.K., Tokyo, Japan

2PS09H2-3 高空間分解能を実現するイメージング質量顕微鏡

○緒方 是嗣

島津製作所

Imaging mass microscopy for high special resolution analysis

Koretsugu Ogata

Analytical & Measuring Instruments Division, Shimadzu Corporation, Kyoto, Japan

2PS09H2-4 ライフサイエンス分野におけるラベルフリーラマンイメージングについて

○中野 辰彦, にしかわ のりあき, でみず ひろし, ジェニファー ラミレス

サーモフィッシャーサイエンティフィック株式会社

Label-free raman imaging for life science application

Tatsuhiko Nakano, Noriaki Nishikawa, Hiroshi Demizu, Ramirez Jennifer

Thermo Fisher Scientific

2PS09H2-5 質量顕微鏡法による腹部大動脈瘤壁の解析

○田中 宏樹¹, 財満 信宏², 海野 直樹³, 浦野 哲盟¹, 瀬藤 光利⁴

¹浜松医科大学・医生理学, ²近畿大学農学部応用生命化学, ³浜松医科大学・血管外科, ⁴浜松医科大学・細胞分子解剖学

Imaging mass spectrometry reveals a novel mechanism of abdominal aortic aneurysm development

Hiroki Tanaka¹, Nobuhiro Zaima², Naoki Unno³, Tetsumei Urano¹, Mitsutoshi Setou⁴

¹Dept Med Physiol, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²Dept Applied Biol Chem, Grad Sch Agriculture, Kindai Univ, ³Div Vascular Surgery, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ⁴Dept Cell Mol Anat, Hamamatsu Univ Sch Med, Hamamatsu, Japan

2PS09H2-6 TOF-SIMSを用いた細胞内脂肪酸分布のイメージング

○堀川 誠^{1,2}

¹浜松医科大・解剖学, ²国際マスイメージングセンター

Intracellular imaging of fatty acids by using time-of-flight secondary ion mass spectrometry

Makoto Horikawa^{1,2}

¹Dept Cell Mol Anat, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²International Mass Imaging Center, Hamamatsu Univ Sch Med, Hamamatsu, Japan

Aims & Scope

This symposium is a joint symposium by Physiological Society of Japan and MEXT National Program for Advanced Research Platforms "Imaging Platform". Imaging Platform is comprised of Hokkaido University, Hamamatsu University of Medicine and Hiroshima University, which have a wide variety of advanced imaging analysis equipment in various fields of study such as biochemistry, material, environment, energy, and universe. In this symposium recent findings and technology of imaging mass spectrometry, which is a core technology in Hamamatsu University of Medicine International Mass Imaging Center in Imaging Platform, will be presented. We aim to develop human resources and imaging techniques through acquiring a new technique, information sharing and discussion among user, researcher, student and engineer in academic and industries.

企画シンポジウム10 B会場 ■ Planned Symposium 10 Hall B

大会第2日：3月29日(水)・March 29 (Wed) 16:50 - 18:50

【新学術「先端バイオイメージング支援プラットフォーム」共催】
光バイオイメージングによる多階層的生理研究

【Co-sponsored by the MEXT “Advanced bioimaging support”】
Optical bio-imaging to visualize the hierarchical physiology

オーガナイザー・Organizer：

瀬藤 光利 (浜松医科大学 細胞分子解剖学講座)

Mitsutoshi Setou (Dept Cell Biol Anat, Hamamatsu Univ Sch Med)

和氣 弘明 (神戸大学大学院医学研究科 システム生理学分野)

Hiroaki Wake (Div System Neurosci, Kobe Univ Grad Sch Med)

2PS10B3-1 中枢神経系免疫システムの可視化

○和氣 弘明^{1,2,3}

¹神戸大・院医・システム生理, ²自然科学研究機構 生理学研究所, ³さきがけ、科学技術振興機構

Visualization of immune system in brain

Hiroaki Wake^{1,2,3}

¹Dept Neurophysiol, Grad Sch Med, Univ Kobe, JAPAN, ²Dept Homeostatic development, NIPS, NINS, JAPAN, ³PRESTO, JST

