



Hiroshima University Graduate School
of Biomedical and Health Sciences
(Dentistry) and Hiroshima University
Hospital (Dental Departments)

Research Achievements 2024

Contents

Hiroshima University School of Dentistry, Hiroshima University Hospital, Graduate School of Biomedical and Health Sciences

○Program of Dentistry

- [Department of Maxillofacial Anatomy and Neuroscience](#)
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○Program of Oral Health Sciences

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○ **Graduate School of Biomedical and Health Sciences (Dentstry)**

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○ **University Hospital (Dental Departments)**

- [Division of General Dentistry, Department of General Dentistry](#)
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Department of Maxillofacial Anatomy and Neuroscience

(1) Staff and Students

Professor : Ryuji Terayama

Associate Professor: Kenta Uchibe

Assistant Professor: Shohei Kohno

(2) Main Research Activities

- 1: Studies on nociceptive transmission of orofacial region
- 2: Roles of glial cells in the development of neuropathic pain
- 3: Effects of administration of drugs on neuropathic pain
- 4: Roles of retinoic acid signaling in skeletal development
- 5: Studies on heterotopic ossification and related diseases
- 6: Studies on regulatory mechanisms of osteoblast differentiation

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Yambe S, Yoshimoto Y, Ikeda K, Maki K, Takimoto A, Tokuyama A, Higuchi S, Yu X, Uchibe K, Miura S, Watanabe H, Sakuma T, Yamamoto T, Tanimoto K, Kondoh G, Kasahara M, Mizoguchi T, Docheva D, Adachi T, Shukunami C. Sclerostin modulates mineralization degree and stiffness profile in the fibrocartilaginous enthesis for mechanical tissue integrity. *Front Cell Dev Biol.* 2024 Jun 4;12:1360041.
- 2: Hoshino T, Kharaghani D, Kohno S. Extracellular histones promote calcium phosphate-dependent calcification in mouse vascular smooth muscle cells. *J Biochem.* 2024 May 31;175(6):643-648. doi: 10.1093/jb/mvae011. PMID: 38302575.
- 3: Kohno S, Uno E, Goishi K, Kharaghani D, Uchibe K, Terayama R. Inhibition of skeletal muscle differentiation by calciprotein particles in human primary myoblasts. *Biomed Res.* 2024;45(4):173-177. doi: 10.2220/biomedres.45.173. PMID: 39010193.

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Terayama R, Uchibe K, Kohno S, Differential changes in neuronal excitability and glial activation in the spinal dorsal horn after peripheral nerve injury, The 66th Annual Meeting of Japanese Association for Oral Biology (Nagasaki), 2024.
- 2: Uchibe K, Kohno S, Terayama R, Dual role of retinoic acid signaling in chondrocytes, The 66th Annual Meeting of Japanese Association for Oral Biology (Nagasaki), 2024.
- 3: Yimidi D, Uchibe K, Toriyama M, Hayashi Y, Ikuta Y, Nakasa T, Takimoto A, Shukunami C, Adachi N, Miyaki S, Local administration of CD1530, selective RAR γ agonist, facilitates tendon healing by modulating the healing environment including reduced heterotopic ossification in a mouse Achilles rupture model, ORS 2024 Annual Meeting, CA, USA.
- 4: Kohno S, Uchibe K, Terayama R, Secondary calciprotein particles inhibit myotube formation in a human primary cell culture model, The 66th Annual Meeting of Japanese Association for Oral Biology (Nagasaki), 2024.
- 5: Iwasawa K, Kohno S, Yoshioka H, Regulation of osteoblast differentiation by long noncoding RNAs,

The 129th Annual Meeting of The Japanese Association of Anatomists (Okinawa), 2024

F) Invited lectures

- 1: Terayama R, Pain memory and neuropathic pain: Mechanism of neural circuit reorganization in the dorsal horn of the spinal cord, 2024 Kyoto Tachibana University Life and Health Science Research Seminar (Kyoto), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

1. Grant-in Aid-for Scientific Research (C):Kenta Uchibe, 22K10017, ¥4,160,000

(5) Academic Awards, etc.

(6) Patents

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Department of Physiology and Oral Physiology

(1) Staffs and Students

Professor : SUGITA, Makoto

Associate Professor : SAKAYORI, Nobuyuki

Assistant Professor : MIYABE, Risako

Research Assistant : YOKOYAMA, Emi

Graduate Students : YAMAMOTO, Kuniyo; TAHARA, Eiki; IWAMOTO, Yuma; MATSUO, Katsuhiro

Research Student : SHENGYU, Li (from October)

(2) Main Research Activities

- 1: The neuronal bases of taste perception and the taste-evoked behavioral and emotional responses
- 2: The roles of essential fatty acids in brain development and behaviors
- 3: The mechanisms of loss/recovery of consciousness induced by general anesthetics
- 4: The molecular mechanisms of ion and fluid transport in salivary glands
- 5: Studies on the function and dysfunction of ion channels and transporters

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Nutritional imbalance between omega-6 and omega-3 polyunsaturated fatty acids during pregnancy increases the number of pyramidal neurons in the basolateral amygdala and anxiety-related behavior in offspring: Kikuchi T, Omokawa D, Katakura M, Matsumata M, Aizawa H, Sugita M, Sakayori N: J Nutr Sci Vitaminol, 70(5), 411-421, 2024
- 2: Electrical stimulation of the ventral tegmental area restores consciousness from sevoflurane-, dexmedetomidine-, and fentanyl-induced unconsciousness in rats: Vincent KF, Zhang ER, Cho AJ, Kato-Miyabe R, Mallari OG, Moody OA, Obert DP, Park GH, Solt K: Brain Stimul.17(3), 687-697, 2024.
- 3: Involvement of sodium-glucose cotransporter-1 activities in maintaining oscillatory Cl⁻ currents from mouse submandibular acinar cells: Takeyasu M, Kozai K, Sugita M: J Comp Physiol B, 194(1), 21-32, 2024.

B) Review

C) Publications

D) Other publication

E) Presentation at Scientific Meeting

- 1: The effects of maternal dietary essential fatty acids on offspring's behaviors: Sakayori N: The 57th Annual Meeting of the Japan Society of Nutrition and Food Science (Chugoku and Shikoku Shibu) (Okayama), 2024.
- 2: The effects of dietary essential fatty acids on offspring's brain development and behaviors: Sakayori N: The 132nd Annual Meeting of the Japanese Society of Animal Science (Kyoto), 2024
- 3: The effects of maternal dietary essential fatty acids on offspring's emotion-related behaviors: Sakayori N: Emotion Conference 2024 (Okazaki), 2024
- 4: The effects of maternal dietary essential fatty acids on offspring's anxiety-related behaviors: Sakayori N, Fujii K, Katakura M, Takao K, Sugita M: The 33rd Annual Meeting of the Japan Society for Lipid Nutrition (conference on paper), 2024

- 5: The effects of maternal dietary essential fatty acids on offspring's reward system: Sakayori N: The 9th Lotte Young Researcher Meeting (Tokyo), 2024
- 6: The effects of maternal dietary essential fatty acids on offspring's behaviors: Sakayori N: The 5th Mini Symposium of the Japan Society for Lipid Nutrition (online), 2024
- 7: The effects of maternal dietary essential fatty acids on offspring's anxiety-related behaviors: Sakayori N, Kikuchi T, Omokawa D, Katakura M, Sugita M: The 78th Annual Meeting of the Japan Society of Nutrition and Food Science (Fukuoka), 2024.
- 8: The chemotherapeutic agent irinotecan impairs amiloride-sensitive sodium taste responses in mice: Sugita M, Sakayori N, Kawaguchi H, Obayashi N: The 101st Annual Meeting of The Physiological Society of Japan (KitaKyushu), 2024.
- 9: The SGLT1 activity is required for maintaining Cl^- secretion induced by carbachol in submandibular acinar cells: Sugita M: The 66th Annual Meeting of Japanese Association for Oral Biology (Nagasaki), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grant-in-Aid for Scientific Research (B): Sakayori N, The roles of dietary essential fatty acids in feeding behaviors. 23K216210. \3,400,000.
- 2: Grant in Aid for Early-Career Scientists: Miyabe R, The mechanism of general anesthesia-induced loss of consciousness via sleep neural circuit. 24K20033. \2,300,000.
- 3: Grant-in-Aid for Scientific Research (C): Sugita M, The whole brain mapping of taste information processing to explore the mechanisms of taste impairment. 24K12870. \1,100,000.

(5) Academic Awards, etc.

(6) Patents

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Department of Molecular Biology and Biochemistry

(1) Staff and Students

Professor: Chisa Shukunami

Associate Professor: Shigenori Miura

Assistant Professor: Katsumi Fujimoto

Graduate Student: Xinyi Yu, Shinsei Yambe, Kadi Hu (2024. 10.1-)

Undergraduate Student: Ryutaro Yoshino, Shun Nakakubo, Rintaro Matsui

Research Student: Kadi Hu (2024. 4.1 - 9.30)

(2) Main Research Activities

- 1: Mechanisms regulating in the establishment of the junction between cartilage and tendon/ligament
- 2: The role of Pax1 during formation of vertebral column
- 3: Mechanisms of tendon/ligament formation
- 4: Mechanisms of periodontal ligaments formation
- 5: Molecular mechanisms of circadian rhythm regulation
- 6: Morphogenesis of the head and neck region

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Role of sclerostin deletion in bisphosphonate-induced osteonecrosis of the jaw.: Nakashima F., Matsuda S., Ninomiya Y., Ueda T., Yasuda K., Hatano S., Shimada S., Furutama D., Memida T., Kajiya M., Shukunami C., Ouhara K., and Mizuno N.: **Bone**, 187: 117200, 2024
- 2: Sclerostin modulates mineralization degree and stiffness profile in the fibrocartilaginous enthesis for mechanical tissue integrity.: Yambe S., Yoshimoto Y., Ikeda K., Maki K., Takimoto A., Tokuyama A., Higuchi S., Yu X., Uchibe K., Miura S., Watanabe H., Sakuma T., Yamamoto T., Tanimoto K., Kondoh G., Kasahara M., Mizoguchi T., Docheva D., Adachi T., and Shukunami C.: **Frontiers in Cell and Developmental Biology**, 12: 1360041, 2024
- 3: Reyes Alcaraz V., Pattappa G., Miura S., Angele P., Blunk T., Rudert M., Hiraki Y., Shukunami C., and Docheva D.: A Narrative Review of the Roles of Chondromodulin-I (Cnmd) in Adult Cartilage Tissue.: **International Journal of Molecular Sciences**, 25(11): 5839, 2024

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Visualizing Ultrasound Responsiveness of Ion Channel Receptors for Sonogenetics.: Mitsuda L., Koda S., Miura S., Kurashina Y.: The 45th Symposium on Ultrasonic Electronics (USE 2024, Tokyo), 2024
- 2: Spatiotemporal visualization of dynamic interactions between cartilaginous and tendinous/ligamentous primordia during musculoskeletal integration: Yu X., Yambe S., Yoshimoto Y., Miura S., and Shukunami C.: The 66th Annual Meeting of Japanese Association for Oral Biology (Nagasaki), 2024
- 3: Live-cell Imaging System for ECM-based Branching Vascular Model in Perfusion and Stretching Culture.: Muramatsu J., Hashimoto M., Miura S., and Onoe H.: MicroTAS 2024 (Canada), 2024
- 4: Back-and-forth oscillatory shear stress in microfluidic culture system enables to analyze mechanical response of vascular endothelial tissue.: Yamamoto H., Muramatsu J., Miura S., and Onoe H.: MicroTAS 2024 (Canada), 2024
- 5: Functional roles of Scx⁺/Sox9⁺ cells in the formation of the fibrocartilaginous enthesis.: Yambe S.: The

- 23rd Locomotor Science Meeting (Osaka), 2024
- 6: Analysis of *Scx*-deficient mice using fluorescence imaging.: Yu X., Kawakami R., Imamura T., Miura S., and Shukunami C.: The 23rd Locomotor Science Meeting (Osaka), 2024
 - 7: Sclerostin is a modulator of mineralization degree and stiffness profile in the fibrocartilaginous enthesis for mechanical tissue integrity.: Yambe S., Yoshimoto Y., Maki K., Xinyi Y., Miura S., Mizoguchi T., Adachi T., Shukunami C.: The Joint Conference of the 22nd Annual Meeting of Asian and Oceanian Myology Center and the 10th Annual Meeting of Japan Muscle Society (AOMC-JMS 2024; Nara), 2024
 - 8: Visualization of dynamic interactions between cartilaginous and tendinous/ligamentous primordia during musculoskeletal development: Yu X., Kawakami R., Yambe S., Yoshimoto Y., Sasaki T., Akiyama H., Adachi T., Imamura T., and Shukunami C.: The Joint Conference of the 22nd Annual Meeting of Asian and Oceanian Myology Center and the 10th Annual Meeting of Japan Muscle Society (AOMC-JMS 2024; Nara), 2024
 - 9: Ultrasound Irradiation Device with Lithium Niobate Plate for Sonogenetics.: Mitsuda L., Koda S., Miura S., Kurashina Y.: Dynamics & Design Conference 2024 (Kanagawa), 2024
 - 10: The Functional Role of Scleraxis in the Growth of the Mandible and Masticatory Muscles.: Ogata S., Yambe S., Yu X., Yoshimoto Y., Miura S., Adachi T., Shukunami C.: The 42nd Annual Meeting of the Japanese Society for Bone and Mineral Research (Okinawa), 2024
 - 11: Functional roles of *Scx* of *Scx*⁺/*Sox9*⁺ cells that contribute to formation of the fibrocartilaginous enthesis: Yambe S., Yu X., Akiyama H., Miura S., Adachi T., Shukunami C.: The 42nd Annual Meeting of the Japanese Society for Bone and Mineral Research (Okinawa), 2024
 - 12: Live-cell imaging system for an *in vitro* vascular model under combined mechanical stimulation.: Muramatsu J., Hashimoto M., Miura S., and Onoe H.: The 63rd Annual Conference of Japanese Society for Medical and Biological Engineering (Kagoshima), 2024
 - 13: Culture of iPSC-derived brain microvascular endothelial cells using microfluidic device.: Morimoto Y., Byeongwook J., Sato H., Hashita M., and Miura S.: The 30th Annual Meeting and Conference of the Kanto Branch, The Japan Society of Mechanical Engineers (Tokyo), 2024

F) Special lectures in academic meetings

1. Terrestrialization of Vertebrates: Deciphering Vertebral Development through Evolutionary Changes in the *Pax1* Genomic Region.: Shigenori Miura, Xinyi Yu, Chisa Shukunami: Symposium “New Trends in Locomotor Research”, The 42nd Annual Meeting of Japanese Society for Bone and Mineral Research (Okinawa), 2024
2. Mechanisms regulating the integration of musculoskeletal components, Seminar, Chisa Shukunami, 10th Conference Room, 8th floor, Administration Building, Okayama University.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grant-in-Aid for Scientific Research (B): Chisa Shukunami (Principal Investigator), 24k02611. ¥2,400,000.
- 2: Fund for the Promotion of Joint International Research (Fostering Joint International Research (B)): Chisa Shukunami (Principal Investigator), 21KK0161. ¥2,600,000.
- 3: 2024 Joint Usage/Research Center Program for Transdisciplinary Collaboration on Viral Research, Stem Cell Science and System Biology at Institute for Life and Medical Sciences, Kyoto University. Chisa Shukunami (Principal Investigator), ¥900,000.
- 4: Grant-in-Aid for Scientific Research (B): Chisa Shukunami (Co-Investigator), 24K03263. ¥300,000.
- 5: Grant-in-Aid for Scientific Research (B): Chisa Shukunami (Co-Investigator), 23K27721. ¥200,000.
- 6: Grant-in-Aid for Challenging Research (Exploratory): Chisa Shukunami (Co-Investigator), 24K22381. ¥100,000.
- 7: Grant-in-Aid for Scientific Research (C): Chisa Shukunami (Co-Investigator), 22K10017. ¥50,000.
- 8: Grant-in-Aid for Scientific Research (C): Chisa Shukunami (Co-Investigator), 24K12347. ¥100,000.
- 9: Grant-in-Aid for Scientific Research (B): Shigenori Miura (Principal Investigator), 24K03263. ¥3,700,000.
- 10: Grant-in-Aid for Challenging Research (Exploratory): Shigenori Miura (Principal Investigator), 24K22381. ¥2,100,000.
- 11: Grant-in-Aid for Scientific Research (A): Shigenori Miura (Co-Investigator), 23H00555. ¥1,800,000.

- 12: Grant-in-Aid for Scientific Research (B): Shigenori Miura (Co-Investigator), 24K02611. ¥100,000.
- 13: Grant-in-Aid for Challenging Research (Exploratory): Shigenori Miura (Co-Investigator), 24K21596. ¥400,000.
- 14: Grant-in-Aid for Scientific Research (C): Katsumi Fujimoto (Principal Investigator), 22K11803. ¥450,000.
- 15: Grant-in-Aid for Scientific Research (C): Katsumi Fujimoto (Co-Investigator) , 21K09792. ¥100,000.
- 16: Grant-in-Aid for Scientific Research (C): Katsumi Fujimoto (Co-Investigator) , 23K09162. ¥100,000.
- 17: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University (Next-Generation Fellows) Research Funds: Xinyi Yu, Clarification of the mechanism of tendon and ligament-specific transcriptional regulation by Scx. ¥400,000.
- 18: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University (Next-Generation Fellows) Research Funds: Shinsei Yambe, Elucidation of enthesis formation and maintenance regulated by Scleraxis. ¥400,000
- 19: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University (Next-Generation Fellows) Research Funds: Kadi Hu, Construction of a visualization model of cells controlling tendon and ligament maturation. ¥200,000

(5) Academic Awards, etc.

(6) Patents

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Department of Oral and Maxillofacial Pathobiology

Collaborative Research Laboratory Oral Inflammation Regulation

(1) Staffs and Students

Professor : Mutsumi Miyauchi (~March)
 Assistant Professor : Hisako Furusho
 Researcher : Masae Kitagawa (~March)

(2) Main Research Activities

- 1: Study on correlation between periodontitis and preterm birth/ low birth weight
- 2: Study on development of prognostic/diagnostic examination system of preterm birth targeting serum Galectin-3
- 3: Study on correlation between odontogenic infection and NASH
- 4: Study on correlation between odontogenic infection and brain disease
- 5: Study on correlation between odontogenic infection and atrial fibrillation
- 6: Study on development of diagnosis/inspection system using expiratory air
- 7: Study on epidemiological study on the relationship between periodontal disease and systemic diseases using large-scale data of Hiroshima Branch of National Health Insurance Society
- 8: Study on pathogenesis of stomatitis (Collaborative Research Laboratory)
- 9: Study on pathogenesis of periodontitis (Collaborative Research Laboratory)
- 10: Study on pathogenesis of MRONJ (Collaborative Research Laboratory)

A) Original Papers (including Case Reports)

1. Low tongue pressure and depression using Kihon Checklist for assessing frailty status among community-dwelling Japanese older adults: A pilot study: Yoshikawa M, Nishikawa Y, Kitagawa M, Nagao A, Hiraoka A, Haruta A, Takeuchi M, Yoshida M, Tsuga K: J Oral Rehabil. 2024 Feb;51(2):334-342. doi: 10.1111/joor.13596. Epub 2023 Sep 29.
2. A case of supermassive cemento-ossifying fibroma in the mandible. Article type: Case report: Koizumi K, Mishima T, Ito N, Furusho H, Ando T, Yanamoto S: J Oral Maxillofac Surg Med Pathol. 2024 Feb 36(5) DOI:10.1016/j.ajoms.2024.01.010
3. Periodontal treatment during the blanking period improves the outcome of atrial fibrillation ablation: Miyauchi S, Ouhara K, Shintani T, Tokuyama T, Okubo Y, Okamura S, Miyamoto S, Oguri N, Uotani Y, Takemura T, Tari M, Hiyama T, Miyauchi M, Kajiya M, Mizuno N, Nakano Y : J Am Heart Assoc. 2024 Apr 16;13(8):e033740. doi: 10.1161/JAHA.123.033740. Epub 2024 Apr 10.
4. Sturge-Weber syndrome with cemento-ossifying fibroma in the maxilla and giant odontoma in the mandible: Sato A, Furusho H, Matsumura T, Nakano M, Sawaki K, Yoshioka Y, Akashi S, Miyauchi M, Mizukawa N, Iida S, Heliyon. 2024 Apr 15;10(8):e29445. doi: 10.1016/ j.heliyon.2024.e29445. eCollection 2024 Apr 30.

5. Effects of novel lactoferrin peptides on LPS-induced alveolar bone destruction in a rat model: Yamada S, Chea C, Furusho H, Oda K, Shiba F, Tanimoto K, Tate S, Miyauchi M, Takata T. *Chemical Biology & Drug Design* 2024 Jul;104(1):e14574. doi: 10.1111/cbdd.14574.inpress 2024
6. High-frequency low-intensity semiconductor laser irradiation enhances osteogenic differentiation of human cementoblast lineage cells: Nakatani A, Kunimatsu R, Sakata S, Tsuka Y, Miyauchi M, Takata T, Tanimoto K: *Lasers Med Sci.* 2024 Jul 6;39(1):174. doi: 10.1007/s10103-024-04127-7.
7. Antinociceptive effects of Equisetum arvense extract on the stomatitis hamster model: Shiba F, Maekawara S, Inoue A, Ohta K, Miyauchi M: *PLoS One.* 2024 Nov 21;19(11):e0313747. doi: 10.1371/journal.pone.0313747.
8. Lactoferrin modulates radiation response under hypoxic conditions, possibly through the regulation of ROS production in a cell type-specific manner: Murakami D, Fukazawa T, Kyo M, Miyauchi M, Ono S, Aikawa T, Hirohashi N , Tanimoto K: *Antioxidants.* 2024 Dec 24;14(1):1. doi: 10.3390/antiox14010001.
9. Establishment of a simplified detection method for *Aggregatibacter actinomycetemcomitans* in saliva by LAMP method: Kitagawa M, Nagamine K, Ouhara K, Mizuno T, Miyauchi S, Nakano Y, Hirai K, Takashiba S, Miyauchi M: *JJSEDP*: 2024 in press.

B) Review

1. The mechanism of inhibition of alveolar bone destruction by Equisetum arvense extract in a rat model of LPS-induced periodontitis: Shiba F, Furusho H, Miyauchi M: *Endotoxin and Innate Immunity*, 24, 28-33, 2024.

C) Publications

1. Clinical Immunology and Allergology: Special Feature 2: Progress in immune factors related to MAFLD/MASH 2: Dental infection and progression of MAFLD: Miyauchi M, Furusho H, Nagasaki A, Sakamaoto S: *KAGAKU-HYORONSHA* (Tokyo), Vol.81 No.5, 2024

E) Presentation at Scientific Meeting

3) Presentation at Domestic Scientific Meeting

1. Evaluation of the efficacy of glycyrrhizin in a hamster model of oral mucositis: Shiba F, Furusho H, Miyauchi M: The 9th Annual Meeting of the Japanese Association of Supportive Care in Cancer (Urawa), 2024.
2. The role of gingipain in NASH exacerbation caused by *P.gingivalis* odontogenic infection: Furusho H, Miyauchi M: The 35th Annual Meeting of the Japanese Society of Oral Pathology (Niigata), 2024.
3. Evaluation of the efficacy of Equisetum arvense in the early MRONJ rat model : Inoue A, Miyauchi M, Ohta K, Shiba F: The 71th Meeting of the Chugoku-Shikoku Branch of the Japanese Stomatological Society (Hiroshima), 2024.
4. Identification of novel genes responsible for the development of stomatitis using a reverse genetics approach with a stomatitis initiation stage model : Shiba F, Inoue A, Miyauchi M, Ohta K: The 71th Meeting of the Chugoku-Shikoku Branch of the Japanese Stomatological Society

(Hiroshima), 2024.

5. Gingipain plays an essential role in preterm birth caused by *P. gingivalis*-odontogenic infection: Furusho H, Shiba F, Miyauchi M: The 72th Annual Meeting of Dental, Oral and Craniofacial Research (Kagoshima), 2024.
6. A novel mechanism of stomatitis pathogenesis based on transcriptome analysis of a stomatitis initiation stage model: Shiba F, Inoue A, Miyauchi M, Ohta K: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
7. Equistem arvence extract Inhibits Delayed Wound Healing in an Early MRONJ Rat Model: Inoue A, Miyauchi M, Ohta K, Shiba F: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research

1. Grants-in-Aid for Scientific Research (Scientific Research(B)): Hisako Furusho Co-Investigator, New), A study on the mechanisms of brain function improvement and the assessment of cognitive function through chewing movements based on salivary irisin as an indicator
2. Grants-in-Aid for Scientific Research (Scientific Research(B)): Mutsumi Miyauchi (Co-Investigator, New), Pain management strategies for the elderly: Platelet-activating factor (PAF) - related molecules and the mechanisms of pain chronicity
3. Donated fund for Hiroshima Prefecture tumor registration business (Continuance): Mutsumi Miyauchi (Study on diagnosis for oral diseases) (~March)
4. Donated fund from Mitsubishi-Mihara Hospital (Continuance): Mutsumi Miyauchi (Study on diagnosis for oral disease)(~March)

(5) Academic Awards

1. Hisako Furusho: The 35th Annual Meeting of the Japanese society of Oral Pathology: Poster Award
2. Ayuka Inoue: The 71th Meeting of the Chugoku-Shikoku Branch of the Japanese Stomatological Society: Rookie award.

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Department of Bacteriology

(1) Staff and Students

Professor: Hitoshi Komatsuzawa
 Associate Professor: Miki Matsuo
 Assistant Professor: Le Nguyen Tra Mi (until September)
 Researcher: Keiko Tsuruda, Ikue Hayashi, Atsuko Watanabe
 Graduate Student: Yoshimasa Yasutomi, Rizka Hidayati

(2) Main Research Activities

- 1: Isolation and characterization of drug-resistant bacteria
- 2: Elucidation of virulence and drug resistance factors of pathogenic bacteria
- 3: Search for novel antimicrobial susceptibility factors
- 4: Elucidation of the mechanisms of oral microbiome formation
- 5: Bacteriophage research

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Kawayanagi T, Kawada-Matsuo M, Takeshita T, Nguyen-Tra Le M, Asakawa M, Sugawara Y, Arai C, Ouhara K, Nishi H, Mizuno N, Kawaguchi H, Shiba H, Sugai M, Komatsuzawa H. The oral cavity is a potential reservoir of gram-negative antimicrobial-resistant bacteria, which are correlated with ageing and the number of teeth. *Heliyon*. 28;10(21):e39827, 2024.
- 2: Pezzotti G, Adachi T, Imamura H, Ikegami S, Kitahara R, Yamamoto T, Kanamura N, Zhu W, Ishibashi KI, Okuma K, Mazda O, Komori A, Komatsuzawa H, Makimura K. Raman Spectroscopic Algorithms for Assessing Virulence in Oral Candidiasis: The Fight-or-Flight Response. *Int J Mol Sci*. 24;25(21):11410, 2024.
- 3: Wu CH, Kaneyasu Y, Yano K, Shigeishi H, Kitasaki H, Maehara T, Niitani Y, Takemoto T, Mine Y, Le MN, Kawada-Matsuo M, Komatsuzawa H, Ohta K. Anti-fungal effects of slightly acidic electrolyzed water on *Candida* species. *J Oral Biosci*. 6:S1349-0079(24)00207-X, 2024.
- 4: Fujii A, Kawada-Matsuo M, Nguyen-Tra Le M, Masuda K, Tadera K, Suzuki Y, Nishihama S, Hisatsune J, Sugawara Y, Kashiya S, Shiba H, Aikawa T, Ohge H, Sugai M, Komatsuzawa H. Antibiotic susceptibility and genome analysis of *Enterococcus* species isolated from inpatients in one hospital with no apparent outbreak of vancomycin-resistant *Enterococcus* in Japan. *Microbiol Immunol*. 68(8):254-266, 2024.
- 5: Suzuki Y, Kawada-Matsuo M, Le MN-T, Eng S, Hisatsune J, Sugai M, Sakaguchi T, Komatsuzawa H. The two-component regulatory systems GraRS and SrrAB mediate *Staphylococcus aureus* susceptibility to Pep5 produced by clinical isolate of *Staphylococcus epidermidis*. *Appl Environ Microbiol*. 24;90(7):e0030024, 2024.
- 6: Wang C, Le MN-T, Kawada-Matsuo M, Hisatsune J, Sugawara Y, Arai C, Nakanishi J, Takeda K, Shiba H, Sugai M, Komatsuzawa H. Ursoricin, a bacteriocin of *Streptococcus ursoris*, has potent activity against methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant enterococci. *Appl Environ Microbiol*. 18;90(6):e0016224, 2024.
- 7: Tsutamoto S, Iwasaki Y, Shinohara A, Imamiya R, Samukawa K, Kawada-Matsuo M, Komatsuzawa H, Yamada Y, Mandokoro K, Iwao H, Horiguchi Y, Osada-Oka M. Triterpenoid saponin from *Panax ginseng* increases the sensitivity of methicillin-resistant *Staphylococcus aureus* to β -lactam and aminoglycoside antibiotics. *Microbiol Spectr*. 4;12(6):e0322723. doi: 10.1128/spectrum.03227-23, 2024.
- 8: Segawa T, Masuda K, Hisatsune J, Ishida-Kuroki K, Sugawara Y, Kuwabara M, Nishikawa H, Hiratsuka T, Aota T, Tao Y, Iwahashi Y, Ueda K, Mae K, Masumoto K, Kitagawa H, Komatsuzawa H, Ohge H, Sugai M. Genomic analysis of inter-hospital transmission of vancomycin-resistant *Enterococcus faecium* sequence type 80 isolated during an outbreak in Hiroshima, Japan. *Antimicrob Agents Chemother*. 2;68(5):e0171623, 2024.
- 9: Sadaoka N, Le MN-T, Kawada-Matsuo M, Eng S, Zendo T, Nakanishi J, Takeda K, Shiba H,

Komatsuzawa H. Opposing genetic polymorphisms of two ABC transporters contribute to the variation of nukacin resistance in *Streptococcus mutans*. *Appl Environ Microbiol.* 20;90(3):e0208423, 2024.

- 10: Kusaka S, Haruta A, Kawada-Matsuo M, Nguyen-Tra Le M, Yoshikawa M, Kajihara T, Yahara K, Hisatsune J, Nomura R, Tsuga K, Ohge H, Sugai M, Komatsuzawa H. Oral and rectal colonization of methicillin-resistant *Staphylococcus aureus* in long-term care facility residents and their association with clinical status. *Microbiol Immunol.* 68(3):75-89, 2024.

B) Review

- 1: Ohsawa M, Nishi H, Emi M, Yoshikawa T, Hamai Y, Ibuki Y, Kurokawa T, Hirohata R, Kitasaki N, Kawada-Matsuo M, Komatsuzawa H, Kawaguchi H, Okada M. Impact of *Fusobacterium nucleatum* in the treatment of cancer, including radiotherapy and its future potential in esophageal cancer. *J Radiat Res.* 16;65(Supplement_1):i126-i134, 2024.

C) Publications

D) Other Publications

1. Monthly: Pediatric Dental Clinical Journal, Mechanism of action of antibacterial agents, History of antibacterial agents. M. Matsuo, H. Komatsuzawa. Tokyo Clinical Publishing Co. (Tokyo), 2024.

E) Presentations at Scientific Meetings

- 1: Isolation of oral multidrug-resistant bacteria in home care facilities patients and their association with oral diseases and systemic diseases. Saki Nishihama, Miki Matsuo, Mi Nguyen Tra Le, Chika Arai, Toshiki Kajihara, Yo Sugawara, Hiroki Ohge, Motoyuki Sugai, Hideki Shiba, Hitoshi Komatsuzawa. The 97th Annual Meeting of Japanese Society for Bacteriology (Sapporo), 2024.
- 2: Antimicrobial activity of fatty acids against *Staphylococcus aureus* and *Streptococcus pyogenes*. Keijuro Ohdan, Yujin Suzuki, Miki Matsuo, Mi Nguyen Tra Le, Chika Arai, Junzo Hisatune, Yo Sugawara, Tomonao Aikawa, Motoyuki Sugai, Hitoshi Komatsuzawa. The 97th Annual Meeting of Japanese Society for Bacteriology (Sapporo), 2024.
- 3: Distribution of the bacteriocin gene in clinical isolates of Enterococci and their antibacterial activity. Ayumi Fujii, Miki Matsuo, Mi Nguyen Tra Le, Chika Arai, Junzo Hisatune, Yo Sugawara, Tomonao Aikawa, Motoyuki Sugai, Hitoshi Komatsuzawa. The 97th Annual Meeting of Japanese Society for Bacteriology (Sapporo), 2024.
- 4: Characterization of Gram-negative drug-resistant bacteria isolated from oral and nasal cavities and their relationship with bacterial flora. Tomoki Kawayanagi, Miki Matsuo, Mi Nguyen Tra Le, Mikari Asakawa, Yo Sugawara, Chika Arai, Toru, Takeshita, Hideki Shiba, Motoyuki Sugai, Hitoshi Komatsuzawa. The 97th Annual Meeting of Japanese Society for Bacteriology (Sapporo), 2024.
- 5: The alanine transporter CycA is involved in the resistance of *Staphylococcus aureus* to cationic antibacterial agents. Yujin Suzuki, Miki Matsuo, Mi Nguyen Tra Le, That Thuan Vy Ton, Hitoshi Komatsuzawa. The 97th Annual Meeting of Japanese Society for Bacteriology (Sapporo), 2024.
- 6: Bacteriophage investigation for Prevention and Therapy against Oral Infections. Miki Matsuo, Hitoshi Komatsuzawa. The 97th Annual Meeting of Japanese Society for Bacteriology (Sapporo), 2024.
- 7: Antimicrobial activity of fatty acids against *Staphylococcus aureus*. Keijuro Ohdan, Yujin Suzuki, Miki Matsuo, Mi Nguyen Tra Le, Chika Arai, Junzo Hisatune, Yo Sugawara, Tomonao Aikawa, Motoyuki Sugai, Hitoshi Komatsuzawa. The 77th Annual Meeting of the Chugoku-Shikoku Branch of Japanese Society for Bacteriology (Okayama), 2024.
- 8: Effect of the D-alanine supply system of *Staphylococcus aureus* on drug susceptibility. Yujin Suzuki, Miki Matsuo, Mi Nguyen Tra Le, That Thuan Vy Ton, Hitoshi Komatsuzawa. The 77th Annual Meeting of the Chugoku-Shikoku Branch of Japanese Society for Bacteriology (Okayama), 2024.
- 9: Analysis of the distribution of bacteriocin gene and antibacterial activity of Enterococci strains isolated in the hospital. Ayumi Fujii, Miki Matsuo, Mi Nguyen Tra Le, Chika Arai, Junzo Hisatune,

- Yo Sugawara, Tomonao Aikawa, Motoyuki Sugai, Hitoshi Komatsuzawa. The 77th Annual Meeting of the Chugoku-Shikoku Branch of Japanese Society for Bacteriology (Okayama), 2024.
- 10: Isolation of oral multidrug-resistant bacteria from patients of home care facilities and their association with oral diseases and systemic diseases. Saki Nishihama, Miki Matsuo, Mi Nguyen Tra Le, Ayumi Fujii, Azusa Haruta, Toshiki Kajihara, Mineka Yoshikawa, Tomonao Aikawa, Kazuhiro Tsuga, Hiroki Ohge, Motoyuki Sugai, Hideki Shiba, Hitoshi Komatsuzawa. The 77th Annual Meeting of the Chugoku-Shikoku Branch of Japanese Society for Bacteriology (Okayama), 2024.
 - 11: New Developments in Oral Bacterial Control. Hitoshi Komatsuzawa. The 73th Annual Meeting of Japanese Society for Oral Health (Morioka), 2024.
 - 12: Drug-resistant bacteria in human organisms: relationship to the detection of drug-resistant bacteria in cadavers. Ayumi Fujii, Miki Matsuo, Hiroko Oka, Ryota Nomura, Masataka Nagao, Hitoshi Komatsuzawa. The 66th Annual Meeting of Japanese Association for Oral Biology (Nagasaki), 2024.
 - 13: Carriage of *Staphylococcus aureus*, including MRSA, in the oral cavity of people with different backgrounds and its association with carriage of other body sites. Hitoshi Komatsuzawa. The 68th Annual Meeting of the Staphylococcal Research Society of Japan (web), 2024.
 - 14: Isolation of a novel bacteriophage with bactericidal effect against the cariogenic bacterium *Streptococcus mutans*. Miki Kawada-Matsuo, Hitoshi Komatsuzawa. Joint Meeting of the Phage Research Society of Japan and the Japanese Society for Phage Therapy, (Saitama) 2024.

F) Special lectures in academic meetings

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grant-in-Aid for Scientific Research (C) from the Ministry of Education, Culture, Sports, Sciences, and Technology of Japan. Miki Kawada-Matsuo: Establishment of phage and bacteriocin therapy to eliminate oral drug-resistant O-ARB. Grant No. 24K12886. 1,560,000 yen.
- 2: Grant-in-Aid for Early-Career Scientists from the Ministry of Education, Culture, Sports, Sciences, and Technology of Japan. Le Nguyen Tra Mi, Investigation of *Klebsiella pneumoniae* virulence factors and discovery of new antimicrobial agents for its infection. Grant No. 24K19861. 1,560,000 yen.
- 3: Funded Research: Hitoshi Komatsuzawa (Principal Investigator), Analysis of production of human antimicrobial peptides and their relationship with bacterial flora. 3,905,000 yen.
- 4: AMED: Research Project for the Promotion of Innovative Drug Development for Emerging and Re-emerging Infections: Miki Matsuo (co-author), Advanced One Health Tricycle Project to be developed in cooperation with Asian countries. 0G24JC7130. 1,500,000 yen.
- 5: Research Project for the Promotion of Emerging and Re-emerging Infectious Diseases and Immunization Policy: Miki Matsuo (co-author), Research to contribute to the development of a framework for the implementation of the Asia Pacific One Health Initiative for AMR (ASPIRE). 23HA2006. 27,300,000 yen.

(5) Academic Awards, etc.

(6) Patents

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Department of Cellular and Molecular Pharmacology

(1) Staff and Students

Professor: Yukio Ago

Assistant Professor: Satoshi Asano

Assistant Professor (Special Appointment): Rei Yokoyama (April~)

Graduate Student: Ami Ono (D3, Department of Orthodontics and Craniofacial Developmental Biology), Teru Uehara (D2, Department of Oral Oncology), Chiaki Tsuru (D1, Department of Orthodontics and Craniofacial Developmental Biology) (April~), Daichi Koan (D1, Department of Biological Endodontics) (April~), Takeru Tahara (M2, Department of Neurochemistry and Environmental Health Sciences)

Undergraduate Student: Mizuki Kaneko (B4) (April~), Hina Kurata (B4, Department of Neurochemistry and Environmental Health Sciences), Shuhei Yamashita (B3, Department of Neurochemistry and Environmental Health Sciences) (October~)

International Student: Zahrah Rooidatush Shahirah (B5) (~February), Ho Phuong Trinh (B5) (~August), Song Vyryka (B4) (April~), Vo Phuoc Hanh Nguyen (B4) (April~)

Research Student: Zihao Jin (D1, Laboratory of Biopharmaceutics, Graduate School of Pharmaceutical Sciences, Osaka University) (April~)

(2) Main Research Activities

- 1: Studies on the mechanisms of action of the drugs in depression, schizophrenia, anxiety, and neurodegenerative diseases.
- 2: Studies on the roles of gene-environment interactions in brain development.
- 3: Studies on the roles of cell migration, adhesion, and proliferation in biological and pathological processes.

(3) Research Achievements

A) Original Papers

- 1: Yokoyama R, Higuchi M, Tanabe W, Tsukada S, Igarashi H, Seiriki K, Nakazawa T, Kasai A, Ago Y, Hashimoto H. Long-lasting anti-despair and anti-anhedonia effects of (*S*)-norketamine in social isolation-reared mice. **Journal of Pharmacological Sciences** 154: 72–76, 2024.
- 2: Asano S, Ono A, Baba K, Uehara T, Sakamoto K, Hayata-Takano A, Nakazawa T, Yanamoto S, Tanimoto K, Hashimoto H, Ago Y. Blockade of vasoactive intestinal peptide receptor 2 (VIPR2) signaling suppresses cyclin D1-dependent cell-cycle progression in MCF-7 cells. **Journal of Pharmacological Sciences** 154: 139-147, 2024.
- 3: Araki R, Kita A, Ago Y, Yabe T. Chronic social defeat stress induces anxiety-like behaviors via downregulation of serotonin transporter in the prefrontal serotonergic systems in mice. **Neurochemistry International** 174: 105682, 2024.
- 4: Jino K, Miyamoto K, Kanbara T, Unemura C, Horiguchi N, Ago Y. Allosteric inhibition of phosphodiesterase 4D induces biphasic memory-enhancing effects associated with learning-activated signaling pathways. **Psychopharmacology** 241(4): 805-816, 2024.
- 5: Kikuchi Y, Irifune M, Yoshinaka T, Oue K, Takahashi T, Oda A, Kamio H, Imamura S, Sasaki U, Imado E, Ago Y, Okada Y. A Behavioral and Electroencephalographic Study of Anesthetic State Induced by MK-801 Combined with Haloperidol, Ketamine and Riluzole in Mice. **Anesthesia & Analgesia** 139(5): 1064-1074, 2024.
- 6: Yokoyama R, Ago Y, Igarashi H, Higuchi M, Tanuma M, Shimazaki Y, Kawai T, Seiriki K, Hayashida M, Yamaguchi S, Tanaka H, Nakazawa T, Okamura Y, Hashimoto K, Kasai A, Hashimoto H. (*R*)-ketamine restores anterior insular cortex activity and cognitive deficits in social isolation-reared mice. **Molecular Psychiatry** 29(5): 1406-1416, 2024.
- 7: Oue K, Yamawaki Y, Ouhara K, Imado E, Tamura T, Doi M, Shimizu Y, Yoshida M, Mizuno N, Morioka N, Kanematsu T, Irifune M, Ago Y. Oral administration of *Porphyromonas gingivalis* to mice

with diet-induced obesity impairs cognitive function associated with microglial activation in the brain. **Journal of Oral Microbiology** 16(1): 2419155, 2024.

- 8: Honda K, Hase H, Tanikawa S, Okawa K, Chen L, Yamaguchi T, Nakai M, Kitae K, Ago Y, Nakagawa S, Tsujikawa K. ALKBH8 contributes to neurological function through oxidative stress regulation. **PNAS Nexus** 3(3): pgae115, 2024.
- 9: Sakamoto S, Iwata S, Jin Z, Chen L, Miyaoka T, Yamada M, Katahira K, Yokoyama R, Ono A, Asano S, Tanimoto K, Ishimura R, Nakagawa S, Hirokawa T, Ago Y, Miyako E. Cyclic Peptides KS-133 and KS-487 Multifunctionalized Nanoparticles Enable Efficient Brain Targeting for Treating Schizophrenia. **JACS Au** 4(8): 2811-2817, 2024.
- 10: Ohnami S, Naito M, Kawase H, Higuchi M, Hasebe S, Takasu K, Kanemaru R, Azuma Y, Yokoyama R, Kochi T, Imado E, Tahara T, Kotake Y, Asano S, Oishi N, Takuma K, Hashimoto H, Ogawa K, Nakamura A, Yamakawa H, Ago Y. Brain region-specific neural activation by low-dose opioid promotes social behavior. **JCI Insight** 9(23):e182060, 2024.

B) Review

- 1: Noriyasu Kamei, Yukio Ago. Methods for preparing frozen sections: with brain tissue as an example. **Drug Delivery System** 39(2): 140-142, 2024.
- 2: Satoshi Asano. Expectations for a new treatment strategy for pancreatic ductal adenocarcinoma targeting cancer-related fibroblasts. **Farumashia** 60(12):1145, 2024.

C) Publications

- 1: Yukio Ago. Chapter 19: Pharmacology ‘Drugs that act on the central nervous system’ VII: Central Stimulants / VIII: Parkinson's Disease Treatment / IX: Cerebral Circulation and Metabolism Improvement / X: Dementia Treatment. **Current Dental Pharmacology 7th Edition** (co-authored), Ishiyaku Publishers, Inc., January 2024.
- 2: Yukio Ago. Chapter 29: Pharmacology ‘Analgesics’ I: Non-steroidal anti-inflammatory drugs / II: Antipyretic analgesics / III: Narcotic analgesics / IV: Migraine treatments / V: Neuropathic pain treatments / VI: Analgesics and dental practice. **Current Dental Pharmacology 7th Edition** (co-authored), Ishiyaku Publishers, Inc., January 2024.

D) Other Publications

None

E) Presentations at Scientific Meetings

International conference

- 1: Rei Yokoyama, Yukio Ago, Hisato Igarashi, Momoko Higuchi, Masato Tanuma, Yuto Shimazaki, Kaoru Seiriki, Misuzu Hayashida, Shun Yamaguchi, Hirokazu Tanaka, Takanobu Nakazawa, Kenji Hashimoto, Atsushi Kasai, Hitoshi Hashimoto. (R)-ketamine ameliorates depression-like behaviors and cognitive impairment via activation of the anterior insular cortex in social isolation-reared mice. The 35th World Congress Collegium Internationale Neuro-Psychopharmacologicum (CINP2024), Tokyo, Japan, May 23–26, 2024.
- 2: Ami Ono, Daichi Koan, Satoshi Asano, Tatsunori Miyaoka, Lu Chen, Shinsaku Nakagawa, Atsuko Hayata-Takano, Takanobu Nakazawa, Akihiro Harada, Hitoshi Hashimoto, James A. Waschek, Kotaro Tanimoto, Yukio Ago. Overexpression of vasoactive intestinal peptide receptor 2 in neurons causes abnormal dendritic morphology in the prefrontal cortex and cognitive impairment. The 35th World Congress Collegium Internationale Neuro-Psychopharmacologicum (CINP2024), Tokyo, Japan, May 23–26, 2024.
- 3: Kana Oue, Takuya Suruga, Eiji Imado, Testuya Tamura, Yosuke Yamawaki, Kazuhisa Ouhara, Hiroshi Hanamoto, Yukio Ago. Oral administration of *Porphyromonas gingivalis* to diet-induced obese mice

impairs cognitive function. 34th Annual Congress of the European College of Gerodontology, Belgrade, Serbia, June 6–7, 2024.

