The 21st International Symposium on Molecular and Neural mechanisms of Taste and Olfactory Perception (ISMNTOP XXI / YRUF XXI / AISCRIB XII)

第21回国際シンポジウム“味覚嗅覚の分子神経機構”

（併催：第21回うま味若手フォーラム,
第12回アジア国際シンポジウム“化学受容と摂食行動”）

Organizer:

Ryusuke Yoshida
Okayama University, Japan

Yuzo Ninomiya
Okayama University, Japan
Kyushu University, Japan
Monell Chemical Senses Center, USA

Program & Abstracts

March 1-2, 2025
Dental School Building 4F, Okayama University,
2-5-1, Shikata-cho, Kita-ku, Okayama, 700-8525, Japan

Hosted by

Department of Oral Physiology,
Graduate School of Medicine, Dentistry and
Pharmaceutical Sciences, Okayama University

岡山大学大学院医歯薬学総合研究科口腔生理学分野

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https://www.okayama-u.ac.jp/user/oralphys/ISMNTOP/ISMNTOP.html

The 21st International Symposium on Molecular and Neural mechanisms of Taste and Olfactory Perception (ISMNTOP XXI / YRUF XXI / AISCRIB XII)

March 1st, Saturday ----------

■ Opening remarks 12:50 - 13:00

Ryusuke Yoshida (*Okayama Univ*)

■ Session I 13:00 – 14:15

Taste Receptor

[Chair: Atsuko Yamashita (*Osaka Univ*), Keisuke Sanematsu (*Kyushu Univ*)]

IS1-1 13:00 - 13:25

Halogen ion-binding site in fish taste receptor Tas1r3

Mana Nagae[1,2], Yuri Kuhara[1,2], **Atsuko Yamashita**[1]

[1]The Institute for Protein Research, Osaka University, [2]Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University

IS1-2 13:25 - 13:50

Taste receptor type 1 member 3 in osteoclasts regulates osteoclastogenesis

Shoichiro Kokabu

Division of Molecular Signaling and Biochemistry, Kyushu Dental University, Japan

IS1-3 13:50 - 14:15

Preference for the gum and calcium in common marmoset

Hiroo Imai

Center for the Evolutionary Origins of Human Behavior, Kyoto University, Japan

▶ Break **14:15 - 14:30**

■ Special lecture 1 14:30 – 15:10

[Chair: Akiyuki Taruno (*Kyoto Pref Univ Med*)]

Neural Mechanisms for Taste Learning

Arianna Maffei

Department of Neurobiology and Behavior, Stony Brook University, USA

▶ Break **15:10 - 15:20**

■ Session II 15:20 – 17:00

Peripheral Taste

[Chair: Satoshi Wakisaka (*Kansai Women's College*), Ken Iwatsuki (*Tokyo Univ Agri*)]

IS2-1 15:20 – 15:45

Primate-derived taste organoids: challenges and prospects

Ken Iwatsuki

Department of Nutritional Science and Food Safety, Faculty of Applied Biosciences, Tokyo University of Agriculture, Japan

IS2-2 15:45 - 16:10
Effect of decreased salivary secretion on taste preference in mice
Masataka Narukawa[1], Takumi Misaka[2]
[1]Department of Food and Nutrition, Kyoto Women's University, Japan, [2]Graduate School of Agricultural and Life Sciences, The University of Tokyo

IS2-3 16:10 – 16:35
The Function of Ccn3 in Type III Taste Cells of Mice
Kuanyu Wang, Yoshihiro Mitoh, Kengo Horie, Ryusuke Yoshida
Department of Oral Physiology, Faculty of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Japan

IS2-4 16:35 – 17:00
Channel synapses mediate protective upper airway chemoreflexes
Akiyuki Taruno
Department of Molecular Cell Physiology, Kyoto Prefectural University of Medicine, Japan

■ Poster session 1 17:00 - 18:15

■ Bus transportation 18:30 -

■ Short Talk Session & Social Gathering 19:00 – 21:00

@ REST&EVENT HALL FORTEEN
2nd basement, Central building, 6-36, Honmachi, Kita-Ku, Okayama
[Chair: Ryusuke Yoshida (*Okayama Univ*)]