2PS10B3-2 超解像イメージングによるシナプス伝達制御機構の解析

○矢尾 育子

浜松医大・光イメージング

Super resolution imaging of synaptic site to analyze the transmission regulation

Ikuko Yao

Dept Optical Imaging, Hamamatsu Univ Sch Med, Hamamatsu, Japan

2PS10B3-3 マスイメージングにより明らかになった翻訳後修飾変異マウス脳における神経伝達物質の変化

○瀬藤 光利^{1,2}

¹浜松医大・分子解剖, ²国際マスイメージングセンター

Mass spectrometry imaging revealed the alteration of the neurotransmitters in brain tissue sections of post-translational modification mutant mouse

Mitsutoshi Setou^{1,2}

¹Dept Cell Biol Anat, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²International Mass Imaging Center, Hamamatsu Univ Sch Med, Hamamatsu, Japan

2PS10B3-4 Cruising inside cells

○宮脇 敦史

理研BSI

Cruising inside cells

Atsushi Miyawaki

RIKEN BSI, Saitama, Japan

Aims & Scope

Research into physiological phenomena has taken a leap forward by recent advanced optical bio imaging techniques. Traditionally, physiological phenomena including cell division, cell function, molecular transport and cell death were detected by biochemical methods. However, this information lacked high resolution spatial or temporal information. Using recent bio imaging techniques, both spatial and temporal information can be integrated across the molecular, cellular and systems levels that allow us to further investigate the hierarchical interaction of organ systems. In this session, we will discuss the current and potential future state of imaging techniques, and will further discuss what information can be revealed by the visualization of single molecules, lipid to cell function, and system physiology.

企画シンポジウム11 E会場 ■ Planned Symposium 11 Hall E

大会第2日：3月29日(水)・March 29 (Wed) 16:50 - 18:50

JPS編集委員会企画シンポジウム

新たな段階を迎えたJPSの展開

JPS in the next stage; its future direction

オーガナイザー・Organizer：

石川 義弘 (横浜市立大学大学院 医学研究科)

Yoshihiro Ishikawa (Cardiovasc Res Inst, Yokohama City Univ)

2PS11E3-1 メガジャーナルのパイオニアPLOS ONEについて

○横山 詩子, 石川 義弘

横浜市大・医・循環制御医学

PLOS ONE as a pioneer of mega journals

Utako Yokoyama, Yoshihiro Ishikawa

Cardiovasc Res Inst, Yokohama City Univ, Yokohama, Japan

2PS11E3-2 国際神経内分泌学会の公式機関誌であるジャーナルオブニューロエンドクリノロジーについて

○上田 陽一

産業医大・医・第1生理学

The Journal of Neuroendocrinology as an official journal of International Neuroendocrine Federation

Yoichi Ueta

Dept Physiol, Sch Med, Univ Occup Environ Health, Kitakyushu, Japan

2PS11E3-3 生理学会英文雑誌の次なる課題は何か

○石川 義弘

横浜市立大・院医・循環制御

What is the next step for JPS

Yoshihiro Ishikawa

CVRI, Yokohama City Univ Sch Med, Yokohama, Japan

Aims & Scope

The Journal of Physiological Sciences, the official English journal of the Physiological Society of Japan, was established more than 60 years ago. Its impact factor has reached 2.165, and thus the Journal has already established its position as a leading physiology journal in Asia. In this symposium, Yoichi Ueta will introduce the journal activity of the Journal of Neuroendocrinology. Utako Yokoyama will introduce PlosOne, which is an open access journal, because JPS is going to be an open access journal in the near future. Yoshihiro Ishikawa will introduce JPS in the next stage. We will also instruct young scientists how to publish their work in these journals.

企画シンポジウム12 H会場 ■ Planned Symposium 12 Hall H

大会第2日：3月29日(水)・March 29 (Wed) 16:50 - 18:50

タウリンの多彩な生理機能

Joint Symposium with Society for Taurine Research
Diverse physiological actions of taurine

オーガナイザー・Organizer：

村上 茂 (福井県立大学 生物資源学部)

Shigeru Murakami (Dept Biosci, Fukui Pref Univ)

栃谷 史郎 (福井大学 子どものこころの発達研究センター)

Shiro Tochitani (Res Cent Child Mental Dev, Univ Fukui)

2PS12H3-1 タウリンは脂肪組織の炎症反応を抑制することによりマウスにおいて抗肥満作用を示す

○村上 茂

福井県立大・生物資源

Taurine ameliorates obesity by regulating adipocyte inflammatory response in mice