Domestic conference

- 1: Kohei Jino, Keisuke Miyamoto, Chie Kambara, Chie Unemura, Yukio Ago, Naotaka Horiguchi. Allosteric inhibition of Phosphodiesterase 4D has memory-enhancing effects associated with learning-activated signaling pathways. The 144th Kinki Branch Meeting of the Japanese Pharmacological Society, Osaka, March 20, 2024.
- 2: Takeru Tahara, Eiji Imado, Daisuke Uta, Haruki Kawase, Momoko Higuchi, Hidekuni Yamakawa, Koichi Ogawa, Satoshi Asano, Kazuhiro Takuma, Hitoshi Hashimoto, Toshiaki Kume, Yaichiro Kotake, Yukio Ago. Roles of TRPV1 in abnormal pain sensitivity and social deficits in a mouse model of autism spectrum disorder. The 144th Annual Meeting of the Pharmaceutical Society for Japan, Yokohama, March 28–31, 2024.
- 3: Kotaro Sakamoto, Eijiro Miyako, Shinsaku Nakagawa, Yukio Ago, Akira Nishiyama. Generation of bicyclic mid-size peptide KS-133 as a VIPR2-specific antagonist and its antitumor effect by changing macrophage polarity. The 144th Annual Meeting of the Pharmaceutical Society for Japan, Yokohama, March 28–31, 2024.
- 4: Miku Yokohata, Yoki Nakamura, Keisuke Ikeda, Kazue Nakashima, Yukio Ago, Ayami Sato, Akihito Ishigami, Norimitsu Morioka. Evaluation of anxiodepressive-like behaviors in aged mice focusing on cell senescence of microglia. The 144th Annual Meeting of the Pharmaceutical Society for Japan, Yokohama, March 28–31, 2024.
- 5: Yukio Ago, Kaiga Katahira, Lu Chen, Tatsunori Miyaoka, Kohei Kitagawa, Rei Yokoyama, Shuto Takeuchi, Mei Yamada, Zihao Jin, Kenji Ishimoto, Tomohito Tsukamoto, Nobumasa Hino, Takanobu Nakazawa, Hitoshi Hashimoto, Shinsaku Nakagawa. Altered ultrasonic vocalizations and impaired social behaviors in a mouse model of copy number variation of the vasoactive intestinal peptide receptor 2 gene. Joint Meeting of the 54th Annual Meeting of the Japanese Society of Neuropsychopharmacology (JSNP) and the 34th Annual Meeting of the Japanese Society of Clinical Neuropsychopharmacology, Tokyo, May 24–26, 2024.
- 6: Satoshi Asano, Teru Uehara, Souichi Yanamoto, Yukio Ago. Regulation mechanisms and signaling pathways of VIPR2-mediated cancer progression. The 57th Annual Meeting of the Hiroshima University Dental Society, Hiroshima, June 1, 2024.
- 7: Rei Yokoyama, Masato Tanuma, Misuzu Hayashida, Atsushi Kasai, Hitoshi Hashimoto, Yukio Ago. Neural mechanisms of the effects of (*R*)-ketamine in a mouse model of depression induced by social isolation. The 57th Annual Meeting of the Hiroshima University Dental Society, Hiroshima, June 1, 2024.
- 8: Akira Nishiyama, Kotaro Sakamoto, Yukio Ago, Wararat Kittikulsuth. Anti-tumor effects of targeting vasoactive intestinal peptide (VIP) via enhancement of macrophage phagocytic function. The 97th Annual Congress of the Japan Endocrine Society, Yokohama, June 6–8, 2024.
- 9: Yoki Nakamura, Miku Yokohata, Keisuke Ikeda, Kazue Hisaoka-Nakashima, Yukio Ago, Ayami Sato, Akihito Ishigami, Norimitsu Morioka. Role of hippocampal microglia in anxiodepressive-like behaviors of aged mice. The 47th Annual Meeting of the Japan Society for Biomedical Gerontology, Tokyo, June 15–16, 2024.
- 10: Rei Yokoyama, Yukio Ago, Hisato Igarashi, Momoko Higuchi, Masato Tanuma, Yuto Shimazaki, Kaoru Seiki, Misuzu Hayashida, Shun Yamaguchi, Hirokazu Tanaka, Takanobu Nakazawa, Kenji Hashimoto, Atsushi Kasai, Hitoshi Hashimoto. (*R*)-ketamine ameliorates depressive-like behavior and cognitive dysfunction in isolation-reared mice via activation of the anterior insular cortex. The 145th Kinki Branch Meeting of the Japanese Pharmacological Society, Hiroshima, July 6, 2024.
- 11: Miku Yokohata, Yoki Nakamura, Keisuke Ikeda, Kazue Nakashima, Yukio Ago, Ayami Sato, Akihito Ishigami, Norimitsu Morioka. Association between anxiety/depressive-like behaviors and hippocampal microglia in aging in mice. The 145th Kinki Branch Meeting of the Japanese Pharmacological Society, Hiroshima, July 6, 2024.
- 12: Rei Yokoyama, Yukio Ago, Hisato Igarashi, Momoko Higuchi, Masato Tanuma, Yuto Shimazaki, Takafumi Kawai, Kaoru Seiriki, Misuzu Hayashida, Shun Yamaguchi, Hirokazu Tanaka, Takanobu Nakazawa, Yasushi Okamura, Kenji Hashimoto, Atsushi Kasai, Hitoshi Hashimoto. (*R*)-ketamine improves depressive-like behaviors and social cognitive deficits by restoring neural activity of the anterior insular cortex in social isolation-induced model of depression. NEURO2024 (The Joint Meeting of the 47th Annual Meeting of the Japan Neuroscience Society (JNS), the 67th Annual

- Meeting of the Japanese Society for Neurochemistry (JSN), and the 46th Annual Meeting of the Japanese Society of Biological Psychiatry (JSBP)), Fukuoka, July 24–27, 2024.
- 13: Daichi Koan, Ami Ono, Rei Yokoyama, Satoshi Asano, Hideki Shiba, Yukio Ago. Development of selective antagonists for VIPR2, a novel drug target for the treatment of schizophrenia. The 3rd Hiroshima University Neuroscience Seminar, October 7, 2024
 - 14: Eiji Imado, Tatsuto. Nakatsuka, Mitsuhiro Yoshida, Yukio Ago, Hiroshi Hanamoto. Effects of chemogenetic manipulation of microglia on allodynia in a mouse model of autism. The 52nd Annual Meeting of the Japanese Dental Society of Anesthesiology, Niigata, October 25–27, 2024.
 - 15: Satoshi Asano, Teru Uehara, Ami Ono, Yukio Ago. Effects of a VIPR2-selective antagonist peptide on cell cycle checkpoints of breast cancer. The 66th Annual Meeting of Japanese Association for Oral Biology, Nagasaki, November 2–4, 2024.
 - 16: Teru Uehara, Satoshi Asano, Yukio Ago. Role of vasoactive intestinal peptide signaling in migration of human oral cancer cells. The 66th Annual Meeting of Japanese Association for Oral Biology, Nagasaki, November 2–4, 2024.
 - 17: Daichi Koan, Ami Ono, Satoshi Asano, Hideki Shiba, Yukio Ago. Novel pharmacological action of neuropeptide receptor VIPR2 blockade in a mouse model of schizophrenia. The 66th Annual Meeting of Japanese Association for Oral Biology, Nagasaki, November 2–4, 2024.
 - 18: Yukio Ago, Yosuke Yamawaki, Takuya Suruga, Tetsuya Tamura, Kazuhisa Ouhara, Norimitsu Morioka, Hiroshi Hanamoto, Kana Oue. Periodontal disease in obesity causes cognitive dysfunction via microglial activation. The 146th Kinki Branch Meeting of the Japanese Pharmacological Society, Kyoto, November 30, 2024.
 - 19: Ami Ono, Eiji Imado, Yukio Ago. Effects of a selective VPAC2 receptor antagonist peptide on a mouse model of positive symptoms of schizophrenia. The 41st Annual Meeting of the Japanese Society for Disability and Oral Health, Okinawa, December 13–15, 2024.

F) Symposium and Special lectures in academic meetings

- 1: Yukio Ago. Brain research aiming at drug discovery for psychiatric disorders: What we have learned from mice. Society for Drugs, Psychiatry and Behavior. Online, April 26, 2024.
- 2: Yukio Ago. How Drugs Affect the Brain and Mind. Special lecture: Graduate School of Pharmaceutical Sciences, Osaka University, Osaka, Jun 24, 2024.
- 3: Yukio Ago. Brain research aiming at drug discovery for psychiatric disorders: What we have learned from mice. Special lecture: Graduate School of Life Sciences, Tokyo University of Agriculture, Tokyo, Jun 25, 2024.
- 4: Yukio Ago. Brain research for drug discovery and overcoming unmet medical needs in psychiatric disorders. Special lecture: Project Research Center for Time and Health Science, Hiroshima University, October 23, 2024.
- 5: Yukio Ago. Brain research aiming at drug discovery for psychiatric disorders. Special lecture: Graduate School of Medical and Dental Sciences, Niigata University, Niigata, October 28, 2024.
- 6: Satoshi Asano. Accelerated cell migration and cell cycle associated with cancer progression. Special lecture: School of Pharmaceutical Sciences, Wakayama Medical University, Wakayama, November 8, 2024.
- 7: Yukio Ago. Pathophysiological basis of abnormal pain perception in autism spectrum disorder. The 46th Annual Meeting of Japanese Association for the Study of Pain, Tokyo, November 16–17, 2024.
- 8: Yukio Ago. Brain research aiming at drug discovery for psychiatric and developmental disorders: What we have learned from mice. The 36th Drug Discovery and Pharmacology Forum Okayama, Okayama, December 21, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Translational Research Grant Seeds A (TR Core Center at Osaka University) from Japan Agency for Medical Research and Development (AMED): Yukio Ago (Principal Investigator, Continuanace), Grant Number: A-194
- 2: Grant-in-Aid for Scientific Research (B) from Japan Society for the Promotion of Science (JSPS): Yukio Ago (Principal Investigator, New), Grant Number: 24K02185
- 3: Grant-in-Aid for Scientific Research (A) from JSPS: Yukio Ago (Co-Investigator, Continuanace), Grant Number: 23H00450
- 4: Grant-in-Aid for Scientific Research (B) from JSPS: Yukio Ago (Co-Investigator, New), Grant

- Number: 24K02384
- 5: Grant-in-Aid for Scientific Research (B) from JSPS: Yukio Ago (Co-Investigator, New), Grant Number: 24K02775
 - 6: Grant-in-Aid for Scientific Research (C) from JSPS: Yukio Ago (Co-Investigator, New), Grant Number: 24K13089
 - 7: Grant-in-Aid for Scientific Research (C) from JSPS: Yukio Ago (Co-Investigator, Continuance), Grant Number: 23K09183
 - 8: Grant-in-Aid for Scientific Research (C) from JSPS: Satoshi Asano (Principal Investigator, Continuance), Grant Number: 23K09138
 - 9: Grant-in-Aid for Research Activity Start-up from JSPS: Rei Yokoyama (Principal Investigator, New), Grant Number: 24K23296
 - 10: Collaborative Research Grant from ICHIMARU PHARCOS Co., Ltd. (Japan): Yukio Ago (Principal Investigator, Continuance)
 - 11: Collaborative Research Grant from Ping An-Shionogi Co. Ltd. (China): Rei Yokoyama (Principal Investigator, New)

(5) Academic Awards

- 1: Yukio Ago: NPPR Reviewer Award 2024, The Japanese Society of Neuropsychopharmacology, May 8, 2024.
- 2: Rei Yokoyama: JSNP Excellent Presentation Award for CINP2024. The 35th CINP World Congress of Neuropsychopharmacology, May 26, 2024
- 3: Ami Ono: JSNP Excellent Presentation Award for CINP2024. The 35th CINP World Congress of Neuropsychopharmacology, May 26, 2024
- 4: Ami Ono: Student Encouragement Award in CINP 2024. The 35th CINP World Congress of Neuropsychopharmacology, May 26, 2024
- 5: Daichi Koan: Excellent Poster Award. The 3rd Hiroshima University Neuroscience Seminar, October 7, 2024.

(6) Patents

None

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Department of Biomaterials

(1) Staff and Students

Professor:	Koichi Kato
Assistant Professor:	Isao Hirata, Archana Mootha (until October 2024)
Research Collaborator:	Ayana Nakano, Fumika Abe, Kai-Chiang Yang
Graduate Student:	Karina Erda Saninggar, Yenny Yustisia, Hengky Bowo Ardhiyanto, Shiina Pasanen, Tamamo Matsuyama
Undergraduate student:	Fumino Futami, Ayari Kato, Indira Widyanoro, Hajime Hirao, Salma Najmi Dhaniswari, Andi Amanda Artenia Putri

(2) Main Research Activities

- 1: Biomaterials and biodevices for regenerative medicine
- 2: Interactions between biological systems and biomaterial surfaces
- 3: 3D printing technology for bone tissue engineering

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Karina Erda Saninggar, Fumika Abe, Ayana Nakano, Koichi Kato: Collagen-binding bone morphogenetic protein-2 designed for use in bone tissue engineering. *Dental Materials Journal*, 43(5):718–728 (2024)
- 2: Fumika Abe, Ayana Nakano, Isao Hirata, Kotaro Tanimoto, Koichi Kato: Structure and function of engineered stromal cell-derived factor-1 α . *Dental Materials Journal*, 43(2):286–293 (2024)
- 3: Takayuki Nakagawa, Shigehiro Ono, Miyuki Sakuma, Yoko Ishida, Kuniko Mizuta, Ryo Uetsuki, Keijyuro Odan, Yuko Shintaku, Masataka Higuchi, Yutaka Matsushita, Syunichi Kojima, Isao Hirata, Koichi Kato, Tomonao Aikawa: A case of bone resorption in the mentum caused by hyaluronic acid filler in a patient with skeletal Class II jaw deformity. *Clinical Case Reports*, 12:e9150 (2024)
- 4: Tzu-Yu Peng, Saiji Shimoe, Momoyo Higo, Mai Kato, Isao Hirata, Shogo Iwaguro, Masato Kaku: Effect of laser engraving on shear bond strength of polyetheretherketone to indirect composite and denture-base resins. *Journal of Dental Sciences*, 19(1):32–38 (2024)
- 5: Indira Widyanoro, Isao Hirata, Koichi Kato: A dilution method to increase the yield of engineered basic fibroblast growth factor. *Dental Journal*, in press
- 6: Tamamo Matsuyama, Shiina Pasanen, Fumino Futami, Ayari Kato, Isao Hirata, Souichi Yanamoto, Koichi Kato: Enhanced infiltration of myoblasts into collagen scaffolds loaded with engineered basic fibroblast growth factor. *Dental Materials Journal*, in press

B) Review

- 1: Koichi Kato, Kotaro Tanimoto: Internationalization of dental education at Hiroshima University. *The Journal of Japanese Dental Education Association*, 40(1):20–23 (2024)

C) Publications

- 1: Koichi Kato: Bioengineering challenges in regenerative medicine: Biofunctional materials design. In *Biomedical Engineering: Imaging Systems, Electric Devices, and Medical Materials*. A. Miyauchi, H. Kagechika, eds., 2024, Jenny Stanford Publishing, Singapore, pp. 283–299.

D) Presentations at Scientific Meetings

- 1: Kai-Chiang Yang, Yung-Hsin Cheng, Koichi Kato: Delivering anti-fibrotic microRNAs by chitosan nanoparticle as a treatment for oral submucous fibrosis. 57th Hiroshima University Dental Society

- Meeting (June 2024, Hiroshima)
- 2: Shiina Pasanen, Kotaro Tanimoto, Koichi Kato: Preparation of bFGF-immobilized microbeads for the mass culture of undifferentiated mesenchymal stem cells. 53rd Symposium on Biomedical Polymers (June 2024, Tokyo)
 - 3: Shiina Pasanen, Kotaro Tanimoto, Koichi Kato: Amplification of human mesenchymal stem cells using bFGF-immobilized microbeads. The Japanese Society for Biomaterials Symposium 2024 (October 2024, Sendai)
 - 4: Fumika Abe, Ayana Nakano, Isao Hirata, Koichi Kato, Kotaro Tanimoto: Design of a modified SDF-1 α for the purpose of promoting bone growth. The 83rd Annual Meeting of the Japanese Orthodontic Society (October 2024, Yokohama)
 - 5: Ardhiyanto Hengky, Isao Hirata, Kazuhiro Tsuga, Koichi Kato: Three-dimensional printing of polycaprolactone–carbonate apatite composites as bioink. 2024 Japanese Society for Dental Materials and Devices, Kinki-Chushikoku Branch Seminar (December 2024, Kobe)
 - 6: Shiina Pasanen, Koichi Kato: Large-scale culture of human mesenchymal stem cells using bFGF-immobilized microcarriers. 2024 Japanese Society for Dental Materials and Devices, Kinki-Chushikoku Branch Seminar (December 2024, Kobe)
 - 7: Tamamo Matsuyama, Shiina Pasanen, Fumino Futami, Ayari Kato, Isao Hirata, Soichi Yanamoto, Koichi Kato: Enhanced infiltration of myoblasts into collagen scaffolds loaded with engineered basic fibroblast growth factor. 2024 Japanese Society for Dental Materials and Devices, Kinki-Chushikoku Branch Seminar (December 2024, Kobe)

F) Invited Lectures

- 1: Koichi Kato: Micropatterned chips for stem cell characterization. International Workshop on Nanodevice Technologies 2024 (November 2024, Higashi-Hiroshima)
- 2: Koichi Kato, Ayana Nakano, Fumika Abe, Karina Erda Saninggar, Tamamo Matsuyama, Shiina Pasanen: Structure prediction in chimeric protein design. International Symposium on Nanomedicine 2024 (ISNM2024) (December 2024, Nagoya)

F) Etc

- 1: Koichi Kato: Guide to the Spring Overseas Student Exchange Program (Airlangga University, March 2024; University of Strasbourg, March 2024)
- 2: Koichi Kato: Guide to the Summer Overseas Student Exchange Program (Taipei Medical University, September 2024)

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grant-in-Aid for Scientific Research (C), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Koichi Kato): Koichi Kato, Designing biomaterials for in situ tongue regeneration. 23K09231. 830,000 JPY
- 2: Grant-in-Aid for Scientific Research (C), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Koichi Kato): Isao Hirata, Designing biomaterials for in situ tongue regeneration. 23K09231. 50,000 JPY
- 3: Grant-in-Aid for Scientific Research (C), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Isao Hirata): Isao Hirata, Three-dimensional molding and functional control of carbonate-apatite composite scaffolds. 23K09232. 750,000 JPY
- 4: Grant-in-Aid for Scientific Research (C), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Isao Hirata): Koichi Kato, Three-dimensional molding and functional control of carbonate-apatite composite scaffolds. 23K09232. 50,000 JPY
- 5: Grant-in-Aid for Scientific Research (C), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Masami Kanawa): Isao Hirata, Development of a Marker System to Predict the Differentiation Potential of Adipose-derived Mesenchymal Stem Cells. 21K09792. 100,000 JPY
- 6: Grant-in-Aid for Scientific Research (B), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Mikihiro Kajiya) Koichi Kato, Development of periodontal tissue regenerative allograft cell therapy by using clumps of MSCs and chondrogenic induction. 22H03275. 300,000 JPY

- 7: Grant-in-Aid for Scientific Research (C), Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Kotaro Tanimoto) Koichi Kato, Functional analysis of deciduous dental pulp stem cell-derived exosomes and application to induction of cleft palate bone regeneration. 21K10186. 400,000 JPY
- 8: Grant-in-Aid for Research Activity Start-up, Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Ayana Nakano) Ayana Nakano, Controlling heterostructure of regenerated bone tissue using bio-3D printing technology, 23K16039. 1,500,000 JPY
- 9: Grant-in-Aid for Research Activity Start-up, Ministry of Education, Culture, Sports, Science and Technology, JSPS (PI: Fumika Abe) Fumika Abe, Molecular design of chimeric proteins as a component of tissue engineering scaffolds. 24K235880. 1,200,000 JPY

(5) Academic Awards, etc.

1. Tamamo Matsuyama, Shiina Pasanen, Fumino Futami, Ayari Kato, Isao Hirata, Soichi Yanamoto, Koichi Kato: Excellent Poster Presentation Award, 2024 Japanese Society for Dental Materials and Devices, Kinki-Chushikoku Branch Seminar (December 2024, Kobe)

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Department of Periodontal Medicine

Division of Preventive and Restorative Dentistry Department of Periodontics

(1) Staffs and Students

Professor: Noriyoshi Mizuno

Assistant Professor (clinical associate professor): Kazuhisa Ouhara, Tomoyuki Iwata, Shinji Matsuda

Assistant Professor: Shinya Sasaki, Yuta Hamamoto (-March)

Assistant Professor (Special Appointment): Yuri Taniguchi

Resident: Mizuho Kittaka (studying abroad), Misako Tari, Takumi Memida (studying abroad)

Graduate Student: Shin Morimoto (-March), Hiroki Yoshii (-March), Mai Yoshino (-March), Tomoya Ueda,

Shoko Kohno, Fuminori Nakashima, Yurika Ninomiya, Ryousuke Fujimori, Keisuke

Yasuda, Shogo Shimada, Naoya Kuwabara

Research Student: Masahiko Suzukawa

Special Postdoctoral Researcher: Tetsuya Tamura

Clinical Trainee: Mari Kiyota, Yoshiaki Shimasaki, Manabu Takewaki, Takuma Yanagihara,

Keita Takahashi (-March), Naoya Kubo, Saki Hatano, Tomoya Ogawa (-March),

Kazuma Suzuki, Tomose Ogawa, Takuma Tagashira, Masaru Shimizu,

Takayoshi Nagahara

(2) Main Research Activities

- 1: Immunological and genetic study on the onset of periodontics
- 2: Study on periodontal tissue regeneration using bone marrow mesenchymal stem cells
- 3: Study on periodontal tissue regeneration using neurotrophins
- 4: Study on the relationship between periodontal disease and **rheumatoid arthritis**
- 5: Study on the relationship between periodontal disease and **diabetes mellitus**
- 6: Study on physiological function and differentiation of the cells derived from periodontal ligament
- 7: Study on prevention for periodontal disease
- 8: Study on **gingival hyperplasia**
- 9: Study on the relationship between periodontal disease and **scleroderma**
- 10: Study on the establishment of treatment methods for peri-implantitis

(3) Research Achievements

A) Original Papers (including Case Reports)

1. Mechanosignaling YAP/TAZ-TEAD Axis Regulates the Immunomodulatory Properties of Mesenchymal Stem Cells.
Yoshii H, Kajiya M, Yoshino M, Morimoto S, Horikoshi S, Tari M, Motoike S, Iwata T, Ouhara K, Ando T, Yoshimoto T, Shintani T, Mizuno N.
Stem Cell Rev Rep. 2004; January; 20(1); 347-361.
2. Periostin regulates integrin expression in gingival epithelial cells.
Hirata R, Iwata T, Fujita T, Nagahara T, Matsuda S, Sasaki S, Taniguchi Y, Hamamoto Y, Ouhara K, Kudo Y, Kurihara H, Mizuno N.
J Oral Biosci. 2024; March; 66(1); 170-178
3. Loss-of-function *OGFRL1* variants identified in autosomal recessive cherubism families.
Kittaka M, Mizuno N, Morino H, Yoshimoto T, Zhu T, Liu S, Wang Z, Mayahara K, Iio K, Kondo K, Kondo T, Hayashi T, Coghlan S, Teno Y, Doan AAP, Levitan M, Choi RB, Matsuda S, Ouhara K, Wan J, Cassidy AM, Pelletier S, Nampoothiri S, Urtizberea AJ, Robling AG, Ono M, Kawakami H, Reichenberger EJ, Ueki Y.

- JBMR Plus. 2024; April 9; 8(6); ziae050.
4. Periodontal Treatment During the Blanking Period Improves the Outcome of Atrial Fibrillation Ablation.
Miyauchi S; Ouhara K, Shintani T, Tokuyama T, Okubo Y, Okamura S, Miyamoto S, Oguri N, Uotani Y, Takemura T, Tari M, Hiyama T, Miyauchi M, Kajiya M, Mizuno N, Nakano Y.
J Am Heart Assoc. 2024; Apr 16; 13(8): e033740.
5. Periodontal tissue regeneration with cementogenesis after application of brain-derived neurotrophic factor in 3-wall inflamed intra-bony defect
Kiyota M, Iwata T, Hasegawa N, Sasaki S, Taniguchi Y, Hamamoto Y, Matsuda S, Ouhara K, Takeda K, Fujita T, Kurihara H, Kawaguchi H, Mizuno N.
J Periodontal Res. 2024; June; 59(3); 530-541
6. Predictive factors of periodontal regeneration outcomes using rhFGF-2: A case-control study
Matsuda S, Ueda T, Nakashima F, Ninomiya Y, Yasuda K, Sasaki S, Hamamoto Y, Iwata T, Ouhara K, Mihara N, Kakimoto N, Mizuno N.
J Periodontal Res. 2024; August; 59(4); 679-688
7. Role of sclerostin deletion in bisphosphonate-induced osteonecrosis of the jaw
Nakashima F, Matsuda S, Ninomiya Y, Ueda T, Yasuda K, Hatano S, Shogo Shimada S, Furutama D, Memida T, Kajiya M, Shukunami C, Ouhara K, Mizuno N
Bone. 2024; October; 187; Article 117200
8. The oral cavity is a potential reservoir of gram-negative antimicrobial-resistant bacteria, which are correlated with ageing and the number of teeth.
Kawayanagi T, Kawada-Matsuo M, Takeshita T, Nguyen-Tra Le M, Asakawa M, Sugawara Y, Arai C, Ouhara K, Nishi H, Mizuno N, Kawaguchi H, Shiba H, Sugai M, Komatsuzawa H.
Heliyon. 2024; October 28;10(21); e39827.
9. Brain-derived neurotrophic factor promotes bone regeneration in a canine model of peri-implantitis
Kono S, Sasaki S, Matsuda S, Takeda K, Iwata T, Ouhara K, Kajiya M, Kurihara H, Mizuno N
International Journal of Implant Dentistry. 2024; November; 10(1);59
10. Possible Involvement of X-Box Binding Protein-1 in the Onset of Pulpitis
Naruse T, Takeda K, Yoshida K, Sasaki S, Kumagai T, Takahashi Y, Kawai R, Nakanishi J, Shiba H
European Endodontic Journal. 2024; November; 9(4); 355-343
11. Role of transglutaminase 2 in promoting biglycan synthesis in idiopathic gingival fibromatosis
Ninomiya Y, Matsuda S, Suzuki S, Hirata-Tsuchiya S, Ueda T, Nakashima F, Yasuda K, Shimada S, Memida T, Yoshimoto T, Yamada S, Ouhara K, Mizuno N
BMC Oral Health. 2024; November; 24(1); 1422
12. Leucine-rich alpha-2-glycoprotein 1 affects bone destruction via IL-6 in mouse periodontitis model.
Ouhara K, Takemura T, Taniguchi Y, Fujimori R, Tamura T, Akane Y, Matsuda S, Hamamoto Y, Shintani T, Kajiya M, Munenaga S, Iwata T, Fujita T, Mizuno N.
Oral Dis. 2024; November; 30(8); 5294-5304.
13. Oral administration of *Porphyromonas gingivalis* to mice with diet-induced obesity impairs cognitive function associated with microglial activation in the brain.
Oue K, Yamawaki Y, Ouhara K, Imado E, Tamura T, Doi M, Shimizu Y, Yoshida M, Mizuno N, Morioka N, Kanematsu T, Irifune M, Ago Y.
J Oral Microbiol. 2024; November 14; 16(1); 2419155.
14. Nuclear receptor 4A1 (NR4A1) upregulated by n-butylidenephthalide via the mitogen-activated protein kinase (MAPK) pathway ameliorates drug-induced gingival enlargement
Ueda T, Matsuda S, Ninomiya Y, Nakashima F, Yasuda K, Furutama D, Memida T, Yoshimoto T, Kajiya M, Ohta K, Ouhara K, Mizuno N
Biofactors. 2024; Nov-Dec; 50(6); 1192-1207
15. Saving a hopeless tooth with a four-wall bone defect: A case report.
Nagahara T, Iwata T, Wada K, Ueda T, Kono S, Ouhara K, Mizuno N.
Clin Adv Periodontics. 2024; December 23; Online ahead of print.

B) Review

C) Publications

D) Other Publications

1. Cognitive function decline related to obesity and periodontal disease
Kazuhisa Ouhara
Japan Dental Newspaper. 2024; November

E) Presentation at Scientific Meeting

1. Multi-centered Study ~Identification of new periodontal examination to evaluate the association between periodontitis and systemic diseases~ Analysis of oral examination data
Shinji Matsuda, Hiromichi Yumoto, Yasutaka Komatsu, Nanae Dewake, Takanori Iwata, Takatoshi Nagano, Toshiya Morozumi, Ryoma Goto, Satsuki Kato, Motozo Yamashita, Joichiro Hayashi, Satoshi Sekino, Akiko Yamashita, Keiko Yamashita, Atsutoshi Yoshimura, Tsutomu Sugaya, Shogo Takashiba, Yoichiro Taguchi, Eiji Nemoto, Yukihiro Numabe, Hiroyuki Kawaguchi
The 67th Spring Meeting of the Japanese Society of Periodontology (2024 May, Koriyama)
2. A case (Stage III Grade B) in which we realized that occlusal factors have a significant influence on periodontal treatment.
Tomoyuki Iwata, Noriyoshi Mizuno
The 67th Spring Meeting of the Japanese Society of Periodontology (2024 May, Koriyama)
3. A recovery case of endodontic treatment after periodontal regenerative therapy in severe 4 wall bone defect
Takayoshi Nagahara, Aya Tokumaru, Tomoya Ueda, Shouko Kouno, Tomoyuki Iwata, Kazuhisa Ouhara, Noriyoshi Mizuno
The 67th Spring Meeting of the Japanese Society of Periodontology (2024 May, Koriyama)
4. Prefectural Distribution of Specialists Accredited by Japanese Endodontic Association
Takayoshi Nagahara, Kayoko Kitajima, Toshihiko Obara, Keiji Ohihi, Takahiro Miki, Masahide Cho, Masashi Yamada, Masakazu Matsushima
The 45th Annual Scientific Meeting of Japan Endodontic Association (2024 July, Toyonaka)
5. Role of sclerostin deletion in bisphosphonate-induced osteonecrosis of the jaw
Fuminori Nakashima, Shinji Matsuda, Yurika Ninomiya, Tomoya Ueda, Keisuke Yasuda, Shogo Shimada, Kazuhisa Ouhara, Noriyoshi Mizuno
The 67th Autumn Meeting of Japanese Society of Periodontology (2024 October, Sapporo)
6. Research to elucidate the mechanism of idiopathic gingival fibromatosis
Yurika Ninomiya, Shinji Matsuda, Shigeki Suzuki, Tomoya Ueda, Fuminori Nakashima, Keisuke Yasuda, Shogo Shimada, Satoru Yamada, Kazuhisa Ouhara, Noriyoshi Mizuno
The 67th Autumn Meeting of Japanese Society of Periodontology (2024 October, Sapporo)
7. Effect of anti-IL-6 receptor antibody on periodontitis in a Porphyromonas gingivalis-infected mouse model
Ryousuke Fujimori, Kazuhisa Ouhara, Yuri Taniguchi, Naoya Kuwahara, Tomoyuki Iwata, Shinji Matsuda, Shinya Sasaki, Noriyoshi Mizuno
The 67th Autumn Meeting of Japanese Society of Periodontology (2024 October, Sapporo)
8. The effect of anti-IL-6 receptor antibody on periodontitis in a Porphyromonas gingivalis-infected mouse model
Ryousuke Fujimori, Noriyoshi Mizuno, Kazuhisa Ouhara
The 66th Annual Meeting of Japanese Association for Oral Biology (2024 November, Nagasaki)
9. Evaluation of the oral environment and oral function in HIV-negative and HIV-positive hemophilia patients.
Miho Okada, Tomoaki Shintani, Maiko Kawagoe, Tomoyuki Iwata, Naoya Yamasaki, Teruhisa Fujii, Hideki Shiba
The 38th Annual Meeting of the Japanese Society for AIDS Research (2024 November, Tokyo)

F) Special lectures in academic meetings

1. Lecture
Noriyoshi Mizuno
Identification of causative genes for inherited diseases affecting the maxillofacial region

- Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences
Pathophysiology– Periodontal Science; Staff Seminar (2024 May, Okayama)
2. Lecture
Takayoshi Nagahara
Reevaluating Hidden Lesions in Daily Life: Periodontal Disease Edition
Kanagawa Dental college annual meeting (2024 June, Hiroshima)
 3. Presentation
Fuminori Nakashima
Role of sclerostin deletion in bisphosphonate-induced osteonecrosis of the jaw
The 19th SENTANSHIGAKU school 2024 (2024 August, Tokyo)
 4. Symposium
Kazuhisa Ouhara
Bidirectional influence between rheumatoid arthritis and periodontitis mediated by ACPA
The 66th Annual Meeting of Japanese Association for Oral Biology (2024 November, Nagasaki)
 5. Lecture
Takayoshi Nagahara
Reconsidering the Challenges of Medical-Dental Collaboration from the Perspective of Diabetes and Periodontal Disease
Bisan-Fukuyama Diabetes Nursing Seminar (2024 November, Onomichi)
 6. Lecture
Identification of causative genes for inherited diseases affecting the maxillofacial region
Noriyoshi Mizuno
Tokyo Dental College Department of Periodontology; Staff Seminar (2024 December, Tokyo)

(4) Status of Receiving Grants-in Aid for Scientific Research.

1. Grants-in aid for scientific research C: Noriyoshi Mizuno: 22K10000
2. Grants-in aid for scientific research C: Kazuhisa Ouhara: 22K09983
3. Grant-in-Aid for Early-Career Scientists: Shinya Sasaki: 22K17092
4. Grant-in-Aid for Early-Career Scientists: Yuta Hamamoto: 23K16227
5. Grant-in-Aid for Early-Career Scientists: Yuri Tanoguchi: 24K19880
6. Grant-in-Aid for Early-Career Scientists: Tetsuya Tamura: 24K19881
7. Grants-in aid for Research Activity Start-up: Yuri Tanoguchi: 23K19692
8. Grants-in aid for Research Activity Start-up: Tetsuya Tamura: 23K19718
9. HU SPRING Research Grant (Recommendation Type): Keisuke Yasuda
10. Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Shoko Kono
11. Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Nakashima Fuminori
12. Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Ninomiya Yurika
13. Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Ryosuke Fujimori
14. Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Keisuke Yasuda
15. Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Shimada Shogo

(5) Award.

(6) Patents

Department of Oral Oncology

Division of Oral and Maxillofacial Surgery and Oral Medicine

Department of Oral and Maxillofacial Surgery

(1) Staff and Students

Professor: Souichi Yanamoto (*) Chief: Souichi Yanamoto (by-work)
 Associate Professor:
 Associate Professor/Lecturer: Koichi Koizumi (Feb~)
 Assistant Professor: Ryouji Tani, Koichi Koizumi (~Jan), Kensaku Sumi, Nanako Ito (Feb~),
 Sachiko Yamasaki, Atsuko Hamada, Fumitaka, Obayashi, Mirai Higaki
 Resident: Yasutaka Ishida (~Mar), Nanako Ito (~Jan), Tadayoshi Nobumoto, Seiya Hayashi (~Mar),
 Suguru Hirota (Apr~), Kento Okamoto (Apr~)
 Graduate Student: Kento Okamoto (~Mar), Natsuki Eboshida, Tamamo Matsuyama, Asada,
 Yume Ueda, Teru Uehara, Airi Odawara, Erika Yamasaki, Motonori Itotagawa
 (Apr~), Kai Omachi (Apr~), Yuuga Maeda (Apr~), Siori Wakita (Apr~)
 Clinical Trainee: Yoshinari Myoken, Yoshinori Fujita, Yasutaka Ishida
 Researcher: Tomoaki Hamana, Yuki Taguchi, Taeko Fukutani, Shigeru Sakurai, Taku Kanda(~Mar)

(2) Main Research Activities

- 1: Multi-institutional clinical research to establish EBM for oral cancer treatment
- 2: Analysis of circulating tumor cells and cfDNA in oral cancer
- 3: Molecular biological research on distant metastasis of oral cancer
- 4: Research on quality of life in patients with medication-related osteonecrosis of the jaw
- 5: Research on AI-based image analysis in medication-related osteonecrosis of the jaw
- 6: Research on psychological approach for patients with oral cancer
- 7: Research on sarcopenia in patients with oral cancer
- 8: Research on adverse events of chemoradiotherapy for oral cancer
- 9: The intestinal and oral microflora of patients with oral cancer
- 10: Research on oral science approach for patients with sleep breathing disorder

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Primary intraosseous carcinoma complicated by cervical hodgkin lymphoma: a rare case report: Obayashi F, Koizumi K, Ito N, Higaki M, Ando T, Yoshioka Y, Yanamoto S.: Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology, 36(1), 38-43, 2024.
- 2: A case of recurrent lip cancer with middle skull base invasion with response to cetuximab and paclitaxel combination chemotherapy after nivolumab monotherapy: Yamasaki S, Tani R, Yanamoto S.: Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology, 36(1), 71-76, 2024.
- 3: Molecular and histopathological findings in malignant transformation of proliferative verrucous leukoplakia that was successfully controlled for 15 years: Hirota S, Yoshioka Y, Obayashi F, Yamasaki S, Koizumi K, Yanamoto S.: Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology, 36(1), 153-158, 2024.
- 4: Clinical significance of integrin α V and β superfamily members and focal adhesion kinase activity in oral squamous cell carcinoma: a retrospective observational study: Sakurai S, Ishida Y, Shintani T, Yamasaki S, Matsui K, Hamana T, Nobumoto T, Yanamoto S, Hayashido Y.: Pathology and Oncology Research, 30, 1611571, 2024.
- 5: A case of supermassive cemento-ossifying fibroma in the mandible: Koizumi K, Mishima T, Ito N, Furusho H, Ando T, Yanamoto S.: Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology,

- 36(5), 716-720, 2024.
- 6: A study of the prognostic factors for late cervical lymph node metastasis and distant metastasis in patients with cT1-2N0 tongue cancer : Obayashi F, Koizumi K, Ito N, Higaki M, Ishida Y, Hamada A, Yamasaki S, Tani R, Yanamoto S.: *Journal of Clinical Medicine*, 13(4), 976, 2024.
- 7: Blockade of vasoactive intestinal peptide receptor 2 (VIPR2) signaling suppresses cyclin D1-dependent cell-cycle progression in MCF-7 cells: Asano S, Ono A, Baba K, Uehara T, Sakamoto K, Hayata-Takano A, Nakazawa T, Yanamoto S, Tanimoto K, Hashimoto H, Ago Y.: *Journal of Pharmacological Sciences*, 154(3), 139-147, 2024.
- 8: Transformation of an odontogenic keratocyst into a solid variant of odontogenic keratocyst/keratoameloblastoma during long-term follow-up: a case report: Yamasaki S, Shintani T, Ando T, Miyauchi M, Yanamoto S.: *Molecular Medicine Reports*, 29(3), 44, 2024.
- 9: Oral surgery under general anesthesia in a patient with catecholaminergic polymorphic ventricular tachycardia: a case report: Yamasaki S, Yoshioka Y, Oue K, Koizumi K, Yanamoto S.: *Oral Science International*, 21(2), 275-279, 2024.
- 10: Perioperative management of maxillary cyst and genetic analysis in a patient with glycogen storage disease type 1a: a rare case report: Obayashi F, Tani R, Hamada A, Ito N, Koizumi K, Yanamoto S.: *Oral Science International*, 21(2), 285-290, 2024.
- 11: Two case reports of medication-related osteonecrosis of the jaw with mandibular reconstruction using a fully customized “Cosmofix®” plate: Yoshioka Y, Yamasaki S, Fukutani T, Shintaku Y, Koizumi K, Yanamoto S.: *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, 36(3), 347-353, 2024.
- 12: Shotgun metagenomic analysis of saliva microbiome suggests *Mogibacterium* as a factor associated with chronic bacterial osteomyelitis: Yahara H, Yanamoto S, Takahashi M, Hamada Y, Asaka T, Kitagawa Y, Moridera K, Noguchi K, Maruoka Y, Yahara K.: *PLoS ONE*, 19(5), e0302569, 2024.
- 13: Analysis of oral and gut microbiome composition and its impact in patients with oral squamous cell carcinoma: Matsui K, Tani R, Yamasaki S, Ito N, Hamada A, Shintani T, Otomo T, Tokumaru K, Yanamoto S, Okamoto T.: *International Journal of Molecular Sciences*, 25(11), 6077, 2024.
- 14: Efficacy and safety of molecularly targeted agents and immune checkpoint inhibitors for unresectable or recurrent/metastatic oral cancer in Japan: Otsuru M, Yamakawa N, Kirita T, Yamada S, Kurita H, Kugimoto T, Harada H, Hasegawa T, Akashi M, Takeshita A, Uzawa N, Umeda M, Yanamoto S, Yamada T.: *Journal of Dental Sciences*, 19(3), 1628-1637, 2024.
- 15: Prognostic value of a mandibular canal staging system for primary lesions in patients with lower gingival squamous cell carcinoma: a multicenter, retrospective study: Yamakawa N, Okura M, Hasegawa T, Otsuru M, Sakai H, Hirai E, Rin S, Yamada S, Yanamoto S, Yokota Y, Umeda M, Kurita H, Ueda M, Akashi M, Kirita T.: *International Journal of Clinical Oncology*, 29(8), 1122-1132, 2024.
- 16: The clinical impact of the G8 screening tool score on treatment strategy decisions and outcomes among oral squamous cell carcinoma patients aged 75 years or older in Japan: Yamada S, Hasegawa T, Yamakawa N, Okura M, Kondo E, Yanamoto S, Akashi M, Kirita T, Umeda M, Kurita H, Noguchi M.: *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, 36(5), 678-683, 2024.
- 17: Efficacy of Episil® in patients with hematologic malignancies: a comparative study: Fukutani T, Yoshioka Y, Imori S, Yanagihara H, Sumi K, Myoken Y, Fujita Y, Yanamoto S.: *BMC Oral Health*, 24(1), 522, 2024.
- 18: YAP/TAZ interacts with RBM39 to confer resistance against indisulam: Ando T, Okamoto K, Ueda Y, Kataoka N, Shintani T, Yanamoto S, Miyauchi M, Kajiya M.: *Oncogenesis*, 13(1), 25, 2024.
- 19: Anesthetic management of a patient with Sturge–Weber syndrome in sagittal split ramus osteotomy surgery: Oda A, Yoshida M, Imamura S, Takahashi T, Oue K, Doi M, Shimizu M, Ono M, Nakagawa T, Koizumi K, Aikawa T.: *Clinical Case Reports*, 12(4), e8747, 2024.
- 20: Extranodal extension in oral squamous cell carcinoma: clinical and histopathological analysis: Higaki M, Koizumi K, Ando T, Ito N, Obayashi F, Hamada A, Yanamoto S.: *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*, 137(6), 632-639, 2024.
- 21: A case of treatment-related myelodysplastic syndrome in the early stage after radiotherapy in a patient with cancer of the oral floor: Ishida Y, Koizumi K, Hayashi S, Obayashi F, Higaki M, Ito N, Shintani T, Yanamoto S.: *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, 36(6), 860-865, 2024.
- 22: Surgical orthodontic treatment for skeletal maxillary protrusion in Sturge-Weber syndrome: a case report and review of the literature: Kado I, Ogashira S, Ono S, Koizumi K, Nakagawa T, Yoshimi Y, Kunitatsu R, Ito S, Koizumi Y, Ogasawara T, Aikawa T, Tanimoto K.: *Cureus*, 16(5), e59964, 2024.
- 23: Potential role of circulating tumor cells and cell-free DNA as biomarkers in oral cancer: a prospective

- single-center study: Eboshida N, Hamada A, Higaki M, Obayashi F, Ito N, Yamasaki S, Tani R, Shintani T, Koizumi K, Yanamoto S.: PLoS ONE, 19(12), e0309178, 2024.
- 24: Effect of oral application of povidone-iodine on the amount of viable bacteria entering the lower respiratory tract in intubated patients with oral cancer: a preliminary study: Imakiire A, Soutome S, Miura K, Ito N, Higaki M, Obayashi F, Koizumi K, Yanamoto S, Yamada T, Umeda M.: Cureus, 16(10), e72240, 2024.
 - 25: Orolabial angioedema as a rare complication of dental resin cement: Myoken Y, Sasaki R, Kawamoto T, Fujita Y, Myoken Y.: International Journal of Dermatology, 63(7), 964-965, 2024.
 - 26: Potential treatment of squamous cell carcinoma by targeting heparin-binding protein 17/fibroblast growth factor-binding protein 1 with vitamin D3 or eldecalcitol: Shintani T, Higaki M, S.N.Z Rosli, Okamoto T: In Vitro Cell Dev Biol Anim, 60(6), 583-589, 2024.
 - 27: A clinical study of complications of mandibular reconstruction plates used in oral cancer surgery : Yoshioka Y, Kimura N, Matsuyama T, Eboshida N, Okamoto K, Hayashi S, Nobumoto T, Higaki M, Fukutani T, Obayashi F, Hamada A, Taguchi Y, Yamasaki S, Ito N, Ishida Y, Hamana T, Sumi K, Koizumi K, Tani R, Yanamoto S.: The Journal of Hiroshima University Dental Society, 56(1), 1-8, 2024.
 - 28: Clinical study of cases of wound closure by buccal fat pad flap in the Department of Oral and Maxillofacial Surgery, Hiroshima Prefectural Hospital.: Kitamura M, Sugano D, Omachi K, Ueda Y, Matsui K, Kiriya T, Yanamoto S, Kanda T.: The Journal of Hiroshima University Dental Society, 56(2), 47-51, 2024.
 - 29: Clinical analysis for elderly patients with oral squamous cell carcinoma: Hamada A, Koizumi K, Yamasaki S, Obayashi F, Ito N, Higaki M, Yoshioka Y, Tani R, Yanamoto S.: The Journal of Hiroshima University Dental Society, 56(2), 57-62, 2024.
 - 30: A case of stage 3 medication-related osteonecrosis of the jaw in the maxillary molar region reconstructed using a superiorly based facial artery musculomucosal flap : Tsubahara Y, Myoken Y, Fujita Y, Sakurai S, Toratani S, Yanamoto S.: Japanese Journal of Oral and Maxillofacial Surgery, 70(11), 482-487, 2024.
 - 31: Two cases of osteoradionecrosis of the jaw with mandibular reconstruction using a custom-made system: Omachi K., Sugano D, Ueda Y, Matsui K, Kawamoto H, Shinbo K, Kiriya T, Kanda T.: Medical Journal of Hiroshima Prefectural Hospital, 55(1), 13-20, 2024.

B) Review

- 1: Saliva in Balancing Oral and Systemic Health, Oral Cancer, and Beyond: A Narrative Review: Okuyama K, Yanamoto S.: Cancers, 16(24), 4276, 2024.
- 2: Oral Cancer Practice for Elderly Patients: Aoki T, Umeda M, Yamashiro M, Yanamoto S, Terao Y, Miura M, Honma Y, Nakayama H, Yagihara K, Ohiro Y, Fushimi C, Rin S, Nagashima F, Ota Y.: Journal of Japanese Society of Oral Oncology, 36(3), 53-61, 2024.

C) Publications

- 1: Tumors and tumor-like diseases; Dental Hygiene Series, 2nd Edition, Oral Surgery and Dental Anesthesiology (supervised by National Dental Hygienist Education Council): Yanamoto S.: Ishiyaku Publishers Inc. (Tokyo), pp. 95-108, 2024.
- 2: Knowledge of gastrointestinal diseases and recent advances necessary for rehabilitation physicians 1. oral diseases; Journal of Clinical Rehabilitation: Yanamoto S.: Ishiyaku Publishers Inc. (Tokyo), 33(8), pp. 790-796, 2024.