Short talk session will start from 19:30

19:30 ISP01 Md Tasnim Alam (Kochi Univ)
19:33 ISP02 Md Monjurul Ahasan (Kochi Univ)
19:36 ISP03 Shusuke Iwata (Asahi Univ)
19:39 ISP04 Shinpei Takahashi (Asahi Univ)
19:42 ISP05 Toshiaki Yasuo (Asahi Univ)
19:45 ISP06 Yu Zuo (Okayama Univ)
19:48 ISP07 Haru Mochizuki (Okayama Univ)
19:51 ISP08 Hakyeong Kim (Korea Univ)
19:54 ISP09 Hyun Ji Kim (Korea Univ)
19:57 ISP10 Lee Min Gyeong (Korea Univ)
20:00 ISP11 Su Young Ki (Korea Univ)
20:03 ISP12 Takashi Kondoh (Kindai Univ)
20:06 ISP13 Kana Tanaka (Kindai Univ)
20:09 ISP14 Uijin Park (Tohoku Univ)
20:12 ISP15 Hikari Takeshima (Kyushu Univ)
20:15 ISP16 Mana Nagae (Okayama Univ)
20:18 ISP17 Shingo Takai (Kyushu Univ)
20:21 ISP18 Mamiko Ozaki (Nara Women's Univ)
20:24 ISP19 Yuki Nagasato (Kyushu Univ)

March 2nd, Sunday ----------

■ Session III　9:00 - 10:40

Olfaction

[Chair: Masahiro Yamaguchi *(Kochi Univ*), Takeshi Imai (*Kyushu Univ*)]

IS3-1　9:00 – 9:25
Optimized Olfactory Working Memory Paradigm to Investigate Odour Coding
Josefine Reuschenbach, Izumi Fukunaga
Sensory and Behavioural Neuroscience Unit, OIST Graduate University, Japan

IS3-2　9:25 – 9:50
Granule cell odor representation plasticity induced by Top-down inputs contributes to olfactory learning in mice
Akiko Ide[1], Yusuke Suzuki[1,2], Masayuki Sakamoto[1,2,3], Itaru Imayoshi[1,2,4]
[1]Graduate School of Biostudies, Kyoto University, [2]Institute for Life and Medical Sciences, Kyoto University,[3]JST PRESTO, [4]JST CREST

IS3-3　9:50 – 10:15
An olfactory sensitivity-modulating factor from olfactory mucosa
Stella Chapman[1], Kenji Kondo[2], Sayoko Ihara[1], Chiori Ijichi[3], Koji Sato[1], Kazushige Touhara[1]
[1]Laboratory of Biological Chemistry, Department of Applied Biological Chemistry, The University of Tokyo, Japan, [2]Department of Otorhinolaryngology-Head and Neck Surgery, Graduate School of Medicine and Faculty of Medicine, The University of Tokyo, Tokyo, Japan, [3]Food Products Division, Technology & Solution Development Center, Institute of Food Science and Technologies, Ajinomoto Co., Inc., Japan

IS3-4　10:15 – 10:40
Digitizing odor for flavor design technology
Chiori Ijichi
Institute of Food Sciences and Technologies, Food Products Division, AJINOMOTO CO., Inc., Japan

▶ Break **10:40 - 11:00**

■ Special lecture 2　11:00 - 11:40

[Chair: Masahiro Yamaguchi *(Kochi Univ*), Takeshi Imai (*Kyushu Univ*)]

A glomerular hierarchy for olfactory discriminations
Dinu Florin Albeanu
Cold Spring Harbor Laboratory, USA

■ Lunch & Poster session 2　11:40 - 12:40

■ Special lecture 3　12:40 - 13:20

[Chair: Shogo Soma (*Kyoto Pref Univ Med*)]

Coding in the gustatory cortex: tasting the past, the present and the future
Alfredo Fontanini
Stony Brook University, USA

▶ Break **13:20 - 13:30**

■ Session IV　13:30 – 15:20

Asian International Symposium on Chemo-Reception and Ingestive Behavior (AISCRIB XII)

[Chair: Seok Jun Moon *(Yonsei Univ*), Hiroo Imai (*Kyoto Univ*)]