Shigeru Murakami

Dept Biosci, Fukui Pref Univ, Fukui, Japan

2PS12H3-2 タウリンとBCAAの摂取が運動後の筋損傷に及ぼす影響

○大森 肇

筑波大・体育系・運動生化学

Effect of taurine and BCAA intake on muscle damage after exercise

Hajime Ohmori

Faculty Health Sport Sci, Univ Tsukuba, Tsukuba, Japan

2PS12H3-3 母体由来タウリンはマウス発生期大脳皮質神経系前駆細胞の内在的性質を制御する

○栃谷 史郎

福井大・子どものこころ

Maternally-derived taurine regulates the intrinsic properties of the neural progenitors in the mouse developing neocortex

Shiro Tochitani

Res Cent Child Mental Dev, Univ Fukui, Fukui, Japan

2PS12H3-4 タウリン欠乏は大脳皮質感覚野錐体細胞におけるポストシナプスのGABA_A受容体数を減少させる。

○細井 泰志¹, 秋田 天平², 渡部 美穂², 武藤 弘樹², 宮嶋 裕明¹, 福田 敦夫²

¹浜松医科・医・第一内科, ²浜松医大・医・神経生理

Taurine depletion reduces postsynaptic GABA_A receptors in layer 2/3 pyramidal neurons of the somatosensory cortex

Yasushi Hosoi¹, Tenpei Akita², Miho Watanabe², Hiroki Mutoh²,

Hiroaki Miyajima¹, Atsuo Fukuda²

¹First Dept Intern Med, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²Dept Neurophysiol, Hamamatsu Univ Sch Med, Hamamatsu, Japan

Aims & Scope

Taurine is a sulfur-containing β -amino acid with various physiological functions including osmoregulation, antioxidant effects, and protein stabilization. Taurine also functions as ligands for GABA_A receptors and glycine receptors. However, many researchers in the field of physiology are unfamiliar with taurine. In this symposium, we would like to introduce the basics of taurine to the audience and highlight the recent progresses in the studies of taurine in various physiological fields. Dr. Murakami will show us the functions of taurine in lipid metabolism and obesity. Dr. Omori will explain about the effects of taurine in exercise and muscle functions. Drs. Tochtani and Hosoi will refer to the functions of taurine in the various events of neural development. We hope that the audience would realize the diverse functions of taurine and its potentials in preventive and therapeutic medicine.

企画シンポジウム13 B会場 ■ Planned Symposium 13 Hall B

大会第3日：3月30日(木)・March 30 (Thu) 8:50 - 10:50

【新学術「オシロロジー」共催】

非線形・振動現象の新展開

【Co-sponsored by the MEXT “Oscillology”】

Nonlinear and oscillatory phenomenon in neurophysiology

オーガナイザー・Organizer：

虫明 元 (東北大学大学院 医学系研究科)

Hajime Mushiake (Dept Physiol, School of Medicine, Tohoku Univ)

森田 賢治 (東京大学大学院教育学研究科 身体教育学コース)

Kenji Morita (Physical and Health Education, Grad Sch Edu, Univ Tokyo)

3PS13B1-1 神経系発振状態を制御するアストロサイト活動の解明

○松井 広

東北大・院医・新医学領域創生

Glial regulation of neuronal oscillations

Ko Matsui

Div Interdisciplinary Med Sci, Grad Sch Med, Tohoku Univ, Sendai, Japan

3PS13B1-2 目的指向型行動における腹側線条体カルシウム振動の役割

○木村 生^{1,2}, 夏堀 晃世³, 西田 洋司¹, 田中 謙二¹

¹慶應・医・精神, ²日本学術振興会特別研究員RPD, ³東京都医学総合研究所

The roles of ventral striatal Ca²⁺ oscillations in goal-directed behavior

Iku Kimura^{1,2}, Akiyo Natsubori³, Hiroshi Nishida¹, Kenji F Tanaka¹

¹Dept Neuropsychiatry, Sch Med, Keio Univ, Tokyo, Japan, ²JSPS Research Fellow, Tokyo, Japan,

³Tokyo Metropolitan Institute of Medical Science, Tokyo, Japan

3PS13B1-3 神経細胞のResonance特性に関わるイオンチャネルの解析

○橋本 浩一¹, 横殿 佳子¹, 中山 寿子¹, 山崎 美和子², 宮崎 太輔², 小林 和人³,

渡辺 雅彦², 狩野 方伸⁴, 崎村 建司⁵

¹北大・医歯薬保健学・神経生理学, ²北大・院医・解剖, ³福島県立医科大・生体情報伝達研究所・生体機能研究部門, ⁴東大・院医・神経生理学, ⁵新潟大・脳研・細胞神経生物学