D) Other Publications

None

E) Presentations at Scientific Meetings

- 1: The role of dental hygienists in highly acute care hospitals and an initiative with Asa Medical Association Hospital: Kishikawa N, Okamoto K, Hirota S, Maruko M, Yamazaki Y, Hase Y, Nakabayashi Y, Nishikawa H.: The 40th Annual Meeting of Asa Medical Association (Hiroshima),

- 2024.1.21.
- 2: <Symposium 1> Multidisciplinary treatment of locally advanced oral cancer: Koizumi K, Ito N, Obayashi F, Higaki M, Hamada A, Yamasaki S, Yoshioka Y, Tani R, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 3: <Workshop 4> Surgical treatment for elderly patients with oral cancer: Surgery WG (resection): Yanamoto S, Yamakawa N, Yamada S, Hasegawa T, Takeda D, Suzuki T, Matsuyama T, Obayashi F, Yamasaki S, Fukutani T, Aoki T, Ueda M, Ota Y.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 4: A study of risk factors for postoperative complications in advanced oral squamous cell carcinoma: Higaki M, Koizumi K, Yamasaki S, Yamasaki E, Matsuyama T, Ito N, Obayashi F, Hamada A, Tani R, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 5: A preliminary study for practical application of the ERAS (Enhanced Recovery After Surgery) program for elderly patients with advanced oral cancer: Obayashi F, Koizumi K, Uehara T, Yamasaki E, Higaki M, Ito N, Hamada A, Yamasaki S, Tani R, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 6: Investigation of temporal changes and utility of circulating tumor cells and cell-free DNA in oral squamous cell carcinoma: Eboshida N, Hamada A, Matsuyama T, Obayashi F, Higaki M, Ito N, Yamasaki S, Koizumi K, Yoshioka Y, Tani R, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 7: Relationship between undernutrition and CDDP-induced nephrotoxicity in oral squamous cell carcinoma: Asada Y, Ito N, Obayashi F, Higaki M, Hamada A, Yamasaki S, Koizumi K, Yoshioka Y, Tani R, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 8: Pre-treatment nutritional assessment and prognosis in patients with oral cancer: Yamasaki E, Yamasaki S, Hayashi S, Ito N, Hamada A, Higaki M, Obayashi F, Koizumi K, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 9: Cancer panel tests of four cases with oral squamous cell carcinoma: Hamada A, Obayashi F, Eboshida N, Matsuyama T, Hayashi S, Nobumoto T, Higaki M, Fukutani T, Yamasaki S, Ito N, Ishida Y, Koizumi K, Yoshioka Y, Tani R, Yanamoto S.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 10: Clinical significance of TNM classification 8th edition in oral cancer (JOOG multicenter study): Okura M, Yokota Y, Hasegawa T, Yamakawa N, Rin S, Otsuru M, Yamada S, Hirai E, Ashikaga Y, Yamamoto K, Kirita T, Umeda M, Akashi M, Kurita H, Ohiro Y, Yanamoto S, Kikuchi T, Ueda M.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 11: Clinical significances of the G8 screening tool for treatment decision making in elderly patients with oral squamous cell carcinoma: Yamada S, Hasegawa T, Yamakawa N, Okura M, Yanamoto S, Kondo E, Akashi M, Kirita T, Umeda M, Kurita H, Noguchi M.: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.1.25-1.26.
 - 12: The approach of the swallowing support team for aspiration and choking caused by meals at Hiroshima Prefectural Hospital: Matsui K, Shimomura S, Ohara K, Kondoh Y, Sugano D, Omachi K, Hamada H, Sasaki E, Kawai C, Sinagawa K, Nakamura H, Ebara H, Kumagai A, Kishida Y, Iwami H, Soutome Y, Sera T, Abe T, Kanda T, Masuda S.: The 47th Annual Meeting of The Society of Swallowing and Dysphagia of Japan (Niigata), 2024.2.9-2.10.
 - 13: Transdisciplinary approach and challenge of perioperative management for patients with advanced oral cancer. Obayashi F, Higaki M, Ito N, Hamada A, Yamasaki S, Tani R, Koizumi K, Yanamoto S.: The 2nd Young Oral Surgeons Exchange Meeting (Morioka), 2024.5.11-5.12.
 - 14: Study on blood component (nutritional) markers and prognosis in patients with oral cancer: Yamasaki E, Yamasaki S, Asada Y, Uehara T, Higaki M, Obayashi F, Hamada A, Ito N, Koizumi K, Yanamoto S.: The 2nd Young Oral Surgeons Exchange Meeting (Morioka), 2024.5.11-5.12.
 - 15: Circulating tumor cells and cell-free DNA in patients with oral squamous cell carcinoma: Eboshida N, Hamada A, Hirota S, Nobumoto T, Higaki M, Obayashi F, Ito N, Yamasaki S, Tani R, Shintani T, Koizumi K, Yanamoto S.: The 57th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2024.6.1.
 - 16: Perioperative management of patients with advanced oral cancer: a transdisciplinary approach and challenges: Obayashi F, Higaki M, Ito N, Asada Y, Uehara T, Ueda Y, Yamasaki E, Odawara A, Eboshida N, Matsuyama T, Okamoto K, Hirota S, Nobumoto T, Hamada A, Yamasaki S, Tani R, Koizumi K, Yanamoto S.: The 57th Annual Meeting of Hiroshima University Dental Society

- (Hiroshima), 2024.6.1.
- 17: A study on indices and prognosis using various laboratory data in patients with oral cancer: Yamasaki E, Yamasaki S, Odawara A, Uehara T, Ueda Y, Asada Y, Ito N, Hamada A, Higaki M, Obayashi F, Koizumi K, Tani R, Yanamoto S.: The 57th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2024.6.1.
 - 18: A case of treatment-related myelodysplastic syndrome in the early stage after radiotherapy in a patient with cancer of the oral floor: Ishida Y, Koizumi K, Hayashi S, Obayashi F, Higaki M, Ito N, Shintani T, Yanamoto S.: The 53rd Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Chugoku-Shikoku Branch (Yonago), 2024.6.8.
 - 19: A case of myofibroma in the body of the mandible: Taguchi Y, Ito N, Ando T, Asada Y, Sakamoto A, Shintani T, Hamana T, Koizumi K, Yanamoto S.: The 53rd Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Chugoku-Shikoku Branch (Yonago), 2024.6.8.
 - 20: Clinical study of cases of wound closure by buccal fat body in our department: Kitamura M, Sugano D, Omachi K, Ueda Y, Matsui K, Kiriyama T, Kanda T.: The 53rd Annual Meeting of the Japanese Society of Oral Surgeons, Chugoku-Shikoku Branch (Yonago), 2024.6.8.
 - 21: A case of multiple sialolithiasis occurring continuously in the submandibular duct and the submandibular gland: Tamagawa M, Toratani S, Hayashi S, Myoken Y, Yanamoto S, Fujita Y.: The 53rd Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Chugoku-Shikoku Branch (Yonago), 2024.6.8.
 - 22: Application of a facial artery musculomucosal flap in reconstructive treatment of medication-related osteonecrosis of the jaw (MRONJ) occurring in the anterior region of the maxilla or mandible: Hayashi S, Tamagawa M, Fujita Y, Toratani S, Yanamoto S, Myoken S.: The 53rd Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Chugoku-Shikoku Branch (Yonago), 2024.6.8.
 - 23: Incidence and risk factors for acute kidney injury with high-dose cisplatin in oral squamous cell carcinoma: Ito N, Asada Y, Obayashi F, Higaki M, Hamada A, Yamasaki S, Koizumi K, Yanamoto S.: The 48th Annual Meeting of the Japan Society for Head and Neck Cancer (Hamamatsu), 2024.6.20-6.21.
 - 24: Investigation of pre-treatment nutritional assessment and prognosis in patients with oral cancer: Yamasaki E, Yamasaki S, Higaki M, Obayashi F, Hamada A, Ito N, Koizumi K, Yanamoto S.: The 48th Annual Meeting of the Japan Society for Head and Neck Cancer (Hamamatsu), 2024.6.20-6.21.
 - 25: Enhanced recovery after surgery for free flap reconstruction in advanced oral cancer in older population; A retrospective study: Obayashi F, Koizumi K, Ito N, Higaki M, Hamada A, Yamasaki S, Fujioka Y, Nagamatsu S, Yanamoto S.: The 48th Annual Meeting of the Japan Society for Head and Neck Cancer (Hamamatsu), 2024.6.20-6.21.
 - 26: A study of risk factors for postoperative complications in advanced oral squamous cell carcinoma: Higaki M, Koizumi K, Yamasaki S, Yamasaki E, Ito N, Obayashi F, Hamada A, Yanamoto S.: The 48th Annual Meeting of the Japan Society for Head and Neck Cancer (Hamamatsu), 2024.6.20-6.21.
 - 27: The analysis of cell-free DNA with oral squamous cell carcinoma: Hamada A, Eboshida N, Hirota S, Obayashi F, Higaki M, Yamasaki S, Ito N, Koizumi K, Tani R, Yanamoto S.: The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.7.20-7.21.
 - 28: A study on predictors of extranodal invasion of cervical lymph node metastasis in oral squamous cell carcinoma: Higaki M, Koizumi K, Ando T, Ito N, Obayashi F, Shintani T, Hirota S, Yamasaki S, Tani R, Yanamoto S.: The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.7.20-7.21.
 - 29: A clinical study of 18 cases with recurrent oral cancer treated with pembrolizumab: Ito N, Yamasaki S, Higaki M, Obayashi F, Hamada A, Nakagawa T, Ono S, Koizumi K, Yanamoto S.: The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.7.20-7.21.
 - 30: A study of horizontal margins affecting local recurrence of superficial tongue carcinoma: Obayashi F, Ito N, Maeda Y, Higaki M, Hamada A, Yamasaki S, Ando T, Tani R, Koizumi K, Yanamoto S.: The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.7.20-7.21.
 - 31: Investigation of prognostic indicators using various examination data in patients with oral cancer: Yamasaki E, Yamasaki S, Hirota S, Higaki M, Obayashi F, Hamada A, Ito N, Koizumi K, Yanamoto S.: The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.7.20-7.21.
 - 32: A case of Epstein-Barr virus positive mucocutaneous ulcer (EBVMCU) occurring in the maxillary gingiva: Fukutani T, Hirota S, Morifuji Y, Nakase Y, Kaneko M, Okamoto K.: The 37th Japanese Society of Oral Diagnosis / Oral Medicine, The 34th Japanese Society of Oral Medicine (Shiojiri), 2024.9.27~9.29.

- 33: <Luncheon Seminar> Reconstruction after segmental mandibulectomy～Surgical techniques for reconstruction and selection of reconstruction plates～: Koizumi K.: The 71st Annual Meeting of the Japanese Stomatological Society, Chugoku-Shikoku Branch (Hiroshima), 2024.10.26.
- 34: Alpha protein kinase 2 promotes growth of oral squamous cell carcinoma : Ueda Y, Ando T, Kataoka N, Okamoto K, Miyauchi M, Kajiya M, Yanamoto S.: The 71st Annual Meeting of the Japanese Stomatological Society, Chugoku-Shikoku Branch (Hiroshima), 2024.10.26.
- 35: Two cases of chronic GVHD-related oral cancer after hematopoietic stem cell transplantation: Maeda Y, Obayashi F, Hamada A, Itotagawa M, Higaki M, Yamasaki S, Ito N, Koizumi K, Yanamoto S.: The 71st Annual Meeting of the Japanese Stomatological Society, Chugoku-Shikoku Branch (Hiroshima), 2024.10.26.
- 36: Clinical study of maxillary gingival cancer in our department : Itotagawa M, Ito N, Obayashi F, Higaki M, Hamada A, Yamasaki S, Tani R, Koizumi K, Yanamoto S.: The 71st Annual Meeting of the Japanese Stomatological Society, Chugoku-Shikoku Branch (Hiroshima), 2024.10.26.
- 37: A case of drug-related osteonecrosis of the jaw on the palate of a patient with bone metastases from breast cancer: Matsui K, Sugano D, Kitamura M, Omachi K, Ueda Y, Nishisaka T, Kiriyama T, Kanda T.: The 71st Annual Meeting of the Japanese Stomatological Society, Chugoku-Shikoku Branch (Hiroshima), 2024.10.26.
- 38: <Paid Courses> How to conduct clinical research: Yanamoto S.: The 23th Annual Meeting of the Japanese Academy of Dental Sleep Medicine (Tokushima), 2024.11.3-11.4.
- 39: Questionnaire survey on antimicrobial use and AMR measures for dentists and pharmacists in Onomichi: Fujimoto M, Kuribayashi S, Okazaki K, Bessho T, Hamana T.: 63rd Annual Meeting of Japan Pharmaceutical Society, Chugoku-Shikoku Branch (Okayama), 2024.11.16-11.17.
- 40: A survey of the current state of dental treatment on Ninoshima: Fukutani T, Kanda T, Ikeda M, Ishimitsu H, Morifuji Y, Nakase Y, Hamada A, Yamasaki S, Okamoto K, Koizumi K, Yanamoto S.: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 107th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.11.17.
- 41: Clinical investigation of quality of life (QOL) and detailed oral functional examination in patients with medication-related osteonecrosis of the jaw (MRONJ) undergoing surgical treatment: Yamasaki S, Omachi K, Hirota S, Odawara A, Ito N, Obayashi F, Hamada A, Higaki M, Koizumi K, Obayashi N, Shintani T, Yanamoto S.: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.11.17.
- 42: Investigation of IBPS (inflammation-based prognostic score) and prognosis in patients with oral squamous cell carcinoma: Yamasaki E, Yamasaki S, Asada Y, Ueda Y, Uehara T, Odawara A, Higaki M, Obayashi F, Hamada A, Ito N, Koizumi K, Yanamoto S.: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.11.17.
- 43: The study of prognosis (recurrence/metastasis) by postoperative treatment and recurrence risk factor in advanced oral cancer: Omachi K, Koizumi K, Itotagawa M, Maeda Y, Wakita S, Asada Y, Ueda Y, Uehara T, Odawara A, Yamasaki E, Eboshida N, Matsuyama T, Okamoto K, Nobumoto T, Hirota S, Higaki M, Obayashi F, Hamada A, Yamasaki S, Ito N, Hamada A, Tani R, Yanamoto S.: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.11.17.
- 44: Clinical statistics and trends of oral cancer in otolaryngology and early detection systems: Wakita S, Koizumi K, Itotagawa M, Oomathi K, Maeda Y, Asada Y, Ueda Y, Uehara T, Odawara A, Yamasaki E, Eboshida N, Matsuyama T, Okamoto K, Nobumoto T, Hirota S, Higaki M, Obayashi F, Hamada A, Yamasaki S, Ito N, Tani R, Yanamoto S.: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.11.17.
- 45: Prediction of extranodal invasion of cervical lymph node metastasis in oral cancer: Higaki M, Koizumi K, Ando T, Hamada A, Ito N, Obayashi F, Itotagawa T, Omachi K, Maeda Y, Wakita S, Ueda Y, Uehara T, Odawara A, Yamasaki E, Eboshida N, Matsuyama T, Okamoto K, Yamasaki S, Tani R, Yanamoto S.: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.11.17.
- 46: <Luncheon Seminar 4> Recommendations for the ingenuity in tongue cancer resection surgery: Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
- 47: <Japan-India Symposium> Multicenter, prospective observational study of elective neck dissection

- for clinically node-negative oral tongue squamous cell carcinoma (END-TC Study): Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
- 48: Prognosis (recurrence/metastasis) study in risk factors for recurrence after surgery for advanced oral cancer and postoperative treatment: Koizumi K, Ito N, Obayashi F, Higaki M, Hamada A, Yamasaki S, Ando T, Tani R, Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 49: Association between IBPS (inflammation-based prognostic score), skeletal muscle mass, and prognosis in patients with oral cancer: Yamasaki E, Yamasaki S, Hirota S, Higaki M, Obayashi F, Hamada A, Ito N, Tani R, Koizumi K, Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 50: A study of factors predicting extranodal invasion of metastatic lymph nodes in oral squamous cell carcinoma: Higaki M, Koizumi K, Ando T, Ito N, Obayashi F, Shintani T, Hirota S, Yamasaki S, Tani R, Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 51: Study on quality of life (QOL) before and after surgical treatment in patients with medication-related Osteonecrosis of the jaw (MRONJ): Yamasaki S, Omachi K, Hirota S, Odawara A, Ito N, Obayashi F, Hamada A, Koizumi K, Shintani T, Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 52: Clinicopathological investigations of horizontal resection margins affecting local recurrence of superficial carcinoma and carcinoma in situ of tongue: Obayashi F, Ito N, Maeda Y, Higaki M, Hamada A, Yamasaki S, Ando T, Tani R, Koizumi K, Yanamoto S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 53: A case of multiple sialolithiasis occurring continuously in the submandibular duct and the submandibular gland: Tamagawa M, Toratani S, Hayashi S, Myoken Y, Yanamoto S, Fujita Y.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 54: Reconstruction using a facial artery musculomucosal flap technique in the anterior areas in medication-related osteonecrosis of the jaw (MRONJ): Hayashi S, Tamagawa M, Fujita Y, Toratani S, Yanamoto S, Myoken S.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 55: Clinical statistics of medication-related osteonecrosis of the jaw (MRONJ) in our department: Kitamura M, Sugano D, Omachi K, Ueda Y, Matsui K, Kiriyaama T, Kanda T.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 56: A case of Lemierre's syndrome with cerebral infarction probably triggered by dental infection: Sugano D, Kitamura M, Omachi K, Ueda Y, Matsui K, Kiriyaama T, Kanda T.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 57: Investigating the risk of bleeding after tooth extraction in patients with hemophilia: a multicenter retrospective cohort study: Atarashi K, Yagyu T, Kaneko K, Higaki M, Mizuta K, Sato K, Yamakawa N.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.11.22-11.24.
 - 58: A case of tooth extraction experience in a patient with acquired von Willebrand syndrome: Nobumoto T, Tani R, Okamoto K, Hirota S, Okamoto K, Yanamoto S.: The 218th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanto Branch (Yokohama), 2024.12.21.

F) Special lectures in academic meetings

- 1: Oral peeling epithelial membrane: Matsui K, Sasaki E.: NST workshop at Hiroshima Prefectural Hospital (Hiroshima), 2024.1.10.
- 2: Case report in our department: Sado T.: Emergency medical lecture in the Miyoshi City Dental Association (Miyoshi), 2024.2.3.
- 3: Treatment strategies for recurrent and metastatic oral cancer based on the latest guidelines: Focusing on the 2023 oral cancer practice guidelines: Yanamoto S.: Oral cancer WEB lecture meeting (WEB), 2024.3.22.
- 4: Reviewing two years of Dep. Oral Oncology and considering future oral cancer practice: Yanamoto S.: Hiroshima University School of Dentistry Second Department of Oral and Maxillofacial Surgery Special Lecture (Hiroshima), 2024.4.6.
- 5: Oral surgical treatment based on clinical guidelines: Yanamoto S.: Hiroshima University School of

- Dentistry Alumni Association Hiroshima Branch Academic Lecture Meeting (Hiroshima), 2024.4.20.
- 6: Treatment strategies for recurrent and metastatic oral cancer based on the latest guidelines: Yanamoto S.: KANSAI Oral Cancer Seminar (WEB), 2024.5.17.
- 7: Oral care for prevention of aspiration pneumonia: Sakamoto A.: Mazda Hospital post-graduate nurse training lecture (Hiroshima), 2024.6.4.
- 8: Management of medication-related osteonecrosis of the jaw (MRONJ) in our department: Myoken Y.: Hiroshima Red Cross & Atomic Bomb Survivors Hospital Regional Collaboration Seminar (Hiroshima), 2024.6.20.
- 9: What's changed? Revision points to medication-related osteonecrosis of the jaw position paper 2023: Hamana T.: Innoshima Dental Association Lecture Meeting (Innoshima), 2024.6.21.
- 10: Oral cancer treatment in super-elderly patients: Yanamoto S.: Iwakuni Dental Association Lecture Meeting (Iwakuni), 2024.7.11.
- 11: Mouth problems and oral care during cancer treatment: Kanda T.: The 2024 4th Cancer Salon at Hiroshima Prefectural Hospital (Hiroshima), 2024.7.17.
- 12: Oral care for anti-aging medicine: Sakamoto A.: Himawari Dental Clinic staff training lecture (Hiroshima), 2024.8.31.
- 13: Surgical treatment for the healing of MRONJ: Management at the Department of Oral and Maxillofacial Surgery, Hiroshima Red Cross & Atomic Bomb Survivors Hospital: Myoken Y.: 2nd Collaborative Seminar on Dep. Oral Oncology: 'New Approaches to MRONJ,' (Hiroshima), 2024.10.5.
- 14: Surgical treatment for the healing of MRONJ: Management at the at Department of Oral and Maxillofacial Surgery, Hiroshima Prefectural Hospital: Matsui K.: 2nd Collaborative Seminar on Dep. Oral Oncology: 'New Approaches to MRONJ,' (Hiroshima), 2024.10.5.
- 15: Surgical treatment for the healing of MRONJ: Management at the at Department of Oral and Maxillofacial Surgery, Hiroshima University Hospital: Yamasaki S.: 2nd Collaborative Seminar on Dep. Oral Oncology: 'New Approaches to MRONJ,' (Hiroshima), 2024.10.5.
- 16: Considering dental treatment for the super-elderly patients: Yanamoto S.: 2024 1st Kure City Dental Association Oral Health Center Department Lecture Meeting (Kure), 2024.10.10.
- 17: Basic knowledge and points for early detection in diagnosis and treatment of oral cancer: Yanamoto S.: Shimane University Open Lecture (Izumo), 2024.10.19.
- 18: Ingestion and swallowing screening test: Kanda T.: Resident Hands-On in 2024 (Hiroshima), 2024.10.29.
- 19: Oral surgical treatment in the super-aging patients: Yanamoto S.: Mihara City Dental Association 2024 1st Annual Scientific Lecture Meeting (Mihara), 2024.10.31.
- 20: Dysphagia starting from oral flail - Swallowing screening test and patient guidance that can be started tomorrow: Kanda T.: Scientific workshop of Minami Ward Branch co-hosted by Hiroshima Prefectural Hospital (Hiroshima), 2024.11.7.
- 21: Oral care for the elderly: Kimura N.: Oral care training seminar (Kure), 2024.11.14.
- 22: Reconfirmation, dental treatment of patients treated with antiresorptive agent -revision points to medication-related osteonecrosis of the jaw position paper 2023-: Hamana T.: Mitsugi and Sera County Dental Association Lecture Meeting (Sera), 2024.11.16.
- 23: Oral and maxillofacial trauma: Matsui K.: Resident Seminar 2025 (Hiroshima), 2024.11.26.
- 24: Treatment strategies for recurrent and metastatic oral cancer based on the latest guidelines: Yanamoto S.: Oral Cancer Seminar in Hiroshima (WEB), 2024.11.29.
- 25: To Err is Human - Everyone makes mistakes: Kanda T.: Hiroshima University Dental Hygienist Education Center 2024 Second Semester Recurrent Workshop No.3, 2024.12.12.
- 26: Oral frailty from an Oral and Maxillofacial Surgery perspective: Myoken Y.: Hiroshima Prefecture Nursing Association Hiroshima Central Branch Multidisciplinary Training Seminar (Hiroshima), 2024.12.14.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grants-in aid for scientific research (B): Yanamoto S. (Principal Investigator), Multicenter study of circulating tumor cells and circulating tumor DNA involved in distant metastasis of oral cancer. 22H03292. 2,700,000 yen
- 2: Grants-in aid for scientific research (C): Koizumi K. (Principal Investigator), Development of detection system for oral cancer patient's blood circulating tumor cells and prediction of clinical pathology and prognosis using it. 22K10146. 1,000,000 yen
- 3: Grants-in aid for scientific research (C): Tani R. (Principal Investigator), Microbiome-regulated

- expression kinetics of PD-L1 in the oral cancer stem cell niche. 22K10120. 910,000 yen
- 4: Grants-in aid for scientific research (C): Yamasaki S. (Principal Investigator), "Development of Novel Therapies Through Immunotherapy and Molecular Mechanism Analysis Using iPSCs Derived from Lymphocytes of Oral Cancer Patients" 23K09398. 1,040,000-yen
 - 5: Grant-in-aid for scientific research (C): Hamada A. (Principal Investigator), Mechanisms of supernumerous tooth development using cranioclavicle dysplasia disease-specific iPS cells. 22K10148. 800,000 yen
 - 6: Grant-in-Aid for Young Scientists: Nobumoto T. (Principal Investigator), Elucidation of the processing mechanism of tight junction component proteins involved in oral cancer metastasis. 21K17139. 1,200,000 yen
 - 7: Grants-in aid for scientific research (C): Hamana T. (Principal Investigator), Elucidation of the mechanism of E-cadherin processing-mediated oral cancer cell proliferation for therapeutic application. 21K10114. 310,000 yen
 - 8: Grant-in-aid for early-career scientists; Fukutani T. (Principal Investigator), Establishment of "synovial chondromatosis-specific iPSC" and study of the disease through genomic surgery of pathogenic mutant genes. 23K16117. 650,000 yen
 - 9: Grants-in aid for scientific research (B): Yanamoto S. (Co-Investigator), Elucidation of the regulatory mechanism of the cancer microenvironment led by disruption of the Hippo pathway and its application to innovative therapies. 24K02645. 100,000yen
 - 10: Grants-in aid for scientific research (C): Yanamoto S. (Co-Investigator), Tailor-made biomarker profiling of anti-PD-1 antibodies focused on blood circulating oral cancer cells. 24K13131. 50,000 yen
 - 11: Grants-in aid for scientific research (C): Yanamoto S. (Co-Investigator), Molecular biology of extranodal extension mechanism of cervical lymph node metastasis in oral squamous cell carcinoma. 21K10040. 20,000 yen
 - 12: Grant-in-aid for scientific research (C): Yanamoto S. (Co-Investigator), Prevention of postoperative pneumonia by antimicrobial pharmacy administration in intubated patients after oral surgery. 23K09482. 100,000 yen
 - 13: Grant-in-Aid for Scientific Research (C): Yanamoto S. (Co-Investigator), A multi-institutional phase III randomized controlled trial on prevention of oral mucositis by steroid-containing agents. 23K09315. 30,000 yen
 - 14: Grant-in-Aid for Scientific Research (C): Yanamoto S. (Co-Investigator), Design of biomaterials for in situ tissue regeneration of the tongue. 23K09231. 50,000 yen
 - 15: Grant-in-Aid for Scientific Research (C): Yanamoto S. (Co-Investigator), Elucidation of the relationship between sleep apnea and sarcopenia in the elderly. 23K09147. 80,000yen
 - 16: Grants-in aid for scientific research (C): Yanamoto S. (Co-Investigator), Biomarkers for invasion and metastasis of oral cancer via partial-EMT. 22K10161. 80,000 yen
 - 17: Grants-in aid for scientific research (C): Koizumi K. (Co-Investigator), Tailor-made biomarker profiling of anti-PD-1 antibodies focused on blood circulating oral cancer cells. 24K13131. 50,000 yen
 - 18: Grant-in-aid for fund for the promotion of joint international research (Fostering Joint International Research(B)): Hamada A. (Co-Investigator), Mechanobiological mechanisms of tendons and ligaments controlling the musculoskeletal system. 21KK0161. 400,000 yen
 - 19: 2023–2024 Research Grant “Next-Generation Young Clinical Research Promotion Project”: Yamasaki E. (Principal Investigator), Longitudinal Changes in Psychological Characteristics and Quality of Life in Oral Cancer Patients and Their Associated Factors, 553,000 yen
 - 20: The order and the 5th year's fee for the director of the Prefectural Hiroshima Hospital : Kanda T, Research on standardization of oral assessment of critically ill hospitalized patients. 400,000yen

(5) Academic Awards, etc.

None

(6) Patents

- 1: Patent: Cancer-treatment survival rate improving-agent: (Patent No. 7577262) (Okamoto T, Tani R)

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Department of Oral and Maxillofacial Surgery

Division of Oral and Maxillofacial Surgery and Oral Medicine (Department of Oral and Maxillofacial Reconstructive)

(1) Staff and Students

Professor: Tomonao Aikawa

Lecturer :Shigehiro Ono (Nov~)

Research Associate: Yoshiaki Ninomiya (Diagnosis and treatment lecturer), Shigehiro Ono (Diagnosis and treatment lecturer , ~Oct), Kuniko Mizuta, Takayuki Nakagawa, Yoko Ishida (Feb~), Takako Naruse, Ryo Uetsuki, Miyuki Sakuma

Resident: Naoko Kishi (Jun~), Yasuki Ishioka, Yoko Ishida (~Jan), Rena Shido (Apr~), Misaki Akagi (Apr~)

Graduate Student: Misaki Akagi (~Mar), Chieko Niwata, Ayumi Fujii, Daitoku Murakami, Keijuro Ohdan, Jun Ashida, Yoshiteru Yamashita, Mizuki Watanabe (Apr~)

Teaching the study assistant:Yuko Shintaku, Hiroshi Murozumi

Registered Intern: Masaki Kiyomihara, Yoshihisa Inoue, Hiroshi Shimasue

Researcher: Sho Yokoyama

(2) Main Research Activities

- 1: Functional evaluation and development of oral and maxillofacial reconstructive surgeries
- 2: Genomic analysis of stomatognathic diseases
- 3: Biochemical characterization and development of therapeutics of oral tumors
- 4: Molecular-biological studies on control of invasion and migration of oral cancers
- 5: Studies on responsible gene of osseous dysplasia of jaws
- 6: Molecular-biological studies on dental and periodontal tissue regeneration
- 7: Development of biomaterials of oral and maxillofacial reconstruction
- 8: Development of biomaterial for dental implant treatment
- 9: Studies on mechanism of oral mucosa against microorganisms

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: A case of bone resorption in the mentum caused by hyaluronic acid filler in a patient with skeletal Class II jaw deformity. Nakagawa T, Ono S, Sakuma M, Ishida Y, Mizuta K, Uetsuki R, Ohdan K, Shintaku Y, Higuchi M, Matsushita Y, Kojima S, Hirata I, Kato K, Aikawa T. Clin Case Rep. 12: e9150, 2024.
- 2: Surgical orthodontic correction of Class II open bite with idiopathic condylar resorption. Takagi T, Shintaku Y, Aikawa T, Shimizu A, Tanaka E, AJO-DO Clinical Comparison. 2024. (Online ahead of print)
- 3: Antibiotic susceptibility and genome analysis of Enterococcus species isolated from inpatients in one hospital with no apparent outbreak of vancomycin-resistant Enterococcus in Japan. Fujii A, Kawada-Matsuo M, Le MN, Masuda K, Tadera K, Suzuki Y, Nishihama S, Hisatsune J, Sugawara Y, Kashiya S, Shiba H, Aikawa T, Ohge H, Sugai M, Komatsuzawa H. Microbiol Immunol.68: 254-266, 2024.
- 4: Surgical Orthodontic Treatment for Skeletal Maxillary Protrusion in Sturge-Weber Syndrome: A Case Report and Review of the Literature. Kado I, Ogashira S, Ono S, Koizumi K, Nakagawa T, Yoshimi Y, Kunitatsu R, Ito S, Koizumi Y, Ogasawara T, Aikawa T, Tanimoto K. Cureus. 9: e59964. 2024.
- 5: Anesthetic management of a patient with Sturge-Weber syndrome in sagittal split ramus osteotomy surgery. Oda A, Yoshida M, Imamura S, Takahashi T, Oue K, Doi M, Shimizu Y, Ono S, Nakagawa T, Koizumi K, Aikawa T. Clin Case Rep.12: e8747, 2024.
- 6: ACE2 expression and spike S1 protein-mediated immune responses in oral mucosal cells. Akagi M,

- Ohta K, Fukada S, Sakuma M, Naruse T, Nakagawa T, Ono S, Nishi H, Shigeishi H, Aikawa T. *Oral Dis.* 30: 2293-2305, 2024.
- 7: Lactoferrin Modulates Radiation Response Under Hypoxic Conditions, Possibly Through the Regulation of ROS Production in a Cell Type-Specific Manner. Murakami D, Fukazawa T, Kyo M, Miyauchi M, Ono S, Aikawa T, Hirohashi N, Tanimoto K. *Antioxidants.* 2024. (Online ahead of print)
 - 8: Comparison of the skeletal stability after mandibular counter-clockwise rotation in three surgical procedures. Narahara S, Morita Y, Shido R, Yoshida N, Ohba S. *Odontology.* 112:640-646, 2024.
 - 9: Bone augmentation with alloplastic graft material in a patient under bisphosphonate therapy: A case report and literature review. Narahara S, Ohba S, Ichinose S, Yamanouchi Y, Kuroshima S, Shido R, Sawase T, Yamada T. *The Journal of oral implantology.* 50: 446-450, 2024.
 - 10: Comparison of Skeletal Stability after Le Fort I Osteotomy With Bone Fixation Using Biodegradable and Titanium Systems. A Retrospective Study. Shido R, Ohba S, Moriuchi E, Yasuda G, Hara M, Narahara S, Ogata K, Yoshida N, Yamada T. *Journal of Craniofacial Surgery.* 35: 1513-1516, 2024.
 - 11: A case of masticatory muscle tendon-aponeurosis hyperplasia revealed after orthognathic surgery. Nakao N, Ohba S, Shido R, Fujita S, Sumi M, Yamada T. *Oral Science International.* 2024. (Online ahead of print)
 - 12: Carcinoma ex pleomorphic adenoma primarily composed of squamous cell carcinoma in buccal region – Case report. Naruse T, Ohta K, Shigeishi H, Ando T, Nakagawa T, Yamakado N, Ninomiya Y, Sakamoto S, Ishida Y, Aikawa T. *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology.* 2024. (Online ahead of print)
 - 13: A case that performed maxillary sinus floor augmentation in the presence of antral retention cyst. Ninomiya Y, *Japanese Journal of Dentistry, Science of Occlusion.* 43: 109-113, 2024.
 - 14: A case of bone augmentation using a mixture of interconnected porous hydroxyapatite bone filler (NEOBONE®) and autogenous bone graft material after removal of ameloblastoma: Ninomiya Y, Ishioka Y, Nakagawa T, Ono S, Takechi M: *Japanese Journal of Maxillofacial Implants.* 23: 271-278, 2024.

B) Review

C) Publications

D) Other Publications

- 1: Clinical Topics You Should Know, Overseas Journal Watching From the UK! The latest thinking on mandibular third molar extraction: Ono S, Aikawa T: *DENTAL DIAMOND* 6: 99, 2024.
- 2: Clinical Topics You Should Know, Overseas Journal Watching Persistent pain after total temporomandibular joint arthroplasty: clinical characteristics, comorbidities and risk factors: Mizuta K, Aikawa T. *DENTAL DIAMOND* 12: 123, 2024.

E) Presentations at Scientific Meetings

- 1: Antitumor effect of the antirheumatic drug leflunomide on oral squamous cell carcinoma. Niwata C, Nakagawa T, Ohta K, Ono S, Yamakado N, Tobiume K, Aikawa T: The 42nd Annual Meeting of the Japanese Society of Oral Oncology, Hokkaido, 2024.
- 2: Inhibition of LSD1 in oral squamous cell carcinoma cell line OM-1 induces EMT via release from LSD1-dependent ZEB1 repression. Yamakado N, Tobiume K, Niwata C, Nakagawa T, Mizuta K, Aikawa T: The 42nd Annual Meeting of the Japanese Society of Oral Oncology, Hokkaido, 2024.
- 3: A case of thyroglossal duct cyst removal using ultrasonic bone cutting equipment. Sakuma M, Mizuta K, Naruse T, Yamakado N, Yamashita Y, Fujimoto S, Nakagawa T, Ono S, Ninomiya Y, Aikawa T: The 2nd Academic Meeting of the Young Oral Surgeons Association, Iwate, 2024.
- 4: A case of erectile hemangioma of the masseter muscle. Yamakado N, Mizuta K, Sakuma M, Yamashita Y, Ishida Y, Uezuki R, Nakagawa T, Ono S, Ninomiya Y, Aikawa T: The 2nd Academic Meeting of the Young Oral Surgeons Association, Iwate, 2024.
- 5: Isolation status of *Staphylococcus aureus* from oral and whole body specimens in forensic autopsy. Fujii A, Oka H, Nagao M. The 18th Academic Conference of the Japanese Society of Forensic Dentistry, Osaka, 2024.
- 6: Questions and issues when creating dental charts - from the perspective of a beginner. Yamashita Y,

- Fujii A, Oka H, Nagao M. The 18th Academic Conference of the Japanese Society of Forensic Dentistry, Osaka, 2024.
- 7: Medical aid activities for cleft lip and palate in Myanmar. Kishi N, Aikawa T, Kogo M: The 48th Annual Meeting of the Japanese Cleft Palate Society, Aichi, 2024.
 - 8: To break away from the facial features characteristic of cleft lip and palate - when and how far should secondary surgery be performed - The role of orthognathic surgery in the treatment of cleft lip and palate. Aikawa T: The 48th Annual Meeting of the Japanese Cleft Palate Society, Aichi, 2024.
 - 9: Orthognathic surgery for retrognathia patients with mandibular condylar resorption. Mizuta K, Aikawa T: The 74th congress of the German association for Oral and Maxillofacial Surgery, JAPANESE-GERMAN SESSION – ORTHOGNATHIC SURGERY. Germany, 2024.
 - 10: Variation of Orthognathic Surgery for Cleft Lip and Palate. Aikawa T : The 4th Goethe Symposium, Germany, 2024.
 - 11: Application of CAD/CAM splints in multifraction Le Fort I osteotomy. Uetsuki R, Ono S, Mizuta K, Nakagawa T, Sakuma M, Ishioka Y, Shintaku Y, Matsushita Y, Higuchi M, Aikawa T. The 34th Annual Meeting of the Japan Society for Jaw Deformities, Tokyo, 2024.
 - 12: A case of cherubism with central giant cell granulomas in both mandibles. Watanabe M, Uetsuki R, Shido R, Mizuta K, Sasaki K, Yamakado N, Ashida A, Sakuma M, Ono S, Nakagawa T, Ninomiya Y, Aikawa T: The 53rd Annual Meeting of the Chugoku-Shikoku Branch of the Japanese Society of Oral and Maxillofacial Surgeons, Tottori, 2024
 - 13: Development of multi-fraction Le Fort I osteotomy and its outcomes. Ono S, Shintaku Y, Aikawa T: Symposium 3 "Advances in orthognathic surgery - Fundamentals, modifications and outcomes of surgical procedures": The 34th Annual Meeting of the Japan Society for Jaw Deformities, Tokyo, 2024.
 - 14: A case of masticatory muscle tendon and aponeurosis hyperplasia discovered after orthognathic surgery. Shido R, Oba S, Nakao N, Narahara S, Katase N, Fujita S, Kado M, Yamada T: The 34th Annual Meeting of the Japan Society for Jaw Deformities, Tokyo, 2024.
 - 15: A case of facial asymmetry with dentinal yawing due to congenital absence of the maxillary left lateral incisor using anchor screws. Ito S, Yoshida Y, Aikawa T, Tanaka S, Yamashiro T: The 34th Annual Meeting of the Japan Society for Jaw Deformities, Tokyo, 2024.
 - 16: A case of tongue reduction and maxillary osteotomy for skeletal mandibular prognathism associated with Down syndrome and sleep apnea syndrome. Kusano S, Tanikawa C, Miyakawa K, Aikawa T, Tanaka S, Yamashiro T: The 34th Annual Meeting of the Japan Society for Jaw Deformities, Tokyo, 2024.
 - 17: Costochondral reconstruction for micrognathia due to bilateral mandibular condylar defects. Mizuta K, Uetsuki R, Ono S, Nakagawa T, Sakuma M, Shintaku Y, Matsushita Y, Higuchi M, Morita C, Kurosaka H, Yamashiro T, Aikawa T: The 34th Annual Meeting of the Japan Society for Jaw Deformities, Tokyo, 2024.
 - 18: Dendritic cell-derived osteoclast formation in bone lesions of squamous cell carcinoma with different bone resorption patterns. Miyakawa K, Minohara M, Jimi E, Aikawa T: The 42nd Annual Meeting of the Japanese Society for Bone and Mineral Research, Okinawa, 2024.
 - 19: Clinical update and current research status of progressive condylar resorption. Aikawa T: The 37th Annual Meeting of the Japanese Society of Temporomandibular Joint Research, Tokushima, 2024.
 - 20: Orthognathic surgery for patients with cleft lip and palate: "Surgical treatment in integrated cleft lip and palate treatment - basic techniques and precautions". Aikawa T: The 78th Annual Meeting of the Japanese Stomatological Society (The 26th Maxillofacial Surgery Technique Research Meeting), Tokyo, 2024.
 - 21: Temporomandibular joint reconstruction in cases of condylar resorption (PCR/ICR) "Paradigm shift in clinical anatomy and physiology of the temporomandibular joint". Ono S: Symposium: The 78th Annual Meeting of the Japanese Stomatological Society, Tokyo, 2024.
 - 22: Molecular mechanisms underlying the diversity of bone lesions observed in oral squamous cell carcinoma. Miyagawa K, Yamashita S, Takabatake S, Aikawa T, Tanaka S: The 78th Annual Meeting of the Japanese Stomatological Society, Tokyo, 2024.
 - 23: ACE2 expression in oral mucosal cells and immune response mediated by Spike protein. Akagi M, Ohta K, Sakuma M, Yamakado N, Niwata C, Naruse T, Nakagawa T, Tobiume K, Shigeishi H, Aikawa T: The 78th Annual Meeting of the Japanese Stomatological Society, Tokyo, 2024.
 - 24: Clinical study of 18 cases of recurrent or metastatic oral cancer treated with pembrolizumab. Ito N, Yamazaki S, Higaki M, Obayashi F, Hamada M, Nakagawa T, Ono S, Koizumi K, Yanagimoto S: The 78th Annual Meeting of the Japanese Stomatological Society, Tokyo, 2024.
 - 25: Antibacterial activity of fatty acids against *Staphylococcus aureus* and *Streptococcus pyogenes*.

- Ohdan K, Suzuki M, Matsuo M, Mi Nguyen-Tra Le, Arai C, Hisatsune J, Sugawara T, Aikawa T, Sugai M, Komatsuzawa H: The 97th Annual Meeting of the Japanese Society for Bacteriology, Hiroshima, 2024.
- 26: Analysis of distribution and antibacterial activity of bacteriocin genes in clinical isolates of enterococci. Fujii A, Matsuo M, Le MN, Arai C, Hisatsune J, Sugawara Y, Aikawa T, Sugai M, Komatsuzawa H. The 97th Annual Meeting of the Japanese Society for Bacteriology, Hokkaido, 2024.
 - 27: Staphylococcus aureus infection status of corpses. Oka H, Fujii A, Ohdan K, Matsuo M, Katsuya S, Nomura R, Kakimoto N, Aikawa T, Komatsuzawa H, Nagao M. The 20th National Conference of the Police Dental Association, Yamaguchi, 2024.
 - 28: Antibacterial activity of fatty acids against Staphylococcus aureus. Ohdan K, Suzuki M, Matsuo M, Arai C, Hisatsune J, Sugawara T, Aikawa T, Sugai M, Komatsuzawa H: The 77th Annual Meeting of the Chugoku-Shikoku Branch of the Japanese Society for Bacteriology, Okayama, 2024.
 - 29: Analysis of bacteriocin gene retention and antibacterial activity of enterococci strains isolated at our hospital. Fujii A, Matsuo M, Le MN, Arai C, Hisatsune J, Sugawara T, Aikawa T, Sugai M, Komatsuzawa H: The 77th Annual Meeting of the Chugoku-Shikoku Branch of the Japanese Society for Bacteriology, Okayama, 2024.
 - 30: Distribution of Staphylococcus aureus in oral and whole-body specimens from forensic autopsies. Fujii A, Ohdan K, Matsuo F, Oka H, Matsuo M, Nagao M, Komatsuzawa H, Aikawa T: The 71st Chugoku-Shikoku Regional Meeting of the Japanese Stomatological Society, Okayama, 2024.
 - 31: A case of using an artificial membrane to close an extraction socket during socket preservation. Ninomiya Y, Doi K, Oki Y, Ogami H, Tsuga K: The 54th Annual Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 32: Antimicrobial bacteria lurking in the human body: Correlation with detection of antimicrobial bacteria in corpses. Fujii A, Matsuo M, Oka H, Nomura R, Nagao M, Komatsuzawa H: Update Symposium: The 66th Annual Meeting of the Japanese Society of Dental Basic Medicine, Nagasaki, 2024.
 - 33: A Retrospective Study of unfavorable split / fracture in Bilateral Sagittal Split Ramus Osteotomy. Mizuta K, Sakuma M, Uetsuki R, Nakagawa T, Shido R, Ono S, Aikawa T : The 63nd Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons, South Korea, 2024.
 - 34: A study of modified Inverted L-Shaped Ramus Osteotomy for patients with condylar resorption. Shido R, Nakagawa T, Ono S, Mizuta K, Uetsuki R, Shintaku Y, Ishioka Y, Ishida Y, Sakuma M, Higuchi M, Matsushita Y, Aikawa T : The 63nd Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons, South Korea, 2024.
 - 35: Osteosynthesis of bilateral sagittal split ramus osteotomy for jaw deformities with degenerative temporomandibular joint disease using flexible titanium plates. Sakuma M, Mizuta K, Shintaku Y, Matsushita Y, Higuchi M, Shido R, Uetsuki R, Nakagawa T, Ono S, Aikawa T: The 63nd Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons, South Korea, 2024.
 - 36: KAOMS (Korean Association of Oral & Maxillofacial Surgeons) The 2nd Symposium of NextGen Oral and Maxillofacial Surgeons. 「Management of preventing unfavorable split / fracture in orthognathic surgery.」 Sakuma M, Mizuta K, Ono S, Aikawa T, 2024.
 - 37: Considerations and surgical interventions for temporomandibular joint and masticatory muscles in orthognathic surgery. Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (The 14th Japanese Society of Temporomandibular Joint Surgery), Kanagawa, 2024.
 - 38: Temporomandibular joint reconstruction surgery (Sponsored seminar Meet the Experts "Tips and tricks in oral surgery") Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
 - 39: Case report of Tenon and Mortise genioplasty using absorbable module. Ono S, Nakagawa T, Mizuta K, Uetsuki R, Sakuma M, Ishida Y, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
 - 40: Issues in medical support activities for cleft lip and palate in Myanmar. Kishi N, Aikawa T, Kogo M: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
 - 41: Mechanism of dendritic cell-derived osteoclast formation in bone lesions of oral squamous cell carcinoma. Minohara M, Miyagawa K, Yamashita S, Takabatake S, Furugō M, Tanaka S, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
 - 42: Clinical experience with MODUS®2 open sagittal split plate for mandibular osteosynthesis in skeletal

- class II jaw deformity. Sakuma M, Mizuta K, Yamakado N, Higuchi M, Matsushita Y, Shintaku Y, Uetsuki R, Nakagawa T, Ono S, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
- 43: Significance of HMGN5 expression in oral cancer cells. Murakami D, Tanimoto K, Ono S, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
- 44: Investigation of the angiogenesis inhibitory and antitumor effects of leflunomide on oral squamous cell carcinoma. Niwata C, Nakagawa T, Ohta K, Ono S, Uetsuki R, Yamakado N, Akagi M, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.
- 45: Effect of nucleic acid transfer and IL-1 β on TMPRSS2 expression in oral mucosal cells. Akagi M, Ohta K, Yamakado N, Niwata C, Sakuma M, Naruse T, Nakagawa T, Shigeishi I, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Kanagawa, 2024.

F) Special lectures in academic meetings

- 1: Okayama University Cadaver Surgical Training (CST) Lecturer/Instructor, "Condylectomy and Disc Repositioning". Aikawa T, Okayama, 2024.
- 2: Miyazaki Jaw Deformity Study Group Seminar, "Occlusal Surgery and Occlusal Reconstruction Surgery for Jaw Deformity, Temporomandibular Joint Disease, and Congenital Anomalies". Aikawa T, Miyazaki, 2024.
- 3: The 8th Winter Oral and Maxillofacial Surgery Clinical Research Symposium, Jaw Deformity - Exploring the Combined Use of Orthognathic Surgery and Temporomandibular Joint Surgery - "Controversies in TMJ Surgery in the Treatment of Jaw Deformity and Treatment Innovations in Our Department". Aikawa T, Yamagata, 2024.
- 4: Shimane University Public lecture and educational research project to support lifelong learning education for citizens "Occlusion is important! What is Jaw Deformity Treatment?" Special lecture: Corrective treatment and surgery for occlusion and jaw skeleton. Aikawa T, Shimane, 2024.
- 5: Young Oral Surgeons' Exchange Association 2nd Academic Conference S.O.R.G. Academy Jaw Deformity Hands-on Seminar "Jaw Deformity". Aikawa T, Ono S, Iwate, 2024.
- 6: Kyushu University School of Dentistry Special lecture "Temporomandibular joint disease and temporomandibular joint surgery". Aikawa T, Fukuoka, 2024.
- 7: Kyushu University Oral and Maxillofacial Surgery Seminar "Treatment of Jaw Deformity Caused by Temporomandibular Joint Pathology: Occlusal Surgery and Occlusal Reconstruction Surgery". Aikawa T, Fukuoka, 2024.
- 8: Osaka Dental University Oral and Maxillofacial Surgery Seminar "Treatment of Jaw Deformity Caused by Temporomandibular Joint Pathology: Occlusal Surgery and Occlusal Reconstruction Surgery" Aikawa T, Osaka, 2024.
- 9: Osaka Dental University Special Lecture "Treatment of Cleft Lip and Palate". Aikawa T, Osaka, 2024.
- 10: Airlangga University special lecture 「Surgical Orthodontic Treatment and Maxillary OGS: Le Fort I Osteotomy and Anterior segmental Osteotomy of Maxilla」 Aikawa T, 2024.
- 11: The 20th educational training seminar of the Japanese Society for Jaw Deformities: "Causes of Jaw Deformities (congenital and acquired causes)": The 34th Annual Meeting of the Japan Society for Jaw Deformities, Aikawa T, Tokyo, 2024.
- 12: SORG Japan Seminar: "Osteosynthesis method in sagittal split ramus osteotomy", "Temporomandibular joint disease and total temporomandibular joint replacement", Aikawa T, Tokyo, 2024.
- 13: Asunaro-kai Special Lecture "Update on Oral Surgery: Including Occlusal Reconstruction and Temporomandibular Joint Surgery" Aikawa T, Hiroshima, 2024.
- 14: "Myanmar Cleft Lip and Palate Comprehensive Treatment Project", Kishi N, Myanmar, 2024.
- 15: Lecturer and instructor of the Japanese Society of Oral and Maxillofacial Surgeons and the Japanese Society of Temporomandibular Joint Cadaver Surgical Training (CST) "Total Temporomandibular Joint Artificial Arthroplasty" Aikawa T, Okayama, 2024.
- 16: Lunch seminar at the 71st Chugoku-Shikoku Regional Chapter of the Japanese Stomatological Society, "Aiming for a safe and reliable sagittal split ramus osteotomy - our surgical method and its concept" Ono S, Hiroshima, 2024.
- 17: "Medical support for the treatment of cleft lip and palate in Mexico" Kishi Naoko, 0Aikawa T, Mexico, 2024.

- 18: Special lecture at the First Department of Oral and Maxillofacial Surgery Alumni Association, Okayama University School of Dentistry, "Oral surgery as occlusal reconstruction surgery - including the current situation and future developments" Aikawa T, Okayama, 2024.
- 19: IBRA (international bone research association) seminar, orthognathic surgery. Aikawa T: Seminar lecturer, hands-on instructor, Tokyo, 2024.
- 20: IBRA (international bone research association) seminar, orthognathic surgery. Aikawa T: hands-on instructor, Kanagawa, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grant-in-Aid for Scientific Research (Scientific research (C)) continuation: Aikawa T: Research on the mechanism of tumor-induced bone resorption: Comprehensive analysis focusing on RANKL expression regulation and osteoclastogenesis. Issue number 19K10266
- 2: Grants-in-Aid for Scientific Research (Scientific Research (C)) continuation: Aikawa T, Miyagawa K.: Bone resorption mechanisms in the tumor microenvironment: Analysis centered on IL-7 and RANKL expression mechanisms. Issue Number 22K10145
- 3: Grants-in-Aid for Scientific Research (Scientific Research (C)) continuation: Mizuta K, Tobiume K: Does noncoding RNA involved in the development of mandibular diaphyseal dysplasia (GDD)? Issue Number 22K10119
- 4: Grant-in-Aid for Scientific Research (Basic Research (C)) continuation: Ohta K, Aikawa T, Sakaguchi T, Komatsuzawa H, Shigeishi H: Elucidation of the novel functions of the new coronavirus target protein in the oral mucosa and its expression regulatory factors (share). Issue Number 23K09371
- 5: Grant-in-Aid for Scientific Research (Basic Research (C)) continuation: Shigeishi H, Ono S: Elucidation of the regulatory mechanism of cancer stem cell traits mediated by Beclin-1 in oral squamous cell carcinoma cells highly expressing CD44. Issue Number 23K09370
- 6: Grant-in-Aid for Scientific Research (Scientific research (C)) new: Nakagawa T: Mechanism of action of the anti-rheumatic drug leflunomide on tumor infiltrating lymphocytes in oral cancer. Issue Number 24K131570A
- 7: Grants-in-Aid for Scientific Research (Challenging Research (C)) continuation: Naruse T: Elucidation of the immune response mechanism of SARS-Cov-2 binding receptors in the oral mucosa. Issue Number 21K17116
- 8: Grants-in-Aid for Scientific Research (Challenging Research (C)) continuation: Uetsuki R: Analysis of relationship between Snail-induced EMT and cancer stem cell characteristics in oral cancer cells. Issue Number 22K17158
- 9: Grants-in-Aid for Scientific Research (Challenging Research (C)) continuation: Ishida Y: Expression of HO-1 and inflammatory genes induced by C.a from oral mucosa. Issue Number 22K17185
- 10: Grants-in-Aid for Scientific Research (Challenging Research (C)) continuation: Shido R: Development of novel osteoinductive gene activation substrates incorporating miRNA inhibitor Tiny-LNA. Issue Number 23K16156
- 11: Grant-in-Aid for Scientific Research (Young Research) continuation: Sakuma M: Recognition mechanism of Candida albicans cell wall components by CEACAM1 in oral mucosa. Issue Number 23K159740A

(5) Academic Awards, etc.

