

公募シンポジウム1 A会場 ■ Symposium 1 Hall A

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

【味の素株式会社協賛】

情動行動における口腔・腸—脳連関の重要性

[Supported by Ajinomoto Co., Inc.]

Oral/gut-brain interaction in emotional behavior

オーガナイザー・Organizer：

飛田 秀樹 (名古屋市立大学 医学研究科 脳神経生理学)

Hideki Hida (Dept of Neurophysiol & Brain Sci, Nagoya City Univ Grad Sch Med Sci)

二ノ宮 裕三 (九州大学 味覚・嗅覚センサ研究開発センター)

Yuzo Ninomiya (Div Sens Physiol, R&D Ctr Taste Odor Sens, Kyushu Univ)

1S01A1-1 口腔腸脳機能分子連関: グルコース輸送体を介する甘味受容伝達経路

○二ノ宮 裕三<sup>1,2</sup>, 中野 啓子<sup>1,3</sup>, 大栗 弾宏<sup>3</sup>, 岩田 周介<sup>2,3</sup>, 高井 信吾<sup>3</sup>, 吉田 竜介<sup>3</sup>, 重村 憲徳<sup>3</sup>, マルゴルスキー ロバート<sup>2,3</sup>

<sup>1</sup>九大・味覚嗅覚研究センター, <sup>2</sup>米国モネル化学感覚研, <sup>3</sup>九大・院菌・口腔機能

Oral-gut-brain linkage with molecules involved in glucose-sensing sweet taste pathway

Yuzo Ninomiya<sup>1,2</sup>, Keiko Nakano<sup>1,3</sup>, Tadahiro Ohkuri<sup>3</sup>, Shusuke Iwata<sup>2,3</sup>, Shingo Takai<sup>3</sup>, Ryusuke Yoshida<sup>3</sup>, Noriatsu Shigemura<sup>3</sup>, Robert Margolskee<sup>2,3</sup>

<sup>1</sup>Div Sens Physiol, R&D Ctr Taste Odor Sens, Kyushu Univ, Fukuoka, Japan, <sup>2</sup>Monell Chem Sens Ctr, Philadelphia, USA, <sup>3</sup>Sect Oral Neurosci, Grad Sch Dent Sci, Kyushu Univ, Fukuoka, Japan

1S01A1-2 かつおだし摂取がマウスの情動行動に及ぼす効果とその神経メカニズム

○西丸 広史<sup>1</sup>, Jargalsaikhan Undarmaa<sup>1</sup>, 松本 惇平<sup>1</sup>, 高村 雄策<sup>1</sup>, 中村 友也<sup>1</sup>, 掘 悦郎<sup>1</sup>, 近藤 高史<sup>2</sup>, 小野 武年<sup>1</sup>, 西条 寿夫<sup>1</sup>

<sup>1</sup>富山大・院医・システム情動科学, <sup>2</sup>(株)味の素・イノベーション研究所

Effects of dried-bonito broth (dashi) ingestion on emotional behaviors and their possible mechanism in young mice

Hiroshi Nishimaru<sup>1</sup>, Undarmaa Jargalsaikhan<sup>1</sup>, Jumpei Matsumoto<sup>1</sup>, Yusaku Takamura<sup>1</sup>, Tomoya Nakamura<sup>1</sup>, Etsuro Hori<sup>1</sup>, Takashi Kondoh<sup>2</sup>, Taketoshi Ono<sup>1</sup>, Hisao Nishijo<sup>1</sup>

<sup>1</sup>Syst Emotional Sci, Univ Toyama, Toyama, Japan, <sup>2</sup>Inst Innovation, Ajinomoto Co, Inc, Kawasaki, Japan

1S01A1-3 注意欠陥多動性モデルラットでの発育期のグルタミン酸ナトリウムによる攻撃性の減少は胃迷走神経を介する

○飛田 秀樹, 横山 善弘, 丸本 良介, 三角 吉代, 西垣 瑠里子, 永井 遥, 上田 佳朋, 石田 章真, 鄭 且均

名古屋市大・院医・脳神経生理

Decreased aggression by monosodium glutamate during the period of development is mediated by vagus nerve in an attention-deficit hyperactivity disorder model rat

Hideki Hida, Yoshihiro Yokoyama, Ryosuke Marumoto, Sachiyo Misumi, Ruriko Nishigaki, Haruka Nagai, Yoshitomo Ueda, Akimasa Ishida, Cha-gyun Jung  
Dept Neurophysiol & Brain Sci, Nagoya City Univ Grad Sch Med Sci, Nagoya, Japan

**1S01A1-4 うつ病や関連疾患における腸内細菌の役割**

○功刀 浩

国立精・神医研セ・疾病三部

**Role of gut microbiota in depression and related disorders**

Hiroshi Kunugi

Dept Mental Disorder Research, NCNP, Tokyo, Japan

**Aims & Scope**

The gut and the brain are closely connected. Recent neurobiological studies in this gut-brain crosstalk have revealed bidirectional communication system by neural communication (vagal, sympathetic) and systemic communication (HPA axis, neurotransmitters, bacterial metabolites, cytokines). This gut-brain crosstalk is likely to have multiple effects on affection, motivation, and higher cognitive functions. Disturbances of this system have been implicated in a wide range of disorders, including anxiety, depression and neurodevelopmental disease such as attention-deficit hyperactivity disorder (ADHD).

In this symposium, we focused on the effect of taste substances on emotional behavior from the aspect of "oral/gut-brain interaction". The importance of oral/gut-brain interactions will be shown by at least four speakers. Dr. Ninomiya will present new data showing sugar sensing pathway in the gut is also found in taste cells in the oral cavity. Dr. Nishimaru will present the effect of "umami" and "dashi" on the emotional behavior focusing on the amygdala and the prefrontal cortex. Dr. Hida will show the effect of an umami substance on aggressive behavior in an ADHD model rat, which is mediated by vagus nerve. Dr. Kunugi will show the importance of the gut-brain interaction in anxiety and depression.

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 今日のて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<sup>1</sup>, 小林 勝弘<sup>2</sup>

<sup>1</sup>岡山大学・院教育・特別支援教育, <sup>2</sup>岡山大学・院医歯薬・発達神経病態学

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

Iori Ohmori<sup>1</sup>, Katsuhiko Kobayashi<sup>2</sup>

<sup>1</sup>Dept Special Needs Education, Okayama Univ Grad Sch Edu, Okayama, Japan, <sup>2</sup>Dept 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<sup>1</sup>, 小林 勝哉<sup>1</sup>, 菊池 隆幸<sup>2</sup>, 吉田 和道<sup>2</sup>, 國枝 武治<sup>3</sup>, 池田 昭夫<sup>4</sup>

<sup>1</sup>京都大・院医・臨床神経学, <sup>2</sup>京都大学大学院医学研究科脳神経外科学, <sup>3</sup>愛媛大学大学院医学系研究科脳神経外科学, <sup>4</sup>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 Matsumoto<sup>1</sup>, Katsuya Kobayashi<sup>1</sup>, Takayuki Kikuchi<sup>2</sup>, Kazumichi Yoshida<sup>2</sup>, Takeharu Kunieda<sup>3</sup>, Akio Ikeda<sup>4</sup>

<sup>1</sup>Dept Neurol, Kyoto Univ Grad Sch Med, Kyoto, Japan, <sup>2</sup>Dept Neurosurgery, Kyoto Univ Grad Sch Med, Kyoto, Japan, <sup>3</sup>Dept Neurosurgery, Ehime Univ Grad Sch Med, Toon, Japan, <sup>4</sup>Dept 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.