IS4-1　13:30 – 14:00 (special talk)
Glia-like taste cells mediate an intercellular mode of peripheral sweet adaptation
Myunghwan Choi
School of Biological Sciences, Seoul National University, Republic of Korea

IS4-2　14:00 – 14:30 (special talk)
Preventing overeating through gut hormone GLP-1: insights from rare sugar Allulose research
Yusaku Iwasaki
Graduate School of Life and Environmental Sciences, Kyoto Prefectural University, Japan

IS4-3　14:30 – 14:55
Mediating Effect of Public Self-Consciousness on the Relationship Between Internalized Weight Stigma and Weight Status
Yuko Nakamura[1,2]
[1]Center for Evolutionary Cognitive Sciences, Graduate School of Art and Sciences, The University of Tokyo, Japan, [2]University of Tokyo Institute for Diversity & Adaptation of Human Mind (UTIDAHM), Japan

IS4-4　14:55 – 15:20
Sugars transported by SGLT1 induced rewarding effects in chickens
Fuminori Kawabata[1,2], Kazushi Koyama[1]
[1]Physiology of Domestic Animals, Faculty of Agriculture and Life Science, Hirosaki University, Japan, [2]The United Graduate School of Agricultural Sciences, Iwate University, Morioka, Japan

▶ Break **15:20 – 15:40**

■ Session V　15:40 – 16:55

Neuroscience of Taste

[Chair: Mamiko Ozaki (*Kobe Univ/Nara Women's Univ*), Chizuko Inui (*Osaka University*)]

IS5-1　15:40 – 16:05
The neural circuit mechanism underlying the synergistic effect between different tastes
Takaaki Ozawa, Yoshinobu Oyama, Tomohiro Shibata, Mayuka Abe, Hinano Yonemaru, Yuma Matsumoto, Ryotaro Iwamoto, Koki Sakurai, Macpherson Tom, Takatoshi Hikida
Institute for Protein Research, Osaka University. Osaka, JAPAN

IS5-2　16:05 – 16:30
Role of GPR40 and CD36 expressed in mouse posterior tongue in fatty acid sensing
Keiko Yasumatsu[1,2], Yumiko Nagai[1]
[1]Tokyo Dental Junior College, Japan, [2]Monell Chemical Senses Center, USA

IS5-3　16:30 – 16:55
Roles of glutamatergic and GABAergic neurons in the lateral hypothalamus on the expression of conditioned taste aversion
Tadashi Inui
Department of Oral Physiology, Graduate School of Dental Medicine, Hokkaido University, Japan

■ Closing remarks　16:55 -　Masahiro Yamaguchi (*Kochi Univ*)

[Discussants]
Arianna Maffei (*Stony Brook Univ*), Alfredo Fontanini (*Stony Brook Univ*), Dinu Florin Albeanu (*Cold Spring Harbor Lab*), Myunghwan Choi (*Seoul National Univ*), Moon SJ (*Yonsei Univ*), Jeong YT(*Korea Univ*), Koo JH (*DGIST*), Iwasaki Y (*Kyoto Pref Univ*), Yamashita A (*Osaka Univ*), Sanematsu K (*Kyushu Univ*), Taruno A (*Kyoto Pref Univ Med*), Iwatsuki K (*Tokyo Univ Agri*), Wakisaka S (*Kansai Women's Col*), Yamaguchi M (*Kochi Univ*), Imai T (*Kyushu Univ*), Soma S (*Kyoto Pref Univ Med*), Imai H (*Kyoto Univ*), Ozaki M (*Kobe Univ/Nara Women's Univ*), Inui-Yamamoto C (*Osaka Univ*), Kokabu S (*Kyushu Dental Univ*), Narukawa M (*Kyoto Women's Univ*), Reuschenbach J (*OIST*), Ide A (*Kyoto Univ*), Chapman S (*Univ Tokyo*), Ijichi C (*Ajinomoto*), Nakamura Y (*Univ Tokyo*), Kawabata F (*Hirosaki U*), Ozawa T (*Osaka Univ*), Yasumatsu K (*Tokyo Dent Jr College*), Inui T (*Hokkaido Univ*), Kondoh T (*Kindai Univ*), Sako N (*Asahi Univ*), Yasuo T (*Asahi Univ*), Iwata S (*Asahi Univ*), Takai S (*Kyushu Univ*), Mito Y (*Okayama Univ)*, Horie K (*Okayama Univ*), Ohkuri T (*Suntory*), Kasahara M (*Ajinomoto*), Kohmura M (*Ajinomoto*)