- 1: The 34th Annual Meeting of the Japan Society for Jaw Deformities, Outstanding Poster Award "Costochondral reconstruction for micrognathia due to bilateral mandibular condylar defects": Mizuta K.
- 2: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, Outstanding Poster Award "Investigation of the angiogenesis inhibitory and antitumor effects of leflunomide on oral squamous cell carcinoma": Niwata C.
- 3: The 78th Annual Meeting of the Japanese Stomatological Society, Rising Scientist Award "ACE2 expression in oral mucosal cells and immune response mediated by Spike protein": Akagi M.
- 4: The 27th Hiroshima University School of Dentistry Alumni Association Encouragement Award "ACE2 expression and spike protein-mediated immune responses in oral mucosal cells": Akagi M
- 5: The 57th Hiroshima University Dental Society General Meeting Encouragement Award "ACE2

expression and spike S1 protein-mediated immune responses in oral mucosal cells": Akagi M

(6) Patents

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Department of Advanced Prosthodontics

Division of Preventive and Restorative Dentistry

(Department of Oral Implant)

(1) Staff and Students

Professor : Kazuhiro Tsuga
 Associate Professor : Yasuhiko Abe, Mineka Yoshikawa, Takayasu Kubo
 Assistant Professor : Hiroshi Oue, Yoshifumi Oki, Maho Takeuchi, Hanako Umehara, Kiichi Nakamori
 Resident : Mariko Maruyama, Eri Ishida, Azusa Haruta
 Graduate Student : Yutaro Takahashi, Rie Hatakeyama, Yoko Hama, Hengky Bowo Ardhiyanto, Takashi Ogino, Yusuke Morimoto, Tomoko Izumikawa
 Research Fellow : Aya Hiraoka
 Clinical Trainee : Hideki Yamamoto, Toru Akutsu, Naoyuki Kouyama, Mie Tatsumura
 Administrative staff : Rinko Kurumi

(2) Main Research Activities

- 1: Implementation of tongue resistance training for the elderly and verification of its effect
- 2: Creating standard values for new occlusal force meter
- 3: Colonization survey of drug-resistant bacteria in long-term care facilities
- 4: Study on evaluation method of Preferred chewing side
- 5: Development of a Personalized Predictive Model for Functional Recovery in Prosthetic Treatment
- 6: Establishment of a new dysphagia evaluation method using a portable ultrasound diagnostic device
- 7: Basic research on PEEK materials for dental applications and clinical research on PEEK crowns for molars
- 8: Development of an antibacterial active rechargeable denture system
- 9: The mechanism by which tooth loss causes cognitive decline
- 10: Development of a predict diagnostic device for implant treatment
- 11: Establishment of a new oral hygiene assessment method using an IOS
- 12: Development of novel biomaterial with "bio-metal"

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Antibacterial Dental Adhesive Containing Cetylpyridinium Chloride Montmorillonite. Okazaki Y, Nakamori K, Yao C, Ahmed MH, Mercelis B, Nagaoka N, Maruo Y, Yoshida Y, Abe Y, Van Meerbeek B, Yoshihara K. *Materials* 17(17), 4368, 2024.
- 2: Association between dysphagia risk and sleep quality in community-dwelling older adults: A cross-sectional study. Hama Y, Yamada S, Nishimura R, Yoshida M, Tsuga K, Morita E, Tamada Y, Kato Y, Kubo Y, Okada R, Nagayoshi M, Tamura T, Hishida A, Wakai K, Naito M. *Heliyon*. 31, 10(11), e32028, 2024.
- 3: Association between motor symptoms of Parkinson's disease and swallowing disorders: Nakamori M, Toko M, Yamada H, Hayashi Y, Ushio K, Yoshikawa K, Haruta A, Hiraoka A, Yoshikawa M, Nagasaki T, Mikami Y, Maruyama H.: *Neurological Sciences*, 45(5), 2021-2026, 2024.
- 4: Cervical percutaneous interferential current stimulation improves citric acid cough tests in patients with Parkinson's disease on medication. Nakamori M, Toko M, Yamada H, Hayashi Y, Ushio K, Yoshikawa K, Hiraoka A, Yoshikawa M, Nagasaki T, Shimizu Y, Mikami Y, Maruyama H. *Sci Rep*, 18, 14(1), 11386, 2024.
- 5: Characteristics of dental materials in the oral cavities of Asian individuals between their 20s and early 40s living temporarily in Japan based on 38 case studies. Oka H, Obayashi N, Yoshikawa M, Kakimoto N. *J Oral Sci*. 66(3), 198-201, 2024.
- 6: Comparison of plaque control record measurements obtained using intraoral scanner and direct

- visualization. Doi K, Yoshiga C, Oue H, Kobatake R, Kawagoe M, Umehara H, Wakamatsu K, Tsuga K. *Clin Exp Dent Res*, 10(1), e852, 2024.
- 7: Editorial: New approaches to evaluation and management of dysphagia in neurological diseases. Nakamori M, Ortega F, Kayashita J, Yoshikawa M. *Front Neural*. 14, 15, 1467206, 2024.
 - 8: Evaluation of blue and red two-tone colored staining solution for dental plaque imaging using an intraoral scanner. Yoshiga C, Kobatake R, Doi K, Oue H, Kawagoe M, Tsuga K. *J Clin Exp Dent*, 1, 16(7), e845-e850, 2024.
 - 9: Evaluation of Bone Density for Primary Implant Stability Using a Newly Designed Drill: An In Vitro Study on Polyurethane Bone Blocks. Wakamatsu K, Doi K, Kobatake R, Oki Y, Tsuga K. *Clin Exp Dent Res*. 10(6), e70048, 2024.
 - 10: Low tongue pressure and depression using Kihon Checklist for assessing frailty status among community-dwelling Japanese older adults: A pilot study. Yoshikawa M, Nishikawa Y, Kitagawa M, Nagao A, Hiraoka A, Haruta A, Takeuchi M, Yoshida M, Tsuga K. *J Oral Rehabil*. 51(2), 334-342, 2024
 - 11: Metal component of dental restorations and fixed prostheses in the oral cavity of 43 cases of adults aged 55 years or older in forensic autopsy. Oka H, Ohbayashi N, Yoshikawa M, Katsuya N, Kakimoto N, Nagao M. *J Oral Sci*. 16, 66(1), 79-81, 2024.
 - 12: Oral and rectal colonization of methicillin-resistant *Staphylococcus aureus* in long-term care facility residents and their association with clinical status. Kusaka S, Haruta A, Kawada-Matsuo M, Nguyen-Tra Le M, Yoshikawa M, Kajihara T, Yahara K, Hisatsune J, Nomura R, Tsuga K, Ohge H, Sugai M, Komatsuzawa H. *Microbiol Immunol*. 68(3), 75-89, 2024.
 - 13: Preliminary Investigation of the Usefulness of Oral Hygiene Assessment Using an Intraoral Scanner: Doi K, Munenaga C, Kobatake R, Oue H, Kawagoe M, Tsuga K: *Journal of Japanese Society of Oral Implantology*, 37(1): 69-73, 2024.
 - 14: Prospective Observational Study for the Comparison of Screening Methods Including Tongue Pressure and Repetitive Saliva Swallowing With Detailed Videofluoroscopic Swallowing Study Findings in Patients With Acute Stroke. Nakamori M, Imamura E, Maetani Y, Yoshida M, Yoshikawa M, Nagasaki T, Masuda S, Kayashita J, Mizoue T, Wakabayashi S, Maruyama H, Hosomi N. *J Am Heart Assoc*. 6, 13(3), e032852, 2024.
 - 15: Tooth loss in young mice is associated with cognitive decline and femur-bone mineral density. Hatakeyama R, Oue H, Yokoi M, Ishida E, Tsuga K. *Odontology*. 2024 in press
 - 16: Utility of intraoral scanner imaging for dental plaque detection. Yoshiga C, Doi K, Oue H, Kobatake R, Kawagoe M, Umehara H, Tsuga K. *Imaging Sci Dent*, 54(1), 43-48, 2024.
 - 17: A novel implant placement technique using a three-dimensionally printed duplicate denture for implant-supported overdenture in patients with severe residual ridge resorption: A case report. Izumikawa T, Doi K, Iwaguro S, Tsuga K. *Clin Case Rep*, 30, 12(9), e9389, 2024.

B) Review

C) Publications

- 3: Introduction to oral hypofunction for family dentists: Tsuga K, Yoshikawa M: Dental Diamond Inc., P58-65, 2024.

D) Other Publications

- 1: Clinical practice of crowns with the newly insured Shofu Block PEEK: Abekura H, Yokoi M, Morita K, Nishio F, Tsuga K: *Nippon Dental Review*: 977, 55-59, 2024.
- 2: What to keep in mind when using PEEK in clinical practice: Abekura H, Tsuga K: Dental Diamond (June 2024 issue): 125, 2024.

E) Presentations at Scientific Meetings

- 1: Examination of antibacterial properties of PEEK with the addition of silver ion-containing zeolite: Kato M, Nishio F, Morita M, Abekura H, Tsuga K: The 82nd General Session of the Japanese Society for Dental Materials and Devices: Kagoshima, 2024.
- 2: Case of a patient with frontotemporal dementia whose treatment approach was modified according to

- their general condition : Hama Y, Yoshida M : The 35th Annual Meeting of the Japanese Society of Gerodontology (Sapporo), 2024.
- 3: Novel bone density evaluation based on drilling torque value using a newly designed drill: Wakamatsu K, Doi K, Kobatake R, Oki Y, Oue H, Kubo T, Tsuga K: The 14th Biennial Congress of the Asian Academy of Prosthodontics (AAP), Chiba, 2024.
 - 4: A novel implant placement technique using a three-dimensionally-printed duplicate denture for stabilized overdentures: Izumikawa T, Doi K, Wakamatsu K, Kobatake R, Tsuga K: The 14th Biennial Congress of the Asian Academy of Prosthodontics (AAP), Chiba, 2024.
 - 5: Long-term clinical outcome of hybrid resin and PEEK applied molar CAD/CAM crowns: Kagawa K, Yokoi M, Abekura H, Kato M, Nishio F, Umehara H, Yoshiga C, Wakamatsu K, Morita K, Doi K, Tsuga K: The 133rd Annual Meeting of the Japan Prosthodontic Society: Chiba, 2024.
 - 6: Six-month clinical evaluation of PEEK crowns on last molars: Yokoi M, Abekura H, Morita K, Doi K, Tsuga K, et al.: The 133rd Annual Meeting of the Japan Prosthodontic Society: Chiba, 2024.
 - 7: Effect of tooth loss and low protein intake on cognitive function in SAMP8 mice: Hatakeyama R, Oue H, Yokoi M, Ishida E, Tsuga K: The 133rd Annual Meeting of the Japan Prosthodontic Society: Chiba, 2024.
 - 8: Effect of MMA-based primer on shear bond strength between various adhesive cements and PEEK: Kato M, Abekura H, Nishio F, Morita K, Umehara H, Tsuga K: The 133rd Annual Meeting of the Japan Prosthodontic Society: Chiba, 2024.
 - 9: Relationship between fall anxiety and oral hypofunction in community-dwelling older adults : Maruyama S, Haruta A, Yoshikawa M, Morimoto Y, Takahashi Y, Maruyama M, Kagawa K, Takeuchi M, Yokoi M, Yoshida M, Tsuga K: The 133rd Annual Meeting of the Japan Prosthodontic Society: Chiba, 2024.
 - 10: Evaluation of implant primary stability using accumulated insertion torque value measurement: Kobatake R, Doi K, Wakamatsu K, Morimoto Y, Oki Y, Izumikawa T, Kubo T, Tsuga K: The 54th Annual Scientific Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 11: Influence of photocrosslinkable collagen solution on morphogenesis and bone formation of bone replacement materials: Morimoto Y, Yasuda K, Umehara H, Tsuga K: The 54th Annual Scientific Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 12: Clinical application of a novel implant placement technique for implant overdenture using a three-dimensionally-printed duplicate denture in edentulous mandibular case: Izumikawa T, Doi K, Kobatake R, Kubo T, Tsuga K: The 54th Annual Scientific Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 13: Treatment and diagnostic considerations for oral lichen planus suspected of Metal Allergy: Morita K, Yoshiga C, Abekura H, Doi K, Tsuga K: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association and the 108th Hiroshima University Dental Society Regular Meeting, Hiroshima, 2024.
 - 14: The usefulness of intraoperative bone density evaluation by using drilling torque measurements in determining the implant socket preparation protocol: Morimoto Y, Doi K, Wakamatsu K, Kobatake R, Kubo T, Tsuga K: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association and the 108th Hiroshima University Dental Society Regular Meeting, Hiroshima, 2024.
 - 15: Novel evaluation of implant primary stability using accumulated insertion torque value measurement: a preliminary in vitro study on bovine ribs: Izumikawa T, Doi K, Kobatake R, Wakamatsu K, Kubo T, Tsuga K: The 44th Meeting of the Chugoku-Shikoku Branch of Japanese of Oral Implantology: Simane, 2024.
 - 16: A case of implant supported fixed prosthesis applied to the mandibular bone defect after segmentectomy of bone dysplasia: Kagawa K, Wakita A, Furuebisu M, Tsuga K, Okada Y: The 41st Japanese Society for Disability and Oral Health: Okinawa, 2024.
 - 17: Oral and intestinal flora differences between autism spectrum disorder patients and healthy individuals : comparison between siblings living together : Oda Y, Murakami M, Morimoto M, Yamaguchi H, Nishio Y, Miyazaki H, Furutani C, Asahina H, Yoshida Y, Morimoto C, Hama Y, Miyauchi M, Katayama S, Nikawa H, Okada Y : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024
 - 18: Assessment of satisfaction with general anesthesia for children with disabilities : Morishita K, Oishi M, Yasuda S, Okino E, Yamaguchi M, Ochiai I, Shimogochi Y, Morimoto C, Hama Y, Oda Y, Miyauchi M, Yamanaka H, Kawamoto H, Kamikawa K, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024
 - 19: A survey on the Trends in dental visits of children with severe motor and intellectual disabilities at

Hiroshima oral health center: A comparison based on the presence or absence of medical complexity : Hama Y, Oda Y, Morimoto C, Oishi M, Okino E, Morishita K, Yamaguchi M, Ochiai I, Shimogochi Y, Miyauchi M, Kawamoto H, Yamanaka H, Kamikawa K, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024

- 20: A case of a child with ASD who refused to undergo dental treatment, and who became to be able to receive dental treatment under ordinary method by applying emotional regulation in the SCERTS model : Yamaguchi M, Oda Y, Oishi M, Okino E, Morishita K, Ochiai I, Shimogochi Y, Morimoto C, Hama Y, Miyauchi M, Yamanaka H, Kawamoto H, Kamikawa K, Murakami J, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024
- 21: Analysis of impressions of dental hygienist students on the clinical practice of disability dentistry during the spread of coronavirus infection : Shimogochi Y, Oishi M, Yasuda S, Okino E, Yamaguchi M, Morishita K, Ochiai I, Morimoto C, Hama Y, Oda Y, Miyauchi M, Yamanaka H, Kawamoto H, Kamikawa K, Yamasaki K : The 41th Japanese Society for Disability and Oral Health (Okinawa), 2024
- 22: Correlation between the new JMS bite force meter and the GC Dental Prescale II : Yoshikawa M, Maruyama S, Takahashi Y, Yamada S, Kagawa K, Takeuchi M, Maruyama M, Yokoi M, Tsuga K: 72nd Scientific Meeting of the Japanese Society of Stomatognathic Function : Tokyo.2024.

F) Special lectures in academic meeting

- 1: Basic knowledge and dental response for the elderly who need nursing care: Tsuga K, Reiwa 5-year Hiroshima Prefectural Project for Ensuring Comprehensive Regional Medical Care Hiroshima Prefectural Training Workshop for Consultants for People with Difficulties in Providing Dental Health Care Services, Hiroshima, 2024
- 2: Examination, diagnosis and management of oral hypofunction: Tsuga K: 1st Kure City, Dental Association Academic Lecture Meeting: Hiroshima, 2024
- 3: Basic knowledge and dental response for the elderly who need nursing care: Tsuga K, Reiwa 6-year Hiroshima Prefectural Project for Ensuring Comprehensive Regional Medical Care Hiroshima Prefectural Training Workshop for Consultants for People with Difficulties in Providing Dental Health Care Services, Hiroshima, 2024
- 4: The importance of developing and maintaining healthy mastication; Yoshikawa M: Japanese Society for Mastication Science and Health Promotion:Web held:2024.
- 5: Flow from oral frailty/oral dysfunction to dysphagia and preventive measures: Yoshikawa M: Midoricho Seminar: Hiroshima,2024.
- 6: To have fun, delicious and healthy meals - The front line of prevention from oral frailty to malnutrition -: Yoshikawa M: Akitakata city Seminar: Hiroshima,2024.
- 7: Stroke and oral care: Yoshikawa M: 18th Hiroshima Stroke Simin Symposium: Hiroshima,2024
- 8: Let's all work together! Oral care and oral frailty prevention: Yoshikawa M: Akiota Town Oral Care Training Session: Hiroshima,2024
- 9: Use tongue pressure for successful prosthetic dentistry treatment: Yoshikawa M: Japanese Society of Prosthodontics 1st Prosthodontist Specialist Training Session: Web hold,2024.
- 10: The role of the dental hygienist in eating and swallowing rehabilitation: Yoshikawa M: Hiroshima university Seminar: Hiroshima,2024
- 11: Let's learn about dentistry: Yoshikawa M: The 47thAnnual Meeting of the Society of Swallowing and Dysphagia of Japan: Niigata,2024
- 12: Flow from oral frailty/oral dysfunction to dysphagia and preventive measures: Yoshikawa M: Midoricho Seminar: Hiroshima,2024.
- 13: Diabetes and oral health: Oue H: JR Hiroshima Hosiptal, Diabetes class, Advanced course: Hiroshima, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: MEXT Grant-in-Aid for Scientific Research (B): Tsuga K : Can diagnosis of low tongue pressure and early intervention in younger elderly prevent oral dysfunction? (Grant No. 21H03132). ￥1,100,000
- 2: Grant-in-Aid for Challenging Research (Pioneering): Tsuga K : Building a research platform for eating behavior based on multidimensional sensor information (Grant No. 21K18305). ￥300,000

- 3: MEXT Grant-in-Aid for Scientific Research (B):Yoshikawa M : Can diagnosis of low tongue pressure and early intervention in younger elderly prevent oral dysfunction? (Grant No. 21H03132). ￥200,000
- 4: Grant-in-Aid for Challenging Research (Pioneering): Yoshikawa M: Building a research platform for eating behavior based on multidimensional sensor information (Grant No. 21K18305). ￥200,000
- 5: MEXT Grant-in-Aid for Scientific Research (C): Kubo T: Exploring the effects of osteoporosis therapy on masticatory and cognitive functions. (Grant No. 20K10072). ￥1,690,000
- 6: MEXT Grant-in-Aid for Scientific Research (C): Oue H: Elucidation of the mechanism of cognitive decline due to tooth loss using metabolomic analysis. (Grant No. 24K13006). ￥1,690,000
- 7: MEXT Grant-in-Aid for Scientific Research (C): Oki Y: Novel development of bone remodeling regulating porous titanium. (Grant No. 22K10034). ￥1,170,000
- 8: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Izumikawa T: Construction of a predictive diagnostic model for implant primary stability by developing simulated bone by bone density. ￥400,000.

(5) Academic Awards, etc.

- 1: Izumikawa T: Nakanishi foundation graduate students for scholarship program, 2024.

(6) Patents

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Department of Advanced Prosthodontics

Division of Preventive and Restorative Dentistry

(Department of Prosthetic Dentistry)

(1) Staff and Students

Professor : Kazuhiro Tsuga
 Associate Professor : Kazuya Doi
 Assistant Professor : Koji Morita, Keisuke Yasuda, Miyuki Yokoi, Reiko Kobatake
 Resident : Kazuko Kagawa, Yuhei Hashimoto
 Graduate Student : Kaiken Wakamatsu, Chihiro Yoshiga, Masayasu Kato, Shion Maruyama,
 Kenshiro Noda
 Researcher : Hitoshi Abekura
 Administrative staff : Rinko Kurumi

(2) Main Research Activities

- 1: Implementation of tongue resistance training for the elderly and verification of its effect
- 2: Creating standard values for new occlusal force meter
- 3: Colonization survey of drug-resistant bacteria in long-term care facilities
- 4: Study on evaluation method of Preferred chewing side
- 5: Development of a Personalized Predictive Model for Functional Recovery in Prosthetic Treatment
- 6: Establishment of a new dysphagia evaluation method using a portable ultrasound diagnostic device
- 7: Basic research on PEEK materials for dental applications and clinical research on PEEK crowns for molars
- 8: Development of an antibacterial active rechargeable denture system
- 9: The mechanism by which tooth loss causes cognitive decline
- 10: Development of a predict diagnostic device for implant treatment
- 11: Establishment of a new oral hygiene assessment method using an IOS
- 12: Development of novel biomaterial with “bio-metal”

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Association between dysphagia risk and sleep quality in community-dwelling older adults: A cross-sectional study. Hama Y, Yamada S, Nishimura R, Yoshida M, Tsuga K, Morita E, Tamada Y, Kato Y, Kubo Y, Okada R, Nagayoshi M, Tamura T, Hishida A, Wakai K, Naito M. *Heliyon*. 31, 10(11), e32028, 2024.
- 2: Comparison of plaque control record measurements obtained using intraoral scanner and direct visualization. Doi K, Yoshiga C, Oue H, Kobatake R, Kawagoe M, Umehara H, Wakamatsu K, Tsuga K. *Clin Exp Dent Res*, 10(1), e852, 2024.
- 3: Evaluation of blue and red two-tone colored staining solution for dental plaque imaging using an intraoral scanner. Yoshiga C, Kobatake R, Doi K, Oue H, Kawagoe M, Tsuga K. *J Clin Exp Dent*, 1, 16(7), e845-e850, 2024.
- 4: Evaluation of Bone Density for Primary Implant Stability Using a Newly Designed Drill: An In Vitro Study on Polyurethane Bone Blocks. Wakamatsu K, Doi K, Kobatake R, Oki Y, Tsuga K. *Clin Exp Dent Res*. 10(6), e70048, 2024.
- 5: Low tongue pressure and depression using Kihon Checklist for assessing frailty status among community-dwelling Japanese older adults: A pilot study. Yoshikawa M, Nishikawa Y, Kitagawa M, Nagao A, Hiraoka A, Haruta A, Takeuchi M, Yoshida M, Tsuga K. *J Oral Rehabil*. 51(2), 334-342, 2024
- 6: Oral and rectal colonization of methicillin-resistant *Staphylococcus aureus* in long-term care facility residents and their association with clinical status. Kusaka S, Haruta A, Kawada-Matsuo M, Nguyen-Tra Le M, Yoshikawa M, Kajihara T, Yahara K, Hisatsune J, Nomura R, Tsuga K, Ohge H, Sugai M,

- Komatsuzawa H. *Microbiol Immunol*. 68(3), 75-89, 2024.
- 7: Preliminary Investigation of the Usefulness of Oral Hygiene Assessment Using an Intraoral Scanner: Doi K, Munenaga C, Kobatake R, Oue H, Kawagoe M, Tsuga K: *Journal of Japanese Society of Oral Implantology*, 37(1): 69-73, 2024.
 - 8: Tooth loss in young mice is associated with cognitive decline and femur-bone mineral density. Hatakeyama R, Oue H, Yokoi M, Ishida E, Tsuga K. *Odontology*. 2024 in press
 - 9: Utility of intraoral scanner imaging for dental plaque detection. Yoshiga C, Doi K, Oue H, Kobatake R, Kawagoe M, Umehara H, Tsuga K. *Imaging Sci Dent*, 54(1), 43-48, 2024.
 - 10: A novel implant placement technique using a three-dimensionally printed duplicate denture for implant-supported overdenture in patients with severe residual ridge resorption: A case report. Izumikawa T, Doi K, Iwaguro S, Tsuga K. *Clin Case Rep*, 30, 12(9), e9389, 2024.

B) Review

C) Publications

- 1: Introduction to oral hypofunction for family dentists: Tsuga K, Yoshikawa M: *Dental Diamond Inc.*, P58-65, 2024.

D) Other Publications

- 1: Clinical applications of PEEK - Application to molar crowns-: Abekura H: *Dental Materials Journal*, 43 (1), 21-24, 2024.
- 2: Clinical practice of crowns with the newly insured Shofu Block PEEK: Abekura H, Yokoi M, Morita K, Nishio F, Tsuga K: *Nippon Dental Review*: 977, 55-59, 2024.
- 3: What to keep in mind when using PEEK in clinical practice: Abekura H, Tsuga K: *Dental Diamond* (June 2024 issue): 125, 2024.
- 4: Clinical and technical aspects of PEEK crowns made of newly insured materials: Abekura H: *Japanese Academy of Dental Technology*: 45: 70-73, 2024.
- 5: PEEK Crown Newly Applied to Health Insurance: Abekura H: *International College of Dentists Japan Section*: 2024, 55 (1), 2024.

E) Presentations at Scientific Meetings

- 1: Examination of antibacterial properties of PEEK with the addition of silver ion-containing zeolite: Kato M, Nishio F, Morita M, Abekura H, Tsuga K: *The 82nd General Session of the Japanese Society for Dental Materials and Devices*: Kagoshima, 2024.
- 2: Novel bone density evaluation based on drilling torque value using a newly designed drill: Wakamatsu K, Doi K, Kobatake R, Oki Y, Oue H, Kubo T, Tsuga K: *The 14th Biennial Congress of the Asian Academy of Prosthodontics (AAP)*, Chiba, 2024.
- 3: A novel implant placement technique using a three-dimensionally-printed duplicate denture for stabilized overdentures: Izumikawa T, Doi K, Wakamatsu K, Kobatake R, Tsuga K: *The 14th Biennial Congress of the Asian Academy of Prosthodontics (AAP)*, Chiba, 2024.
- 4: Long-term clinical outcome of hybrid resin and PEEK applied molar CAD/CAM crowns: Kagawa K, Yokoi M, Abekura H, Kato M, Nishio F, Umehara H, Yoshiga C, Wakamatsu K, Morita K, Doi K, Tsuga K: *The 133rd Annual Meeting of the Japan Prosthodontic Society*: Chiba, 2024.
- 5: Six-month clinical evaluation of PEEK crowns on last molars: Yokoi M, Abekura H, Morita K, Doi K, Tsuga K, et al.: *The 133rd Annual Meeting of the Japan Prosthodontic Society*: Chiba, 2024.
- 6: Effect of tooth loss and low protein intake on cognitive function in SAMP8 mice: Hatakeyama R, Oue H, Yokoi M, Ishida E, Tsuga K: *The 133rd Annual Meeting of the Japan Prosthodontic Society*: Chiba, 2024.
- 7: Effect of MMA-based primer on shear bond strength between various adhesive cements and PEEK: Kato M, Abekura H, Nishio F, Morita K, Umehara H, Tsuga K: *The 133rd Annual Meeting of the Japan Prosthodontic Society*: Chiba, 2024.
- 8: Relationship between fall anxiety and oral hypofunction in community-dwelling older adults : Maruyama S, Haruta A, Yoshikawa M, Morimoto Y, Takahashi Y, Maruyama M, Kagawa K, Takeuchi M, Yokoi M, Yoshida M, Tsuga K: *The 133rd Annual Meeting of the Japan Prosthodontic Society*:

- Chiba, 2024.
- 9: Evaluation of implant primary stability using accumulated insertion torque value measurement: Kobatake R, Doi K, Wakamatsu K, Morimoto Y, Oki Y, Izumikawa T, Kubo T, Tsuga K: The 54th Annual Scientific Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 10: Influence of photocrosslinkable collagen solution on morphogenesis and bone formation of bone replacement materials: Morimoto Y, Yasuda K, Umehara H, Tsuga K: The 54th Annual Scientific Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 11: Clinical application of a novel implant placement technique for implant overdenture using a three-dimensionally-printed duplicate denture in edentulous mandibular case: Izumikawa T, Doi K, Kobatake R, Kubo T, Tsuga K: The 54th Annual Scientific Meeting of the Japanese Society of Oral Implantology, Kyoto, 2024.
 - 12: Treatment and diagnostic considerations for oral lichen planus suspected of Metal Allergy: Morita K, Yoshiga C, Abekura H, Doi K, Tsuga K: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association and the 108th Hiroshima University Dental Society Regular Meeting, Hiroshima, 2024.
 - 13: The usefulness of intraoperative bone density evaluation by using drilling torque measurements in determining the implant socket preparation protocol: Morimoto Y, Doi K, Wakamatsu K, Kobatake R, Kubo T, Tsuga K: The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association and the 108th Hiroshima University Dental Society Regular Meeting, Hiroshima, 2024.
 - 14: Novel evaluation of implant primary stability using accumulated insertion torque value measurement: a preliminary in vitro study on bovine ribs: Izumikawa T, Doi K, Kobatake R, Wakamatsu K, Kubo T, Tsuga K: The 44th Meeting of the Chugoku-Shikoku Branch of Japanese of Oral Implantology: Simane, 2024.
 - 15: A case of implant supported fixed prosthesis applied to the mandibular bone defect after segmentectomy of bone dysplasia: Kagawa K, Wakita A, Furuebisu M, Tsuga K, Okada Y: The 41st Japanese Society for Disability and Oral Health: Okinawa, 2024.
 - 16: Correlation between the new JMS bite force meter and the GC Dental Prescale II : Yoshikawa M, Maruyama S, Takahashi Y, Yamada S, Kagawa K, Takeuchi M, Maruyama M, Yokoi M, Tsuga K: 72nd Scientific Meeting of the Japanese Society of Stomatognathic Function : Tokyo.2024.

F) Special lectures in academic meeting

- 1: Basic knowledge and dental response for the elderly who need nursing care: Tsuga K, Reiwa 5-year Hiroshima Prefectural Project for Ensuring Comprehensive Regional Medical Care Hiroshima Prefectural Training Workshop for Consultants for People with Difficulties in Providing Dental Health Care Services, Hiroshima, 2024
- 2: Examination, diagnosis and management of oral hypofunction: Tsuga K: 1st Kure City, Dental Association Academic Lecture Meeting: Hiroshima, 2024
- 3: Basic knowledge and dental response for the elderly who need nursing care: Tsuga K, Reiwa 6-year Hiroshima Prefectural Project for Ensuring Comprehensive Regional Medical Care Hiroshima Prefectural Training Workshop for Consultants for People with Difficulties in Providing Dental Health Care Services, Hiroshima, 2024
- 4: Clinical research findings and insurance coverage for molar PEEK crowns: Abekura H: Japan Academy of Digital Dentistry 2023 Winter Seminar: Osaka: 2024.
- 5: Clinical practice of insured molar PEEK crowns: Abekura H: Kyoto Prefecture Dental Association 1st Academic Lecture Meeting in 2024: Kyoto, 2024.
- 6: From clinical research to insurance coverage for molar PEEK crowns: Abekura H: 2024 Symposium of the Chugoku-Shikoku Branch Academic Conference of the Japan Prosthodontic Society (Considering the application of PEEK crowns and CAD/CAM crowns to molars): Okayama, 2024.
- 7: Characteristics of PEEK and clinical practice of molar PEEK crowns —From specific clinical research to insurance coverage— : Abekura H: The 29th Osaka Dental Health Conference (Seminar for Members): Osaka, 2024.
- 8: ①Adhesive cantilever device ② Endo crown ③ CAD/CAM crown material (V) (PEEK crown): Abekura H: Reiwa 6th year Seminar on the Introduction of New Insurance (Recorded and streamed online): Hiroshima, 2024.
- 9: Update on dental treatment with insurance coverage for biosafe molar crown restorations- PEEK and hybrid resin CAD/CAM crowns and endocrowns – And infection control: Abekura H: Hiroshima University School of Dentistry Alumni Association Ehime Branch Academic Lecture: Matsuyama,

2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: MEXT Grant-in-Aid for Scientific Research (B): Tsuga K : Can diagnosis of low tongue pressure and early intervention in younger elderly prevent oral dysfunction? (Grant No. 21H03132). ¥1,100,000
- 2: Grant-in-Aid for Challenging Research (Pioneering): Tsuga K : Building a research platform for eating behavior based on multidimensional sensor information (Grant No. 21K18305). ¥300,000
- 3: MEXT Grant-in-Aid for Scientific Research (C): Abekura H: Development of super engineering plastic restorative materials with wear resistance and aesthetics. (Grant No. 24K13005). ¥2,730,000.
- 4: MEXT Grant-in-Aid for Scientific Research (C): Kagawa K: Development of an antibacterial active rechargeable denture system. (Grant No. 22K100770A). ¥1,690,000
- 5: MEXT Grant-in-Aid for Scientific Research (C): Doi K: Establish of bone regeneration therapy using bio metal. (Grant No. 21K09934). ¥1,950,000.
- 6: MEXT Grant-in- Aid for Young Scientists: Kobatake R: Novel development of bone reconstruction material / dental implant complex. (Grant No. 21K17043). ¥2,730,000.
- 7: Collaborative Research Grant from NSK Nakanishi Corporation: Doi K. ¥2,040,000.
- 8: Research Support Grant for Clinical Trials, Hiroshima University Hospital: Doi K. [Comparison of plaque control record measurements obtained using intraoral scanner and direct visualization.]
- 9: Research Support Grant for Clinical Trials, Hiroshima University Hospital: Doi K: [Evaluation of blue and red two-tone colored staining solution for dental plaque imaging using an intraoral scanner.]
- 10: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Yoshiga C: Establishment of an AI digital oral health assessment method for preemptive prevention. ¥400,000.
- 11: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Wakamatsu K: Development of a novel bone density evaluation method by high precision drilling torque value measurement. ¥400,000.
- 12: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Maruyama S: Development of new masticatory function and pharyngeal residue evaluation method using pocket echo

(5) Academic Awards, etc.

- 1: Yoshiga C: Excellent student scholarship of Hiroshima University, 2024.

(6) Patents

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Department of Orthodontics and Craniofacial Development Biology

Division of Oral Health and Development

Department of Orthodontics

(1) Staff and Students

Professor: Kotaro Tanimoto

Associate Professor: Ryo Kunimatsu,

Associate professor of clinical medicine: Naoto Hirose

Assistant Professor: Yuki Asakawa, Yuki Yoshimi, Makoto Yanoshita, Isamu Kado, Shota Ito, Yuma

Koizumi,

Ayaka Nakatani

Intern: Sakura Yamada, Kazuyo Ando, Shuzo Sakata, Kazutaka Ikeda, Tomohiro Ogasawara,
Eri Tsuboi, Kodai Rikitake, Naoki Kubo, Fumika Abe, Shintaro Ogashira, Ayaka
Odo, Risako Oshiro, Katsuhito Sugai

Graduate Student: Kanae Oda, Saki Ogawa, Daiki Kita, Izumi Tanabe, Shun Ogata, Naonobu Okimura,
Ami Ono, Rio Shibata, Saki Takesue, Minoru Nakazato, Ryosuke Nakajima,
Shina Pasanen, Reina Hatano, Akira Hirabae, Kanako Okazaki, Erika Otake,
Marino Yoshida, Hirotaka Kiridoshi, Io Koyanagi, Momoko Sato, Chiaki Tsuru,
Kahana Fukuhara, Fukutaro Matsuo, Yuma Yasumitsu

Visiting Professor: Eiji Tanaka, Ichiro Takahashi, Shoichi Miyawaki, Hiroshi Kamioka

Registered Intern: Kuniaki Tanaka, Hiroki So, Tomoka Hiraki, Ayana Nakano, Sayuri

Nishiyama(2024.9~)

Dental Hygienist: Miho Okada, Miho Sakai

(2) Main Research Activities

- 1 : Elucidation of pathogenic mechanism in malocclusion and management of oral maxillofacial skeletal growth
 - * Basic research on bone metabolism
 - * Effects of breathing and perioral muscles on growth
 - * Examination of evaluation methods for oral myofunctional therapy
- 2 : Evaluation of the stability of treatment for jaw deformities
- 3 : Optimization of tooth movement by orthodontic force
 - * Elucidation of the mechanism of root resorption and exploration of treatment methods
 - * Effects of laser irradiation on tooth movement
 - * Inhibition of root resorption during tooth movement by anti-inflammatory analgesics
- 4 : Establishment of a new orthodontic treatment based on the image and biochemical diagnosis of temporomandibular disorders (TMD)
 - * Elucidation of the mechanism of joint destruction caused by mechanical stress
 - * Examination of treatment methods for the temporomandibular joint osteoarthritis
- 5 : Application of regeneration medicine to orthodontic treatment
 - * Establishment of bone regeneration of alveolar cleft using mesenchymal stem cells
 - * Regulation of stem cell differentiation into bone and chondrocytes
 - * Application of enamel matrix proteins to regenerative medicine
- 6 : Suppression of caries risk in orthodontic treatment
 - * Research on Amelogenesis imperfecta
 - * Restoring tooth enamel by biomineralization
 - * Risk assessment and treatment of dental caries
- 7 : Reducing the risk of periodontal disease during orthodontic treatment
 - * Study on changes in oral bacterial flora
 - * Risk assessment and treatment of periodontal disease
- 8 : Evaluation of the contribution of various oral functions to general fitness

- * Research on obstructive sleep apnea syndrome
- 9 : Application of digital technological in orthodontic treatment
 - * Evaluation of tooth movement, root resorption, and pain using aligners
 - * Assistance of orthodontic diagnosis using artificial intelligence
- 10 : Development of new instruments and materials for orthodontic treatment

(3) Research Achievements

A) Original Papers (2024.1-2024.12 including Case Reports)

- 1 : Structure and function of engineered stromal cell-derived factor-1 α : Abe F., Nakano A., Hirata I., Tanimoto K., Kato K.: *Dent Mater J.*, 29;43(2):286-293, 2024. doi:10.4012/dmj.2023-247.
- 2 : Stem cells derived from human exfoliated deciduous teeth-based media in a rat root resorption model : Odo A., Kunimatsu R., Abe T., Sakata S., Nakatani A., Rikitake K., Koizumi Y., Tanabe I., Okimura N., Yoshimi Y., Tanimoto K.: *Arch Oral Biol.*, 158, 2024. doi: 10.1016/j.archoralbio.2023.105854
- 3 : Histological Changes in the Temporomandibular Joint of Rats with Mandibular Condyle Deformity Induced by Articular Disc Displacement : Kita D., Yanoshita M., Hirose N., Nishiyama S., Tsuboi E., Kubo N., Nakajima R., Onishi A., Asakawa Y., Tanimoto K.: *J Hard Tissue Biol.*, 33(4): 195-202, 2024. doi.org/10.2485/jhtb.33.195
- 4 : The role of semaphorin 3A on chondrogenic differentiation : Tsuboi E., Asakawa Y., Hirose N., Yanoshita M., Sumi C., Takano M., Onishi A., Nishiyama S., Kubo N., Kita D., Tanimoto K.: *In vitro cell. dev. biol., Anim.*, 60(6):609-615, 2024. doi: 10.1007/s11626-024-00909-z
- 5 : The expression of MIR125B transcripts and bone phenotypes in Mir125b2-deficient mice : Ogasawara T., Ito S., Yoshiko Y., Hoshino T., Ogashira S., Sotomaru Y., Tanimoto K.: *PLoS ONE*, 19(7):e0304074, 2024. DOI: 10.1371/journal.pone.0304074
- 6 : Sclerostin modulates mineralization degree and stiffness profile in the fibrocartilaginous enthesis for mechanical tissue integrity : Yambe S., Yoshimoto Y., Ikeda K., Maki K., Takimoto A., Higuchi S., Yu X., Uchibe K., Miura S., Watanabe H., Sakuma T., Yamamoto T., Tanimoto K., Kondoh G., Docheva D., Adachi T., Shukunami C.: *Front Cell Dev Biol.*, 12:1360041, 2024. doi: 10.3389/fcell.2024.1360041
- 7 : Maxillofacial Morphology as a Predictive Factor for Caries Risk in Orthodontic Patients : A Cross-Sectional Study. : Koizumi Y., Kunimatsu R., Kadoi., Yoshimi Y., Yamada S., Ogasawara T., Tanimoto K.: *J. Clin. Med.*, 13(2), 622; 2024. doi.org/10.3390/jcm13020622
- 8 : High-frequency semiconductor laser irradiation enhances osteogenic differentiation of human cementoblast lineage cell : Nakatani A., Kunimatsu R., Sakata S., Tsuka Y., Miyauchi M., Takata T., Tanimoto K.: *Lasers Med Sci.*, 39(1):174, 2024. DOI: 10.1007/s10103-024-04127-7
- 9 : Protective Effect of Ergothioneine against Oxidative Stress-Induced Chondrocyte Death : Sakata S., Kunimatsu R., Tanimoto K.: *Antioxidants*, 13(7), 800, 2024. doi.org/10.3390/antiox13070800
- 10 : Prediction of a Cephalometric Parameter and Skeletal Patterns from Lateral Profile Photographs: A Retrospective Comparative Analysis of Regression Convolutional Neural Networks : Ito S., Mine Y., Urabe S., Yoshimi Y., Okazaki S., Sano M., Koizumi Y., Tzu-Yu Peng., Kakimoto N., Murayama T., Tanimoto K.: *J.Clin. Med.*, 13(21), 2024. doi: 10.3390/jcm13216346
- 11 : Effects of novel lactoferrin peptides on LPS-induced alveolar bone destruction in a rat model : Yamada S., Chea C., Furusho H., Oda K., Shiba F., Tanimoto K., Tate S-i., Miyauchi M., Takata T.: *Chemical Biology & Drug Design.*, 104(1), 2024. doi:10.1111/cbdd.14574
- 12 : Surgical Orthodontic Treatment for Skeletal Maxillary Protrusion in Sturge-Weber Syndrome: A Case Report and Review of the Literature : Kado I., Ogashira S., Ono S., Koizumi K., Nakagawa T., Yoshimi Y., Kunimatsu R., Ito S., Koizumi Y., Ogasawara T., Aikawa T., Tanimoto K.: *Cureus*, 16(5), e59964, 2024. doi: 10.7759/cureus.59964
- 13 : Comparison of Orthodontic Tooth Movement of Regenerated Bone Induced by Carbonated

- Hydroxyapatite or Deproteinized Bovine Bone Mineral in Beagle Dogs : Abe T., Kunimatsu R., Tanimoto K.: Materials, 25;17(1):112, 2024. doi: 10.3390/ma17010112
- 14: Orthodontic Treatment of a Patient with Non-Syndromic Oligodontia and a Skeletal Class III Relationship: A Case Report and Six Years' Follow-Up: Kunimatsu R., Asakawa Y., Nakatani A., Sakata S., Tanimoto K.: Cureus, 16(6), e62563, 2024. doi: 10.7759/cureus.62563
 - 15: Orthodontic treatment of anterior open bite caused by a car accident: a case report : Hirose N., Yanoshita M., Nishiyama S., Onishi A., Kubo N., Kita D., Tsuboi E., Tanimoto K.: Contemp Clin Dent., 15(4):269-274, 2024. DOI: 10.4103/ccd.ccd_537_23
 - 16 : Cyclic Peptides KS-133 and KS-487 Multifunctionalized Nanoparticles Enable Efficient Brain Targeting for Treating Schizophrenia. : Sakamoto K., Iwata S., Jin Z., Chen L., Miyaoka T., Yamada M., Katahira K., Yokoyama R., Ono A., Asano S., Tanimoto K., Ishimura R., Nakagawa S., Hirokawa T., Ago Y., Miyako E.: JACS Au., 20;4(8):2811–2817, 2024. doi: 10.1021/jacsau.4c00311
 - 17: RadImageNet and ImageNet as datasets for transfer learning in the assessment of dental radiographs: A comparative study : Okazaki S., Mine Y., Yoshimi Y., Iwamoto Y., Ito S., Peng T.Y., Nishimura T., Suehiro T., Koizumi Y., Nomura R., Tanimoto K., Kakimoto N., Murayama T.: J Imaging Inform Med., in press, 2024. doi: 10.1007/s10278-024-01204-9
 - 18 : A case of skeletal Class II open bite caused by idiopathic condylar resorption treated with a two-jaw surgery : Abe T., Yoshimi Y., Koizumi Y., Yanoshita M., Hirose N., Tanimoto K.: Clin Investig Orthod., 83(2) 73-81, 2024.
 - 19 : Long-term follow-up case of skeletal mandibular protrusion that improved posterior crossbite by surgically assisted rapid maxillary expansion : Yoshimi Y., Abe T., Abe F., Kado I., Ito S., Koizumi Y., Kaku M., Tanimoto K.: J. Chu-shi. Orthod. Soc., 36 (1) 1-10, 2024.
 - 20 : Effects of photobiomodulation therapy on osteoarthritis : Sakata S., Kunimatsu R., Tsuka Y., Nakatani A., Tanimoto K.: J Jpn. Soc. Laser Dent., 2024, 34 (1) 1-8, 2024.
 - 21 : Changes in craniofacial morphology among Japanese with normal occlusion : Onishi A., Hirose N., Yanoshita M., Oka Y., Tanimoto K.: Clin Invest Orthod., 83(2) 57-62, 2024.

B) Review (2024.1-2024.12)

- 1 : Actual medical cooperation in Hiroshima University Hospital Dental Department : Tanimoto K., Ogasawara T., Kado I., Koizumi Y, J Hiroshima Dent. 48(1) , 10-15, 2024.
- 2 : Disk displacement of temporomandibular joint and the related factors : Tanimoto K J. Jpn Soc T.M.J., 36(2), 10-15, 2024.
- 3 : Changes in the mandibular condyle induced by mechanical stress : Hirose N.: J. Jpn Soc T.M.J., 36(3), 95-101, 2024.

C) Publications (2024.1-2024.12)

- 1 : Goto S., et al. ed.: Orthodontics the 7th edition. Ishiyaku publisher, Tokyo, 2024.
- 2 : Arai K., et al. ed.: Oral hygiene series Orthodontics the 2nd edition. Ishiyaku publisher, Tokyo, 2024.

D) Other Publications (2024.1-2024.12)

- 1 : "Let's Receive Proper Orthodontic Treatment." : Hirose N.: Sera Central Hospital Newsletter, 2024.10.