Ion channels for the resonant property of neurons

Kouichi Hashimoto¹, Yoshiko Makidono¹, Hisako Nakayama¹, Miwako Yamasaki², Taisuke Miyazaki², Kazuto Kobayashi³, Masahiko Watanabe², Masanobu Kano⁴, Kenji Sakimura⁵

¹Dept Neurophysiol, Grad Sch Biomed Health Sci, Hiroshima Univ, Japan, ²Dept Anat, Grad Sch Med, Hokkaido Univ, Japan, ³Dept Mol Gen, Grad Sch Med, Fukushima Med Univ, Japan, ⁴Dept Neurophysiol, Grad Sch Med, Univ Tokyo, Japan, ⁵Dept Cell Neurobiol, Brain Res Institute, Niigata Univ, Japan

3PS13B1-4 ラット大脳皮質における波状に伝播する内因性信号の観察

○大城 朝一, 虫明 元

東北大・医・生体システム生理

Optical imaging of the intrinsic signal revealed a wave-like propagation of the infra-slow oscillation over the rat cortex

Tomokazu Ohshiro, Hajime Mushiake

Dept Physiol, School of Medicine, Tohoku Univ, Sendai, Japan

3PS13B1-5 ヒト非線形神経振動の操作的研究

○北城 圭一¹, 桂川 需^{1,2}

¹理研・脳科学総合研究センター, ²東京大・院医

Manipulative approaches to nonlinear neural oscillations in the human brain

Keiichi Kitajo¹, Motomu Katsurakawa^{1,2}

¹BSI-Toyota Collaboration Center, RIKEN BSI, Wako, Saitama, Japan, ²Univ Tokyo Grad Sch Med, Tokyo, Japan

3PS13B1-6 ドーパミンと強化学習の動的平衡について

○森田 賢治

東京大・院教育・身体教育

Dopamine and dynamic equilibrium of reinforcement learning

Kenji Morita

Physical and Health Education, Grad Sch Edu, Univ Tokyo, Tokyo, Japan

3PS13B1-7 サル運動野のLFPシータパワーの増加は運動の記憶を反映する

○保坂 亮介¹, 渡辺 秀典², 中島 敏², 虫明 元²

¹福岡大・理・応用数学, ²東北大学医学部生体システム生理学分野

Increased LFP θ power in primate motor areas reflects memorization of movement

Ryosuke Hosaka¹, Hidenori Watanabe², Toshi Nakajima², Hajime Mushiake²

¹Dept Applied Math, Fukuoka Univ, ²Dept Physiol, Tohoku Univ Sch Med, Sendai, Japan

Aims & Scope

The network in the nervous system is full of nonlinearity, which gives rise to spatiotemporal pattern beyond the summation of its components, and oscillatory phenomena, which emerge from complex interaction among slow and fast frequency oscillations. To understand the physiological significance of nonlinearity and oscillations, we need integrative approach including experimental and theoretical approach at micro- and macro-scopic levels. In this symposium, we will introduce various approaches to understanding nonlinear and/or oscillatory phenomenon.

企画シンポジウム14 C会場 ■ Planned Symposium 14 Hall C

大会第3日：3月30日(木)・March 30 (Thu) 8:50 - 10:50

日中合同シンポジウム—FAOPS2019に向けて—
Computational physiologyの進展

Japan-China Joint Symposium – Towards FAOPS2019 –
Progress in computational physiology

オーガナイザー・Organizer：

松岡 達 (福井大学医学部 統合生理学)

Satoshi Matsuoka (Dept Integ Sys Physiol Fac Med Sci Univ Fukui)

Jianwei Shuai (Dept Physics, Xiamen Univ)

3PS14C1-1 Simulation study of multiscale Ca^{2+} signals

Jianwei Shuai

Dept Physics, Xiamen Univ, China

3PS14C1-2 小型中枢神経シナプスにおける伝達物質放出機構の実験とモデルによる解析

○川口 真也

同志社大・脳科学研究科

Experimental and model analysis of transmitter release mechanisms at small presynaptic terminals in the CNS