■ Poster Session

ISP01
Melanocortin 4 signaling in the olfactory cortex in odor- guided appetitive behaviors
Md Tasnim Alam, Md Monjurul Ahasan, Shogo Shimizu, Yoshihiro Murata, Mutsuo Taniguchi, Masahiro Yamaguchi
Department of Physiology, Kochi Medical School, Kochi University, Japan

ISP02
The functional role of feeding-related appetite-stimulating signalling molecules in the higher olfactory cortical region in mice model
Md Monjurul Ahasan, Md Tasnim Alam, Yoshihiro Murata, Mutsuo Taniguchi, Masahiro Yamaguchi
Department of Physiology, Kochi Medical School, Kochi University, Japan

ISP03
Capsaicin enhances chorda tympani nerve and behavioral responses to sugars in mice
Shusuke Iwata[1], Toshiaki Yasuo[1], Shinpei Takahashi[1], Takashi Suwabe[1], Keiko Yasumatsu[2], Noritaka Sako[1], Yuzo Ninomiya[3]
[1]Dept. Oral Physiol. Asahi Univ. Sch. Dent., Japan [2]Tokyo Dental Junior College, Japan, [3]Monell Chemical Senses Center, USA

ISP04
The pattern of generalization and extinction of conditioned taste aversion (CTA) learning depend on taste quality of used conditioned stimulus
Shinpei Takahashi, Shusuke Iwata, Toshiaki Yasuo, Takeshi Suwabe, Noritaka Sako
Department of Oral Physiology, Asahi University School of Dentistry, Japan

ISP05
Behavioral responses to sodium ascorbate in ascorbic acid-deficient rats
Toshiaki Yasuo, Shusuke Iwata, Shinpei Takahashi, Takeshi Suwabe, Noritaka Sako
Department of Oral Physiology, Asahi University School of Dentistry, Japan

ISP06
Application of the Photoactivatable Cre-loxP System in Mouse Taste Research
Zuo Yu[1], Kengo Horie[1], Yoshihiro Mitoh[1], Tomoka Takao[2], Takeshi Takarada[2], Ryusuke Yoshida[1]
[1]Department of Oral Physiology, [2]Department of Regenerative Science, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Japan

ISP07
Exploring the neural pathway for the gustatory salivary reflex in mice
Haru Mochizuki, Kengo Horie, Yoshihiro Mitoh, Ryusuke Yoshida
Department of Oral Physiology, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Japan

ISP08
Thirst Quenching Disinhibits Dehydration-Induced Anorexia via Hypothalamic AgRP Neurons
Hakyeong Kim, Yong Taek Jeong
BK21 Graduate Program, Department of Biomedical Sciences; Department of Pharmacology, Korea University College of Medicine, Republic of Korea

ISP09
Reassessing the genetic lineage tracing of lingual Lgr5+ and Lgr6+ cells in vivo
Hyun Ji Kim[1,2], Dong Woo Seo[1,2], Jaewon Shim[3], Jun-Seok Lee[1,2], Sang-Hyun Choi[2], Dong-Hoon Kim[1,2], Seok Jun Moon[4], Han-Sung Jung[4], Yong Taek Jeong[1,2]
[1]BK21 Graduate Program, Department of Biomedical Sciences, Korea University College of Medicine, Korea [2]Department of Pharmacology, Korea University College of Medicine, Korea [3]Department of Biochemistry, Kosin University College of Medicine, Korea [4]Department of Oral Biology, Yonsei University College of Dentistry, Korea

ISP10
Generation of Taste Buds Organoids from Anterior Lingual Mucosa
Lee Min Gyeong, Yong Taek Jeong
Department of Pharmacology, Korea University College of Medicine, Korea

ISP11
c-Kit signaling confers damage-resistance to sweet taste cells upon nerve injury
Su Young Ki, Yong Taek Jeong
Department of Pharmacology, Korea University, Korea