E) Presentations at Scientific Meetings (2024.1-2024.12)

- 1 : Prediction of a cephalometric parameter and feature visualization on lateral profile photographs using deep learning approach. : Aoe H., Mine Y., Ito S., Yoshimi Y., Okazaki S., Takeda S., Tanimoto K., Murayama T.: The 15th Scientific Meeting of the Japan Dental Academy of Digital Dentistry

- (Nagasaki), 2024.
- 2 : Super-resolution of TMJ MR images using Generative Adversarial Networks. : Ito S, Mine Y, Yoshimi T, Okazaki S, Takeda S, Murayama T, Tanimoto K.: The 15th Scientific Meeting of the Japan Academy of Digital Dentistry (Nagasaki), 2024.
 - 3 : Detecting the articular disk in MR images of the TMJ using an object detection model. : Yamamoto K., Mine Y., Okazaki S., Yoshimi Y., Ito S., Murayama T.: The 82nd General Session of the Japanese Society for Dental Materials and Devices (Kagoshima), 2024.
 - 4 : Effect of CD146 positive stem cells from human exfoliated deciduous teeth on bone regeneration. : Rikitake K., Kunimatsu R., Yoshimi Y., Ando K., Nikawa H., Tanimoto K.: The 57th General Meeting of the Hiroshima University Dental Society (Hiroshima), 2024.
 - 5 : Influence of stem cell-derived from human exfoliated deciduous teeth-based media in a rat root resorption model. : Odo A., Kunimatsu R., Sakata S., Nakatani A., Rikitake K., Koizumi Y., Tanabe I., Okimura N., Yoshimi Y., Tanimoto K.: 57th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
 - 6 : Effects of high-frequency near-infrared diode laser irradiation on IL-1 β -induced expression of matrix metalloproteinases and NF- κ B signaling pathways in human primary chondrocytes. : Sakata S., Kunimatsu R., Nakatani A., Tanimoto K.: 57th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
 - 7 : Overexpression of vasoactive intestinal peptide receptor 2 in neurons causes abnormal dendritic morphology in the prefrontal cortex and cognitive impairment. : Ono A., Koan D., Asano S., Miyaoka T., Chen L., Nakagawa S., Hayata-Takano A., Nakazawa T., Harada A., Hashimoto H., Waschek J A., Tanimoto K., Ago Y.: CINP 35th World Congress Collegium Internationale Neuro-Psychopharmacologicum (Tokyo), 2024
 - 8 : Comparison of Orthodontic Tooth Movement of Regenerated Bone Induced by CAP or Bovine Bone in Dogs. : Kunimatsu R., Abe T., Tanimoto K.: The 47th Annual Meeting of Japanese Cleft Palate Association (Aichi), 2024.
 - 9 : The Functional Role of Scleraxis in the Growth of the Mandible and Masticatory Muscles. : Ogata S., Yambe S., Yu X., Yoshimoto Y., Miura S., Adachi T., Shukunami C.: The 42nd Annual Meeting of the Japanese society for Bone and Mineral Research (Okinawa), 2024.
 - 10 : Comparison of masticatory muscle composition before and after orthognathic surgery in patients with jaw deformity with lateral mandibular deviation. : Ikeda K., Asakawa Y., Yoshimi Y., Sakata S., Rikitake K., Kunimatsu R., Tanimoto K.: The 34st Annual Meeting of the Japanese Society for Jaw Deformities (Tokyo), 2024.
 - 11 : Maxillofacial Morphology as a Predictive Factor for Caries Risk in Orthodontic Patients. : Yuma Koizumi Y., Kunimatsu R., Kado I., Yoshimi Y., Yamada S., Ogasawara T., Tanimoto K.: The 67th Annual Meeting of the Chu-Shikoku Orthodontic Society (Hiroshima), 2024.
 - 12 : The effects of oral myofunctional therapy (MFT) on the function of perioral muscles and the questionnaire sheet before and after MFT. : Nakatani A., Asakawa Y., Yamada S., Ando K., Inoue F., Tanimoto K.: The 67th Annual Meeting of the Chu-Shikoku Orthodontic Society (Hiroshima), 2024.
 - 13 : Surgical Orthodontic Treatment of Skeletal Maxillary Protrusion with Sturge-weber syndrome. : Ogashira S., Kado I., Yoshimi Y., Kunimatsu R., Ito S., Koizumi Y., Ogasawara T., Tanimoto K.: The 67st Annual Meeting of the Chu-Shikoku Orthodontic Society (Hiroshima), 2024.
 - 14 : Three cases of fenestration and traction for a deeply impacted mandibular second premolar: Clinical considerations of root formation. : Kita D., Hirose N., Yanoshita M., Tsuboi E., Kubo N., Nishiyama S., Nakazato M., Takesue S., Nakajima R., Yoshida M., Ogasawara T., Yoshimi Y., Tanimoto K.: The 67th Annual Meeting of the Chu-Shikoku Orthodontic Society (Hiroshima), 2024.
 - 15 : Automatic detection of articular discs using an object detection AI model applying histogram equalization processing. : Ito S, Yoshimi Y, Mine Y, Hirose N, Yanoshita M, Koizumi Y, Tanimoto K.: The 37th Annual Meeting of the Japanese Society for Temporomandibular Joint (Tokushima), 2024.
 - 16 : A Clinical and Statistical survey of Temporomandibular Joint Disordersiin Children. : Tsuboi E., Hirose N., Asakawa Y., Yanoshita M., Nishiyama S., Kubo N., Kita D., Takesue S., Nakazato M., Nakazima R., Tanimoto K.: The 37th Annual Meeting of the Japanese Society for Temporomandibular Joint (Tokushima), 2024.
 - 17 : A Statistical Study of Maxillofacial Morphology in Patients with Temporomandibular Joint

- Disorders. : Kubo N., Hirose N., Yanoshita M., Nishiyama S., Tsuboi E., Ito S., Koizumi Y., Asakawa Y., Tanimoto K.: The 37th Annual Meeting of the Japanese Society for the Temporomandibular Joint (Tokushima), 2024.
- 18 : Role in chondrogenic differentiation and its mechanism of action of semaphorin3A. : Nakazato M., Asakawa Y., Hirose N., Yanoshita M., Tsuboi E., Nishiyama S., Kubo N., Kita D., Nakajima R., Takesue S., Tanimoto K.: The 37th Annual Meeting of the Japanese Society for the Temporomandibular Joint (Tokushima), 2024.
 - 19 : Production of bFGF immobilized microbeads for mass culture of human mesenchymal stem cells. : Pasanen S., Tanimoto K., Kato K.: The 53th Symposium on Biomedical Polymers (Tokyo), 2024.
 - 20 : Differentiated use of functional orthodontic appliance. : Nakazato M., Hirose N., Yanoshita M., Tanimoto K.: Consortium for Professional Orthodontists, 2024 March meeting (online), 2024.
 - 21 : Enhancing Clinical Quality and Patient Safety: Strategies for Increasing Orthodontic Patients at Hiroshima University Hospital. : Hirose N., Tanimoto K.: Consortium for Professional Orthodontists, 2024 August meeting (Tokyo), 2024.
 - 22 : Barriers to Orthodontic Appliance Use in Children. : Takesue S., Hirose N., Yanoshita M., Tanimoto K.: Consortium for Professional Orthodontists, 2024 August meeting (Tokyo), 2024.
 - 23 : A case of space closure by orthodontic treatment after extraction of maxillary bilateral central incisor with external resorption. : Abe F., Yoshimi Y., Ito S., Tanimoto K.: The 63th Hiroshima Prefectural Dental Association and the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.
 - 24 : Effects of a selective VPAC2 receptor antagonist peptide on a mouse model of positive symptoms of schizophrenia : Ono A., Imado E., Ago Y.: The 41st Annual Meeting of the Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 25 : Resolvin D1 reduces inflammation in Human Fibroblast-Like Synoviocytes via p-38, NF- κ B and AKT signaling pathway. : Yanoshita M., Hirose N., Nishiyama S., Kubo N., Kita D., Takesue S., Nakajima R., Nakazato M., Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 26 : Influence of medium of human exfoliated deciduous teeth-derived stem cells in rat root resorption model. : Odo A., Kunimatsu R., Abe T., Sakata S., Nakatani A., Rikitake K., Koizumi Y., Tanabe I., Okimura N., Yoshimi Y., Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 27 : Designing engineered stromal cell-derived factor-1 α for promoting bone formation. : Abe F., Nakano A., Hirata I., Kato K., Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 28 : First isolation of a novel temperate bacteriophage specifically killing activity against *Streptococcus mutans* clinical isolates. : Sugai K., Matsuo M., Komatsuzawa M., Tanimoto M.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 29 : Elucidation of the mechanism of calcification in mouse vascular smooth muscle cells by Calciprotein particles : Oshiro R., Ito S., Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 30 : Human full-length amelogenin enhances osteogenic differentiation of stem cells from human exfoliated deciduous teeth : Hirabae A, Kunimatsu R, Nakatani A, Sakata S, Rikitake K, Yoshimi Y, Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 31 : Osteoblast differentiation is enhanced in Mir125b-1 knockout ST2 cells. : Ogashira S., Ito S., Ogasawara T., Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 32 : Comparison of orthodontic tooth movement of regenerated bone induced by CAP or DBBM in dogs. : Kunimatsu R., Abe T., Tanimoto K.: The 83th Annual Meeting of the Japanese Orthodontic Society (Kanagawa), 2024.
 - 33 : Mass culture of human mesenchymal stem cells on bFGF-immobilized microbeads. : Pasanen S., Tanimoto K., Kato K.: The Annual Meeting of the Japanese Society for Biomaterials 2024(Sendai), 2024.
 - 34 : Large-scale culture of human mesenchymal stem cells using bFGF-immobilized microcarriers. : Pasanen S., Kato K.: The Japanese Society Dental Materials and Devices Kinki and Chu-shikoku Regional Association Seminar (Kobe), 2024.

- 35 : Enhanced infiltration of myoblasts into collagen scaffolds loaded with engineered basic fibroblast growth factor. : Matsuyama T., Pasanen S., Futami F., Kato A., Hirata I., Yanamoto S., Kato K.: The Japanese Society Dental Materials and Devices Kinki and Chu-shikoku Regional Association Seminar (Kobe), 2024.
- 36 : Isolation of Staphylococcus aureus in oral and whole body specimens from forensic autopsies : Fujii A., Odan K., Matsuo F., Oka H., Matsuo M., Nagao M., Komatsuzawa H., Aikawa T.: The 71 st annual meeting of Chugoku-Shikoku the Japanese Stomatological Society (Hiroshima), 2024.
- 37 : FK506 modulates inflammation-related factor expression via NFAT signaling in chondrocytes under excessive mechanical stress. : Hirose N., Yanoshita M., Nishiyama S., Takano M., Tsuboi E., Kubo N., Kita D., Asakawa Y., Tanimoto K.: The 37th Annual Meeting of the Taiwan Association of Orthodontists and the 14th Asian Pacific Orthodontic Congress (Taiwan), 2024.
- 38 : The analysis of oral environment and classification of caries risk by CAMBRA in Hiroshima University Hospital. : Abe F., Kado I., Yoshimi Y., Tanimoto K.: The 37th Annual Meeting of the TAO and the 14th Asian Pacific Orthodontic Congress (Taiwan), 2024.

F) Special lectures in academic meetings (2024.1-2024.12)

- 1 : Tanimoto K : Orthodontic treatment considering temporomandibular joint status.: The 17th Indonesian Association of Orthodontic Annual Meeting and Conference, (Bali), 2024.
- 2 : Tanimoto K : Orthodontic treatment and health on the whole body.: The 17th Indonesian Association of Orthodontic Annual Meeting and Conference, (Bali), 2024.
- 3 : Tanimoto K : The relationship between jaw morphology and temporomandibular joint disorders.: The 37th Annual Meeting of the Japanese Society for Temporomandibular Joint (Tokushima), 2024.
- 4 : Tanimoto K : Is this occlusion okay the way it is? -Orthodontic treatment in the community-: Shunan-shi School Health Association General Meeting (Shunan) , 2024.
- 5 : Tanimoto K : Maintenance of systemic health through oral health~Let's think about your teeth alignment and occlusion~.: Earth mondahmin seminar 2024 (Hiroshima), 2024.
- 6 : Hirose N : Examinations and initial treatments for temporomandibular disorders prior to orthodontic treatment.: The 67th Annual Meeting of the Chu-Shikoku Orthodontic Society (Hiroshima), 2024.
- 7 : Hirose N : Necessity of early diagnosis and management of temporomandibular disorders in pediatric patients.: The 37th Annual Meeting of the Japanese Society for Temporomandibular Joint (Tokushima), 2024.
- 8 : Hirose N : The Frontline of Orthodontic Treatment for Patients with Temporomandibular Disorders.: Graduate Lecture at Tokyo Medical and Dental University (Tokyo), 2024.
- 9 : Yoshimi Y : Orthodontic diagnostic seminar " crowding": The 67th Annual Meeting of the Chu-Shikoku Orthodontic Society (Hiroshima), 2024
- 10 : Nakatani A : Elucidation of the effects of laser irradiation on the metabolic regulation mechanism of periodontal tissue.: The 36th Annual Meeting of Japanese Society for Laser Dentistry (Aichi),2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

1. Grant-in-aid for Scientific Research (B) : Tanimoto K., Elucidation of the Homing Characteristics of CD146-Positive Deciduous Dental Pulp Stem Cell-Derived Exosomes and a Novel Regenerative Medicine Strategy. 24K02653. 9,750,000 yen
2. Grant-in-aid for Scientific Research (B) : Kunimatsu R., Establishment of a new treatment for bone regeneration in the cleft jaw by fusing spatial control techniques and tissue engineering. 24K02654. 4,940,000 yen
3. Grant-in-aid for Scientific Research (C) : Hirose N., Elucidation of mechanics of ideopathic condylar resorption and establishment of new therapeutic methods with estrogen-NFAT pathway. 22K10272. 780,000 yen
4. Grant-in-aid for Scientific Research (C) : Asakawa Y., Elucidation of mechanisms of promoting mandibular cartilage differentiation by Sema3A and its application to new treatment with mandibular retrusion. 22K10273. 910,000 yen
5. Grant-in-aid for Scientific Research (C) : Yoshimi Y., Application to root resorption prevention using functional amelogenin peptide and stem cell paracrine action. 22K10247. 1,300,000 yen

6. Grant-in-aid for Scientific Research (C) : Yanoshita M., Analysis of bone metabolism abnormalities specific to the mandible head and the mechanism of suppression of ICR by FAK inhibition. 22K17230. 1,430,000 yen
7. Grant-in-aid for Scientific Research (C) : Kado I., Building personalized medicine and prevent system of iatrogenic disorders during orthodontic treatment by bacterial gene sequencing. 23K16204. 1,950,000 yen
8. Grant-in-aid for Early-Career Scientists : Yamada S., Application to peptide drug discovery for periodontitis during orthodontic treatment based on lactoferrin research. 24K0060. 2,600,000 yen
9. Grant-in-aid for Early-Career Scientists : Ito S., Examination of novel bone regeneration targeting bone metabolism regulated by miR-125b. 22K17252. 1,430,000 yen
10. Grant-in-Aid for Early-Career Scientists : Hiraki T., Characterization of Different Mesenchymal Stem Cell Culture Supernatants from Origin and Development of a Therapeutic Method for Bone Regeneration Applying Humoral Factors. 24K20082. 2,470,000 yen
11. Grant-in-Aid for Early-Career Scientists : Koizumi Y., Analysis of disbiosis in the oral microflora of growing orthodontic patients and development of a preventive method for medically-induced diseases. 24K0058. 1,430,000 yen
12. Grant-in-Aid for Early-Career Scientists : Nakatani A., Elucidate of the mechanism of the photobiomodulation for periodontal tissue and tooth movement-induced pain. 24K20081. 1,820,000 yen
13. Grant-in-Aid for Early-Career Scientists : Sakata S., Establishment of techniques to control pathological conditions of temporomandibular joint osteoarthritis by near infrared ultrashort pulse laser and elucidation of its mechanism. 23K16203. 2,080,000 yen
14. Grant-in-Aid for Early-Career Scientists : Nakano A., Controlling heterostructure of regenerated bone tissue using bio-3D printing technology. 23K16039. 1,950,000 yen
15. Grant-in-Aid for Early-Career Scientists : Nishiyama S., Elucidation of cartilage substrate destruction mechanism of ANGPTL2 and establishment of new therapeutic agent for therapies for temporomandibular joint osteoarthritis. 22K17253. 2,080,000 yen
16. Grant-in-Aid for Early-Career Scientists : Tsuboi E., Effect of Semaphorin3A on endochondral ossification. 23K16206. 2,600,000 yen
17. Grant-in-Aid for Early-Career Scientists : Rikitake K., Establishment of a new jaw cleft regeneration treatment using mesenchymal stem cells derived from the dental pulp of deciduous teeth with excellent bone regeneration and angiogenesis abilities. 24K19919. 1,820,000 yen
18. Grant-in-Aid for Early-Career Scientists : Ogasawara T., The application of exosomes derived from culture supernatants of stem cells from human exfoliated deciduous teeth to the treatment of inflammatory bone destruction diseases. 24K20059. 2,600,000 yen
19. Grant-in-Aid for Research Activity Start-up : Abe F., Molecular design of chimeric proteins as components of tissue engineering scaffolds. 24K23588. 1,560,000 yen
20. Grant-in-Aid for Research Activity Start-up : Odo A., Exploration of periodontal tissue metabolism inducing ability of deciduous dental pulp stem cell culture supernatant and its application to novel method for preventing root resorption. 24K23554. 1,300,000 yen
21. Collaborative research with Maruzen Pharmaceuticals Co., Ltd.: Kunimatsu R., Evaluation of anti-inflammatory materials. 1,000,000 yen
22. Health Labour Sciences Research Grant Disability Policy Comprehensive Research Project (Co-I) : Hirose N., Research on the Actual Situation of Diseases Targeted for upbringing medical care. 300,000 yen

(5) Academic Awards, etc.

1. Ono A., Koan D., Asano S., Miyaoka T., Chen L., Nakagawa S., Hayata-Takano A., Nakazawa T., Harada A., Hashimoto H., Waschek J A., Tanimoto K., Ago Y. : Overexpression of vasoactive intestinal peptide receptor 2 in neurons causes abnormal dendritic morphology in the prefrontal cortex and cognitive impairment.: JSNP Excellent Presentation Award for CINP 2024
2. Ono A., Koan D., Asano S., Miyaoka T., Chen L., Nakagawa S., Hayata-Takano A., Nakazawa T., Harada A., Hashimoto H., Waschek J A., Tanimoto K., Ago Y. : Overexpression of vasoactive intestinal peptide receptor 2 in neurons causes abnormal dendritic morphology in the prefrontal cortex

- and cognitive impairment.: The Student Encouragement Award at CINP 35th World Congress of Neuropsychopharmacology
3. Ito S., Yoshimi Y., Mine Y., Hirose N., Yanoshita M., Koizumi Y., Tanimoto K. : Automatic detection of articular discs using an object detection AI model applying histogram equalization processing.: The 37th Annual Meeting of the Japanese Society for Temporomandibular Joint Excellence (Ishibashi) Award.
 4. Rikitake K., Kunimatsu R., Yoshimi Y., Ando K., Nikawa H., Tanimoto K. : Effect of CD146 positive stem cells from human exfoliated deciduous teeth on bone regeneration.: The 57th General Meeting of the Hiroshima University Dental Society Research Incentive Award
 5. Nakatani A., Kunimatsu R., Tanimoto K. : High-frequency near-infrared semiconductor laser irradiation suppressed experimental tooth movement-induced inflammatory pain markers in the periodontal ligament tissues of rats.: The 36th Annual Meeting of Japanese Society for Laser Dentistry Academic Encouragement Award.
 6. Abe F., Nakano A., Hirata I., Kato K., Tanimoto K. : Designing engineered stromal cell-derived factor-1 α for promoting bone formation.: The 83th Annual Meeting of the Japanese Orthodontic Society Excellent Presentation Award
 7. Odo A., Kunimatsu R., Abe T., Sakata S., Nakatani A., Rikitake K., Koizumi Y., Tanabe I., Okimura N., Yoshimi Y., Tanimoto K. : Influence of medium of human exfoliated deciduous teeth-derived stem cells in rat root resorption model.: The 83th Annual Meeting of the Japanese Orthodontic Society Excellent Presentation Award
 8. Sugai K., Matsuo M., Komatsuzawa M., Tanimoto M. : First isolation of a novel temperate bacteriophage specifically killing activity against *Streptococcus mutans* clinical isolates.: The 83th Annual Meeting of the Japanese Orthodontic Society Excellent Presentation Award

(6) Patents

- 1.

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Department of Oral & Maxillofacial Radiology

Division of Oral and Maxillofacial Surgery and Oral Medicine

(Department of Oral and Maxillofacial Radiology)

(1) Staff and Students

Professor : Naoya Kakimoto
 Associate Professor : Takashi Nakamoto
 Associate Professor/Lecturer : Yoshikazu Suei, Masaru Konishi
 Assistant Professor : Toshikazu Nagasaki, Masahiko Ohtsuka, Kiichi Shimabukuro
 International Research Student : Fahri Reza Ramadhan (October~)

(2) Main Research Activities

- 1: Radiographic diagnosis of oral diseases
- 2: Radiographic study on mandibular osteomyelitis
- 3: Study of radiation dosimetry in X-ray region for diagnosis
- 4: Study on the videofluoroscopic examination of swallowing
- 5: Improvement of treatment results in the radiotherapy for oral cancers
- 6: Radiographic study to screen osteoporosis using panoramic radiographs of the jaw
- 7: Study on taste disorder with oral cancer patients after radiotherapy
- 8: Quantitative analysis of temporomandibular joint on MRI
- 9: Radiomics research on cervical lymph node metastasis of tongue cancer using ultrasonographic images
- 10: Radiomics research on the prediction of MRONJ development using medical images

(3) Research Achievements

A) Original Papers (including Case Reports)

1. Relationship of oral bacterial number with medical hospitalization costs in analysis of Diagnosis Procedure Combination database from single institution in Japan. Nishi H, Kajiya M, Ohta K, Shigeishi H, Obayashi T, Munenaga S, Obayashi N, Yoshioka Y, Konishi M, Naruse T, Matsumoto A, Odo A, Kitagawa M, Ando T, Shintani T, Tokikazu T, Ino N, Mihara N, Kakimoto N, Tsuga K, Tanimoto K, Ohge H, Kurihara H, and Kawaguchi H.: Sci Rep, 14:11114, 2024.
2. A case of perioperative oral management for tongue cancer patient treated with high dose rate interstitial brachytherapy: Ino N, Tokikazu T, Nishi H, Nakaoka M, Konishi M, Kawaguchi H, Ohta K, and Kakimoto N.: The Journal of Hiroshima University Dental Society, 56: 9-17, 2024.
3. Radiomics analysis of intraoral ultrasonographic images for prediction of late cervical lymph node metastasis in patients with tongue cancer: influence of marginal region.: Konishi M, Shimabukuro K, and Kakimoto N: Dent Maxillofac Radiol, 2024. in press.
4. Usefulness of a novel density measurement drill for evaluating cancellous bone density: Correlation between CT value and drilling torque value in bovine ribs.: Doi K, Wakamatsu K, Kobatake R, Oki Y, Makihara Y, Konishi M, Tsuga K.: International Journal of Implant Dentistry. in press.
5. Comparison of T2 values of the displaced unilateral disc and retrodiscal tissue of temporomandibular joints and their implications: Kakimoto N, Wongratwanich P, Shimamoto H, Kitisubkanchana J, Tsujimoto T, Shimabukuro K, Verdonshot RG, Hasegawa Y, Murakami S: Scientific Reports, 14, 1705, 2024.
6. Predictive factors of periodontal regeneration outcomes using rhFGF-2: A case-control study: Matsuda S, Ueda T, Nakashima F, Ninomiya Y, Yasuda K, Sasaki S, Hamamoto Y, Iwata T, Ouhara K, Mihara N, Kakimoto N, Mizuno N: J Periodontal Res., 59, 679-688, 2024.
7. Sex estimation from maxillofacial radiographs using a deep learning approach: Hase H, Mine Y,

- Okazaki S, Yoshimi Y, Ito S, Peng TY, Sano M, Koizumi Y, Kakimoto N, Tanimoto K, Murayama T: *Dent Mater J.*, 43, 394-399, 2024.
8. Characteristics of dental materials in the oral cavities of Asian individuals living temporarily in Japan between their 20s and early 40s based on 38 case studies: Oka H, Obayashi N, Yoshikawa M, Kakimoto N: *Journal of Oral Science*, 66, 198-201, 2024.
 9. Evaluation of Dental Manifestations in X-linked Hypophosphatemia Using Orthopantomography: Okawa R, Takagi M, Nakamoto T, Kakimoto N, Nakano K: *PLoS One*, 19, e0307896, 2024.
 10. RadImageNet and ImageNet as datasets for transfer learning in the assessment of dental radiographs: A comparative study: Okazaki S, Mine Y, Yoshimi Y, Iwamoto Y, Ito S, Peng TY, Nishimura T, Suehiro T, Koizumi Y, Nomura R, Tanimoto K, Kakimoto N, Murayama T: *J Imaging Inform Med*, In press
 11. Screening ability of dental students to detect osteoporosis on dental panoramic radiographs: Osanai H, Kuroiwa H, Yamada S, Sugino N, Nakamoto T, Ohtsuka M, Suei Y, Kakimoto N, Taguchi A: *Osteoporosis and Sarcopenia*, 10, 145-150., 2024.
 12. Detecting the articular disk in magnetic resonance images of the temporomandibular joint using YOLO series: Yoshimi Y, Mine Y, Yamamoto K, Okazaki S, Ito S, Sano M, Peng TY, Nakamoto T, Nagasaki T, Kakimoto N, Murayama T, Tanimoto K: *Dent Mater J*, in press.
 13. Association between motor symptoms of Parkinson's disease and swallowing disorders: Nakamori M, Toko M, Yamada H, Hayashi Y, Ushio K, Yoshikawa K, Haruta A, Hiraoka A, Yoshikawa M, Nagasaki T, Mikami Y, Maruyama H: *Neurol Sci.*, 45, 2021-2026, 2024.
 14. Cervical percutaneous interferential current stimulation improves citric acid cough tests in patients with Parkinson's disease on medication: Nakamori M, Toko M, Yamada H, Hayashi Y, Ushio K, Yoshikawa K, Hiraoka A, Yoshikawa M, Nagasaki T, Shimizu Y, Mikami Y, Maruyama H, *Sci Rep.*, 14, 11386, 2024.
 15. Prospective Observational Study for the Comparison of Screening Methods Including Tongue Pressure and Repetitive Saliva Swallowing With Detailed Videofluoroscopic Swallowing Study Findings in Patients With Acute Stroke: Nakamori M, Imamura E, Maetani Y, Yoshida M, Yoshikawa M, Nagasaki T, Masuda S, Kayashita J, Mizoue T, Wakabayashi S, Maruyama H, Hosomi N, *J Am Heart Assoc.*, 13:e032852, 2024.

B) Review

1. Key points of dental radiography: Kakimoto N, Takahashi A, Takizawa K, Fujita T: *Journal of Japanese Dental Association*, Vol. 77, No. 1, P39-46, 2024.

C) Publications

1. Chapter 6: Radiotherapy for oral cancer 3. Actual practice of head and neck radiotherapy: Kakimoto N: *Oral and Maxillofacial Radiology 7th Edition* Okano T, Kobayashi K, Ariji E, Katsumata A, Hayashi H, eds. Ishiyaku Publishing Co., Ltd. (Tokyo), 467-474, 2024.

E) Presentation at Scientific Meeting

1. Radiomics for prediction of late cervical lymph node metastasis in patients with tongue cancer by intraoral ultrasonographic images (II): Konishi M, Shimabukuro K, Kakimoto N. The 64th congress of Japanese Society of Oral and Maxillofacial Radiology (Niigata), 2024.
2. Radiomics for Prediction of Medication-related Osteonecrosis of the Jaw by CT images: Konishi M, Shimabukuro K, Wongratwanich P, Kakimoto N: The 14th Asian Congress of Oral and Maxillo-facial Radiology (Kaohsiung), 2024.
3. Predictive model for medication-related osteonecrosis of the jaw using radiomics with panoramic radiography: Konishi M, Kakimoto N.: The 78th congress of Japanese Stomatological Society (Tokyo), 2024.
4. A case of radiation ulcer during long-term follow-up after radiotherapy for a patient with tongue cancer: Konishi M, Shimabukuro K, Kakimoto N: The 5th Autumn Conference of Japanese Society for Oral and Maxillofacial Radiology (Morioka), 2024.

5. Evaluation of remineralization after non-surgical treatment for tumorous bone destruction of the jawbone: Kiichi Shimabukuro, Masaru Konishi, Toshikazu Nagasaki, Masahiko Otsuka, Takashi Nakamoto, Yoshikazu Suei, Naoya Kakimoto: The 64th Annual Meeting of the Japanese Society for Oral and Maxillofacial Radiology (Niigata), 2024.
6. High dose rate interstitial brachytherapy for oral cancer -initial treatment results-: Kakimoto N, Konishi M: The 42nd Annual Meeting of Japanese Society of Oral Oncology (Sapporo), 2024.
7. Fusion of an impacted supernumerary tooth and maxillary right first premolar progressed during follow-up: Ochiai M, Ogaya Y, Okawa R, Nakamoto T, Kakimoto N, Nakano K.: Korean Academy of Pediatric Dentistry (Seoul), 2024.
8. A novel quantitative evaluation method for dentinogenesis imperfecta during the completion of the permanent dentition in patients with X-linked hypophosphatemic rickets using panoramic radiographs: Takagi M, Okawa R, Nakamoto T, Kakimoto N, Nakano K: The 62nd Annual Meeting of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
9. Screening patients with osteoporosis using panoramic X-ray images: Agreement between oral and maxillofacial radiologists and dental students in the classification of mandibular cortical bone morphology: Osanai H , Kuroiwa H, Yamada S, Sugino N, Nakamoto N, Otsuka M, Suei Y, Kakimoto N, Taguchi A: The 64th Annual Meeting of the Japanese Society of Dental Radiology (Niigata), 2024.
10. The relationship between videofluoroscopic findings of swallowing and length of hospital stay after oral tumor surgery: Nagasaki T, Yamada S, Yoshikawa M, Shimabukuro K, Otsuka M, Suei Y, Konishi M, Nakamoto T, Kakimoto N: The 64th Annual Meeting of the Japanese Society of Dental Radiology (Niigata), 2024.
11. Verification of the reliability of image diagnosis for temporomandibular joint osteoarthritis in Japan - Part 1: Pilot study -: Otonari M, Kuribayashi A, Matsumoto K, Ito H, Kobayashi K, Arima T, Izumi M, Uchiyama Y, Kakimoto N, Katsumata A, Tanaka E, Nakayama E, Mizoguchi I, Morimoto Y, Tanimoto K: The 37th Annual Meeting of the Japanese Society of Temporomandibular Joint (Tokushima), 2024.
12. Isolation status of Staphylococcus aureus from corpses: Oka H, Fujii A, Odan K, Matsuo M, Katsuya S, Harada T, Nomura R, Kakimoto N, Aikawa T, Komatsuzawa H, Nagao M: The 20th National Conference of the Police Dental Association (Yamaguchi), 2024.
13. The educational effects of observing forensic autopsies and dental findings on dental students: Oka H, Kakimoto N: The 43rd Annual Meeting of the Japanese Society of Dental Education (Nagoya), 2024.
14. Clinical study of factors related to post-treatment remineralization of cancer-induced jaw bone destruction sites: Shimabukuro K, Konishi M, Nagasaki T, Otsuka M, Suei Y, Nakamoto T, Kakimoto N: The 5th Autumn Meeting of the Japanese Society of Dental Radiology (Morioka), 2024.
15. Pulp chamber area in X-linked hypophosphatemia rickets patients analyzed using orthopantomography: Takagi M, Okawa R, Nakamoto T, Kakimoto N, Nakano K: 3rd Global Summit of International Association of Pediatric Dentistry (Porto), 2024.
16. Alveolar bone density evaluations in child odonto-hypophosphatasia patients using orthopantomography: Takagi M, Suehiro Y, Okawa R, Nakamoto T, Kakimoto N, Nakano K: The 72nd JADR General Meeting and Academic Conference (Kagoshima), 2024.
17. Scoping review on medication-related osteonecrosis of the jaw and artificial intelligence: Okazaki S, Mine Y, Yamazaki S, Kakimoto N, Yanagimoto S, Murayama T: The 108th Hiroshima University Dental Society and the 63rd Hiroshima Prefectural Dental Society (Hiroshima), 2024.
18. Characteristics of swallowing dynamics of two types of swallowing training foods in the 2021 classification of dysphagia-adjusted food society. Haraguchi T, Yoshida M, Nakamori M, Kayashita J, Yoshikawa M, Nagasaki T: The 30th annal meeting of the Japanese Society of Dysphagia Rehabilitation (Fukuoka), 2024

F) Special lectures in academic meetings

1. Radiomics in the diagnosis of tongue cancer - focus on ultrasonographic images -: Konishi M.: The 42th Congress of Japanese Societ of Oral Oncology (Sapporo), 2024.
2. Hands-on seminar of Ultrasonography: Hayashi T, Nakayama E, Konishi M, Nikkuni Y, Kobayashi T, Takamura M.: The 42th Congress of Japanese Societ of Oral Oncology (Sapporo), 2024.
3. Hands-on seminar of Ultrasonography: Hayashi T, Arij Y, Konishi M, Kobayashi T, Takamura M.: The 78th congress of Japanese Stomatological Society (Tokyo), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

1. Joint research from Research Center for Radiation Disaster Medical Science: Konishi M. Study on the mechanism of taste disorder from radiation. 100,000 JPY.
2. Research Grant (Nakanishi Co., Ltd): Doi K (Representative), Konishi M: Fundamental study for establishment of bone quality diagnosis system by bone cutting resistance value. 400,000 JPY.
3. Grant-in-aid for Scientific Research (C): Murakami Y, Kawahara D, Imano N, Konishi M, Nishibuchi I. Tongue-out Radiotherapy: A new approach to reduce toxicity. 24K10860, 1,200,000 JPY.
4. Research Grant from the Satake Fund, Hiroshima University: Kiichi Shimabukuro, Elucidation of factors contributing to remineralization of tumorous bone destruction sites by deceased cancer cells, particularly in the cartilage-osteoblast differentiation process, 300,000JPY.
5. Grant-in-aid for Scientific Research (C): Kakimoto N, Saito A, Nakamoto T, Konishi M, Quantitative dosimetry and dose distribution prediction modeling for high-dose-rate adaptive interstitial brachytherapy for oral cancer. 22K10219, 430,000 JPY

(5) Academic Awards, etc.

1. Kiichi Shimabukuro: Award for outstanding poster presentation, The 64th Annual Meeting of the Japanese Society for Oral and Maxillofacial Radiology.
2. Kakimoto N, Konishi M: Award for outstanding poster presentation: High dose rate interstitial brachytherapy for oral cancer -initial treatment results- The 42nd Annual Meeting of Japanese Society of Oral Oncology

(6) Patents

- 1: Arijii E, Abukawa A, Kakimoto N, Yamaoka H, Katsumata T, Sato H, Yamaaguchi K, Tani N: Protect cover for receptor for intraoral X-ray radiography (Patent No. 7592249) (Applicant: Arijii E)

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Department of Biological Endodontics

Division of Preventive and Restorative Dentistry (Department of Endodontics and Operative Dentistry)

(1) Staff and Students

Professor: Hideki Shiba

Lecturer: Katsuhiko Takeda

Assistant Professor: Shizu Hirata-Tsuchiya, Noriko Saito, Kazuma Yoshida, Jun Nakanishi,
Daisuke Furutama, Tomoki Kumagai (Special Appointment)

Resident: Naoki Sadaoka

Graduate Student: Tomoya Naruse, Tomoki Kawayanagi, Wang Chutian, Saki Nishihama,
Ayaka Miyata, Takuya Arita, Song Bingxin, Yohei Takahashi, Ryotaro Taga,
Nanami Miyake, Yumi Yamauchi, Kosuke Ueda, Reina Kawai, Daichi Koan

(2) Main Research Activities

- 1: Studies on biological regeneration of dentin/pulp complex and periapical tissues
- 2: Studies on pulp regeneration by regulation of inflammation
- 3: Studies on biological obturation of root canals at apical areas
- 4: Observational studies and clinical trials on endodontics

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Antibiotic susceptibility and genome analysis of *Enterococcus* species isolated from inpatients in one hospital with no apparent outbreak of vancomycin-resistant *Enterococcus* in Japan: Fujii A., Kawada-Matsuo M., Nguyen-Tra Le M., Masuda K., Tadera K., Suzuki Y., Nishihama S., Hisatsune J., Sugawara Y., Kashiya S., Shiba H., Aikawa T., Ohge H., Sugai M., Komatsuzawa H.: *Microbiol Immunol*, 68: 254-266, 2024.
- 2: Ursoricin, a bacteriocin of *Streptococcus ursoris*, has potent activity against methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant enterococci: Wang C., Le MN-T., Kawada-Matsuo M., Hisatsune J., Sugawara Y., Arai C., Nakanishi J., Takeda K., Shiba H., Sugai M., Komatsuzawa H.: *Appl Environ Microbiol*, 90: e0016224, 2024.
- 3: Opposing genetic polymorphisms of two ABC transporters contribute to the variation of nukacin resistance in *Streptococcus mutans*: Sadaoka N., Le MN-T., Kawada-Matsuo M., Eng S., Zendo T., Nakanishi J., Takeda K., Shiba H., Komatsuzawa H.: *Appl Environ Microbiol*, 90: e0208423, 2024.
- 4: Possible Involvement of X-Box Binding Protein-1 in the Onset of Pulpitis: Naruse T., Takeda K., Yoshida K., Sasaki S., Kumagai T., Takahashi Y., Kawai R., Nakanishi J., Shiba H.: *Eur Endod J*, 9: 335-343, 2024.
- 5: Increasing the Apical Sizes of Root Enlarged for Root Canal Obturation Influences the Outcome of Single-Root-Canal Teeth Affected by Apical Periodontitis: Hirata-Tsuchiya S., Furutama D., Saito-Nakayama N., Naruse T., Kawayanagi T., Nishihama S., Miyata A., Shirawachi S., Sadaoka N., Wang C., Yoshida K., Nakanishi J., Matsuda S., Takeda K., Shiba H.: *Eur Endod J*, 9(4): 418-424, 2024.
- 6: Role of transglutaminase 2 in promoting biglycan synthesis in idiopathic gingival fibromatosis: Ninomiya Y., Matsuda S., Suzuki S., Hirata-Tsuchiya S., Ueda T., Nakashima F., Yasuda K., Shimada S., Memida T., Yoshimoto T., Yamada S., Ouhara K., Mizuno N.: *BMC Oral Health* 21, 24(1): 1422, 2024.
- 7: The oral cavity is a potential reservoir of gram-negative antimicrobial-resistant bacteria, which are correlated with ageing and the number of teeth: Kawayanagi T., Kawada-Matsuo M., Takeshita T., Nguyen-Tra Le M., Asakawa M., Sugawara Y., Arai C., Ouhara K., Nishi H., Mizuno N., Kawaguchi H., Shiba H., Sugai M., Komatsuzawa H.: *Heliyon*, 10: e39827, 2024.
- 8: Bactericidal activity of slightly acidic electrolyzed water against the cariogenic bacterium *Streptococcus mutans* and other oral bacteria: Nishihama S., Miyata A., Nguyen-Tra Le M., Kawada-Matsuo M., Kaneyasu Y., Ohta K., Ohge H., Shiba H., Komatsuzawa H.: *Oral Sci Int*, 21: 344 – 351, 2024.
- 9: A Retrospective study on the outcome of apical-periodontitis teeth treated with non-surgical endodontic

Treatment—An exploration of factors which influence the prognosis of teeth affected by apical periodontitis with a root canal obturation size aarger or equal to ISO number 55—:Hirata-Tsuchiya S., Furutama D., Saito-Nakayama N., Naruse T., Kawayaangi T., Nishihama S., Miyata-Arita A., Sadaoka N., Shirawachi S., Wang C., Yoshida K., Nakanishi J., Matsuda S., Takeda K., Shiba H.: Jpn J Conserv Dent, 67(3): 157-164, 2024.

- 10: Brain-derived neurotrophic factor promotes bone regeneration in a canine model of peri-implantitis: Kono S., Sasaki S., Matsuda S., Takeda K., Iwata T., Ouhara K., Kajiya M., Kurihara H., Mizuno N.: Int J Implant Dent, 10: 59, 2024.
- 11: Periodontal tissue regeneration with cementogenesis after application of brain-derived neurotrophic factor in 3-wall inflamed intra-bony defect: Kiyota M., Iwata T., Hasegawa N., Sasaki S., Taniguchi Y., Hamamoto Y., Matsuda S., Ouhara K., Takeda K., Fujita T., Kurihara H., Kawaguchi H., Mizuno N.: J Periodontal Res, 59: 530-541, 2024.
- 12: Nuclearreceptor4A1(NR4A1) upregulated by n-butyldenephthalide via themitogen-activated protein kinase (MAPK) pathway ameliorates drug-induced gingival enlargement: Ueda T., Matsuda S., Ninomiya Y., Nakashima F., Yasuda K., Furutama D., Memida T., Yoshimoto T., Kajiya M., Ohta K., Ouhara K., Mizuno N.: Biofactors, 50(6): 1192–1207, 2024.

B) Reviews

C) Publications

- 1: Management of pulp chamber floor perforation: Saito N., Shiba H.: 58-61, Handbook for Clinical Training Dental Practitioners, New Revised Edition (2024 Revision of Medical Service Fee), (Editor:Shuji Awano, Masahiro Yoneda) : Ishiyaku Publishers, Inc., 2024.

D) Other Publications

E) Presentation at Scientific Meeting

- 1: A successful case of endodontic treatment under steroid tapering in a patient with inflammatory bowel disease: Hirarta-Tsuchiya S., Arita-Miyata A., Saito-Nakayama N., Tsga R., Takeda K., Shiba H.: The 160th meeting of the Japanese Society of Conservative Dentistry, Sendai, 2024.
- 2: Survey of patients referred to the Department of Endodontics and Conservative Dentistry of Hiroshima University Hospital.: Takuya Arita, Daisuke Furutama, Ayaka Miyata-Arita, Tomoki Kawayanagi, Shizu Hirata-Tsuchiya, Noriko Saito-Nakayama, Jun Nakanishi, Kazuma Yoshida, Tomoki Kumagai, Naoki Sadaoka, Chutian Wang, Tomoya Naruse, Saki Nishihama, Song Bingxin, Katsuhiro Takeda, Hideki Shiba: The 160th meeting of the Japanese Society of Conservative Dentistry, Sendai, 2024.
- 3: The possible involvement of X-box binding protein-1, an indicator of endoplasmic reticulum stress in the onset of pulpitis: Naruse T., Takeda K., Yoshida K., Kumagai T., Takahashi Y., Kawai R., Nakanishi J., Shiba H.: The 45th meeting of the Japan Endodontic Association, Osaka, 2024.
- 4: Partial pulptomy and restoration method of crown morphology using a restorative guide splint: A case of a traumatized maxillary left central incisor with pulp exposure: Miyata-Arita A., Hirata-Tsuchiya S., Saito-Nakayama N., Takeda K., Shiba H.: The 45th meeting of the Japan Endodontic Association, Osaka, 2024.
- 5: A case of root canal treatment after surgical approach to an accessory canal of a maxillary central incisor: Hirata-Tsuchiya S., Saito-Nakayama N., Miyata-Arita A., Taga R., Suzuki S., Takeda K., Shiba H. The 45th meeting of the Japan Endodontic Association, Osaka, 2024.
- 6: Characterization of GN-ARG from nasal and oral cavities and their relationship to bacterial flora: Kawayangi T., Kawada-Matsuo M., Le Nguyen-Tra M., Asakawa M., Sugawara Y., Arai C., Takeshita T., Shiba H., Sugai M., Komatsuzawa H.: The 97th Annual Meeting of Japanese Society for Bacteriology, Sapporo, 2024.
- 7: Diversity in the biofilm-forming potential of clinical isolates of *Streptococcus mutans*: Wang C., Song B., Takeda K., Shiba H.: The 161st Meeting of the Japanese Society of Conservative Dentistry, Himeji, 2024.
- 8: Histological observations of the externally cervical resorption tooth: Taga R., Hirata-Tsuchiya S., Nakadoi R., Hataguchi K., Shiba H.: The 161st Meeting of the Japanese Society of Conservative Dentistry, Himeji, 2024.

- 9: Novel pharmacological action of neuropeptide receptor VIPR2 blockade in a mouse model of schizophrenia: Koan D., Ono A., Asano S., Shiba H., Ago Y.: The 66th Annual Meeting of Japanese Association for Oral Biology, Nagasaki, 2024.
- 10: Development of a selective antagonist for VIPR2, a novel target for the treatment of schizophrenia: Koan D., Ono A., Yokoyama R., Asano S., Shiba H., Ago Y.: The 3rd Hiroshima University Neuroscience Seminar, Hiroshima, 2024.
- 11: Assessment of oral environment and oral function in haemophiliacs: Okada M., Shintani T., Kawagoe M., Takeda K., Iwata T., Furutama D., Nakanishi J., Nakaoka M., Yamasaki N., Fujii T., Mizuno N., Kajiya M., Shiba H.: The 67th Autumn Meeting of the Japanese Society of Periodontology, Sapporo, 2024.
- 12: Assessment of oral environment and oral function in HIV-negative and HIV-positive haemophiliacs: Okada M., Shintani T., Kawagoe M., Iwata T., Yamazaki N., Fujii T., Shiba H.: The 38th annual meeting of the Japanese Society for AIDS Research, Tokyo, 2024.
- 13: Oral colonization of antimicrobial-resistant bacteria in home health care participants and their association with oral and systemic status: Nishihama S., Kawada-Matsuo M., Le M., Ohge H., Sugai M., Shiba H., Komatsuzawa H.: The 98th Annual Meeting of the Japanese Association for Infectious Diseases The 72nd Annual Meeting of the Japanese Society of Chemotherapy, Hyogo, 2024.
- 14: Oral colonization of antimicrobial-resistant bacteria in home health care participants and their association with oral and systemic status: Nishihama S., Kawada-Matsuo M., Le M., Ohge H., Sugai M., Shiba H., Komatsuzawa H.: The 97th Annual Meeting of Japanese Society for Bacteriology, Hokkaido, 2024.
- 15: Oral colonization of antimicrobial-resistant bacteria in home health care participants and their association with oral and systemic status: Nishihama S., Kawada-Matsuo M., Le M., Kajihara T., Ohge H., Sugai M., Shiba H., Komatsuzawa H.: The 77th Annual Meeting of Japanese Society for Bacteriology Chugoku-Shikoku Branch Meeting, Okayama, 2024.
- 16: Histological observations of the externally cervical resorption tooth: Taga R, Hirata-Tsuchiya S, Shiba H: 2nd Case Competition, 2024 Annual Congress of KAE & JAE-KAE Joint Meeting, Seoul, KR, 2024.

F) Special lectures in academic meetings

- 1: Learning from a long-term observation of endodontic treatment in a patient with periodontitis who underwent comprehensive dental therapy: Symposium 2 Endodontics in the 100-year life ~Considering a long-term prognosis of an endodontically treated tooth~: Takeda K.: the 45th annual meeting of Japan Endodontic Association, Osaka, 2024.
- 2: Infection control: Shiba H.: Clinical workshop of Japan Endodontic Association, Tokyo, 2024.
- 3: Learning from long-term endodontic observational cases of periodontitis patients treated with comprehensive dental therapy: Takeda K.: Korean Academy of Endodontics Annual Congress & 22nd JEA-KAE Joint Meeting, Seoul, Korea, 2024.
- 4: Implementation status of AIDS measures in the Chugoku-Shikoku block: Shiba H.: 27th Japan Society for HIV Dental Medicine, Held on WEB, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grants for research received from Hiroshima Prefecture: Shiba H., Study on network-construction of dental practice for HIV infection. \3,000,000.
- 2: Grants-in aid for scientific research (C): Katsuhiro Takeda, Development of the treatment of pulpitis, targeting the endoplasmic reticulum stress response. #23K09184. \1,500,000.
- 3: Japan Agency for Medical Research and Development: Project for Regenerative/Cellular Medicine and Gene Therapy (Non clinical): Katsuhiro Takeda (Co-investigator), Development of promising periodontal regenerative therapy using 3D grafting tissue fabricated by a bio-3D printer: \2,500,000.
- 4: Grants-in-Aid for Scientific Research (C): Tsuchiya S., Basic research for the development of endodontic treatment by regulating inflammation targeting Samd9l. #23K09168. \1,560,000.
- 5: Grant-in-Aid for Scientists Research (C): Saito N., Development of a Rapid Test for Bacteria in Root Canals Using Total Adenylate as an Indicator in Endodontics. #23K09169. ¥1,430,000.
- 6: Grants-in-Aid for Scientific Research (C): Nakanishi J., Development of local application of teriparatide for inflammatory bone resorption. #24K12930. ¥1,100,000.
- 7: Grant-in-Aid for Early-Career Scientists: Furutama D., Effects and mechanisms of chronic inflammation

- caused by periodontitis on psychiatric disorders. #23K16023. \1,800,000.
- 8: Grant-in-Aid for Research Activity Start-up: Kumagai T., Elucidation the engagement of Oxytocin produced by dental infections in PTB/LBW. #23K23587. \1,430,000.
 - 9: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Nishihama S., Characterisation of oral drug-resistant bacteria and establishment of new antimicrobial therapies. \400,000.
 - 10: HU SPRING Research Grant (Recommendation): Nishihama S., Characterisation of oral drug-resistant bacteria and establishment of new antimicrobial therapies. \500,000.
 - 11: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Yohei Takahashi, Development of targeting the Endoplasmic Reticulum Stress Response for the Treatment of Pulpitis. ¥400,000
 - 12: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Ryotaro Taga, Elucidation of the Pathogenesis and Progression Mechanism of Cervical External Resorption: Challenging Unmet Medical Needs in Dental Diseases. \400,000.
 - 13: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Nanami Miyake, Development of pulp preservation therapy with LIT-001, an Oxytocin receptor agonist with anti-inflammatory and calcification-inducing effects. \400,000.
 - 14: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Yumi Yamauchi, Establishment of the isolation and genetic modification method of bacteriophages effective against *Streptococcus mutans*. \400,000.
 - 15: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Reina Kawai, Research on the development of a new pulp capping agent by regulating the dental pulp cell-macrophage cooperation. \400,000.
 - 16: Program for Developing and Supporting the Next-Generation of Innovative Researchers at Hiroshima University: Daichi Koan, Development of a novel therapeutic approach for schizophrenia using a specific VPAC2 receptor inhibitory peptide. ¥400,000

(5) Academic Awards, etc.