Shinya Kawaguchi

Grad Sch Brain Sci, Doshisha Univ, Kyoto, Japan

3PS14C1-3 心臓ミトコンドリアエネルギー代謝の Ca^{2+} 調節に関するシミュレーション研究

○松岡 達¹, 竹内 綾子¹, 齋藤 隆太², 姫野 友紀子³

¹福井大学・医・統合生理, ²田辺三菱製薬・先端医薬研究所, ³立命館大学・生命科学・生命情報

A simulation study on Ca^{2+} regulation of energy metabolism in cardiac mitochondria

Satoshi Matsuoka¹, Ayako Takeuchi¹, Ryuta Saito², Yukiko Himeno³

¹Dept Integ Sys Physiol Fac Med Sci Univ Fukui, Fukui, Japan, ²Adv Drug Res Lab Mitsubishi Tanabe Pharma Co. Saitama, Japan, ³Dept Bioinfo, Col Life Sci, Ritsumeikan Univ, Shiga, Japan

3PS14C1-4 心臓興奮伝導における生理学のおよび病態生理学的モデリング研究 (AP4)

○津元 国親, 倉智 嘉久

大阪大・院医・薬理

Physiological and pathophysiological modeling studies of excitation conduction in the heart: prediction from changes in the subcellular Na^+ channel distribution

Kunichika Tsumoto, Yoshihisa Kurachi

Div Pharma, Grad Sch Med, Osaka Univ, Osaka, Japan

Aims & Scope

Mathematics and computational analysis have been useful tools for integrative and quantitative understanding of logic of life, physiology. The application has been widely spreading. In this symposium, we will introduce recent progress of computational physiology in China and Japan to further facilitate quantitative research using computation. Profs. Shuai (China), Kawaguchi, Tsumoto and Matsuoka will present simulation-based physiological study on multiscale Ca^{2+} signals, transmitter release dynamics at a small CNS presynaptic terminal, electrical conduction in the physiological and pathophysiological heart and cardiac energy metabolism, respectively. We expect this symposium will foster collaborative works in physiology between China and Japan.

企画シンポジウム15 D会場 ■ Planned Symposium 15 Hall D

大会第3日：3月30日(木)・March 30 (Thu) 8:50 - 10:50

視床下部の機能における新たなGABAの役割

Novel roles of GABA in the hypothalamic function

オーガナイザー・Organizer：

矢田 俊彦 (自治医科大学医学部 生理学講座 統合生理学部門)

Toshihiko Yada (Div IntegrativePhysiol, Dept Physiol, Jichi Med Univ Sch Med)

渡部 美穂 (浜松医科大学医学部医学科 神経生理学講座)

Miho Watanabe (Dept Neurophysiol, Hamamatsu Univ Sch Med)

3PS15D1-1 視床下部におけるGABA神経回路の発達

○高山 千利, 清水 千草

琉球大・医・分子解剖

Chronological embryonic development of GABAergic networks in the hypothalamic nuclei involved in feeding behavior

Chitoshi Takayama, Chigusa Shimizu

Dept Mol Anat, Sch Med, Univ Ryukyus, Okinawa, Japan

3PS15D1-2 視床下部背内側核GABA作動性ニューロンの活性化は摂食を亢進する

○須山 成朝¹, オトゴンウール ゼセムドルジェ¹, 小野寺 宏², 矢田 俊彦¹

¹自治医大・医・統合生理, ²東大・工・光子センター

Activation of GABAergic neurons in dorsomedial hypothalamus promotes food intake

Shigetomo Suyama¹, Zesemdorj Otgonuul¹, Hiroshi Onodera², Toshihiko Yada¹

¹Div IntegrativePhysiol, Dept Physiol, Jichi Med Univ Sch Med, Tochigi, Japan, ²Photon Sci Cen Univ Tokyo, Dept Electric Engineering, Univ Tokyo, Tokyo, Japan

3PS15D1-3 生殖機能制御における興奮性GABA作用の役割

○渡部 美穂¹, 鍋倉 淳一^{2,3}, 福田 敦夫¹

¹浜松医大・神経生理, ²生理研・生体恒常, ³総研大・生理科学

The role of excitatory action of GABA in the regulation of reproduction

Miho Watanabe¹, Junichi Nabekura^{2,3}, Atsuo Fukuda¹

¹Dept Neurophysiol, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²Dept Homeostatic Develop, Natl Inst Physiol Sci, Okazaki, Japan, ³Dept Physiol Sci, SOKENDAI, Hayama, Japan