ISP12
Multiple mechanisms of salts for sour taste in humans
Takashi Kondoh[1,2], Akari Fujisawa[1], Chie Nakai[1]
[1]Department of Food Science and Nutrition, Faculty of Agriculture, [2]Agricultural Technology and Innovation Research Institute, Kindai University, Japan

ISP13
Effects of 5'-ribonucleotides on glutamate detection thresholds and umami taste intensity in Japanese subjects
Kana Tanaka[1], Tatsuki Itoh[1,2], Takashi Kondoh[2,3]
[1]Graduate School of Agricultural and Life Science, [2]Faculty of Agriculture, [3]Agricultural Technology and Innovation Research Institute, Kindai University, Japan

ISP14
Effect of taste recall training using five sweet substances on sweet taste sensitivities
Uijin Park, Midori Miyagi, Satoru Ebihara
Department of Rehabilitation Medicine, Tohoku University Graduate School of Medicine, Japan

ISP15
Different types of nutrients in the gut activate distinct sets of neurons in the nodose petrosal ganglion
Hikari Takeshima[1], Keisuke Ito[2], Hideki Enomoto[2], Takeshi Imai[1]
[1]Graduate School of Medical Sciences, Kyushu University, Japan, [2]Division for Neural Differentiation and Regeneration, Department of Physiology and Cell Biology, Kobe University Graduate School of Medicine, Kobe, Japan

ISP16
Halogen ion-binding analysis of the ligand-binding domain of the taste receptor T1r1/T1r3 from pufferfish
Mana Nagae[1,2], Atsuko Yamashita[2]
[1]Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Japan, [2]The Institute for Protein Research, Osaka University, Japan

ISP17
GPRC5C on pancreatic α-cells may contribute to the blood glucose regulation
Shingo Takai[1], Yuko Kawabata[1], Keisuke Sanematsu[1,2,3], Yusaku Iwasaki[4], Fuminori Kawabata[5], Noriatsu Shigemura[1,2]
[1]Section of Oral Neuroscience, Graduate School of Dental Science, Kyushu University, Japan, [2]Research and Development Center for Five-Sense Devices Taste and Odor Sensing, Kyushu University, Japan, [3]Oral Health/Brain Health/Total Health Research Center, Kyushu University, Japan, [4]Laboratory of Animal Science, Graduate School of Life and Environmental Sciences, Kyoto Prefectural University, Japan, [5]Physiology of Domestic Animals, Faculty of Agriculture and Life Science, Hirosaki University, Japan

ISP18
Baby's head volatile analysis with GCxGC-MS and sensory evaluation study.
Mamiko Ozaki[1,2,3], Tatsuya Uebi[1], Atsushi Kometani[4], Yohsuke Ohtsubo[5], Yoshifumi Nagata[6], Kazunao Suzuki[7], Naohiro Kanayama[8], Takahiko Hariyama[9]
[1]KYOUSEI Science Center for life and Nature, Nara Women's University, [2]Department of Advanced Medical Science, Graduate School of Science, Technology and Innovation, Kobe University, [3]Scent Fest Co., LTD., [4]Department of Psychology, Graduate School of Humanities, Kobe University, [5]Department of Social Psychology, Graduate School of Humanities and Sociology, University of Tokyo, [6]Faculty of Science and Engineering, Iwate University, [7]Perinatal Medical Center, Hamamatsu University Hospital, [8]Shizuoka College of Medical Care Science, [9]Preeminent Medical Photonics Education and Research Center, Institute for NanoSuit Research & NanoSuit Inc., Hamamatsu University School of Medicine

ISP19

Computational analysis of sodium ion permeation mechanisms in capsaicin receptor, transient receptor potential vanilloid 1

Yuki Nagasato[1,2], Keisuke Sanematsu[1,3,4], Emiko Imamura[1], Yuko Kawabata[1], Shingo Takai[1], Toshiro Matsui[2,4], Noriatsu Shigemura[1,4]

[1]Section of Oral Neuroscience, Graduate School of Dental Science, Kyushu University, [2]Department of Bioresources and Biosciences, Faculty of Agriculture, Graduate School of Kyushu University, [3]Oral Health/Brain Health/Total Health Research Center, Graduate School of Dental Science, Kyushu University, [4]Research and Development Center for Five-Sense Devices, Kyushu University