- 1: Hirata-Tsuchiya S.: The 160th meeting of the Japanese Society of Conservative Dentistry: Excellent Case Presentation Award for Board Certified Specialists.
- 2: Nishihama S.: HU SPRING 3QUESTIONS Three Questions for the Future Excellent Poster Award.
- 3: Ryotaro Taga: Excellence Award. 2nd Case Competition, 2024 Annual Congress of KAE & JAE-KAE Joint Meeting, Seoul, KR, 2024.
- 4: Koan Daichi: Hiroshima University Neuroscience Excellence Award: The 3rd Hiroshima University Neuroscience Seminar, October 7, 2024

(6) Patents

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Department of Pediatric Dentistry Division of Oral Health and Development (Department of Pediatric Dentistry)

(1) Staff and Students

Professor:	Ryota Nomura (*) Chief: Ryota Nomura (by-work)
Associate Professor:	Chieko Mitsuhata
Assistant Professor:	Meiko Tachikake, Yuko Iwamoto, Masashi Nakano (~Mar.), Tatsuya Akitomo, Yuria Asao, Satoru Kusaka (Jul.~)
Resident: Name:	Satoru Kusaka (~Jun.)
Graduate Student:	Momoko Usuda, Mariko Kametani, Masashi Ogawa, Ami Kaneki, Taku Nishimura, Shunya Ikeda (Apr.~), Yuya Ito (Apr.~), Eimi Tabata (Apr.~), Yasuko Tsuge (Apr.~), Shuma Hamaguchi (Apr.~)
Clinical Trainee:	Fumiko Hayashi, Akira Yamane (~Mar.), Seiko Watanabe, Ami Okamine, Shuhei Kaneko

(2) Main Research Activities

- 1: Research on the effects of oral bacteria on systemic diseases
- 2: Bacteriological research of onset mechanism and prevention of dental caries in children
- 3: Bacteriological research in periodontal diseases in children
- 4: Clinical research in oral care in children suffering from systematic diseases
- 5: Evaluation of psychological stress in dental treatment in children
- 6: Dental approach to pediatric dysphagia
- 7: Investigation of oral status of Cambodian children
- 8: Research in oral environment and dental diseases in abused children

(3) Research Achievements

A) Original Papers (including Case Reports)

(*: corresponding author, #: equally contribution)

English papers

- 1: *Porphyromonas gingivalis* infection in the oral cavity is associated with elevated galactose-deficient IgA1 and increased nephritis severity in IgA nephropathy: Ito S., Misaki T., Nagasawa Y., Nomura R., Naka S., Fukunaga A., Matsuoka D., Matayoshi S., Matsumoto-Nakano M., Nakano K.: Clinical and Experimental Nephrology, 28(3), 192-200, 2024.
- 2: Inhibitory effects of shikonin dispersion, an extract of *Lithospermum erythrorhizon* encapsulated in β -1,3-1,6 glucan, on *Streptococcus mutans* and non-mutans Streptococci: Nomura R.*, Suehiro Y., Tojo F., Matayoshi S., Okawa R., Hamada M., Naka S., Matsumoto-Nakano M., Unesaki R., Koumoto K., Kawauchi K., Nishikata T., Akitomo T., Mitsuhata C., Yagi M., Mizoguchi T., Fujikawa K., Taniguchi T., Nakano K.: International Journal of Molecular Sciences, 25(2), 1075, 2024.
- 3: Oral and rectal colonization of methicillin-resistant *Staphylococcus aureus* in long-term care facility residents and their association with clinical status: Kusaka S., Haruta A., Kawada-Matsuo M., Le M., Yoshikawa M., Kajihara T., Yahara K., Hisatsune J., Nomura R., Tsuga K., Ohge H., Sugai M., Komatsuzawa H.: Microbiology and Immunology, 68(3), 75-89, 2024.
- 4: Is oral *Streptococcus mutans* with collagen-binding protein a risk factor for intracranial aneurysm rupture or formation? Nakatogawa H., Hokamura K., Nomura R., Nakano K., Umemura K., Morita A., Homma Y., Tanaka T.: Cerebrovascular Diseases, 53(6), 722-728, 2024.
- 5: Effects of mouthwash on periodontal pathogens and glycemic control in patients with type 2 diabetes mellitus: Matayoshi S., Tojo F., Suehiro Y., Okuda M., Takagi M., Ochiai M., Kadono M., Mikasa Y., Okawa R., Nomura R., Itoh Y., Itoh N., Nakano K.: Scientific Reports, 2024 Feb 2;14(1):2777.
- 6: Involvement of sodium-glucose cotransporter-1 activities in maintaining oscillatory Cl^- currents from

- mouse submandibular acinar cells: Takeyasu M., Kozai K., Sugita M.: Journal of Comparative Physiology B, 194(1), 21-32, 2024.
- 7: Evaluation of periodontal status and oral health habits with continual dental support for young patients with hemophilia: Kametani M.[#], Akitomo T.^{##}, Usuda M., Kusaka S., Asao Y., Nakano M., Iwamoto Y., Tachikake M., Ogawa M., Kaneki A., Nishimura T., Niizato N., Mitsuhata C., Kozai K., Nomura R.: Applied Sciences, 14(4) 1349, 2024.
 - 8: Investigation of periodontal disease development and *Porphyromonas gulae* FimA genotype distribution in small dogs: Yasuda J., Yasuda H., Nomura R.^{*}, Matayoshi S., Inaba H., Gongora E., Iwashita N., Shirahata S., Kaji N., Akitomo T., Mitsuhata C., Uchiyama J., Fukuyama T., Matsumoto-Nakano M., Nakano K., Murakami M.: Scientific Reports, 14, 5360, 2024.
 - 9: High-performance silica-containing professional mechanical tooth-cleaning paste that effectively adsorbs pigments: Akitomo T.^{##}, Kusaka S.[#], Kametani M., Mitsuhata C., Naka S., Matsumoto-Nakano M., Nakano K., Nomura R.: Pediatric Dental Journal, 34(2), 62-69, 2024.
 - 10: Characterization of the unique oral microbiome of children harboring *Helicobacter pylori* in the oral cavity: Ogaya Y., Kadota T., Hamada M., Nomura R., Nakano K.: Journal of Oral Microbiology, 16(1), 2339158, 2024.
 - 11: Role of N1-domain, linker, N2-domain, and latch in the binding activity and stability of the collagen-binding domain for the collagen-binding protein Cbm from *Streptococcus mutans*: Nishi A., Hirata A., Mukaiyama A., Tanaka S., Nomura R., Nakano K., Takano K.: Physchem, 4(2), 120-130, 2024.
 - 12: Effects of oleanolic acid derived from wine pomace on periodontopathic bacterial growth in healthy individuals: A randomized placebo-controlled study: Shimazu K., Ookoshi K., Fukumitsu S., Kagami H., Mitsuhata C., Nomura R., Aida K.: Dentistry Journal, 12(5), 133, 2024.
 - 13: Dental abnormalities in pediatric patients receiving chemotherapy: Akitomo T., Ogawa M., Kaneki A., Nishimura T., Usuda M., Kametani M., Kusaka S., Asao Y., Iwamoto Y., Tachikake M., Mitsuhata C., Nomura R.: Journal of Clinical Medicine, 13(10), 2877, 2024
 - 14: RadImageNet and ImageNet as datasets for transfer learning in the assessment of dental radiographs: A comparative study: Okazaki S., Mine Y., Yoshimi Y., Iwamoto Y., Ito S., Tzu-Yu Peng, Nishimura T., Suehiro T., Koizumi Y., Nomura R., Tanimoto K., Kakimoto N., Murayama T.: Journal of Imaging Informatics in Medicine, accepted 20240716.
 - 15: Multilocus sequence typing of *Streptococcus mutans* from different caries statuses: Lapirattanakul J., Nomura R., Okawa R., Tantivitayakul P., Kaypeth R., Lehrkinder A., Lingström P., Birkhed D., Matsumoto-Nakano M., Nakano K.: BMC Oral Health, 58(8), 989-996, 2024.
 - 16: Role of fimbriae variations in *Porphyromonas gulae* biofilm formation: Inaba H., Yoshida S., Nomura R., Nakano K., Matsumoto-Nakano M.: Journal of Oral Biosciences, 66(4), 28-33, 2024.
 - 17: Current knowledge regarding infective endocarditis prevention among dentists affiliated with the Japanese Society of Pediatric Dentistry: Akitomo T.[#], Kadota T.[#], Iwamoto Y., Okawa R., Ohara T., Daimon M., Izumi C., Yanagita K., Nomura R.^{*}, Nakano K.: Pediatric Dental Journal, 34(3), 129-135, 2024.
 - 18: Inhibitory effects of surface pre-reacted glass ionomer (S-PRG) filler eluate on Streptococcus mutans in the presence of sucrose: Kametani M.[#], Akitomo T.[#], Hamada M., Usuda M., Kaneki A., Ogawa M., Ikeda S., Ito Y., Hamaguchi S., Kusaka S., Asao Y., Iwamoto Y., Mitsuhata C., Suehiro Y., Okawa R., Nakano K., Nomura R.^{*}: International Journal of Molecular Sciences, 25, 9541, 2024.
 - 19: Contribution of collagen-binding protein Cnm of *Streptococcus mutans* to induced IgA nephropathy-like nephritis in rats: Naka S., Matsuoka D., Misaki T., Nagasawa Y., Ito S., Nomura R., Nakano K., Matsumoto-Nakano M.: Communications Biology, 7, 1141, 2024.
 - 20: Clinical relationships between the intratumoral microbiome and risk factors for head and neck cancer: Hamada M., Nishiyama K., Nomura R., Akitomo T., Mitsuhata C., Yura Y., Nakano K., Matsumoto-Nakano M., Uzawa N., Inaba H.: Heliyon, 10(20), e39284, 2024.
 - 21: Artificial intelligence's performance on the Japanese National Dental Examination: Akitomo T.^{*}, Hamada M., Tsuge Y., Kaneki A., Ogawa M., Nishimura T., Kusaka S., Mitsuhata C., Nomura R.: Cureus, 16(11), e73103, 2024.
 - 22: Relationship between the presence of red complex species and the distribution of other oral bacteria, including major periodontal pathogens in older Japanese: Kametani M.[#], Nagasawa Y.[#], Usuda M., Kaneki A., Ogawa M., Shojima K., Yamazaki H., Tokumoto K., Matsuoka D., Suehara K., Suehiro Y., Akitomo T., Mitsuhata C., Misaki T., Ito S., Naka S., Matsumoto-Nakano M., Nakano K., Kishimoto H., Shinmura K., Nomura R.^{*}: International Journal of Molecular Sciences, 25(22), 12243, 2024.
 - 23: Usefulness of generative artificial intelligence (AI) tools in pediatric dentistry: Kusaka S.[#], Akitomo T.^{##}, Hamada M., Asao Y., Iwamoto Y., Tachikake M., Mitsuhata C., Nomura R.: Diagnostics, 14,

- 2818, 2024.
- 24: Fusion of a tooth with a supernumerary tooth: A case report and literature review of 35 cases: Akitomo T.*, Kusaka S., Usuda M., Kametani M., Kaneki A., Nishimura T., Ogawa M., Mitsuhata C., Nomura R. *Children*, 11(1), 6, 2024.
 - 25: Improvement of eruption disturbance in mandibular canine caused by a supernumerary tooth: Akitomo T.*, Iwamoto Y., Ogawa M., Mitsuhata C., Nomura R.: *Cureus*, 16(9), e70050, 2024.
 - 26: Eruption disturbance in first molar and primary second molar caused by multiple compound odontomas: A Case report: Akitomo T.*, Iwamoto Y., Kaneki A., Nishimura T., Ogawa M., Usuda M., Kametani M., Kusaka S., Mitsuhata C., Nomura R.: *Journal of Clinical Pediatric Dentistry*, 48(6), 236-242, 2024.
 - 27: Eruption disturbance in children receiving bisphosphonates: Two case reports: Akitomo T.**, Iwamoto Y.#, Kametani M., Kaneki A., Nishimura T., Mitsuhata C., Nomura R.: *Pharmaceuticals*, 17(11), 1521, 2024.
 - 28: Unique oral finding in a patient with Pitt-Hopkins syndrome: Usuda M.#, Akitomo T.**, Asao Y., Tachikake M., Mitsuhata C., Nomura R.: *Pediatric Dental Journal*, 34(3), 201-205, 2024.

Japanese papers

- 1: Study on Lifestyle Habits Related to Caries and Caries Prevalence in Young Children: Okamine A., Tokutsu K., Asao Y., Usuda M., Tachikake M., Iwamoto Y., Nomura R., Mitsuhata C.: *The Japanese Journal of Pediatric Dentistry*, 62(3), 87-93, 2024.

B) Review

(*: corresponding author, #: equally contribution)

- 1: A narrative review of the association between dental abnormalities and chemotherapy: Akitomo T.**, Tsuge Y.#, Mitsuhata C., Nomura R.: *Journal of Clinical Medicine*, 13, 4942, 2024.

C) Publications

- 1: Special edition of Japanese Dental Review: Thinking about the first molar: Nurturing a healthy oral cavity and dentition and maintaining function throughout life: Periodontal disease seen in the first molar: Meiko Tachikake, Ryota Nomura (co-authors): Hyoron Publishers Inc. (Tokyo), 94-99, 2024.
- 2: Special edition of Japanese Dental Review: Pediatric caries, periodontal disease, and tooth hypoplasia that family dentists should know: The status of dental caries treatment in the mixed dentition period: Yuria Asao, Chieko Mitsuhata (co-authors): Hyoron Publishers Inc. (Tokyo), 44-55, 2024.
- 3: Special Edition of Japanese Dental Review: Pediatric caries, periodontal disease, and tooth hypoplasia that family dentists should know: How to deal with tooth hypoplasia: Yuko Iwamoto (co-author): Hyoron Publishers Inc. (Tokyo), 154-163, 2024.
- 4: DHstyle Fall 2024 Ask a pediatric dentist! Q&A on how to deal with children and parents: I want to know about caries treatment for children: Meiko Tachikake, Ryota Nomura (co-author): Dental Diamond Co., Ltd. (Tokyo), 34-35, 2024.
- 5: DHstyle Fall 2024 Ask a pediatric dentist! Q&A on how to deal with children and parents: What is the appropriate treatment for gingivitis? : Yuko Iwamoto, Ryota Nomura (co-authors): Dental Diamond Co., Ltd. (Tokyo), 36-37, 2024.
- 6: DHstyle Fall 2024 issue Ask a pediatric dentist! Q&A on today's children and parents What soft tissue abnormalities should you be aware of? : Yuria Asao, Ryota Nomura (co-authors): Dental Diamond Co., Ltd. (Tokyo), 38-41, 2024.

D) Other Publications

- 1: Dental Life Design 2024 (Web Magazine) Protecting the Teeth of Cambodian Children Part 1: The dental situation in Cambodia: Yuko Iwamoto, Ryota Nomura: Morita Co., Ltd. (Osaka), 2024.
- 2: Dental Life Design 2024 (Web Magazine) Protecting the Teeth of Cambodian Children Part 2: Starting the Activities and Efforts for Prevention: Yuko Iwamoto, Ryota Nomura: Morita Co., Ltd. (Osaka), 2024.
- 3: Dental Life Design 2024 (Web Magazine) Protecting the Teeth of Cambodian Children Part 3:

- Collaboration with Local Dentists and Dental Students (Overcoming the COVID-19 Pandemic): Yuko Iwamoto, Ryota Nomura: Morita Co., Ltd. (Osaka), 2024.
- 4: Hiroshima Prefecture Dental Hygiene Liaison Council Leaflet: To properly monitor your child's eating and speaking (photo provided by Tachikake Meiko, Nomura Ryota): Hiroshima Prefectural Dental Association (Hiroshima), 2024.
 - 5: Cleaning Gel <PMTG> Leaflet: Confirmation of the stain removal and prevention effect of cleaning gel <PMTG>: Akitomoya, Nomura Ryota: Welltech Co., Ltd. (Osaka), 2024.
 - 6: Cleaning Gel <Soft> Leaflet: Case study of application of cleaning gel <soft> to pediatric patients: Asao Yuria: Welltech Co., Ltd. (Osaka), 2024.
 - 7: Amazing! Everyone's Teeth 2: Nomura Ryota (co-author): Sanyo Living Media Co., Ltd. (Okayama), 2024.

E) Presentations at Scientific Meetings

International conference

- 1: Inhibitory effect of Allyl isothiocyanate on cariogenicity of *Streptococcus mutans*: Akitomo T., Ogawa M., Kaneki A., Usuda M., Kametani M., Kusaka S., Mitsuhata C., Nakano K., Nomura R.: The 65th Annual Congress of the Korean Academy of Pediatric Dentistry (Seoul, Korea), 2024.
- 2: Analysis of dental caries prevalence and distribution of major oral streptococcus species in Japanese children: Kametani M., Usuda M., Kaneki A., Ogawa M., Kusaka S., Akitomo T., Mitsuhata C., Nakano K., Nomura R.: The 65th Annual Congress of the Korean Academy of Pediatric Dentistry (Seoul, Korea), 2024.
- 3: Distribution of *Streptococcus mutans* in organs removed from corpses and the relationship between the distribution and the number of teeth: Kaneki A., Oka H., Ogawa M., Usuda M., Kametani M., Akitomo T., Mitsuhata C., Kawada-Matsuo M., Nakano K., Komatsuzawa H., Nagao M., Nomura R.: The 65th Annual Congress of the Korean Academy of Pediatric Dentistry (Seoul, Korea), 2024.
- 4: Dental abnormalities in pediatric patients receiving chemotherapy: Usuda M., Akitomo T., Iwamoto Y., Kametani M., Kaneki A., Nishimura T., Ogawa M., Kusaka S., Mitsuhata C., Nomura R.: The 65th Annual Congress of the Korean Academy of Pediatric Dentistry (Seoul, Korea), 2024.
- 5: The oral health conditions of Cambodian public primary school children before and after the COVID-19 pandemic: Asao Y., Iwamoto Y., Tabata E., Mitsuhata C., Nomura R.: The 33rd Annual Conference of the Taiwan Academy of Pediatric Dentistry (Taipei, Taiwan), 2024.
- 6: Dental support activities in temporary custody shelters in Hiroshima prefecture -As a tertiary medical institution-: Ikeda S., Asao Y., Iwamoto Y., Ito Y., Tsuge Y., Hamaguchi S., Mitsuhata C., Nomura R.: The 33rd Annual Conference of the Taiwan Academy of Pediatric Dentistry (Taipei, Taiwan), 2024.
- 7: Long-term oral management of a girl with linear sebaceous nevus syndrome: Iwamoto Y., Hirata R., Kametani M., Akitomo T., Kaneki A., Nishimura T., Mitsuhata C., Nomura R.: The 13th Biennial Congress of the Pediatric Dentistry Association of Asia (Bangkok, Thailand), 2024.
- 8: Collagen-binding property of major oral streptococcus species in Japanese children: Kaneki A., Ogawa M., Usuda M., Kametani M., Ikeda S., Ito Y., Hamaguchi S., Akitomo T., Mitsuhata C., Nakano K., Nomura R.: The 13th Biennial Congress of the Pediatric Dentistry Association of Asia (Bangkok, Thailand), 2024.
- 9: Fully automated teeth detection from mixed dentition panoramic radiographs using deep learning object detection model: Nishimura T., Iwamoto Y., Mine Y., Okazaki S., Tabata E., Murayama T., Nomura R.: The 13th Biennial Congress of the Pediatric Dentistry Association of Asia (Bangkok, Thailand), 2024.
- 10: A case of a broken instrument remaining in the root canal of a second deciduous molar: Mitsuhata C., Kaneki A., Nishimura T., Ogawa M., Asao Y., Iwamoto Y., Nomura R.: The 3rd Global Summit of IAPD (Porto, Portugal), 2024.
- 11: A case of abnormal crown morphology of the succedaneous tooth due to traumatic injuries to primary tooth at the infancy: Asao Y., Tachikake M., Mitsuhata C., Nomura R.: The 3rd Global Summit of IAPD (Porto, Portugal), 2024.
- 12: Comprehensive analysis of oral bacteria related to red complex species Kametani M., Nagasawa Y., Usuda M., Kaneki A., Ogawa M., Shojima K., Yamazaki H., Tokumoto K., Matsuoka D., Suehara K., Suehiro Y., Akitomo T., Mitsuhata C., Misaki T., Ito S., Naka S., Matsumoto-Nakano M., Nakano K., Kishimoto H., Shinmura K., Nomura R.: The 72nd Annual Meeting of Japanese Association for

- Dental Research (Kagoshima), 2024.
- 13: Investigation of the effects of lactoferrin on *Streptococcus mutans*: Suehiro Y., Matayoshi S., Otsugu M., Nomura R., Nakano K.: The 65th Annual Congress of the Korean Academy of Pediatric Dentistry (Seoul, Korea), 2024.
 - 14: Evaluation of pathogenicity of killed *Streptococcus mutans* using with silkworm model: Suehiro Y., Nomura R., Nakano K.: The 33rd Annual Conference of the Taiwan Academy of Pediatric Dentistry (Taipei, Taiwan), 2024.
 - 15: Investigation of the effects of lactoferrin on *Streptococcus mutans*: Tojyo F., Suehiro Y., Otsugu M., Nomura R., Nakano K.: The 33rd Annual Conference of the Taiwan Academy of Pediatric Dentistry (Taipei, Taiwan), 2024.
 - 16: Antibacterial effect of lysozyme on *Streptococcus mutans*: Suehiro Y., Otsugu M., Nomura R., Nakano K.: The 13th Biennial Congress of the Pediatric Dentistry Association of Asia (Bangkok, Thailand), 2024.
 - 17: Effects of antibiotics on serum agglutinating ability of *Streptococcus mutans*: Suehiro Y., Matayoshi S., Otsugu M., Nomura R., Nakano K.: The 102nd General Session & Exhibition of the International Association for Dental Research (New Orleans, USA), 2024.
 - 18: Association of *Helicobacter pylori* in oral cavity with Parkinson's disease: Kadota T., Matsuoka M., Hamada M., Ogaya Y., Nomura R., Nakano K.: The 102nd General Session & Exhibition of the International Association for Dental Research (New Orleans, USA), 2024.
 - 19: Potential reduction of proteinuria by oral care using chlorhexidine gluconate: Misaki T., Suehiro Y., Naka S., Matsuoka D., Suehara K., Ito S., Nagasawa Y., Nomura R., Matsumoto-Nakano M., Nakano K.: American Society of Nephrology Annual Meeting 2024 (San Diego, USA), 2024.
 - 20: Properties of *Streptococcus mutans* for binding to type III collagen: Suehiro Y., Otsugu M., Nomura R., Nakano K.: The 72nd Annual Meeting of Japanese Association for Dental Research (Kagoshima), 2024.
 - 21: Interaction of collagen-binding protein Cnm with human immunoglobulins: Naka S., Matsuoka D., Suehara K., Misaki T., Nagasawa Y., Ito S., Nomura R., Suehiro Y., Nakano K., Matsumoto-Nakano M.: The 72nd Annual Meeting of Japanese Association for Dental Research (Kagoshima), 2024.

Domestic conference

- 1: Recent dental support activities at temporary custody shelters in Hiroshima prefecture-How we are involved as a tertiary medical institution-: Asao Y., Mitsuhata C., Iwamoto Y., Nakano M., Akitomo T., Niizato N., Shintani H., Maejima M., Kamikawa K., Yamazaki K., Kozai K., Nomura R.: The 8th Japanese Congress of Japanese Dental Society for Prevention of Child Abuse and Neglect (Hiroshima), 2024.
- 2: Distribution of *Streptococcus mutans* in organs removed from corpses transported for investigation of cause of death: Kaneki A., Ogawa M., Usuda M., Kametani M., Akitomo T., Mitsuhata C., Nakano K., Nomura R.: The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry, Young People's Meeting (Yokosuka), 2024.
- 3: A case of osteitis caused by pericoronitis of a first molar in the process of eruption: Tachikake M., Ogawa M., Nishimura T., Iwamoto Y., Mitsuhata C., Nomura R.: The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
- 4: Detection of teeth on panoramic radiographs of mixed dentition stage using an object detection model: Nishimura T., Iwamoto Y., Mine Y., Kaneki A., Nomura R.: The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
- 5: A case with many supernumerary teeth in the premolar regions that obstructed tooth replacement: Iwamoto Y., Nakano M., Akitomo T., Kametani M., Mitsuhata C., Nomura R.: The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
- 6: A case of impacted supernumerary tooth occurring in mandibular canine region: Ogawa M., Akitomo T., Iwamoto Y., Okamine A., Mitsuhata C., Nomura R.: The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
- 7: Effect of anticancer drugs on tooth development: Akitomo T., Iwamoto Y., Usuda M., Kusaka S., Asao Y., Mitsuhata C., Nomura R.: The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
- 8: Changes in oral health of schoolchildren during the COVID-19 pandemic: Toki S., Asao Y., Naito M., Fukuizumi T., Yamaguchi K.: The 62nd Annual Congress of the Japanese Society of Pediatric

- Dentistry (Yokosuka), 2024.
- 9: Inhibitory effect of S-PRG filler eluate against *Streptococcus mutans* in the presence of sucrose: Usuda M., Kametani M., Ogawa M., Kaneki A., Nishimura T., Kusaka S., Asao Y., Akitomo T., Iwamoto Y., Tachikake M., Mitsuhashi C., Nomura R.: The 57th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
 - 10: Detection and comprehensive analysis of oral bacteria related to red complex: Kametani M., Usuda M., Kaneki A., Ogawa M., Nishimura T., Kusaka S., Asao Y., Akitomo T., Iwamoto Y., Tachikake M., Mitsuhashi C., Nomura R.: The 57th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
 - 11: Analysis of pediatric mastication using bread: Usuda M., Kametani M., Ogawa M., Kaneki A., Nishimura T., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima), 2024.
 - 12: A case of a child with turtleneck on the labial surface of maxillary right central incisor: Kametani M., Kawakami C., Kawakami Y., Akitomo T., Iwamoto Y., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima), 2024.
 - 13: Study on Tongue Diagnosis in Children: Ikeda S., Ito Y., Hamaguchi S., Ogawa M., Kaneki A., Usuda M., Kametani M., Akitomo T., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima), 2024.
 - 14: Annual Survey of New Preschool Patients with Dental Caries—Comparison of 2008, 2013, 2018, and 2023—Tabata E., Akitomo T., Ikeda S., Ito Y., Hamaguchi S., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima), 2024.
 - 15: Examining the usefulness of generative AI in the dental field: Tsuge Y., Akitomo T., Kusaka S., Asao Y., Iwamoto Y., Tachikake M., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima), 2024.
 - 16: A case of long-term follow-up of a patient with ankylosis of a primary incisor: Hamaguchi S., Akitomo T., Ikeda S., Ito Y., Tabata E., Tsuge Y., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Kinki Branch (Kobe), 2024.
 - 17: A case of hypophosphatasia started enzyme replacement therapy since babyhood stage: Akitomo T., Niizato N., Kametani M., Usuda M., Iwamoto Y., Mitsuhashi C., Nomura R.: The 43rd Congress of Japanese Society of Pediatric Dentistry Kinki Branch (Kobe), 2024.
 - 18: A case of a child with trisomy 14 who underwent oral care for over 10 years: Tachikake M., Asao Y., Kusaka S., Usuda M., Ogawa M., Mitsuhashi C.: The 41st Annual Meeting of the Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 19: A case of oral management including space maintenance for severe caries of multiple teeth in a child with autistic spectrum disorder: Nakano M., Iwamoto Y., Akitomo T., Kametani M., Usuda M., Ogawa M., Ota C., Ushio R., Oshima S., Yahagi M., Nemoto C., Tsukawaki K.: The 41st Annual Meeting of the Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 20: Survey on the actual situation regarding antibiotic administration for the prevention of infective endocarditis during dental procedures: Ochiai M., Kadota T., Mikasa Y., Akitomo T., Iwamoto Y., Mitsuhashi C., Nomura R., Nakano K.: 43rd Conference of the Chugoku-Shikoku Regional Chapter of the Japanese Academy of Pediatric Dentistry (Hiroshima), 2024.
 - 21: A case of rapid maxillary expansion and surgical fenestration and traction in a patient with congenital heart disease and malpositioned canines on both sides of the maxilla: Suzuki Y., Naito M., Nakano M., Nomura R.: 43rd Annual Meeting of the Chugoku-Shikoku Regional Chapter of the Japanese Society of Pediatric Dentistry (Hiroshima), 2024.
 - 22: A case of autism spectrum disorder (ASD) treated with a rapid maxillary expansion device, mandibular lingual arch, and functional orthodontic appliance: Suzuki Y., Oda Y., Takeda S., Osugi S., Sugai C., Wakayama Y., Suzuki Y., Mori Y., Matsuo M., Nakajima M., Matsubara Y., Yoshida M., Nakano M., Nomura R., Tanimoto K., Nishimura R., Asaeda M., Naito M.: 63rd Hiroshima Prefectural Dental Association Joint Meeting of the 108th Hiroshima University Dental Society (Hiroshima), 2024.
 - 23: Possibility of reducing proteinuria by oral care using chlorhexidine mouthwash in CKD patients: Misaki T., Suehiro Y., Naka S., Matsuoka D., Suehara K., Ito S., Nagasawa Y., Nomura R., Nakano M., Nakano K.: 47th IgA Nephropathy Study Group Academic Meeting, 2024.
 - 24: *cnm*-positive *Streptococcus mutans* aggravates IgA nephropathy via the tonsils: Ito S., Misaki T., Nagasawa Y., Matsuoka D., Naka S., Nomura R., Nakano M., Nakano K.: 67th Annual Meeting of the Japanese Society of Nephrology (Yokohama), 2024.
 - 25: Comparison of detection rates of periodontal pathogens in excised tonsils from patients with IgA

- nephropathy and chronic tonsillitis: Nagasawa Y., Nomura R., Misaki T., Ito S., Yamazaki H., Shojima K., Matsuoka D., Naka S., Nakano M., Niimura K., Nakano K.: 67th Annual Meeting of the Japanese Society of Nephrology (Yokohama), 2024.
- 26: Examination of detection rates of periodontal pathogens in a cohort study of elderly people living in the Tanba Sasayama area: Nagasawa Y., Hattori Y., Usuda M., Yamazaki H., Kametani M., Shojima K., Akitomo T., Kishimoto H., Nomura R., Niimura K.: 66th Annual Meeting of the Japan Geriatrics Society (Nagoya), 2024.
- 27: Isolation of *Staphylococcus aureus* from corpses: Oka H., Fujii A., Odan K., Katsuya S., Harada T., Nomura R., Kakimoto N., Aikawa T., Komatsuzawa H., Nagao M.: 20th National Conference of the Police Dental Society (Yamaguchi), 2024.
- 28: Educational effects of observing forensic autopsies and dental findings on dental students: Oka H., Aikawa T., Nomura T., Kakimoto N.: 43rd Academic Conference of the Japanese Society of Dental Education (Nagoya), 2024.

F) Special lectures in academic meetings

- 1: The 97th Annual Meeting of the Japanese Society for Bacteriology Workshop (Sapporo): Evaluation of the virulence of live or killed *Streptococcus mutans* using a silkworm model: Nomura Ryota, 2024.
- 2: Hiroshima University School of Dentistry Alumni Association Academic Lecture (Hiroshima): What pediatric dentists are thinking and doing at universities: Nomura Ryota., 2024.
- 3: The 66th Japanese Society of Dental Basic Medicine Update Symposium (Nagasaki): Distribution of *Streptococcus mutans* in all organs of cadavers: Nomura Ryota., Oka Hiroko., Matsuo Miki., Komatsuzawa Hitoshi., Nagao Masataka., 2024.
- 4: Hatsukaichi City School Health Association Research Council (Hiroshima): For children's dental health: Nomura Ryota., 2024.
- 5: Miyoshi City Dental Association Academic Lecture, Hiroshima Prefecture Miyoshi City Dental Association (Hiroshima): Pediatric Dental Treatment - Management, Caries Treatment, Early Caries Management, Oral Function, etc. -: Iwamoto Yuko., Nomura Ryota., 2024.
- 6: Recurrent Training Seminar for the first half of 2024, Center for Dental Hygienists' Education and Training Hiroshima University School of Dentistry (online): Checkpoints in dental health checkups for children and management of oral developmental disorders: Iwamoto Yuko., 2024.
- 7: GSC Hiroshima Senior Course pre education (Phase 0) 3rd Scientific Symposium, Office of Admissions, Hiroshima University (Hiroshima): Spreading knowledge and keeping everyone healthy -Dental support activity in Cambodia-: Iwamoto Yuko., 2024.
- 8: Lecture by the Encouragement Award winner at The 62nd Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka): The Practice of Oral Health Education Programs for Schoolteachers and the Survey of Oral Health Conditions for School Children in a Cambodian Primary School: Asao Yuria., 2024.
- 9: Dental seminar for kindergartens and daycare centers sponsored by Nagoya City Health Center Midori Health Center (online): From oral health to general health - Based on experience in dental support activities in Cambodia -: Asao Yuria., 2024.
- 10: The 43rd Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima): <Public Event> Thinking about the Future of Pediatric Dentistry-Proposals from Each Perspective-Community involvement in pediatric dentistry at a university hospital: Asao Yuria., 2024.
- 11: The 9th Annual Meeting of the Japanese Society for Dental Research and Prevention of Child Abuse (Tokyo): Efforts by a university hospital pediatric dentist to provide dental support at temporary shelters in Hiroshima Prefecture: Asao Yuria., Mitsuhashi Chieko., Tachikake Meiko., Iwamoto Yuko., Akitomo Tatsuya., Maejima Makiko., Yamazaki Kenji., Kozai Katsuyuki., Nomura Ryota., 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Fundamental Research (B): Nomura Ryota (Principal Investigator), Establishment of a foundation for the control of pediatric immune and infectious diseases with a focus on periodontal pathogenic bacteria. Project No. 24K02655. 3,500,000 yen
- 2: Fundamental Research (B): Nomura Ryota (Contributor), Elucidation of pathology and exploration of treatment strategies via inter-organ networks caused by *mutans streptococci*. Project No. 24K02650.

- 2,300,000 yen
- 3: Fundamental Research (C): Nomura Ryota (Contributor), A new strategy for oral cancer treatment targeting autophagy based on omics analysis. Project No. 24K13068. 100,000 yen
 - 4: Fundamental Research (C): Nomura Ryota (Contributor), Research on oral *Helicobacter pylori* infection and Parkinson's disease. Project No. 24K09387. 200,000 yen
 - 5: Grant-in-Aid for Scientific Research (C): Ryota Nomura (contributor), Elucidating the pathogenicity and functional/structural correlation of *S. mutans* collagen-binding protein using antibody mimic molecules. Project No. 22K10233. 100,000 yen
 - 6: Grant-in-Aid for Scientific Research (C): Ryota Nomura (contributor), Clarifying the colonization environment of cariogenic bacteria highly related to systemic diseases and pursuing preventive measures. Project No. 22K10268. 200,000 yen
 - 7: Grant-in-Aid for Scientific Research (C): Ryota Nomura (contributor), Investigating the relationship between *Helicobacter pylori* and periodontal pathogenic bacteria colonization in children's oral cavity. Project No. 22K10269. 300,000 yen
 - 8: Strengthening International Collaborative Research (B): Ryota Nomura (contributor), A new strategy for reducing systemic diseases in low- and middle-income countries focusing on the collagen-binding ability of cariogenic bacteria. Project No. 21KK0160. 500,000 yen
 - 9: Grant-in-Aid for Scientific Research (C): Mitsuhashi Chieko (Principal Investigator), The role of glial cells in the effects of early-life stress on the developmental brain. Project No. 24K13197. 1,000,000 yen
 - 10: Grant-in-Aid for Scientific Research (B): Mitsuhashi Chieko (Contributor), Establishment of a foundation for the control of pediatric immune and infectious diseases with a focus on periodontal pathogenic bacteria. Project No. 24K02655. 100,000 yen
 - 11: Grant-in-Aid for Scientific Research (B): Mitsuhashi Chieko (Contributor), Research on the mechanism of brain function improvement and cognitive function evaluation by masticatory exercise using salivary irisin as an indicator. Project No. 24K02775. 100,000 yen
 - 12: Grant-in-Aid for Scientific Research (B): Mitsuhashi Chieko (Contributor), Pain treatment strategies for the elderly: Platelet-activating factor (PAF)-related molecules and the mechanism of intractable pain. Project No. 23K27878. 100,000 yen
 - 13: Grant-in-Aid for Scientific Research (C): Yuko Iwamoto (Principal Investigator), Development of a pediatric dental diagnosis support system using deep learning. Project No. 24K13173. 1,800,000 yen
 - 14: Grant-in-Aid for Scientific Research (C): Yuko Iwamoto (Contributor), Involvement of glial cells in the effects of early-life stress on brain formation during development. Project No. 24K13197. 100,000 yen
 - 15: Young Scientists: Tomoya Aki (Principal Investigator), A new approach to oral-systemic linkage research focusing on the collagen-binding ability of oral streptococci species derived from children. Project No. 23K16205. 1,200,000 yen
 - 16: Grant-in-Aid for Scientific Research (B): Tomoya Aki (Contributor), Establishment of a foundation for the control of pediatric immune and infectious diseases focusing on periodontal pathogenic bacteria. Project number 24K02655. 100,000 yen
 - 17: Fundamental Research (C): Yuria Asao (contributor), Involvement of glial cells in the effects of early-life stress on brain formation during development. Project number 24K131975C. 100,000 yen
 - 18: Takagi Shunsuke Foundation for Bread Science and Technology Research Grant 2024: Ryota Nomura, Development of a method to detect and improve abnormalities in oral function in children using bread. 1,000,000 yen
 - 19: Terayama Foundation Postdoctoral Researcher Support Program Research Assistant Support Type: Asao Yuria, 1,000,000 yen
 - 20: Ryokufukai Foundation Education and Research Encouragement Award (Overseas Training Support Grant): Kaneki Ami, 100,000 yen
 - 21: Hiroshima University Emergent Next-Generation Researcher Development and Support Program: Kaneki Ami, An innovative challenge to reduce and prevent systemic diseases in Cambodia by focusing on the collagen binding ability of *mutans streptococci*. 400,000 yen
 - 22: Hiroshima University Emergent Next-Generation Researcher Development and Support Program: Ogawa Masashi, Elucidating diseases caused by *mutans streptococci* through inter-organ networks and exploring treatment methods. 400,000 yen
 - 23: Hiroshima University Emergent Next-Generation Researcher Development and Support Program: Ikeda Shunya, A new strategy for elucidating and controlling pediatric immune and infectious diseases involving oral bacterial species. 400,000 yen

- 24: Hiroshima University Emergent Next-Generation Researcher Development and Support Program: Tabata Emi, Pediatric dental image diagnostic system using AI. 400,000 yen
- 25: Hiroshima University Emergent Next-Generation Researcher Development and Support Program: Tsuge Yasuko, Building an early detection system for pediatric oral functional developmental disorders by individual visualization of tongue surface characteristics. 400,000 yen
- 26: HU SPRING Research Support Program (Push Type): Kaneki Ami, Cavity-causing bacteria in places like this!? 500,000 yen
- 27: HU SPRING Research Support Program (Push Type): Ikeda Shunya, Tongue diagnosis in children. 500,000 yen
- 28: HU SPRING Research Support Program (Push Type): Tabata Emi, Using the power of AI to connect children's healthy teeth to the future. 500,000 yen
- 29: Japan Society of Pediatric Dentistry International Conference Presentation Incentive Program 2024 (65th Korean Society of Pediatric Dentistry): Momoko Usuda, Dental abnormalities in pediatric patients receiving chemotherapy. 40,000 yen
- 30: Japan Society of Pediatric Dentistry International Conference Presentation Incentive Program 2024 (65th Korean Society of Pediatric Dentistry): Mariko Kameya, Analysis of dental caries prevalence and distribution of major oral streptococcus species in Japanese children. 40,000 yen
- 31: Japan Society of Pediatric Dentistry International Conference Presentation Incentive Program 2024 (65th Korean Society of Pediatric Dentistry): Ami Kanagi, Distribution of Streptococcus mutans in organs removed from corpses and the relationship between the distribution and the number of teeth. 40,000 yen
- 32: Japan Academy of Pediatric Dentistry International Conference Presentation Incentive Program 2024 (33rd Taiwan Academy of Pediatric Dentistry): Shunya Ikeda, Dental support activities in temporary custody shelters in Hiroshima prefecture -As a tertiary medical institution-. 50,000 yen
- 33: Japan Academy of Pediatric Dentistry International Conference Presentation Incentive Program 2024 (13th Asian Academy of Pediatric Dentistry): Ami Kanagi, Collagen-binding property of major oral streptococcus species in Japanese children. 57,000 yen
- 34: Japan Academy of Pediatric Dentistry International Conference Presentation Incentive Program 2024 (13th Asian Academy of Pediatric Dentistry): Taku Nishimura, Fully Automated Teeth Detection from Mixed Dentition Panoramic Radiographs Using Deep Learning Object Detection Model. 57,000 yen

(5) Academic Awards, etc.

- 1: Akitomo T.: Award for Excellent Presentation, Korean Academy of Pediatric Dentistry The 65th Scientific Meeting and Annual Congress.
- 2: Kaneki A. : Award for Excellent Presentation, The 62nd Japanese Society of Pediatric Dentistry, Young People's Meeting (Yokosuka), 2024.
- 3: Usuda M. : Award for Dentsply Sirona, Japanese Academy of Pediatric Dentistry, Public Interest Incorporated Association of the Japanese Academy of Pediatric Dentistry
- 4: Asao Y.: 2023 Encouragement Award from The Japanese Society of Pediatric Dentistry, The Japanese Society of Pediatric Dentistry
- 5: Mitsuhashi C.: Hiroshima University School of Dentistry Alumni Association, 27th Hiroshima University School of Dentistry Alumni Association Encouragement Award
- 6: Usuda M. : Research Incentive Award, The 57th Annual Meeting of Hiroshima University Dental Society.
- 7: Kaneki A. : Excellent Posters for the “HU SPRING 3QUESTIONS Three Questions for the Future”
- 8: Ikeda S. : Excellent Posters for the “HU SPRING 3QUESTIONS Three Questions for the Future”
- 9: Tabata E. : Excellent Posters for the “HU SPRING 3QUESTIONS Three Questions for the Future”
- 10: Kaneki A.: Ryokufukai Educational Research Encouragement Award.
- 11: Kametani M.: Hiroshima University Excellent Student Scholarship.

(6) Patents

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Department of Dental Anesthesiology Division of Oral & Maxillofacial Surgery and Oral Medicine, (Department of Dental Anesthesiology)

(1) Staff and Students

Peofessor: Hiroshi Hanamoto (*) Chief: Hiroshi Hanamoto (by-work)
Lecturer: Mitsuhiro Yoshida
Assistant Professor: Yoshitaka Shimizu, Mitsuru Doi, Kana Oue
Resident: Tamayo Takahashi, Aya Oda, Hisanobu Kamio, Serika Imamura, Utaka Sasaki, Eiji Imado
Graduate student: Maho Suyama (Oct~)
Clinical Trainee: Masaki Yasusaka, Taiga Yoshinaka

(2) Main Research Activities

- 1: Study on mechanisms of general anesthetic action
- 2: Development of a novel general anesthetic method applying enhancement of descending pain suppression system
- 3: Study on role of each neuron in an intravenous anesthetic agent-induced anesthetic factor
- 4: Study on a stage of delirium in general anesthesia
- 5: Study on involvement of dopamine neurons in awakening from general anesthesia
- 6: Study on antianxiety effects of sedative drugs
- 7: Study on respiratory sound monitor during dental treatment under sedation
- 8: Study on effects of nitrous oxide on cardiovascular system
- 9: Study on chronic pain
- 10: Study on medical emergency during dental treatments

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Effects of hippocampal damage on pain perception in a rat model of Alzheimer's disease induced by amyloid- β and ibotenic acid injection into the hippocampus: Hayashi M, Kudo C, Hanamoto H, Maegawa H, Usami N, Niwa H.: *Physiol Behav.* 2024;285:114652.
- 2: Anesthetic management of a patient with Sturge-Weber syndrome in sagittal split ramus osteotomy surgery: Oda A, Yoshida M, Imamura S, Takahashi T, Oue K, Doi M, Shimizu Y, Ono S, Nakagawa T, Koizumi K, Aikawa T: *Clin Case Rep.* 2024 Apr 7;12(4):e8747.
- 3: Brain region-specific neural activation by low-dose opioid promotes social behavior: Ohnami S, Naito M, Kawase H, Higuchi M, Hasebe , Takasu K, Kanemaru R, Azuma Y, Yokoyama R, Kochi T, Imado E, Tahara T, Kotake Y, Asano S, Oishi N, Takuma K, Hashimoto H, Ogawa K, Nakamura A, Yamakawa H, Ago Y: *JCI Insight.* 2024 9(23):e182060.
- 4: Cervical percutaneous interferential current stimulation improves citric acid cough tests in patients with Parkinson's disease on medication: Nakamori M, Toko M, Yamada H, Hayashi Y, Ushio K, Yoshikawa K, Hiraoka A, Yoshikawa M, Nagasaki T, Shimizu Y, Mikami Y, Maruyama H: *Sci Rep.* 2024 May 18;14(1):11386.
- 5: Porphyromonas gingivalis to mice with diet-induced obesity impairs cognitive function associated with microglial activation in the brain: Oue K, Yamawaki Y, Ouhara K, Imado E, Tamura T, Doi M, Shimizu Y, Yoshida M, Mizuno N, Morioka N, Kanematsu T, Irifune M, Ago Y: *J Oral Microbiol.* 2024 Nov 14;16(1):2419155.
- 6: Dental Suction Interference and Acoustic Respiratory Monitoring: Tabata E, Shimizu Y, Oue K, Saeki N, Ohshimo S, Mukai A, Ishikawa H, Kamio H, Yoshida M, Shime N: *Anesth Prog.* 2024 Dec 4;71(4):171-175.
- 7: Protein kinase C (PKC) inhibitor Calphostin C activates PKC in a light-dependent manner at high concentrations via the production of singlet oxygen: Ishii T, Kajimoto T, Kikkawa S, Narasaki S,

Noguchi S, Imamura S, Harada K, Hide I, Tanaka S, Tsutsumi MS, Sakai N: Eur J Pharmacol. 2024 Dec 5;984:177036.

- 8: A case of systemic management for an autism spectrum disorder and dental phobia patient with Fontan circulation: Takahashi T, Oue K, Imado E, Oda A, Yoshida Y, Shimizu Y, Oda Y, Yoshida M, Hanamoto H, Okada Y: Journal of the Japanese Society for Disability and Oral Health. 2024 45(2): 104-111.
- 9: Effect of Intraoperative Ondansetron on Preventing Postoperative Nausea and Vomiting in Orthognathic Surgery: Fujioka E, Hanamoto H, Kozu F, Morita Y, Kimura R, Nagira H, Niwa H: J.Jpn.Dent.Soc.Anesthesiol, 2024, 52(2), 106-113

B) Review

- 1: Orofacial pain treatment with emphasis on personal recovery: Doi M: The Journal of Japanese Society for the Study of Chronic Pain, vol43, no.1;40-44(2024).

C) Publications

- 1: Clinical aspects of non-odontogenic pain: Oral Surgery Hand Manual '24 1st ed. (Ikebe T, Kirita T, Harada H, Kishimoto H, Kogo M, Tei K): Hanamoto H, Niwa H: Quintessence Publishing Co. (Tokyo), P140-148, 2024.