3PS15D1-4 視床下部一下垂体系のCRH放出制御における新たなGABAの役割

○柿沢 圭亮¹, 福田 敦夫²

¹浜松医大・医・第二内科, ²浜松医大・医・神経生理

A novel role of GABA in the release of CRH in the hypothalamic-pituitary pathway

Keisuke Kakizawa¹, Atsuo Fukuda²

¹Second Dept Med, Hamamatsu Univ Sch Med, Hamamatsu, Japan, ²Dept Neurophysiol, Hamamatsu Univ Sch Med, Hamamatsu, Japan

3PS15D1-5 マウス視交叉上核におけるGABAの機能

○小野 大輔¹, 本間 研一², 柳川 右千夫³, 本間 さと²

¹名大・環研・神経², ²北大・院医・脳科学, ³群大・院医・遺伝発達行動

Roles of GABA in the circadian clock in the mouse suprachiasmatic nucleus

Daisuke Ono¹, Ken-ichi Honma², Yuchio Yanagawa³, Sato Honma²

¹Neurosci Res, RIEM, Nagoya Univ, Nagoya, Japan, ²Res & Educ Center Brain Sci, Hokkaido Univ, Grad Sch Med, Sapporo, Japan, ³Dep of Genet & Behav Neurosci, Gunma Univ Grad Sch Med, Maebashi, Japan

Aims & Scope

The role of the hypothalamus in regulation of homeostasis is essential for survival and reproduction. In this symposium, we will focus on the role of GABAergic neurons in the regulation of the hypothalamic function. GABA is typically an inhibitory neurotransmitter in the mature adult central nervous system. Some neurons in the hypothalamus show the unusual characteristic of being excited by GABA. GABA has long been implicated as a major player in the regulation of hypothalamic neurons. However, the precise physiological role of the GABA action on hypothalamic neurons remains elusive. By using latest technologies such as optogenetics and some transgenic mice, we will discuss recent findings including (1) the development of GABAergic neuronal network in the hypothalamus; (2) the role of GABAergic neurons in dorsomedial hypothalamus in feeding regulation; (3) the role of excitatory GABA action in the regulation of corticotropin-releasing hormone neurons and gonadotropin-releasing hormone neurons.

企画シンポジウム16 E会場 ■ Planned Symposium 16 Hall E

大会第3日：3月30日(木)・March 30 (Thu) 8:50 - 10:50

**日本解剖学会連携シンポジウム
機能再生の生物学**

Joint Symposium with the Japanese Association of Anatomists
Biology in 'functional recovery'

オーガナイザー・Organizer：

平井 宏和 (群馬大学大学院医学系研究科 脳神経再生医学分野)

Hirokazu Hirai (Dept Neurophysiol & Neural Repair, Gunma Univ Grad Sch Med)

山下 俊英 (大阪大学大学院医学系研究科 分子神経科学)

Toshihide Yamashita (Dept Mol Neurosci, Grad Sch Med, Osaka Univ)

3PS16E1-1 損傷神経軸索再生の形態機能生物学

○木山 博資

名古屋大・院医・機能組織

The morphological and functional biology of nerve regeneration

Hiroshi Kiyama

Dept Functional Anatomy & Neurosci, Nagoya Univ, Grad Sch Med, Nagoya, Japan

3PS16E1-2 正常なマウス膵内分泌組織発生には外分泌組織との共存が必要である

○川口 義弥

京都大学・iPS細胞研究所

Requirement of exocrine tissue formation for proper endocrine development in murine pancreas

Yoshiya Kawaguchi

Center for iPS Cell Research and Application, Kyoto Univ Kyoto, Japan

3PS16E1-3 成熟マウス小脳においてプロテインキナーゼC γ は運動機能を制御する

○平井 宏和, 高橋 伸卓, 渡邊 将, 今野 歩

群馬大・院医・脳神経再生医学

Protein kinase C γ plays a crucial role in motor function in mature cerebellum

Hirokazu Hirai, Nobutaka Takahashi, Masashi Watanabe, Ayumu Konno

Dept Neurophysiol & Neural Repair, Gunma Univ Grad Sch Med, Gunma, Japan

3PS16E1-4 中枢神経回路の修復のメカニズムと治療法の確立

○山下 俊英¹

¹阪大・院医・分子神経, ²阪大・院生命

Development of the therapeutic strategy to regulate reorganization of the injured central nervous system

Toshihide Yamashita¹

¹Dept Mol Neurosci, Grad Sch Med, Osaka Univ, Osaka, Japan, ²Grad Sch Front Biosci, Osaka Univ, Osaka, Japan