D) Other Publications

E) Presentations at Scientific Meetings

- 1: Appropriate size selection of preformed cuffed tracheal tubes in children: Oda W, Hayashi M, Hanamoto H: 29th Congress of the Japanese Society of Pediatric Anesthesiology (Osaka), 2024.
- 2: Meloxicam Prevents Carrageenan-induced Chronic Hyperalgesia And Microglial Activation: Yoshida M, Yamamoto T, Imado E, Koyama Y, Mulpuri Y, Imamura S, Kamio H, Oda A, Takahashi T, Imai Y, Ujita T, Sawada E, Oue K, Kishimoto N, Seo K: 2024 IADR/AADOCR/CADR General Session & Exhibition (New Orleans), 2024.
- 3: Meloxicam prevents carrageenan-induced chronic hyperalgesia by suppressing microglial activation: Yoshida M, Yamamoto T, Imado E, Mulpuri Y, Oue K, Kurata S, Doi M, Shimizu Y, Tanaka Y, Kishimoto N, Hanamoto H, Seo K: NEUROSCIENCE2024 (Chicago), 2024.
- 4: Correlation of chronic pain related behavior and microglia in trigeminal spinal subnucleus caudalis: Yamamoto T, Yoshida M, Koyama Y, Imado E, Kishimoto N, Seo K: Oral Neuroscience (Osaka), 2024.
- 5: Experience using continuous breath sound monitoring systems in pediatric anesthesia: Takahashi T, Shimizu Y, Saeki N, Shime N, Hanamoto H: The 7th Annual Meeting of the Japanese Airway Management Society (Sapporo), 2024.
- 6: A case of reflux esophagitis diagnosed after repeated vomiting during intravenous sedation: Takahashi T, Shimizu Y, Imamura S, Imado E, Sasaki U, Kamio H, Oda A, Oue K, Doi M, Yoshida M, Hanamoto H: The 38th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku Branch (Okayama), 2024.
- 7: Oral administration of Porphyromonas gingivalis to diet-induced obese mice impairs cognitive function: Oue K, Suruga T, Imado E, Tamura T, Yamawaki Y, Ouhara K, Hanamoto H, Ago Y: 34th Annual Congress of the European College of Gerodontology (Belgrade), 2024.
- 8: Intranasal midazolam as premedication for anesthesia in patients with intellectual disabilities - Report of three cases: Oue K, Oda A, Oda Y, Imado E, Yoshida Y, Okada Y, Hanamoto H: 27th international conference of the International Association for Disability and Oral Health (Seoul), 2024.
- 9: Premedication for anesthesia using intranasal midazolam in adolescents and young adults with intellectual disabilities - Report of three cases: Oue K, Oda Y, Oda A, Imado E, Yoshida Y, Okada Y, Hanamoto H: The 41st Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.
- 10: Effects of chemogenetic manipulation of microglia on allodynia in a mouse model of autism: Imado E, Nakatsuka T, Yoshida M, Ago Y, Hanamoto H: The 52nd Annual Meeting of the Japanese Dental Society of Anesthesiology (Niigata), 2024.
- 11: Effects of a selective VPAC2 receptor antagonist peptide on a mouse model of positive symptoms of schizophrenia: Ono A, Imado E, Ago Y: The 41st Annual Meeting of the Japanese Society for

- Disability and Oral Health (Ginowan), 2024.
- 12: Roles of TRPV1 in abnormal pain sensitivity and social deficits in a mouse model of autism spectrum disorder: Tahara T, Imado E, Uta D, Kawase H, Higuchi M, Yamakawa H, Ogawa K, Asano S, Takuma K, Hashimoto H, Kume T, Kotake Y, Ago Y: The 144th Annual Meeting of the Pharmaceutical Society of Japan (Yokohama), 2024.
 - 13: A case of intravenous sedation using acoustic monitoring system for airway management of a patient with myotonic dystrophy: Imamura S, Takahashi T, Shimizu Y, Sasaki U, Imado E, Kamio H, Oda A, Oue K, Doi M, Yoshida M, Hanamoto H: The 38th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku Branch (Okayama), 2024.
 - 14: A case of Paroxysmal Supraventricular Tachycardia during general anesthesia was considered to be induced by sevoflurane: Imamura S, Takahashi T, Oda A, Imado E, Sasaki U, Kamio H, Oue K, Doi M, Shimizu Y, Yoshida M, Hanamoto H: The 52nd Annual Meeting of the Japanese Dental Society of Anesthesiology (Niigata), 2024.
 - 15: A case of masticatory myofascial pain with trismus which was successfully treated by trigger point injection: Imamura S, Doi M, Imado E, Sasaki U, Kamio H, Oue K, Yoshida M, Hanamoto H: The 29th Annual Meeting of Japanese Society of Orofacial Pain (Tokyo), 2024.
 - 16: Consideration of discharge approval criteria after day-case sedation using remimazolam for dental treatment: Oda A, Oue K, Shimizu Y, Takahashi T, Kamio H, Sasaki U, Imamura S, Imado E, Doi M, Yoshida M, Hanamoto H: 27th international conference of the International Association for Disability and Oral Health (Seoul), 2024.
 - 17: Consideration of discharge approval criteria after dental treatment under intravenous sedation with remimazolam: Oda A, Oue K, Imado E, Sasaki U, Imamura S, Kamio H, Takahashi T, Doi M, Shimizu Y, Yoshida M, Hanamoto H: The 52nd Annual Meeting of the Japanese Dental Society of Anesthesiology (Niigata), 2024.
 - 18: Perioperative management of an autistic child with severe obesity and diabetes mellitus who had difficulty following preoperative fasting instructions: Oda A, Oue K, Imado E, Takahashi T, Shimizu Y, Yoshida M, Morimoto M, Yoshida Y, Okada Y, Hanamoto H: The 41st Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.

F) Special lectures in academic meetings

- 1: Airway Management in Dental Sedation - To Reduce the Cough Reflex during Dental Treatment under Intravenous Sedation: Hanamoto H: The 7th Annual Meeting of Japanese Airway Management Society (Sapporo), 2024.
- 2: Pain treatment in pain clinics: Hanamoto H: The 6th: How to Understand Pain in the Field of Dentistry and Oral Surgery and the Necessity of Multidisciplinary Treatment (Osaka), 2024.
- 3: Vital Signs Seminar for Safe Dental Care: Hanamoto H: Vital Signs Seminar for Safe Dental Care (Hiroshima), 2024.
- 4: Basic knowledge and practice of general management: Hanamoto H: Hiroshima Prefecture Training Seminar for Dentists to Consult with People Having Difficulty Receiving Dental Health Care Services (Hiroshima), 2024.
- 5: Orofacial pain treatment with emphasis on personal recovery: Doi M: The 53rd annual meeting of the Japanese society for the study of Chronic Pain (Ashikaga), 2024.
- 6: How to treat patients with orofacial pain: Drug therapy and patient personality traits: Doi M: Miyazaki Prefectural Dental Association 2024 (Miyazaki), 2024.
- 7: Indicators of intractable orofacial pain and the outcomes: Muraoka W, Sakamoto E, Doi M: Ministry of Health, Labor and Welfare Chronic Pain Treatment System Equalization Project Kyushu Region 46th Web Study Session (Hiroshima), 2024.
- 8: OFP Treatment in Practice 2 Hiroshima University: Doi M: Ministry of Health, Labor and Welfare Chronic Pain Treatment System Standardization Project Kyushu Region 50th Web Study Session (Web), 2024

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grant-in-Aid No. 20K10116 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Yoshida M, Clarification of the mechanism of functional alteration of the central nervous system in development of chronic pain of masticatory

- muscle. ¥4,290,000.
- 2: Grant-in-Aid No. 23K09353 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Yoshida M, Yamamoto T, The analysis of the BDNF-TrkB and descending pathways in chronic masticatory muscle disorder. ¥4,680,000.
 - 3: Grant-in-Aid No. 23K09350 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Yamamoto T, Yoshida M, The role of hyperpolarization-activated cyclic nucleotide-gated channels in neuropathic pain. ¥4,810,000.
 - 4: Grant-in-Aid No. 21K10072 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Shimizu Y, Sadamori T, Analysis of noise characteristics from dental apparatus during auscultation of breath sounds to prevent from air-way obstruction under sedation. ¥4,160,000.
 - 5: Grant-in-Aid No. 23K09183 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Oue K, Study on interaction of obesity and periodontal disease on cognitive impairment. ¥4,680,000.
 - 6: Grant-in-Aid No. 22K17184 for Early-Career Scientists from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Oda A, Establishment of safe conscious sedation with remimazolam using electroencephalogram and pharmacokinetic analysis. ¥4,550,000.
 - 7: Grant-in-Aid No. 23K19455 for Research Activity Start-up from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Research on the pathophysiology and therapeutic basis of developmental disorders targeting pain-related molecules. ¥2,860,000.
 - 8: Grant-in-Aid No. 22K17091 for Early-Career Scientists from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Kamio H, Elucidation of the biocompatibility of titanium implants and the role of decorin in surrounding bone regeneration. ¥4,450,000.
 - 9: Grant-in-Aid No. 22K21061 for Research Activity Start-up from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Sasaki U, Elucidation of the neurochemical basis for general anesthetic-induced nausea and vomiting. ¥1,430,000.
 - 10: Grant-in-Aid No. 23K09395 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Hanamoto H, Takatsu F, Development of a non-contact breathing and heart rate monitoring system for dental treatment. ¥4,810,000.
 - 11: Grant-in-Aid No. 20K10114 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Hanamoto H, Establishment of a non-invasive method for evaluating respiration and ventilation using simultaneous observation of the chest and abdomen and piezoelectric sheet sensors. ¥4,290,000.
 - 12: Grant-in-Aid No. 24K13069 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (New): Shimizu Y, Sadamori T, Development of an AI acoustic analysis system for monitoring the risk of aspiration after oral surgery. ¥4,550,000.

(5) Academic Awards, etc.

(6) Patents

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Department of Public Oral Health

Collaborative Research Laboratory of Oral Inflammation Regulation

(1) Staff and Students

Professor: Kouji Ohta (*) Chief in Department of Oral Health: Kouji Ohta
 Associate Professor: Hideo Shigeishi
 Assistant Professor: Tomoko Maehara, Yoshino Kaneyasu
 Graduate Student: Kanako Yano (D3), Honami Kitasaki (D1),
 Honoka Inoue (M2), (Public Oral Health & Collaborative Research Laboratory)
 Hina Masumoto, Honoka Nomi, Hina Yamakido, Miku Konuma, Hinano Kakiuchi,
 LIU LI CHEN (M1)
 Assistant Professor, Collaborative Research Laboratory: Fumie Shiba
 Researcher: Mutsumi Miyauchi

(2) Main Research Activities

- 1: Study on Prevention for oral infection and oral complication of systemic diseases
- 2: Study on efficacy of perioperative oral care on systemic diseases
- 3: Study on human papillomavirus in oral squamous cell carcinoma
- 4: Study on mechanism of oral mucosa against microorganisms
- 5: Study on the development of new devices and examination for oral hygiene management
- 6: Study on associations between oral function and physical activity in Japanese aged adults
- 7: Study on cigarette smoke extract and oral keratinocytes or host immune responses.
- 8: Study on the pathogenesis of oral mucositis
- 9: Study on the relationship between periodontitis and systemic diseases
- 10: Study on the pathogenesis of drug-related osteonecrosis of jaw (MRONJ)

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Prevalence of oral *Capnocytophaga* species and their association with dental plaque accumulation and periodontal inflammation in middle-aged and older people. Shigeishi H, Hamada N, Kaneyasu Y, Niitani Y, Takemoto T, Ohta K. Biomed Rep, 20(6), 99, 2024.
- 2: Relationship of oral bacterial number with medical hospitalization costs in analysis of Diagnosis Procedure Combination database from single institution in Japan. Nishi H, Kajiya M, Ohta K, Shigeishi H, Obayashi T, Munenaga S, Obayashi N, Yoshioka Y, Konishi M, Naruse T, Matsumoto A, Odo A, Kitagawa M, Ando T, Shintani T, Tokikazu T, Ino N, Mihara N, Kakimoto N, Tsuga K, Tanimoto K, Ohge H, Kurihara H, Kawaguchi H. Sci Rep, 14(1):11114, 2024.
- 3: Periodontitis and postoperative inflammation in gastric cancer patients: Propensity score analysis. Sasaki M, Shigeishi H, Nishi H, Hamada N, Kitasaki H, Yano K, Kaneyasu Y, Horikoshi S, Kawaguchi H, Ohta K. Oral Dis, 30(7), 4691-4704, 2024.
- 4: The prevalence of oral herpes simplex virus type 1 and its association with oral hygiene and periodontal condition. Shigeishi H, Hamada N, Su CY, Sugiyama M, Ohta K. Int J Clin Exp Med, 17(3), 41-4, 2024.
- 5: HPV16 E6 and E7 are involved in inhibition of autophagy and maintenance of cancer stem cell properties in HPV16-positive oral squamous cell carcinoma cells. Shigeishi H, Sugiyama, M, Akagi M, Kaneyasu, Y, Maehara, T, Ohta, K. Oral Sci Int, 21(2), 207-218, 2024.
- 6: Quality of life after tongue cancer treatment and its influencing factors: A cross-sectional study of Japanese patients. Sasahara, H, Kurawaki, Y, Uchida K, Matsumura T, Shigeishi H, Hayashido Y, Toratani S, Iida S, Mishima, K, Ohta K, Sugiyama M. Oral Sci Int, 21(1), 84-92, 2024.
- 7: ACE2 expression and spike S1 protein-mediated immune responses in oral mucosal cells. Akagi M, Ohta K, Fukada S, Sakuma M, Naruse T, Nakagawa T, Ono S, Nishi H, Shigeishi H, Aikawa T. Oral

- Dis, 30(4), 2293-230, 2024.
- 8: Sunitinib promotes apoptosis via p38 MAPK activation and STAT3 downregulation in oral keratinocytes. Fukada S, Ohta K, Sakuma M, Akagi M, Kato H, Naruse T, Nakagawa T, Shigeishi H, Nishi H, Takechi M, Aikawa T. Oral Dis, 30(2), 639-649, 2024.
 - 9: Bactericidal activity of slightly acidic electrolyzed water against the cariogenic bacterium *Streptococcus mutans* and other oral bacteria. Nishihama S, Miyata A, Nguyen-Tra Le Mi, Kawada-Matsuo M, Kaneyasu Y, Ohta K, Ohge H, Shiba H, Komatsuzawa H. Oral Science International, doi.org/10.1002/osi2.1224, 2024.
 - 10: Anti-fungal effects of slightly acidic electrolyzed water on *Candida* species. Wu CH, Kaneyasu Y, Yano K, Shigeishi H, Kitasaki H, Maehara T, Niitani Y, Takemoto T, Mine Y, Le MN, Kawada-Matsuo M, Komatsuzawa H, Ohta K. J Oral Biosci. doi: 10.1016/j.job.2024.10.005, 2024.
 - 11: Association between the number of existing teeth and maintenance dialysis therapy: A cross-sectional study of adult male dentists. Kondo M, Ishigami M, Omoda M, Takeshita M, Arimoto N, Nishimura R, Maehara T, Naito T, Kojima M, Umemura O, Yokota M, Hamada N, Wakai K, Naito M, PLoS One. 13(1):10893, 2024.
 - 12: Antifungal susceptibility of *Candida* isolated from the oral cavity of patients with head and neck cancers and esophageal cancer: Yano K, Nishi H, Shigeishi H, Kaneyasu Y, Kawaguchi H, Ohta K.: JSDH, 19(1), 25-32, 2024.
 - 13: Oral condition at admission predicts functional outcomes and hospital-acquired pneumonia development among acute ischemic stroke patients : Eto F, Nezu T, Nishi H, Aoki S, Tasaka S, Horikoshi S, Yano K, Kawaguchi H, Maruyama H : Clin Oral Investig, 28(8), 2024.
 - 14: Antinociceptive effects of *Equisetum arvense* extract on the stomatitis hamster model: Shiba F, Maekawara S, Inoue A, Ohta K, Miyauchi M: PLoS One, 19(11): e0313747, 2024.
 - 15: Effects of novel lactoferrin peptides on LPS-induced alveolar bone destruction in a rat model: Yamada S, Chea C, Furusho H, Oda K, Shiba F, Tanimoto K, Tate S, Miyauchi M, Takata T.: Chemical Biology & Drug Design, 104 (1): e14574, 2024.
 - 16: Ueda T, Matsuda S, Ninomiya Y, Nakashima F, Yasuda K, Furutama D, Memida T, Yoshimoto T, Kajiya M, Ohta K, Ouhara K, Mizuno N. Biofactors 50(6):1192-1207, 2024.
 - 17: Carcinoma ex pleomorphic adenoma primarily composed of squamous cell carcinoma in buccal region – Case report. Naruse T, Ohta K, Shigeishi H, Ando T, Nakagawa T, Yamakado N, Ninomiya Y, Sakamoto S, Ishida Y, Aikawa T. Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology. 2024. (Online ahead of print)
 - 18: A Case of Perioperative Oral Function Management in a Patient Undergoing High-Dose-Rate Brachytherapy for Tongue Cancer: Natsumi Ino, Tomoko Tokisue, Hiromi Nishi, Miyuki Nakaoka, Masaru Konishi, Hiroyuki Kawaguchi, Kouji Ohta, Naoya Kakimoto: Hiroshima University Dental Journal, 56(1), 9-17, 2024

B) Review

- 1: Manual toothbrushes, self-toothbrushing, and replacement duration to remove dental plaque and improve gingival health: A scoping review from recent research. Kaneyasu Y, Shigeishi H, Niitani Y, Takemoto T, Sugiyama M, Ohta K. J Dent. doi: 10.1016/j.jdent.2024.105240, 2024.
- 2: The mechanism of inhibition of alveolar bone destruction by *Equisetum arvense* extract in a rat model of LPS-induced periodontitis: Shiba F, Furusho H, Miyauchi M: Endotoxin and Innate Immunity, 24, 28-33, 2024.

C) Publications

- 1: [Learn on the bulletinboard] How to wash your hands : Kaneyasu Y. Higashiyamasyobo, pp86-87, 2024.
- 2: Patient Oral Hygiene Management: Sang-Hwan Oh, Ji-Won Choi, Sung-Sook Park, Yoon-Kyung Kim, Jung-Sook Kwak, Myung-Jin Lee, Myung-Sung Lee, Sun-Kyung Kim, Seo-Hyun Yoon, Masaru Sugiyama, Rumi Nishimura, Kanako Yano: Booksaem Publishing (South Korea), 55-87, 2024.

D) Other Publications

- 1: Close relationship between diabetes and periodontal disease: Yano K.: (Hiroshima), TouenVol281, 2024.

E) Presentations at Scientific Meetings

- 1: Biochemical characteristics and antifungal susceptibility of *Candida* spp. isolated from patients with head and neck cancer and esophageal cancer : Yano K., Nishi H., Shigeishi H., Kaneyasu Y., Niitani Y., Nakaoka M., Kaguchi H., Ohta K.: InternationalSymposium Dental Hygiene 2024 (South Korea, Seoul), 2024.
- 2: Antifungal susceptibility of *Candida* species isolated from oral cavity in cancer patients during perioperative period: Yano K., Nishi H., Shigeishi H., Kaneyasu Y., Niitani Y., Miyuki N., Kawaguchi H., Ohta K.: The 71th Annual Meeting of the Japanese Stomatological Society Chugoku Shikoku Branch (Hiroshima), 2024.
- 3: Antifungal susceptibility of *Candida* isolated from the oral cavity of perioperative cancer patients, Kanako Y, Nishi Y, Shigeishi Y, Kaneyasu Y, Niitani Y, Nakaoka M, Kawaguchi H, Ohta K, The 71th Journal of the Japanese Stomatological Society Jpn (Hiroshima), 2024.
- 4: Effect of cigarette smoke extract on early immune responses induced by bacterial components in oral mucosal epithelial cells, Kitasaki H, Ohta K, Kaneyasu Y, Maehara T, Akagi M, Takemoto T, Shigeishi H, The 71th Journal of the Japanese Stomatological Society Jpn (Hiroshima), 2024.
- 5: Effects of tobacco extracts on early immune responses induced by microbial components in oral epithelial cells, Kitasaki H, Ohta K, Kaneyasu Y, Maehara T, Akagi M, Takemoto T, Shigeishi H, The 33th annual meeting of japanese association for oral infection diseases (Fukuoka), 2024.
- 6: Combined effect of Nisin A and antifungal drugs against *Candida*, Niitani , K Ohta, Y Kaneyasu, T maehara, H Kitasaki, H Shigeishi, R Nishimura, M Naito, T Takemoto, The 35th the Society for Oral Health in Kinki, Chugoku and Shikoku (Nara), 2024.
- 7: Manual toothbrush, self-toothbrushing, and replacement duration of toothbrush to improve oral hygiene condition, Kaneyasu Y, H Shigeishi, M Sugiyama, K Ohta, The 35th the Society for Oral Health in Kinki, Chugoku and Shikoku (Nara), 2024.
- 8: Comparison of various conventional dental plaque assessment methods with objective dental plaque evaluation methods, MizutaM, Ohama M, Kaneyasu Y, Shigeishi H, Ohta K, 63st Hiroshima Prefectural Dental Association Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.
- 9: Environmental changes in the number of airborne microorganisms in the dental laboratory of a university and identification of microorganisms at different collection sites: Nomi A, Watanabe N, Hayashi M, Watanabe S, Maehara T, Ohta K: The 19th Annual Meeting of the Japan Society for Dental Hygiene (Niigata), 2024.
- 10: *Equisetum arvense* extract Inhibits Delayed Wound Healing in an Early MRONJ Rat Model: Inoue A, Miyauchi M, Ohta K, Shiba F: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
- 11: A novel mechanism of stomatitis pathogenesis based on transcriptome analysis of a stomatitis initiation stage model: Shiba F, Inoue A, Miyauchi M, Ohta K: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
- 12: Gingipain plays crucial roles in preterm birth caused by *P. gingivalis*-odontogenic infection : Furusho H, Shiba F, Miyauchi M, The 72th Annual Meeting of Dental, Oral and Craniofacial Research (Kagoshima), 2024.
- 13: Identification of novel genes responsible for the development of stomatitis using a reverse genetics approach with a stomatitis initiation stage model : Shiba F, Inoue A, Miyauchi M, Ohta K: The 71th Meeting of the Chugoku-Shikoku Branch of the Japanese Stomatological Society (Hiroshima), 2024.
- 14: Evaluation of the efficacy of *Equisetum arvense* in the early MRONJ rat model : Inoue A, Miyauchi M, Ohta K, Shiba F: The 71th Meeting of the Chugoku-Shikoku Branch of the Japanese Stomatological Society (Hiroshima), 2024.
- 15: Evaluation of the efficacy of glycyrrhizin in a hamster model of oral mucositis: Shiba F, Furusho H, Miyauchi M: The 9th Annual Meeting of the Japanese Association of Supportive Care in Cancer (Saitama), 2024.
- 16: Antitumor effect of the antirheumatic drug leflunomide on oral squamous cell carcinoma. Niwata C, Nakagawa T, Ohta K, Ono S, Yamakado N, Tobiume K, Aikawa T: The 42nd Annual Meeting of the Japanese Society of Oral Oncology, (Hokkaido), 2024.

- 17: ACE2 expression in oral mucosal cells and immune response mediated by Spike protein. Akagi M, Ohta K, Sakuma M, Yamakado N, Niwata C, Naruse T, Nakagawa T, Tobiume K, Shigeishi H, Aikawa T: The 78th Annual Meeting of the Japanese Stomatological Society, (Tokyo), 2024.
- 18: Investigation of the angiogenesis inhibitory and antitumor effects of leflunomide on oral squamous cell carcinoma. Niwata C, Nakagawa T, Ohta K, Ono S, Uetsuki R, Yamakado N, Akagi M, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, (Kanagawa), 2024.
- 19: Effect of nucleic acid transfer and IL-1 β on TMPRSS2 expression in oral mucosal cells. Akagi M, Ohta K, Yamakado N, Niwata C, Sakuma M, Naruse T, Nakagawa T, Shigeishi I, Aikawa T: The 69th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons, (Kanagawa), 2024.
- 20: Probiotic Effects During Chemotherapy for Breast Cancer – Approaches Towards Preventing Oral Mucositis and Maintaining Nutritional Status: Kuwabara Yuki, Nishi Hiromi, Ohta Kouji, Shigeishi Hideo, Konishi Masaru, Kakimoto Naoya, Horikoshi Susumu, Yoshioka Yukio, Nakaoka Miyuki, Kawaguchi Hiroyuki: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024
- 21: Effects of Low-Power Diode Laser Irradiation on Oral Mucositis in Patients with Hematologic Malignancies Undergoing Hematopoietic Stem Cell Transplantation: Horikoshi Susumu, Nishi Hiromi, Shigeishi Hideo, Ohta Kouji, Yoshioka Yukio, Konishi Masaru, Kakimoto Naoya, Kawaguchi Hiroyuki: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024
- 22: The Importance of Oral Care and Timing of Intervention for the Prevention of Postoperative Pneumonia: Naganuma Kiho, Nishi Hiromi, Shigeishi Hideo, Ohta Kouji Yoshioka Yukio, Konishi Masaru, Kakimoto Naoya, Horikoshi Susume, Yano Kanako, Nakaoka Miyuki, Kawaguchi Hiroyuki: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024.

F) Special lectures in academic meetings

- 1: Maehara T: Hiroshima Dental Hygienists' Association Human Resource Development Project for Visiting Dental Hygienists. Basic training. The first visit - from a dental hygienist's point of view (Hiroshima), 2024.12.7, 12.21.
- 2: Yano K: Oral health management in Special care Dentistry: Hiroshima prefecture regional medical care nursing comprehensive securing business Education at Hiroshima Oral Health Center Research function development project Hiroshima prefecture dental health service provision difficult person consultation physician training workshop (Hiroshima), 2024.
- 3: Yano K: Close relationship between diabetes and periodontal disease: The 305th Diabetes Seminar (Hiroshima), 2024.
- 4: Yano K: Oral hygiene care for hospitalized patients: Oral rehabilitation society Advance Course1(WEB), 2024.
- 5: Yano K: Brushing your teeth every day can change your future! Key point for preventing periodontal disease: BioGaia TALKS(Hiroshima), 2024.
- 6: Yano K: Oral care taught through videos: The 40th Hiroshima Hospital Infection Control Research Meeting (Hiroshima), 2024.
- 7: Yano K: Pitfalls in diabetes treatment: The 10th Japanese Society of Physical Therapy for Diabetes Mellitus (Hiroshima), 2024.
- 8: Yano K: Oral health management in Special care Dentistry: Hiroshima prefecture regional medical care nursing comprehensive securing business Education at Hiroshima Oral Health Center Research function development project Hiroshima prefecture dental health service provision difficult person consultation physician training workshop (Hiroshima), 2024.10.06.
- 9: Ohta K: Anti-microbial resistance measures and correct use of anti-microbial drugs in dental treatment: Lecture at Kinki of Hiroshima university association (Osaka), 2024
- 10: Ohta K: Standard infection prevention measure and environmental improvement in dental treatment : Lecture at Ehime dental association (Ehime), 2024
- 11: Ohta K: Anti-microbial resistance measure and the appropriate use of anti-microbial drug in dental treatment: The 33rd Japanese society of oral infection diseases academic conference (Fukuoka), 2024
- 12: Ohta K: Study of blood test values that indicate the systemic diseases: The 2nd Fukuoka association lecture (Web), 2024

G) Contribution to Community

- 1: Maehara T: Hiroshima City Futaba Junior High School 3rd Grade Hands-on Practice.
- 2: Maehara T: Dental Hygienists' Association Booth at the 39th Oral Health Exhibition, Hiroshima.
- 3: Maehara T: Director, Hiroshima Dental Hygienists' Association, Director, Public Relations
- 4: Ohta K (Director) , Maehara T, Yano K: Japan Dental Hygienist Society Certified Dental Hygienist Seminar Staff of Dental Care Safety Management Course, 2023.
- 5: Ohta K: Hiroshima university dental hygienist education and training center recurrent training working shop, lecture, Let's understand blood test values that indicate the systemic diseases, 2024.
- 6: Ohta K: Hiroshima university dental hygienist education and training center recurrent training working shop, lecture, Need to know about drug to be careful in dental treatment, 2024
- 7: Ohta K: Japanese society for infection prevention and control, educational tool, Hand hygiene (Web), 2024
- 8: Ohta K: Japanese society for infection prevention and control, educational tool, Infection prevention by oral bacterial control (Web), 2024
- 9: Ohta K: Japanese society for infection prevention and control, educational tool, Prevention measures by infection route (Web), 2024
- 10: Ohta K: Japanese society for infection prevention and control, educational tool, Standard precaution (Web), 2024

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grants-in-Aid for Scientific Research (Scientific Research (C) : new: Shigeishi H (Main-researcher) : Elucidation of the regulatory mechanism of cancer stem cell traits mediated by Beclin-1 in oral squamous cell carcinoma cells highly expressing CD44. (23K09370).
- 2: Grants-in-Aid for Scientific Research (Scientific Research (C): new: Ohta K (Main- researcher): Elucidation of the novel functions of the new coronavirus target protein in the oral mucosa and its expression regulatory factors (23K09371).
- 3: Grants-in-Aid for Scientific Research (Scientific Research (C): new: Ohta K (Co-researcher): Elucidation of factors influence esophageal cancer treatment using comprehensive analysis of the oral microbiome (23K09311)
- 4: Grants-in-Aid for Scientific Research (Scientific Research (C) : Ohta K (Co- researcher): Basic research for developing dental implant treatment guidelines for patients receiving bisphosphonates. (21K09952)
- 5: Grants-in-Aid for Scientific Research (Scientific Research (C) : Ohta K (Co-researcher): Development of transplantation material for treatment of jaw bone necrosis with angiogenic effect. (21K10094)
- 6: Grants-in-Aid for Scientific Research (Scientific Research (C) : Ohta K (Co-researcher): Effect of distribution of resistant bacteria in the oral cavity and managing oral hygiene on medical / long term care related pneumonia (No.20K10248)
- 7: Grants-in-Aid for Scientific Research (Scientific Research (C) : Ohta K (Co-researcher): Establishment of IPS-derived jawbone and gingival organoids by conglomerate culture technology and advancement of oral regenerative medicine (No.22H03275)
- 8: Grants-in-Aid for Scientific Research (Early-Career Scientists : Maehara T (Main-researcher) : Physical Activity and Social Factors for Prevention of Oral Functional Decline. (No. 23K16228).
- 9: Research grant (FUTOKU foundation): Kaneyasu Y (Principal Investigator): Development of an application aimed at supporting oral health and examination of its usefulness: ¥300,000.
- 10: Grants-in-Aid for Scientific Research (Early-Career Scientists: Kaneyasu Y (Main-researcher): Development of a toothbrush cleaner using electrolyzed water with strong bactericidal effects and its application to a new mouthwash. (No. 24K20110).
- 11: Grant-in-Aid for Early-Career Scientists : Fumie Shiba (Principal Investigator), A Novel Mechanism of Stomatitis Pathogenesis Based on Transcriptome Analysis of a Stomatitis Initiation Stage Model, Project/Area Number: 23K16150.

(5) Academic Awards, etc.

- 1: Ayuka Inoue: The 71th Meeting of the Chugoku-Shikoku Branch of the Japanese Stomatological Society, Rookie award. Evaluation of the efficacy of *Equisetum arvense* in the early MRONJ rat model.

(6) Patents

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Department of Oral Epidemiology

(1) Staff and Students

Professor: NAITO Mariko

Research Associate: NISHIMURA Rumi

Graduate Student:

HAMA Yohko (Advanced Prosthodontics)

NISHIMOTO Misa

KURAWAKI Yuuko

MATUO Katsuhiro (Oral Physiology)

TANAKA Sora

KAWAMOTO Airi

WEI Huang

SHIOMIZU Suzuka

FURUIE Ayari

MITSUI Mizuki

Post-doctoral researchers

ASAEDA Mayuka

Research Scientist:

SUZUKI Yoshitaka

(2) Main Research Activities

- 1: Study on the methods for Oral health care
- 2: Study on the education program for Oral health
- 3: Study on the development of oral function
- 4: Epidemiological studies regarding associations between oral health and general health
- 5: Molecular epidemiology and gene-environmental interaction
- 6: Associations between health screening behavior, health status and lifestyle
- 7: Research for dysphagia patients and their caregivers
- 8: QOL/PRO research

(3) Achievements

A) Original Papers (including Case Reports)

- 1: Association between dysphagia risk and sleep quality in community-dwelling older adults: A cross-sectional study. Hama Y, Yamada S, Nishimura R, Yoshida M, Tsuga K, Morita E, Tamada Y, Kato Y, Kubo Y, Okada R, Nagayoshi M, Tamura T, Hishida A, Wakai K, Naito M. *Heliyon*. 31;10(11):e32028, 2024.
- 2: Association of physical function with masticatory ability and masticatory habits: a cohort study: Takeshita M, Naito M, Nishimura R, Fukutani H, Kondo M, Kurawaki Y, Yamada S and Uchibori N.: *BMC Oral Health*24:1277,2024.
- 3: The Effect of Umami Stimulation on Salivary Secretion Rate and Duration: Sambuichi E, Nishimura, R, Morishita S, Shigeru Watanabe: *Health* 16, 52-59, 2024.
- 4: Association between the number of existing teeth and maintenance dialysis therapy: A cross-sectional study of adult male dentists.: Kondo K, Ishigami M, Omoda M, Takeshita M, Arimoto N, Nishimura R, Maehara T, Naito T, Kojima M, Umemura O, Yokota M, Hanada N, Wakai K, Naito M.: *PLOS ONE* 16;19(8): e0309012. doi: 10.1371/journal.pone.0309012.2024.
- 5: Perceptions regarding the concept and definition of patient-reported outcomes among healthcare stakeholders in Japan with relation to quality of life: A cross-sectional study: Kaneyasu T, Saito S, Miyazaki K, Suzukamo Y, Naito M, Kawaguchi T, Eguchi Nakajima T, Yamaguchi T, Shimozuma K.: *Health and Quality of Life Outcomes*. 19; 22(1):8. doi: 10.1186/s12955-023-02224-9,2024.
- 6: Quality of life after brain injury-overall scale, Japanese version: assessment of reliability and validity: Suzuki M, Wu YJ, Ota K, von Wild KRH, Naito M, Maeda A, Hirano A, Yamada M, Saitoh E, Kondo

- I, Zeldovich M, von Steinbüchel N.: Brain Inj. 20;38(4):260-266, 2024.
- 7: How to select and understand guidelines for patient-reported outcomes: A scoping review of existing guidance: Kaneyasu T, Hoshino E, Naito M, Suzukamo Y, Miyazaki K, Kojima S, Yamaguchi T, Kawaguchi T, Miyaji T, Nakajima TE, Shimoizuma K.: BMC Health Serv Res. 13; 24(1): 334. doi: 10.1186/s12913-024-10707-8,2024.
 - 8: Inverse association between the frequency of forest walking (Shinrin-yoku) and the prevalence of insomnia based on a cross-sectional study of the general Japanese population: Japan Multi-Institutional Collaborative Cohort (J-MICC) Daiko Study.: Morita E, Kadotani H, Yamada N, Sasakabe T, Kawai S, Naito M, Tamura T, Wakai K: Int. J. Environ. Res. Public Health; 21(3):350.2024.
 - 9: Consideration of the Work Environment in a Case of an Industrial Homeworker with Allergic Contact Dermatitis by UV-curing Acrylic Resin.: Obayashi N, Shintani T, Ando T, Kawaguchi H, Kajiya M, Naito M.: Arch Environ Occup Health. 79(9-10):315-320,2024.
 - 10: Differences in lifestyle changes among university students during the COVID-19 pandemic by sex, grade, and age: Sasahara H, Taji T, Nishimura R, Maehara T, Nikawa H: Bulletin of general health research, Hiroshima University Health Service Center 38, 1-10,2024.
 - 11: Subjective Swallowing Function and Oral-related Quality of Life in Community dwelling Older Adults: Ishigami M, Omoda M, Kondo M, Hukutani H, Nishimura R, Suzukamo Y, Naito M(*in press*), 2024.

B) Review

None

C) Publications

None

D) Other Publications

1. Japan Dental Hygienists' Association "Student Newsletter" Issue 56 Support Training Center for Dental Hygienists (Introduction to the Dental Hygienist Education and Training Center, Hiroshima University Faculty of Dentistry) Public Interest Incorporated Association Japan Dental Hygienists' Association (Tokyo), p.7, 2024.
2. Chapter 8 Caries activity tests : Prophylactic Treatment of Dental Caries for Dental Hygienists 2nd: Niitani Y, Nishimura R(ed. By Nakagaki H, Katou K, Ishitobi K and Kousaka T): Ishiyaku Publishers,Inc (Tokyo), 122-130, 2024.
3. Implant treatment: The newest series of textbook for dental hygienist education -Basic theory and practical process for prosthodontic dentistry: Nishimura R (ed. By Akagawa Y, Suese K, Masui I, Aiba C and Yamada S): Ishiyaku Publishers, Inc (Tokyo), 202-211, 2024.
4. Dysphagia Rehabilitation for Dental Hygienists 2nd: Nishimura R (ed. By Inoue M, Kikutani T, Sato Y, Shimoyama K, Fujitani J, Huruya J, Mizugami M and Mukai Y): Ishiyaku Publishers,Inc (Tokyo), 135-144, 2024.
5. Oral Health Management for Patients: 오상환, Masaru Sugiyama,Rumi Nishimura,Kanako Yano: Booksaem Publishing(KOREA), p.3-115,2024.

E) Presentations at Scientific Meetings

- 1: A case of anterior open bite treated by rapid maxillary expansion appliances: Suzuki Y, Matsumoto-Nakano M, Naito M: The 62st Annual Congress of the Japanese Society of Pediatric Dentistry (Yokosuka), 2024.
- 2: A case of rapid maxillary expansion with surgical exposure and traction for a child with congenital heart disease and bilaterally malpositioned maxillary canine tooth germs: Suzuki Y, Naito M, Matsumoto-Nakano M, Nomura R: The 43th Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Hiroshima), 2024.
- 3: A case of displaced maxillary lateral incisor tooth buds treated with rapid maxillary expansion: Suzuki Y, Kuroe K, Matsuo K, Naito M, Matsumoto-Nakano M, Tanimoto K: The 83nd Annual Meeting of

- the Japanese Orthodontics Society (Yokohama), 2024.
- 4: A case of application of maxillary rapid expansion appliances, mandibular lingual arches, and functional orthodontic appliances for a child with autism spectrum disorder (ASD) in staged: Suzuki Y, Oda Y, Takeda N, Osugi S, Sugai C, Wakayama Y, Suzuki Y, Mori Y, Matsuo K, Nakajima M, Matsubara Y, Yoshida M, Matsumoto-Nakano M, Nomura R, Tanimoto K, Nishimura R, Asaeda M, Naito M: The 63th Scientific Meeting of Hiroshima Prefecture Dental Association and 108th Scientific Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
 - 5: Oral and facial effects of rapid maxillary expansion devices and functional orthodontic appliances in the treatment of skeletal Class II malocclusion with maxillary transverse deficiency: Suzuki Y: The 35nd Annual Meeting of the Japan Academy of Esthetic Dentistry (Tokushima), 2024.
 - 6: Case of a patient with frontotemporal dementia whose treatment approach was modified according to their general condition : Hama Y, Yoshida M : The 35th Annual Meeting of the Japanese Society of Gerodontology (Sapporo), 2024.
 - 7: Oral and intestinal flora differences between autism spectrum disorder patients and healthy individuals : comparison between siblings living together : Oda Y, Murakami M, Morimoto M, Yamaguchi H, Nishio Y, Miyazaki H, Furutani C, Asahina H, Yoshida Y, Morimoto C, Hama Y, Miyauchi M, Katayama S, Nikawa H, Okada Y : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 8: Assessment of satisfaction with general anesthesia for children with disabilities : Morishita K, Oishi M, Yasuda S, Okino E, Yamaguchi M, Ochiai I, Shimogochi Y, Morimoto C, Hama Y, Oda Y, Miyauchi M, Yamanaka H, Kawamoto H, Kamikawa K, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 9: A survey on the Trends in dental visits of children with severe motor and intellectual disabilities at Hiroshima oral health center : A comparison based on the presence or absence of medical complexity : Hama Y, Oda Y, Morimoto C, Oishi M, Okino E, Morishita K, Yamaguchi M, Ochiai I, Shimogochi Y, Miyauchi M, Kawamoto H, Yamanaka H, Kamikawa K, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 10: A case of a child with ASD who refused to undergo dental treatment, and who became to be able to receive dental treatment under ordinary method by applying emotional regulation in the SCERTS model : Yamaguchi M, Oda Y, Oishi M, Okino E, Morishita K, Ochiai I, Shimogochi Y, Morimoto C, Hama Y, , Miyauchi M, Yamanaka H, Kawamoto H, Kamikawa K, Murakami J, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 11: Analysis of impressions of dental hygienist students on the clinical practice of disability dentistry during the spread of coronavirus infection : Shimogochi Y, Oishi M, Yasuda S, Okino E, Yamaguchi M, Morishita K, Ochiai I, Morimoto C, Hama Y, Oda Y, Miyauchi M, Yamanaka H, Kawamoto H, Kamikawa K, Yamasaki K : The 40th Japanese Society for Disability and Oral Health (Okinawa), 2024.
 - 12: Development of a new test for periodontal disease using breath analysis: Asaeda M, Kawano A, Takahashi Y, Yamashiro K: The 12th Kobe Tokiwa Academic Forum (Kobe), 2024.
 - 13: Association of Sleep Duration with Swallowing Difficulty in Adults: Mitsui M, Furuie A, Shiomizu S, Nishimura R, Asaeda M, Kurawaki Y, Takemoto T, Arimoto N, Naito T, Masaaki K, Umemura O, Yokota M, Hanada N, Wakai K, Naito M: International Symposium on Dental Hygiene 2024 (Korea), 2024.
 - 14: Relationship between Daily Tasks and Years of Experience among Dental Hygienists Providing Home-Visit Dental Care: Miyoshi S, Aimi R, Fujiwara C, Kuwahara S, Nishimura R: International Symposium on Dental Hygiene 2024 (Korea), 2024.
 - 15: Effectiveness Verification of Training for Returning Dental Hygienists: A Study on Self-Evaluation and Occupational Stress: Kurawaki Y, Aimi R, Misumi K, Nishimura R, Matsumoto A, Naito M, Takemoto T: The 97th Annual Meeting of the Japan Society for Occupational Health (Hiroshima), 2024.
 - 16: Five-Year Activities in the Reemployment Support and Retention Promotion Project for Dental Hygienists: Kurawaki Y, Aimi R, Misumi K, Nishimura R, Matsumoto A, Naito M, Takemoto T: The 19th Annual Meeting of the Japanese Society of Dental Hygiene (Niigata), 2024.
 - 17: Association Between Oral Health and Cognitive Function: A Systematic Review: Okamoto N, Kishimoto M, Mitui M, Asaeda M, Nishimura R, Naito M: The 63th Scientific Meeting of Hiroshima Prefecture Dental Association and 108th Scientific Meeting of Hiroshima University Dental Society

- (Hiroshima),2024.
- 18: Combined Effect of Nisin A and Antifungal Agents Against Candida: Naitani Y, Ohta K, Kaneyasu Y, Maehara T, Kitasaki H, Shigeishi H, Nishimura R, Naito M, Takemoto T: The 35th general meeting of Kinki, Chugoku, Shikoku Society for Oral Health(Nara),2024.
 - 19: Activity Report and Survey Results of the Dental Hygienist Training Program Engaged in Home Dental Health Care in FY 2022-2023: Hata N, Tetsumori K, Nishimura R, Maehara T, Matsumoto A, Naito M: Hiroshima Prefecture Dental Hygienists' Association Research Presentation(Hiroshima), 2024.

F) Lectures and Symposium Presentations

- 1: Asaeda M: 2024 Dental Hygienist Technical Training Program “Handling of Fluoride” “Dental Hygiene Process”: Hiroshima University (Hiroshima), 2024.
- 2: Nishimura R: Oral Rehabilitation Society Advanced Course (KOREA) , 2024.
- 3: Nishimura R: ISTCD2024 “The Role of Dental Hygienist Members in the Swallowing Support Team” (Taiwan), 2024.
- 4: Naito M: Conference-planned Symposium 1 "Measuring Health," The 73rd Annual Meeting of the Japanese Society for Oral Health (Morioka), 2024.

G) Social Contributions

- 1: Kurawaki Y,Asaeda M: Oral health instruction at Mimyo Kindergarten and 3 other facilities (Hiroshima), 2024.
- 2: Asaeda M, Nishimura R: Work experience for High School students: Oral health instruction at Hiroshima University (Hiroshima), 2024.
- 3: Asaeda M: Assessment of oral function at Hatsukaichi City Central Citizens' Center (Hiroshima), 2024.
- 4: Kawamoto A: Community Building and Exchange Festival 2024:Dental Health Guidance at Gojinsha Wendy Hito-Machi Plaza(Hiroshima), 2024.
- 5: Tanaka S: Hiroshima Dental Hygienists' Association, Hiroshima District Association“Good Tooth Day Campaign ProjectHeld at Hiroshima Saniku Gakuin Kindergarten (Hiroshima), 2024.
- 6: Tanaka S:Hiroshima Dental Hygienists' Association, Hiroshima District Association: Awareness-raising project Conducted at the City Planning Citizens Exchange Festa(Hiroshima), 2024.
- 7: Nishimura R, Shiomizu S, Mitsui M.: Assessment of oral function at special nursing home “KoseiEn” (Hiroshima), 2024.
- 8: Nishimura R, Asaeda M.: Project to improve the qualifications of dental hygienists for the promotion of home dental care (Hiroshima), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc

- 1: Grants-in-Aid for Scientific Research (C): Asaeda M (Co-researcher): Effect of lip closing force on young children (aged 3-5years) growth and development, Project No. 21K10845, ¥100,000.
- 2: FUTOKU foundation Research Grant (Dental Hygiene): Asaeda M: Effects of perceived stress and coping on oral health, ¥200,000.
- 3: Grant-in-Aid for Scientific Research (C): Nishimura R (Co-researcher): Development of Core Indicators and Construction of an Item Bank for Oral Health Assessment, Project No. 24K13214, ¥100,000.
- 4: Ministry of Health, Labour and Welfare FY 2024 Demonstration Project for Securing Dental Hygienist Personnel: Naito M, Kurawaki Y, ¥7,706,000.
- 5: Hiroshima Prefecture Home Dental Care Promotion and Competency Enhancement Project: Naito M, Asaeda M, Nishimura R, ¥4,084,000.
- 6: Grant-in-Aid for Scientific Research (C): Naito M (PI): Development of Core Indicators and Construction of an Item Bank for Oral Health Assessment, Project No. 24K13214, ¥1300,000.
- 7: Grant-in-Aid for Scientific Research (B): Naito M (Co-researcher): Establishing Scientific Evaluation Methods for Patient-Reported Outcomes and Quality of Life – Development of Research and Interpretation Guidelines. Project No. 23K203350B, ¥100,000.

(5) Academic Awards, etc.

- 1: Asaeda M: Academic Paper Encouragement Award (Sunstar Foundation Award), The Japanese Society of Dental Hygiene, 2024.

(6) Patents

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Department of Anatomy and Functional Restorations

(1) Staff and Students

Professor : Masato Kaku
 Associate Professor : Saiji Shimoe
 Graduate Students : Haruya Kawabata, Sumire Ohba, Rinko Shubiki, Nene Morie, Nana Morikiyo, Soichiro Yamaga
 Undergraduate Student : Koto In, Sayo Endo, Nonoka Suzuki, Miyuki Nakamura, Moe Fukuda, Arisa Inoue, Kazuki Nakahara, Yuto Nakamura, Mizuki Yasuhara, Naoki Yoneda
 Research Student : Shogo Iwaguro
 Clinical Resident : Kazunori Itatani

(2) Main Research Activities

- 1 : Effects of mechanical stress on bone metabolism and angiogenesis
- 2 : Tongue-palatal contact during articulation and swallow
- 3 : Study on dental materials for esthetic
- 4 : Study on new clinical application using novel dental ceramic
- 5 : Study on objective evaluation using the three-dimensional image

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Peng TY, Shimoe S, Higo M, Kato M, Hirata S, Iwaguro S, Kaku M. 2024, Effect of laser engraving on shear bond strength of polyetheretherketone to indirect composite and denture-base resins. J Dent Sci, 19: 32-38.
- 2 : Haneda Y, Murayama T, Nikawa H, Shimoe S, Kaku M. 2024, Wisdom tooth autotransplantation for the missing maxillary central incisors using a 3D-printed replica: A case report. Cureus, 6(5):e61327. doi: 10.7759/cureus.61327.
- 3 : Haneda Y, Shimoe S, Kawata T, Kaku M. 2024, Autotransplantation of a tooth cryopreserved over 11 years using a programmed freezer with a magnetic field: A case report. Cureus, 16(1):e52138. doi: 10.7759/cureus.52138.
- 4 : Sano N, Sano R, Ohtani J, Shimoe S, Nikawa H, Murayama T, Kaku M. 2024, Entire Dental Arch Mesial Movement after Extraction of Upper Right Central Incisor due to Root Fracture Treated by Temporary Anchorage Devices. Bull Tokyo Dent Coll, 65:19-27.
- 5 : Yoshimi Y, Abe T, Abe F, Kado I, Ito S, Koizumi Y, Kaku M. Tanimoto K. 2024, Long-term follow-up case of skeletal mandibular protrusion that improved posterior crossbite by surgically assisted rapid maxillary expansion. J Chu-Shi Orthod. Soc, 36:1-10.

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Yamamoto I, Kojima S, Yamamoto N, Kaku M, Tanimoto K : Orthodontic treatment influences on articulation -Electropalatographic study on orthognathic surgery in skeletal mandibular protrusion

patients-. The 83th Annual Meeting of The Japanese Orthodontic Society (Yokohama), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

(5) Academic Awards, etc.