Aims & Scope

Physiological functional recovery of the damaged tissues or organs is pivotal for curing patients. To attain such 'functional recovery' in patients, we need precise and extensive understanding of pathophysiological mechanisms from molecular to in vivo aspects. To fulfill that purpose efficiently, we should continue to update our knowledge about the mechanisms and try to develop novel therapeutic interventions in a multi-disciplinary manner. In this symposium, we would like to offer the audience an opportunity to update recent knowledge about 'functional recovery' based on pathophysiological mechanisms for various diseases, which speakers with various research expertise have revealed recently. Moreover, through discussions in this symposium, we expect that the research community as well as the audience would be inspired and stimulated, which could lead to the future seeds or development of novel therapeutic methods based on the knowledge about 'functional recovery'.

企画シンポジウム17 B会場 ■ Planned Symposium 17 Hall B

大会第3日：3月30日(木)・March 30 (Thu) 14:30 - 16:30

日本神経内分泌学会連携シンポジウム

新しい技術を用いた神経ペプチドニューロン研究の展開

Joint Symposium with the Japan Neuroendocrine Society

Developments of neuropeptide neuron research with new technologies

オーガナイザー・Organizer：

尾仲 達史(自治医科大学生理学講座 神経脳生理学部門)

Tatsushi Onaka (Dept Physiol, Jichi Med Univ)

有馬 寛(名古屋大学大学院医学系研究科 糖尿病・内分泌内科学)

Hiroshi Arima (Dept Endocrinology and Diabetes, Nagoya Univ Grad Sch Med)

3PS17B2-1 マウスiPS細胞を用いたバソプレッシンニューロン小胞体ストレスの新たなin vitroモデル

○有馬 寛, 光本 一樹, 萩原 大輔, 須賀 英隆

名古屋大学糖尿病・内分泌内科学

A new in vitro model using mouse iPS cells to study endoplasmic reticulum stress in vasopressin neurons

Hiroshi Arima, Kazuki Mitsumoto, Daisuke Hagiwara, Hidetaka Suga

Dept Endocrinology and Diabetes, Nagoya Univ Grad Sch Med, Nagoya, Japan

3PS17B2-2 グレリンとGLP-1の迷走神経求心路を介する摂食調節機序

○迫田 秀之¹, ワイズ ティーエム ザベット¹, ナズニン ファーハナ¹, 岡田 只士¹, 十枝内 厚次², 中里 雅光^{1,3}

¹宮崎大学・医学部・内科学講座, ²至学館大学, ³AMED-CREST

Interaction between ghrelin and GLP-1 regulates feeding through vagal afferent system

Hideyuki Sakoda¹, Zaved Tm Waise¹, Farhana Naznin¹, Tadashi Okada¹, Koji Toshinai², Masamitsu Nakazato^{1,3}

¹Dept Internal Medicine, Univ, Miyazaki, Miyazaki, Japan, ²Shigakkan University, Obu, Japan, ³AMED-CREST, Tokyo, Japan

3PS17B2-3 オレキシンは青斑核に働き情動行動を増強する

○櫻井 武^{1,2}, 征矢 晋吾^{1,2}, 高橋 徹², 前島 隆司²

¹筑波大・医・国際統合睡眠医科学, ²金沢大・院医歯薬保健・統合生理

Orexin acts on Locus Coeruleus to enhance and sustain emotional behavior

Takeshi Sakurai^{1,2}, Shingo Soya^{1,2}, Toolu Takahashi², Takashi Maejima²

¹WPI-IHIS, Univ Tsukuba, Ibaraki, Japan, ²Dept Mol Neurosci, Kanazawa Univ, Japan

3PS17B2-4 遺伝子改変技術を用いたバソプレッシンニューロン活動制御の試み

○吉村 充弘, 丸山 崇, 上田 陽一

産業医大・医・第1生理

Transgenic approaches to regulate the neuronal activity in vasopressin neuron

Mitsuhiro Yoshimura, Takashi Maruyama, Yoichi Ueta

Dept Physiol, Sch Med, UOEH, Kitakyushu, Japan

3PS17B2-5 遺伝子改変動物とウイルスベクターを用いたオキシトシンシステム特異的な機能調節

○吉田 匡秀, 高柳 友紀, 犬東 歩, 尾仲 達史

自治医大・医・生理

Transgene expression and site-specific ablation in oxytocin system by making use of transgenic animals and virus vectors

Masahide Yoshida, Yuki Takayanagi, Ayumu Inutsuka, Tatsushi Onaka

Dept Physiol, Jichi Med Univ, Tochigi, Japan

Aims & Scope

Molecular technologies including optogenetics, DREADDs and neurotracing methods with various virus vectors and transgenic animals have advanced our knowledge in the field of neuropeptide research. Especially, manipulation and recordings of specific peptidergic pathways enable us to clarify physiological roles of the pathways.

In this symposium, new developments in the field of vasopressin, oxytocin and novel peptides will be introduced. This symposium is organized with co-operation of neuroendocrinology society.

企画シンポジウム18 C会場 ■ Planned Symposium 18 Hall C

大会第3日：3月30日(木)・March 30 (Thu) 14:30 - 16:30

若手の会運営委員会企画シンポジウム

多様な感覚に基づく身体機能の調節 – 基礎と臨床の視点から –

Associates of Young Researchers of Physiology

Modulation of body systems based on various sensory inputs

– from the perspectives of basic research and clinical application –

オーガナイザー・Organizer：

井手 正和 (国立障害者リハビリテーションセンター研究所 脳機能系障害研究部 発達障害研究室)

Masakazu Ide (Developmental Disorders Section, Department of Rehabilitation for Brain Functions, Research Institute of National Rehabilitation Center for Persons with Disabilities)

山口 佳小里 (国際医療福祉大学成田保健医療学部 作業療法学科)

Kaori Yamaguchi (International University of Health and Welfare, School of Health Sciences at Narita, Department of Occupational Therapy)

3PS18C2-1 親に運ばれる時に示す子の協調的反応：乳児と仔マウスを用いた比較生物学的解析

○吉田 さちね^{1,2}, 大西 竜子^{3,4}, 恒岡 洋右¹, 小田 哲子¹, 黒田 優¹, 船戸 弘正¹, 黒田 公美³
¹東邦大・医・解剖, ²JST・さきがけ, ³理研・脳科学総合研究センター, ⁴琉球大・教育学部

An Infant cooperation to maternal carrying: comparative analyses in humans and mice

Sachine Yoshida^{1,2}, Ryuko Ohnishi^{3,4}, Yousuke Tsuneoka¹, Satoko Oda¹, Masaru Kuroda¹, Hiromasa Funato¹, Kumi O Kuroda³

¹Dept Anatomy, Sch Med, Toho Univ, Tokyo, Japan, ²JST, PRESTO, Kawaguchi, Japan, ³RIKNE, BSI, Wako, Japan, ⁴Fac Edu, Univ Ryukyus, Okinawa, Japan

3PS18C2-2 知覚／運動系における時間と空間の相互作用

○黒田 剛士
静岡大学・情報学部

Spatiotemporal interactions in perception and motor action

Tsuyoshi Kuroda

Fac Inform, Shizuoka Univ, Hamamatsu, Japan

3PS18C2-3 統合失調症と自閉性スペクトラム障害における感覚情報処理

○中川 与四郎
中部大学作業療法学科

Sensory processing in schizophrenia and autism spectrum disorder

Yoshiro Nakagawa

Dept Occupational therapy, Chubu Univ, Aichi, Japan

3PS18C2-4 自閉症スペクトラム障害における感覚特性と作業療法の実践

○松島 佳苗
京都大・医学・人間健康科学

Unusual sensory features in autism spectrum disorders and occupational therapy

Kanae Matsushima

Grad Sch Med, Kyoto Univ, Kyoto, Japan

ねらいと概要

我々は、自分の周囲に存在する多様な刺激の“時間”に関わる情報を処理し、外界に対して適応的に身体を調整する。例えば、乳幼児期の哺乳類では、周期的に体性感覚を刺激することで副交感神経の活動は安定し、身体は弛緩する。一方、発達障害や精神疾患において刺激の時間に関わる処理が変容するという報告があり、これは副交感神経による感覚の調節機能にも影響する。このような基礎研究で得られた知見を臨床の現場に応用するような試みは、今後ますます重要性を増していこう。

本シンポジウムは、基礎と臨床それぞれの立場の若手研究者を招き、体性感覚や時間感覚、自律神経等について、関連する臨床症状と併せて、学際融合的な討議の場を提供することを目的とする。

※本シンポジウムは全て日本語で開催されます。

This symposium will be held in Japanese.