(6) Patents

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Program of Oral Health Sciences

Department of Medical System Engineering

(1) Staff and Students

Professor	: Takeshi Murayama
Lecturer	: Yuichi Mine
Graduate Students	: Memori Minoda, Taku Nishimura (Pediatric Dentistry), Eimi Tabata (Pediatric Dentistry), Moeka Kasagawa, Mizuho Sano, Hinako Atarashi, Honoka Aoe, Ayano Ueda, Mahina Kamada, Noriko Mae
Graduation Research Students	: Yukako Ichikawa, Yukinaga Kurokui, Ryohei Tokinaga, Yuki Hayakawa, Masahiro Hara, Mako Yamamoto, Junya Okazaki, Rinka Shimono, Aoi Nakamura, Keishu Fujiwara, Amane Mukai, Ayuka Yamaguchi,

(2) Main Research Activities

- 1: Application of artificial intelligence to dentistry
- 2: Application of 3-d technologies to dentistry
- 3: Study on mechanisms of medication-related osteonecrosis of the jaw (MRONJ)

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Image preprocessing with contrast-limited adaptive histogram equalization improves the segmentation performance of deep learning for the articular disk of the temporomandibular joint on magnetic resonance images: Yoshimi Y, Mine Y, Ito S, Takeda S, Okazaki S, Nakamoto T, Nagasaki T, Kakimoto N, Murayama T, Tanimoto T: Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 138(1), 128-141, 2024.
- 2: Sex estimation from maxillofacial radiographs using a deep learning approach: Hase H, Mine Y, Okazaki S, Yoshimi Y, Ito S, Peng TY, Sano M, Koizumi Y, Kakimoto N, Tanimoto K, Murayama T: Dental Materials Journal, 43(3), 394-399, 2024.
- 3: Fracture characteristics and translucency of multilayer monolithic zirconia crowns of various thicknesses: Kang CM, Hsu C, Chen MS, Wu SH, Mine Y, Peng TY: Journal of Dentistry, 145, 105023, 2024.
- 4: Effects of handheld nonthermal plasma on the biological responses, mineralization, and inflammatory reactions of polyaryletherketone implant materials: Tseng CF, Lee IT, Wu SH, Chen HM, Mine Y, Peng TY, Kok SH: Journal of Dental Sciences, 19(4), 2018-2026, 2024.
- 5: Prediction of a Cephalometric Parameter and Skeletal Patterns from Lateral Profile Photographs: A Retrospective Comparative Analysis of Regression Convolutional Neural Networks: Ito S, Mine Y, Urabe S, Yoshimi Y, Okazaki S, Sano M, Koizumi Y, Peng TY, Kakimoto N, Murayama T, Tanimoto T: Journal of Clinical Medicine, 13(21), 6346, 2024.
- 6: Activation of platelet-derived growth factor receptors regulates connective tissue growth factor protein levels via the AKT pathway in malignant mesothelioma cells: Suehiro T, Khoja MAM, Hoang NTD, Xu B, Komatsu H, Kurachi K, Nikawa H, Mine Y, Matsuki T, Asano K, Fujii M: Journal of Biochemistry, 176(6), 460-471, 2024.
- 7: Entire Dental Arch Mesial Movement after Extraction of Maxillary Right Central Incisor due to Root Fracture Treated with Temporary Anchorage Devices: Sano N, Sano R, Ohtani J, Shimoe S, Nikawa H, Murayama T, Kaku M: The Bulletin of Tokyo Dental College, 65(1), 19-27, 2024.
- 8: Wisdom Tooth Autotransplantation for the Missing Maxillary Central Incisors Using a 3D-Printed Replica: A Case Report: Haneda Y, Murayama T, Nikawa H, Shimoe S, Kaku M: Cureus, 16(5),

e61327, 2024.

- 9: RadImageNet and ImageNet as Datasets for Transfer Learning in the Assessment of Dental Radiographs: A Comparative Study: Okazaki S, Mine Y, Yoshimi Y, Iwamoto Y, Ito S, Peng TY, Nishimura T, Suehiro T, Koizumi Y, Nomura R, Tanimoto K, Kakimoto N, Murayama T: Journal of Imaging Informatics in Medicine, in press
- 10: Anti-fungal effect of slightly acidic electrolyzed water on Candida species: Wu CH, Kaneyasu Y, Yano K, Shigeishi H, Kitasaki H, Maehara T, Niitani Y, Takemoto T, Mine Y, Le MN, Kawada-Matsuo M, Komatsuzawa H, Ohta K: Journal of Oral Biosciences, in press
- 11: Detecting the articular disk in magnetic resonance images of the temporomandibular joint using YOLO series: Yoshimi Y, Mine Y, Yamamoto K, Okazaki S, Ito S, Sano M, Peng TY, Nakamoto T, Nagasaki T, Kakimoto N, Murayama T, Tanimoto K: Dental Materials Journal, in press
- 12: Analysis of Risedronate Analog on Extraction Socket Healing in Mice: Kasagawa M, Mine Y, Sano M, Kurokui Y, Ueda A, Kaku M, Nikawa H, Murayama T: In Vivo, in press

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Construction of a dental diagnosis support system using deep learning: Mine Y: Prosthodontic Meeting for Next Generation 2024 (Atami), 2024.
- 2: Detecting the articular disk in MR images of the TMJ using an object detection model: Yamamoto K, Mine Y, Okazaki S, Yoshimi Y, Ito S, Murayama T: The 82nd Academic Meeting of The Japanese Society for Dental Materials and Devices (Kagoshima), 2024.
- 3: Evaluation of Extraction Socket Healing in Risedronate Analog-medicated Mice: Kasagawa M, Mine Y, Sano M, Okazaki S, Nikawa H, Murayama T: 45th Asia Pacific Dental Congress (Taiwan), 2024.
- 4: Detecting contact between mandibular third molar and inferior alveolar nerve on panoramic radiographs using deep learning: Okazaki S, Mine Y, Eguchi T, Murayama T: The 15th Annual Conference of Japan Academy of Digital Dentistry (Nagasaki), 2024.
- 5: Detection of odontomas on panoramic radiographs using an object detection model: Sano M, Mine Y, Okazaki S, Nishimura T, Murayama T: The 15th Annual Conference of Japan Academy of Digital Dentistry (Nagasaki), 2024.
- 6: Prediction of a cephalometric parameter and feature visualization on lateral profile photographs using deep learning approach: Aoe H, Mine Y, Ito S, Yoshimi Y, Okazaki S, Takeda S, Tanimoto K, Murayama T: The 15th Annual Conference of Japan Academy of Digital Dentistry (Nagasaki), 2024.
- 7: Super-resolution of TMJ MR images using Generative Adversarial Networks: Ito S, Mine Y, Yoshimi Y, Okazaki S, Murayama T, Tanimoto K: The 15th Annual Conference of Japan Academy of Digital Dentistry (Nagasaki), 2024.
- 8: Detection of teeth on panoramic radiographs of mixed dentition stage using an object detection model: Nishimura T, Iwamoto Y, Mine Y, Kaneki A, Nomura R: The 62nd Annual Meeting of the Japanese Society of Pediatric Dentistry (Kanagawa), 2024.
- 9: Method of learning multipath scheduling rules: Yamai T, Eguchi T, Murayama T: 2024 Conference of Japan Society for Design Engineering Chugoku Branch (Hiroshima), 2024.
- 10: PDGF regulates the protein expression of connective tissue growth factor CTGF via the AKT pathway: Suehiro T, Khoja Mouhand, Kurachi T, Komatsu H, Mine Y, Fujii M: 96th Annual Meeting of the Japanese Tissue Culture Association (Tsukuba), 2024.
- 11: Analysis of extraction socket healing in bisphosphonate analog-treated mice: Kasagawa M, Mine Y, Sano M, Okazaki S, Tajiri T, Nikawa H, Murayama T: The 133rd Annual Meeting of Japan Prosthodontic Society (Makuhari), 2024.
- 12: Predicting osteogenic differentiation stage of mesenchymal stem cells using deep learning: Sano M, Mine Y, Kasagawa M, Okazaki S, Tajiri T, Nikawa H, Murayama T: The 133rd Annual Meeting of Japan Prosthodontic Society (Makuhari), 2024.

- 13: Automatic detection of articular discs using an object detection artificial intelligence model with histogram averaging processing: Ito S, Yoshimi Y, Mine Y, Hirose N, Yanoshita M, Koizumi Y, Tanimoto K: The 37th Annual Meeting of the Japanese Society of Temporomandibular Joint (Tokushima), 2024.
- 14: Study on the effect of *L. rhamnosus* KO3 spray-dried powder in a Mouse Model of Oral Candidiasis: Natsu M, Inoue M, Komatsu R, Mine Y, Kumatani H, Sasaki M, Taji T, Nikawa H: 2024 Annual Meeting of Japan Prosthodontic Society Chugoku & Shikoku Branch (Okayama), 2024.
- 15: The effect of *L. rhamnosus* KO3 on inflammatory response in *P. gingivalis* LPS-treated mice: Komatsu R, Okamoto R, Mizuguchi M, Natsu M, Mine Y, Kumatani H, Sasaki M, Taji T, Nikawa H: 2024 Annual Meeting of Japan Prosthodontic Society Chugoku & Shikoku Branch (Okayama), 2024.
- 16: A rolling scheduling method for minimizing delivery tardiness in dynamic job shops: Eguchi T, Kawakami K, Murayama T: 2024 Annual Congress of The Japan Society of Mechanical Engineers (Ehime), 2024.
- 17: Expression of CTGF is regulated by PDGF via AKT in malignant mesothelioma: Suehiro T, Mine Y, Fujii M: The 83rd Annual Meeting of the Japanese Cancer Association (Fukuoka), 2024.
- 18: Analysis of tooth extraction socket healing in mice treated with risedronate analogues: Kasagawa M, Mine Y, Kaku M, Nikawa H, Murayama T: The 71st NPO Japan Stomatological Society Chugoku-Shikoku Regional Division (Hiroshima), 2024.
- 19: Fully automated teeth detection from mixed dentition panoramic radiographs using deep learning object detection model: Nishimura T, Iwamoto Y, Mine Y, Okazaki S, Tabata E, Murayama T, Nomura R: 13th Biennial Conference of the Pediatric Dentistry Association of Asia (PDAA) (Bangkok), 2024.
- 20: Artificial intelligence for medication-related osteonecrosis of the jaw: A scoping review: Okazaki S, Mine Y, Yamasaki S, Kakimoto N, Yanamoto S, Murayama T: The 63rd Hiroshima Prefectural Dental Association/108th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
- 21: Age estimation from lateral cephalograms using deep learning models: Tokinaga R, Mine Y, Aoe H, Yoshimi Y, Ito S, Okazaki S, Tanimoto K, Murayama T: The 63rd Hiroshima Prefectural Dental Association/108th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
- 22: Detection of supernumerary teeth from panoramic radiographs of mixed dentition using an object detection artificial intelligence model: Nishimura T, Mine Y, Iwamoto Y, Okazaki S, Tabata E, Nomura R, Murayama T: The 63rd Hiroshima Prefectural Dental Association/108th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2024.
- 23: Age estimation from lateral cephalograms using a deep learning approach: Yoshimi Y, Mine Y, Murayama T, Tanimoto K: 2024 TAO APOC 37th Annual Meeting of TAO 14th Asia Pacific Orthodontic Congress (Taipei), 2024.

F) Special Lectures in Academic Meetings

- 1: Digital Dentistry - A new world opened up by AI and 3D printers -: Murayama T: Chiba Study Group Lecture, 2024.
- 2: AI research and development in the dental field and its challenges: Mine Y: Symposium at the 43rd Annual Meeting of the Chugoku-Shikoku Regional Chapter of the Japanese Society of Pediatric Dentistry, 2024.
- 3: Digital Dentistry and AI: Mine Y: Shizuoka University Research Institute of Electronics / Hiroshima University Nanodevice Research Institute Joint Workshop Research Exchange Meeting, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: KAKENHI Grant-in-Aid for Scientific Research (C): (Principal Investigator) Mine Y, Development of a Novel Treatment for MRONJ by Regulation of Local Bone Metabolism. Grant Number 22K10059.
- 2: KAKENHI Grant-in-Aid for Scientific Research (C): (Co-Investigator) Mine Y, Development of a Prophylaxis for Cognitive Decline Using Biogenics. Grant Number 23K09296.
- 3: KAKENHI Grant-in-Aid for Scientific Research (C): (Co-Investigator) Murayama T, Mine Y, Development of a maxillofacial prosthetic support system using deep generative model. Grant Number 24K13026.
- 4: KAKENHI Grant-in-Aid for Scientific Research (C): (Co-Investigator) Mine Y, Development of a pediatric dental diagnosis support system using deep learning. Grant Number 24K13173.

- 5: SmaSo-X Challenge Project 2024 Young Researchers (Young Faculty) Research Grant: Mine Y, Construction and deployment of a multimodal dental image integration model.
- 6: Research Center for Biomedical Engineering Joint Research Project General Joint Research A (Domestic A) : Mine Y, Development of a dental diagnosis support system using deep learning integrated with image processing. Accession number 3053.

(5) Academic Awards, etc.

- 1: Hase H: 2023 Student Awards of Hiroshima University Graduate School of Biomedical Sciences, 2024.
- 2: Yamamoto K, Mine Y, Okazaki S, Yoshimi Y, Ito S, Murayama T: The 82nd Academic Meeting of the Japanese Society of Dental Materials and Devices in 2024, Shofu Award, 2024.
- 3: Ito S, Yoshimi Y, Mine Y, Hirose N, Yanoshita M, Koizumi Y, Tanimoto K: The 37th Japanese Society of Temporomandibular Joint Poster Presentation Best Award (Ishibashi Award), 2024.
- 4: Sano M: Hiroshima University Excellent Student Scholarship for 2024, 2024.

(6) Patents

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Department of Oral Biology & Engineering

(1) Staff and Students

Professor : Hiroki Nikawa

Associate Professor : Tsuyoshi Taji

Education and Research Support Staff : Kaori Taguchi

Graduate Student: Ato Isshiki, Mako Shimizu, Koji Munemoto, Sarara Kanzaki, Honoka Okada, Mei Inoue, Reon Komatsu, Ryo Okamoto, Masaki Natsu, Shota Takayama, Sota Nakatani

Undergraduate Student: Aoi Matoba, Ai Yoshimura, Moe Ueda, Haruka Horii, Rika Tanaka, Chihana Okada

(2) Main Research Activities

- 1: Study on candidal biofilms and denture plaque
- 2: Study on dental caries and probiotics
- 3: Design for cationic antimicrobial peptides
- 4: Study on mechanisms of the alveolar bone resorption
- 5: Development of bone-resorption inhibitors
- 6: Study on dental implant materials
- 7: Collaborative research about allergy
- 8: Study on digital dentistry
- 9: Collaborative research about aortic aneurysm
- 10: Development of oral function devices
- 11: Analysis of food texture

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Comparison of dental plaque flora between intellectually disabled patients and healthy individuals: a cross-sectional study : Oda Y, Furutani C, Kawano R, Murakami J, Mizota Y, Okada Y, Nikawa H : *Odontology*, 112(2),588-600, 2024 .
- 2: Effects of various functional monomers' reaction on the surface characteristics and bonding performance of polyetheretherketone : Huang HY, Feng SW, Chiang KY, Li YC, Peng TY, Nikawa H : *J Prosthodont Res*, 8;68(2),319-325, 2024 .
- 3: Trisomy 12 compromises the mesendodermal differentiation propensity of human pluripotent stem cells. Yohei Hayashi, Kana Yanagihara, Yujung Liu, Tomoko Yamaguchi, Yasuko Hemmi, Minako Kokunugi, Kozue Ichio Yamada, Ken Fukumoto, Mika Suga, Satoshi Terada, Hiroki Nikawa, Kenji Kawabata, Miho Furue : *In Vitro Cellular & Developmental Biology*, 60(5),521-534, 2024 .
- 4: In vitro study of optimal removable partial denture clasp design made from novel high-performance polyetherketoneketone. P.-W. Peng, M.-S. Chen, T.-Y. Peng, P.-C. Huang, H. Nikawa, W.-F. Lee: *J Prosthodont Res*, 8,68(3),466-473, 2024 .
- 5: Comparative analysis of the retention force and deformation of PEEK and PEKK removable partial denture clasps with different thicknesses and undercut depths : W.-F. Lee, M.-S. Chen, T.-Y. Peng, P.-C. Huang, H. Nikawa, P.-W. Peng : *Journal of Prosthetic Dentistry (JPD)*, 131(2),291.e1-291.e9, 2024 .
- 6: Wisdom Tooth Autotransplantation for the Missing Maxillary Central Incisors Using a 3D-Printed Replica :A Case Report : Haneda Y, Murayama T, Nikawa H, Shimoe S, Kaku M : *Cureus*, 29, 16(5) , 2024 .

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

F) Symposium and special lecture

- 1: Application of Probiotics strain *Lactobacillus rhamnosus* L8020 to oral health : Hiroki Nikawa : Taiwan Lactic Acid Bacteria Association 2024 Annual Meeting & Conference (Taiwan),2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1 : Grants-in-Aid for Scientific Research (Scientific Research (C)) : Yuichi Mine(Head), Hiroki Nikawa (Co-investigators), Research Project Number: 22K10059. ¥1,170,000
- 2 : Grants-in-Aid for Scientific Research (Scientific Research (C)) :Hiroki Nikawa (Head), Yuichi Mine, Tsuyoshi Taji (Co-investigators), Research Project Number: 23K09296. ¥1,430,000
- 3 : Grants-in-Aid for Scientific Research (Scientific Research (C)) : Tsuyoshi Taji (Head), Hiroki Nikawa (Co-investigators), Research Project Number: 24K13026. ¥1,400,000
- 4 : Donation from Shikoku nyugyou corporation to Hiroki Nikawa. ¥300,000
- 5 : Donation from Hiroshima Red Cross Hospital & Atomic-bomb Survivors Hospital. to Hiroki Nikawa. ¥100,000

(5) Academic Awards, etc.

(6) Patents

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Center for Cause of Death Investigation Research & Education

(1) Staff and Students

Associate Professor/Lecturer: Hiroko Oka (Special Designation)

(2) Main Research Activities

- 1: Cuses of death and oral findings
- 2: Age prediction using oral specimen and findings
- 3: Personal identification system
- 4: Education method and assessment on forensic odontology

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Oka H*, Ohbayashi N, Yoshikawa M, Katsuya N, Kakimoto N, Nagao M: Metal component of dental restorations and fixed prostheses in the oral cavity of 43 cases of adults aged 55 years or older in forensic autopsy. *Journal of Oral Science*, 66: 79-81, 2024.
- 2: Oka H*, Obayashi N, Yoshikawa M, Kakimoto N: Characteristics of dental materials in the oral cavities of Asian individuals between their 20s and early 40s living temporarily in Japan based on 38 case studies. *Journal of Oral Science*, 66:198-201, 2024.
- 3: Oka H*, Saitoh H, Minegishi S, Nagao M: Verification of materials for dental treatments in Vietnam and their background. *Forensic dental Science*, 17:52-57, 2024.

B) Review

C) Publications

D) Other Publications

E) Presentations at Scientific Meetings

- 1: Oka H, Nagao M: Educational Effectiveness of observation of Forensic Autopsy and taking Dental Findings for Dental Students during Clinical Training: The 18th Annual Meeting of Japanese Society of Forensic Dental Science (Osaka), 2024.
- 2: Fujii A, Oka H, Nagao M: Isolation of *Staphylococcus aureus* from oral and whole body specimens from forensic autopsies: The 18th Annual Meeting of Japanese Society of Forensic Dental Science (Osaka), 2024.
- 3: Yamashita Y, Fujii A, Oka H, Nagao M: Questions and problems in making a dental chart - A beginner's perspective: The 18th Annual Meeting of Japanese Society of Forensic Dental Science (Osaka), 2024.
- 4: Aboshi H, Oka H, Suzuki T, Otani M, Tsuzuki T: Survey of Undergraduate Education on Dental Forensic Science (Forensic Dentistry) Report 2 - Effects of the Results of a Questionnaire to 29 Dental Colleges and University Dental Schools in Japan: The 18th Annual Meeting of Japanese Society of

- Forensic Dental Science (Osaka), 2024.
- 5: Oka H: Verification of dental materials used in the oral cavity of Asian students and comparison with Japanese students: The 108th Congress of The Japanese Society of Legal Medicine (Okayama) 2024.
 - 6: Fujii A, Odan K, Matsuo F, Oka H, Matsuo M, Nagao M, Komatsuzawa H, Aikawa T: Distribution of Staphylococcus aureus in oral and whole body specimens from forensic autopsies: The 71th Regional meeting of Japanese Stomatological Society in Chugoku and Shikoku, Hiroshima, 2024.
 - 7: Oka H, Fujii A, Odan K, Matsuo M, Katsuya N, Harada T, Nomura R, Kakimoto N, Aikawa T, Komatsuzawa H, Nagao M: Isolation of Staphylococcus aureus from corpses: The 20th General Conference of Police Cooperative Dentists (Yamaguchi), 2024.
 - 8: Oka H, Kakimoto N: Effects of Observation of Forensic Autopsies with Taking Post-mortem Dental Findings for Undergraduate Clinical Dental Students on Education: The 43th Annual Academic Meeting of Japanese Dental Education Association, Nagoya, 2024.
 - 9: Oka H, Nishi H, Tanimoto K, Kawaguchi H: The evolution of undergraduate education on disaster dentistry and changes of the awareness of training dentists-A questionnaire survey at Hiroshima University Hospital from 2019 to 2024--The 43th Annual Academic Meeting of Japanese Dental Education Association, Nagoya, 2024.
 - 10: Oka H, Suzuki T, Otani M, Tsuzuki T, Yamada Y, Aboshi H: Undergraduate Education on Forensic Odontology in Japan- Results of a Questionnaire Survey with 29 Dental Schools-The 43th Annual Academic Meeting of Japanese Dental Education Association, Nagoya, 2024.
 - 11: Kaneki A, Oka H, Ogawa M, Usuta M, Kametani M, Akitomo T, Mitsuhata C, Matsuo M, Nakano K, Komatsuzawa H, Nagao M, Nomura R: Distribution of Streptococcus mutans in organs removed from corpses and the relationship between the distribution and the number of teeth : The 65th Annual Congress of the Korean Academy of Pediatric Dentistry, Republic of Korea, 2024.
 - 12: Nomura R, Oka H, Matsuo M, Komatsuzawa H, Nagao M: Distribution of Streptococcus mutans in organs of cadaver: The 66th Annual Meeting of Japanese Association for Oral Biology, Nagasaki, 2024.
 - 13: Fujii A, Matsuo M, Oka H, Nomura R, Nagao M, Komatsuzawa H: Drug-resistant bacteria in human organisms: relationship with the detection of drug-resistant bacteria in human remains: The 66th Annual Meeting of Japanese Association for Oral Biology, Nagasaki, 2024.

F) Special lectures in academic meetings

- 1: Hiroko Oka (Organizer & Symposiast of US6): Collaboration with dentistry in hub centers for cause of death research and education: The 66th Annual Meeting of Japanese Association of Oral Biology (Nagasaki), 2024.
- 2: Hiroko Oka (Lecturer): On the Response to Identification Assuming a Disaster: Understanding the Current Problems of DVI by Dental Findings. Hiroshima: Hiroshima Prefecture Police Dentists Association Workshop FY 2024, Hiroshima, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grants-in-Aid for Scientific Research (Scientific Research (B): Oka Hiroko (co-Investigator), Establishment of a foundation for the control of immunological diseases and infections in children by focusing on periodontopathogenic bacteria (Tentative translation), No. 24K02655
- 2: Pfizer Health Research Foundation 2024: Oka Hiroko (Investigator), A study on the relationship between the distribution of oral bacteria in the body and pathological conditions.

(5) Academic Awards, etc.

- 1: Hiroko Oka: The 17th Annual Award of the Japanese Society of Forensic Dental Science
- 2: Hiroko Oka: Excellent Paper Award of Japanese Dental Education Association

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Department of General Dentistry

(1) Staff and Students

Professor: Hiroyuki Kawaguchi
 Assistant Professor: Hiromi Nishi, Susumu Horikoshi
 Medical Staff: Nami Obayashi, Noriaki Ide(until March)

(2) Main Research Activities

- 1: Research in general dentistry
- 2: Research on Perioperative Oral Management
- 3: Research on Oral Bacteria and Systemic Diseases
- 4: Research in taste disorder of patients receiving chemotherapy
- 5: Research in allergy related to dental materials

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Characteristics of dental materials in the oral cavities of Asian individuals between their 20s and early 40s living temporarily in Japan based on 38 case studies: Oka H., Obayashi N., Yoshikawa M., Kakimoto N.: *Journal of Oral Science*, 66(3), 198-201, 2024, doi.org/10.2334/josnusd.24-0090
- 2: Consideration of the Work Environment in a Case of an Industrial Homemaker with Allergic Contact Dermatitis by UV-curing Acrylic Resin: Archives of Environmental and Occupational Health: Obayashi N., Shintani T., Ando T., Kawaguchi H., Kajiya M., Naito M.: *Archives of Environmental and Occupational Health*, 2024, in press
- 3: Periodontitis Relates to Atrial Fibrosis – Is Periodontitis a Modifiable Risk Factor for Atrial Fibrillation?: Shunsuke Miyauchi, Hiromi Nishi, Yukiko Nakano: *Journal of Arrhythmia and Electrophysiology "Electrocardiography"*, Vol. 44, No. 4, 2024
- 4: A Case of Perioperative Oral Function Management in a Patient Undergoing High-Dose-Rate Brachytherapy for Tongue Cancer: Natsumi Ino, Tomoko Tokisue, Hiromi Nishi, Miyuki Nakaoka, Masaru Konishi, Hiroyuki Kawaguchi, Kouji Ohta, Naoya Kakimoto: *Hiroshima University Dental Journal*, Vol. 56, No. 1, pp. 9-17, 2024
- 5: Detection and Antifungal Susceptibility of Candida Strains Isolated from the Oral Cavity of Patients with Head and Neck Cancer and Esophageal Cancer: Kanako Yano, Hiromi Nishi, Hideo Shigeishi, Yoshie Kaneyo, Hiroyuki Kawaguchi, Kouji Ohta: *Journal of the Japanese Society of Dental Hygiene*, Vol. 19, No. 1, 2024
- 6: Relationship of Oral Bacterial Number with Medical Hospitalization Costs in Analysis of Diagnosis Procedure Combination Database from a Single Institution in Japan: Hiromi Nishi, Mikihiro Kajiya, Kouji Ohta, Hideo Shigeishi, Taiji Obayashi, Syuichi Munenaga, Nami Obayashi, Yukio Yoshioka, Masaru Konishi, Takako Naruse, Akihiro Matsumoto, Ayaka Odo, Masae Kitagawa, Toshinori Ando, Tomoaki Shintani, Tomoko Tokikazu, Natsumi Ino, Naoki Mihara, Naoya Kakimoto, Kazuhiro Tsuga, Kotaro Tanimoto, Hiroki Ohge, Hidemi Kurihara, Hiroyuki Kawaguchi: *Scientific Reports*, May 15;14(1):11114. doi: 10.1038/s41598-024-60733-z. 2024
- 7: Effect of Periodontal Treatment on Reducing Chronic Inflammation in Systemically Healthy Patients with Periodontal Disease: Shinji Matsuda, Tomoaki Shintani, Tsuyoshi Miyagawa, Hiromichi Yumoto, Yasutaka Komatsu, Nanae Dewake, Takanori Iwata, Takatoshi Nagano, Toshiya Morozumi, Ryoma Goto, Satsuki Kato, Masahiro Kitamura, Kitetsu Shin, Satoshi Sekino, Akiko Yamashita, Keiko Yamashita, Atsutoshi Yoshimura, Tsutomu Sugaya, Shogo Takashiba, Yoichiro Taguchi, Eiji Nemoto, Hiromi Nishi, Noriyoshi Mizuno, Yukihiro Numabe, Hiroyuki Kawaguchi: *The American Journal of Medicine*, March 2024;137(3):273-279.e2, doi: 10.1016/j.amjmed.2023.11.001, 2024
- 8: Periodontitis and Postoperative Inflammation in Gastric Cancer Patients: Propensity Score Analysis: Mio Sasaki, Hideo Shigeishi, Hiromi Nishi, Natsuki Hamada, Honami Kitasaki, Kanako Yano, Yoshino Kaneyasu, Susumu Horikoshi, Hiroyuki Kawaguchi, Kouji Ohta: *Oral Diseases*, January 15, 2024, doi: 10.1111/odi.14865, Epub ahead of print, PMID: 38225462

- 9: Oral Condition at Admission Predicts Functional Outcomes and Hospital-acquired Pneumonia Development Among Acute Ischemic Stroke Patients: Futoshi Eto, Tomohisa Nezu, Hiromi Nishi, Shiro Aoki, Saki Tasaka, Megumi Toko, Susumu Horikoshi, Kanako Yano, Hiroyuki Kawaguchi, Hirofumi Maruyama: *Clinical Oral Investigations*, 2024
- 10: Impact of *Fusobacterium nucleatum* in the Treatment of Cancer, Including Radiotherapy, and Its Future Potential in Esophageal Cancer: Manato Ohsawa, Hiromi Nishi, Manabu Emi, Toru Yoshikawa, Yoichi Hamai, Yuta Ibuki, Tomoaki Kurokawa, Ryosuke Hirohata, Nao Kitasaki, Miki Kawada-Matsuo, Hitoshi Komatsuzawa, Hiroyuki Kawaguchi, Morihito Okada: *Journal of Radiation Research*, 2024
- 11: The Oral Cavity is a Potential Reservoir of Gram-negative Antimicrobial-resistant Bacteria, Which Are Correlated with Ageing and the Number of Teeth: Tomoki Kawayanagi, Miki Kawada-Matsuo, Toru Takeshita, Mi Nguyen-Tra Le, Mikari Asakawa, Yo Sugawara, Chika Arai, Kazuhisa Ouhara, Hiromi Nishi, Noriyoshi Mizuno, Hiroyuki Kawaguchi, Hideki Shiba, Motoyuki Sugai, Hitoshi Komatsuzawa: *Heliyon*, 2024
- 12: *Fusobacterium nucleatum* in the Oral Cavity is Associated with Cerebral Small Vessel Disease in Patients with Ischemic Stroke: Shiro Aoki, Hiromi Nishi, Yuji Shiga, Tomohisa Nezu, Futoshi Eto, Eiji Imamura, Ryo Shimomura, Miki Kawada-Matsuo, Hitoshi Komatsuzawa, Hiroyuki Kawaguchi, Hirofumi Maruyama: *Journal of Stroke and Cerebrovascular Diseases*, 2024
- 13: Efficacy of Cetylpyridinium Chloride Mouthwash on Denture Plaque Reduction and Microbiome Alteration in a Randomized Crossover Trial: Hiroko Tahara, Kenji Ikeya, Hiromi Nishi, Akihiro Tsukahara, Fuminori Iwasa, Kazuyoshi Baba: *Cureus*, 2024

B) Review

1:

C) Publications

1:

D) Other Publications

- 1: Dental Hygiene Dictionary 2nd ed : Kawaguchi H.(Co-author) Suenaga Shoten 2024

E) Presentations at Scientific Meetings

- 1: The Chemotherapeutic agent irinotecan impairs amiloride-sensitive sodium taste responses in mice: Sugita M., Sakayori N., Kawaguchi H., Obayashi N.: The 101th Annual Meeting of The Physiological Society of Japan (Fukuoka), 2024
- 2: A case of allergic contact dermatitis caused by UV-curing resin for crafts in an industrial homemaker: Obayashi N., Naito M., Shintani T., Ando T., Kawaguchi H., Kajiya M.: The 97th Annual Meeting of the Japan Society for Occupational Health (Hiroshima), 2024
- 3: A case of contact dermatitis caused by commercially available acrylic resin and issues with allergy test for resin: Obayashi N., Shintani T., Ando T., Kawaguchi H., Kajiya M.: The 17th Annual Meeting of the Japanese Society for Evidence and the Dental Professional (Chiba), 2024
- 4: Multi-centered Study ~Identification of new periodontal examination to evaluate the association between periodontitis and systemic diseases~ Analysis of oral examination data: Matsuda S, Kawaguchi H et.al.: The 67th Spring Meeting of the Japanese Society of Periodontology (Koriyama), 2024
- 5: Probiotic Effects During Chemotherapy for Breast Cancer – Approaches Towards Preventing Oral Mucositis and Maintaining Nutritional Status: Kuwabara Yuki, Nishi Hiromi, Ohta Kouji, Shigeishi Hideo, Konishi Masaru, Kakimoto Naoya, Horikoshi Susumu, Yoshioka Yukio, Nakaoka Miyuki, Kawaguchi Hiroyuki: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024
- 6: Effects of Low-Power Diode Laser Irradiation on Oral Mucositis in Patients with Hematologic Malignancies Undergoing Hematopoietic Stem Cell Transplantation: Horikoshi Susumu, Nishi

- Hiromi, Shigeishi Hideo, Ohta Kouji, Yoshioka Yukio, Konishi Masaru, Kakimoto Naoya, Kawaguchi Hiroyuki: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024
- 7: The Importance of Oral Care and Timing of Intervention for the Prevention of Postoperative Pneumonia: Naganuma Kiho, Nishi Hiromi, Shigeishi Hideo, Ohta Kouji Yoshioka Yukio, Konishi Masaru, Kakimoto Naoya, Horikoshi Susume, Yano Kanako, Nakaoka Miyuki, Kawaguchi Hiroyuki: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024
 - 8: Oral Assessment Guide Scores at Admission for Acute Stroke Patients Are Associated with Outcomes After Three Months: Eto Futoshi, Nezu Tomohisa, Aoki Shiro, Nishi Hiromi, Maruyama Hirofumi: The Stroke Society (2024)
 - 9: Changes in Dental Students' Awareness of Disaster Dentistry Through Pre-graduate Education and Training from 2019 to 2024: A Questionnaire Survey at Hiroshima University Hospital: Oka Hiroko, Nishi Hiromi, Tanimoto Kotaro, Kawaguchi Hiroyuki: The 43rd Academic Conference of the Japan Association of Dental Education (Nagoya), 2024
 - 10: Impact of Oral Periodontopathic Bacterial Load on Central Inflammatory Demyelinating Diseases: Naito Hiroyuki, Nakamori Masahiro, Nishi Hiromi, Tosaka Megumi, Sugimoto Taiji, Yamasaki Yu, Ochi Kazuhide, Maruyama Hirofumi: The 36th Academic Meeting of the Japanese Society for Neuroimmunology (Toyama), 2024
 - 11: Antifungal Drug Susceptibility of Candida Strains Isolated from the Oral Cavity of Patients Around the Time of Cancer Surgery: Yano Kanako, Nishi Hiromi, Shigeishi Hideo, Niitani Yoshie, Nakaoka Miyuki, Kawaguchi Hiroyuki, Ohta Kouji: The 71st Annual Meeting of the NPO Japan Society of Oral Science, Chugoku-Shikoku Branch (Hiroshima), 2024

F) Special lectures in academic meetings

1. Hiromi Nishi: "New Perspectives in Oral Management: A Clinical Research-Based Approach to Infection Prevention," hosted by Nagasaki University Oral Management Center (Nagasaki), 2024/01/14
2. Hiromi Nishi: "Community Collaboration," Dentist Training Seminar on Dental Health Care Services for the Challenged, hosted by Hiroshima Prefectural Dental Association (Hiroshima), 2024/01/28
3. Hiromi Nishi: "Perioperative Oral Care and Medical Safety Measures in Home Visit Services," Certified Dental Hygienist Seminar "Dental Medical Safety Management" Course (WEB), 2024
4. Hiroyuki Kawaguchi: "Management of Medical Safety" Certified Dental Hygienist Seminar "Dental Medical Safety Management" Course (WEB), 2024
5. Hiroyuki Kawaguchi: "Resilience Engineering and Medical Safety" Certified Dental Hygienist Seminar "Dental Medical Safety Management" Course (WEB), 2024
6. Hiromi Nishi: "Osteoporosis Treatment Up To Date in Hiroshima: Medical-Dental Collaboration in Osteoporosis Treatment – Our Approach," hosted by Daiichi Sankyo Co., Ltd. (Hiroshima), 2024/02/16
7. Hiromi Nishi: "Periodontal Disease Management and Overall, Health – A Comprehensive Approach through Medical-Dental Collaboration," The 67th Spring Meeting of the Japanese Society of Periodontology (Fukushima), 2024/05/24
8. Hiroyuki Kawaguchi: "The Mouth is a Source of Disaster -Let's Eradicate Periodontal Disease-BioGaia Talks Seminar (Hiroshima), 2024/06/14
9. Susumu Horikoshi: "Why Dental Exams Hurt," BioGaia TALKS Seminar (Hiroshima), 2024/06/18
10. Hiromi Nishi: "Don't Miss Out! The Truth About Periodontal Disease – From Stroke and Dementia to Cancer," BioGaia Talks (Hiroshima), 2024/06/20
11. Hiromi Nishi: "Stroke and Oral Care – The Impact of Bacteria and Effective Management," hosted by Otsuka Pharmaceutical Co., Ltd. (Hiroshima), 2024/07/22
12. Hiromi Nishi: "Proven! Self-Oral Care Prevents Infectious Complications," The 39th Annual Meeting and Scientific Session of the Japanese Association for Infection Prevention and Control Luncheon Seminar (Kyoto), 2024/07/27
13. Hiromi Nishi: "Perioperative Oral Function Management in Student Education," The 43rd Academic Conference of the Japan Association of Dental Education (Nagoya), 2024/09/07
14. Hiromi Nishi: "Dentistry's Role in Patient-Led Infection Prevention," The 67th Autumn Meeting of the Japanese Society of Periodontology Luncheon Seminar (Hokkaido), 2024/10/04

15. Hiromi Nishi: "The Three Aspects of Clinical Research – Challenges and Future Perspectives from Experience," The 8th National Public University Dental Clinical Research Promotion Conference (Tokushima), 2024/11/29
16. Hiromi Nishi: "Medical-Dental Collaboration – Key Points for Collaboration in Representative Diseases" and "Oral Hygiene Management Skills – From Basics to Complex Cases Including Cancer Patients," Academic Lecture by the Akitakata City Dental Association (Hiroshima), 2024/11/30

G)Implementation of Seminars / Workshops

1. Hiroyuki Kawaguchi (Coordinator): Post-CC PX Evaluator Certification Seminar (Hiroshima) 2024/1/21
2. Hiroyuki Kawaguchi (Chief Task Force): 26th Seminar of Clinical Training Instructor for Dentist at Chugoku-Shikoku Region (Hiroshima) 2024/2/10,11
3. Hiromi Nishi (Task Force): 26th Seminar of Clinical Training Instructor for Dentist at Chugoku-Shikoku Region (Hiroshima) 2024/2/10,11
4. Susumu Horikoshi (Task Force): 26th Seminar of Clinical Training Instructor for Dentist at Chugoku-Shikoku Region (Hiroshima) 2024/2/10,11
5. Hiroyuki Kawaguchi (Coordinator): 4th Standardized Patient Certification Seminar (Hiroshima) 2024/6/9
6. Susumu Horikoshi (Task Force): Reiwa 6th AY Certified Dental Hygienist Seminar, Dental Medical Safety Management Course, hosted by the Japan Dental Hygienists' Association (Web), 2024/08/31-09/01
7. Susumu Horikoshi (Chief Task Force): Reiwa 6th AY Certified Dental Hygienist Seminar, Dental Medical Safety Management Course, hosted by the Japan Dental Hygienists' Association (Web), 2024/08/31-09/01
8. Hiroyuki Kawaguchi (Task Force): Reiwa 6th AY Seminar of Clinical Training Instructor for Dentist hosted by Fukuoka Dental College Hospital (Fukuoka) 2024/9/14,15
9. Hiroyuki Kawaguchi (Task Force): Reiwa 6th AY Seminar of Clinical Training Instructor for Dentist hosted by Himawari Dental Clinic (Hiroshima) 2024/9/22,23
10. Hiroyuki Kawaguchi (President): Health Communication Week 2024 in Yokohama, 1st Academic Conference of Japanese Association of communication in Dentistry (Yokohama) 2024/9/28,29

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: Grants-in-Aid for Early-Career Scientists: Obayashi N. Elucidation of the mechanism of taste alteration induced by irinotecan, an anticancer drug focusing on salty taste. 22K17207, 4,550,000 yen
- 2: Grants-in-Aid for Early-Career Scientists: Susumu Horikoshi. Development of a quality control method for a novel periodontal tissue regeneration therapy using mesenchymal stem cell aggregates with cartilage induction. 24K19896, 4,680,000 yen.
- 3: Grants-in-Aid for Scientific Research (C): Hiromi Nishi. Comprehensive analysis of the oral microbiome to identify factors influencing esophageal cancer treatment. 23K09311, 4,550,000 yen.
- 4: Grants-in-Aid for Scientific Research (C): Hiroyuki Kawaguchi (Principal Investigator), Hiromi Nishi (Co-Investigator). Elucidation of the oral environment and oral microbiota involved in gastric cancer development. 23K09200, 4,680,000 yen.
- 5: Industry-Academia Collaborative Research: Hiromi Nishi. Verification of the preventive effect of low-power diode laser on chemotherapy-induced oral mucositis. 3022KA7382, 500,000 yen.
- 6: Industry-Academia Collaborative Research: Hiromi Nishi. Development and validation of diode laser accessories. 3024KA7259, 1,000,000 yen.
- 7: Grants-in-Aid for Scientific Research (C): Manabu Emi (Principal Investigator), Hiromi Nishi (Co-Investigator). Impact of oral and esophageal microbiota on esophageal cancer. 21K08710, 4,160,000 yen.
- 8: Grants-in-Aid for Scientific Research (C): Shiro Aoki (Principal Investigator), Hiromi Nishi (Co-Investigator). Can periodontal bacterial infection be a risk factor for the onset and prognosis of stroke? 21K10210, 4,160,000 yen.

(5) Academic Awards, etc.

1:

(6) Patents

1:

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Division of Oral Health and Development

Department of Oral Health

(1) Staff and Students

Professor: Kouji Oota, Toshinobu Takemoto, Mariko Naito, Hiroki Nikawa, Masato Kaku

(*) Chief: Kouji Oota (by-work)

Associate Professor: Tsuyoshi Taji

Associate Professor/Lecturer: Hideo Shigeishi

Assistant Professor: Yoshie Niitani, Rumi Nishimura, Tomoko Maehara, Yoshino Kaneyasu

Education and Research Support Staff: Sanae Miyoshi, Yuuko Kurawaki, Kotomi Testumori, Ayumi Daijo, Keiko Misumi

Please refer to the research achievements of the following each department.

- Department of Public Oral Health: Kouji Oota, Hideo Shigeishi, Tomoko Maehara, Yoshino Kaneyasu
- Department of Oral Epidemiology: Mariko Naito, Rumi Nishimura, Yuuko Kurawaki
- Department of Oral Health Management: Toshinobu Takemoto, Yoshie Niitani
- Department of Anatomy and Functional Restorations: Masato Kaku
- Department of Oral Biology & Engineering: Hiroki Nikawa, Tsuyoshi Taji, Hisako Sasahara

(2) Main Research Activities

- 1 : Study on oral function in the elderly
- 2 : Study on Job Return Support Program

(3) Achievements

A) Original Papers (including Case Reports)

- 1 : Prevalence and Associated Factors of Low Back Pain among Dental Hygienists : Motoyoshi Morishita, Chika Hisamoto, Sanae Miyoshi, Japanese Journal of Physiotherapy in Occupational Health, 2(2): 29–39, 2024.

B) Review

C) Publications

D) Other Publications

E) Presentations at Scientific Meetings

- 1 : Relationship between Daily Tasks and Years of Experience among Dental Hygienists Providing Home-Visit Dental Care: Sanae Miyoshi, Reiko Aimi, Chihiro Fujiwara, Satomi Kuwahara, Rumi Nishimura, International Symposium on Dental Hygiene (Korea), 2024.
- 2 : Relationship between Oral and Physical Functions and Participation Duration among Community-Dwelling Elderly Attending Local Activity Groups: Sanae Miyoshi, The 19th Annual Meeting of the Japanese Society of Dental Hygiene / The 1st Specialized Research Meeting (Niigata), 2024.
- 3 : Integrated Implementation of Health and Long-Term Care Prevention Programs for the Elderly: Outreach-Based Oral Frailty Prevention Initiatives: Michiko Senge, Sanae Miyoshi, Satomi Kuwahara, Tomoko Sumimoto, The 19th Annual Meeting of the Japanese Society of Dental Hygiene (Niigata), 2024.
- 4 : Effectiveness Verification of Training for Returning Dental Hygienists: A Study on Self-Evaluation and Occupational Stress: Yuko Kurawaki, Reiko Aimi, Keiko Misumi, Rumi Nishimura, Atsue

Matsumoto, Mariko Naito, Toshinobu Takemoto: The 97th Annual Meeting of the Japan Society for Occupational Health (Hiroshima), 2024.

- 5 : Five-Year Activities in the Reemployment Support and Retention Promotion Project for Dental Hygienists: Yuko Kurawaki, Reiko Aimi, Keiko Misumi, Rumi Nishimura, Atsue Matsumoto, Mariko Naito, Toshinobu Takemoto: The 19th Annual Meeting of the Japanese Society of Dental Hygiene (Niigata), 2024.
- 6 : Activity Report and Survey Results of the Dental Hygienist Training Program Engaged in Home Dental Health Care in FY 2022-2023: Hata N, Tetsumori K, Nishimura R, Maehara T, Matsumoto A, Naito M: Hiroshima Prefecture Dental Hygienists' Association Research Presentation (Hiroshima), 2024.

F) Lectures

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1 : Ministry of Health, Labour and Welfare FY 2024 Demonstration Project for Securing Dental Hygienist Personnel: Naito M, Misumi K, ¥7,706,000.

(5) Academic Awards, etc.

- 1 : Sanae Miyoshi: Best Poster Presentation Award, International Symposium on Dental Hygiene 2024.

(6) Patents

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Division of Oral Health and Development Department of Special Care Dentistry

(1) Staff and Students

Professor: Yoshiyuki Okada (※)Chief: Yoshiyuki Okada
 Assistant Professor: Yuriko Yoshida
 Medical Doctor: Chiaki Shimizu, Hironao Asahina, Rieko Fujiwara, Hironori Miyazaki
 Clinical Staff: Hisaho Yamaguchi, Masako Morimoto, Yoshifumi Nishio, Ryo Nishino, Takuya Miyagi
 Research Student: Hisaho Yamaguchi, Masako Morimoto, Yoshifumi Nishio, Ryo Nishino, Takuya Miyagi
 Researcher :Yuki Oda (~March)
 Clinical Trainee: Fumiko Hayashi, Kohei Matsumura

(2) Main Research Activities

- 1: Underlying mechanisms of suppressed pressor responses to pain stimulation by N2O inhalation.
- 2: Effects of N2O inhalation on baroreflex sensitivity.
- 3: Research on the Elucidation of Spinal Circuit Mechanisms Using the Soleus H-Reflex
- 4: Effect that difference in occlusal force and difference occlusion region give to the soleus H-reflex
- 5: Compensation of impaired baroreceptor reflexes in patients with pacemakers
- 6: Effects on Vascular Resistance and Pulse Wave by Applying Sedation Techniques
- 7: Effects of Bruxism and Hypoxic Sleep on Central Circulatory Regulatory Mechanisms.
- 8: Effect of different administration route of midazolam on sedation in patients with intellectual disabilities.
- 9: A study on the chronological changes in the oral microbiota of tube-fed patients with xerostomia.
- 10: Research on the establishment of oral care methods for people with oral membranous substances.
- 11: Research on oral care using pectin-containing oral gel.
- 12: A Single-Arm Pre-Post Comparison Study on the Stress-Reducing Effects of Lactic Acid Bacteria Beverages and Their Impact on the Gut-Brain Axis in Individuals with Autism Spectrum Disorder.
- 13: Investigation of the association between vaccination with and without novel corona vaccine and infection among persons with disabilities
- 14: Evaluation of the Effectiveness of Tongue-Feeding Training for Oral Function Decline in Individuals with Down Syndrome
- 15: Study on the Relationship Between Behavioral Patterns of Patients with Down Syndrome and Oral/Intestinal Microbiota
- 16: Evaluation of the Effect of Salivary Gland Massage on Saliva Secretion
- 17: Oral Environment Survey of Para-Athletes
- 18: Evaluation of anxiety and stress caused by the spread of Covid-19 infection in people involved in Special Care Dentistry.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: A Behavioral and Electroencephalographic Study of Anesthetic State Induced by MK-801 Combined with Haloperidol, Ketamine and Riluzole in Mice: Yuka Kikuchi, Masahiro Irifune, Taiga Yoshinaka, Kana Oue, Tamayo Takahashi, Aya Oda, Hisanobu Kamio, Serika Imamura, Utaka Sasaki 1, Eiji Imado, Yukio Ago, Yoshiyuki Okada: *Anesth Analg*. 139(5):1064-1074: 2024
- 2: Factors related to parents' perceptions of oral health for children with Down syndrome in Japan: Tomoyuki Onishi, Takahiro Funatsu, Takafumi Ooka, Yoshiyuki Okada, Miki Kadena, Hiroyoshi Kawai, Jin Sekino, Luc A M Marks, Shouji Hironaka, Tadashi Ogasawara: *Spec Care Dentist*. Jan-Feb;45(1):e13064 2024 (in Press)
- 3: The effects of nitrous oxide-oxygen inhalation sedation on autonomic response to dental scaling in patients with severe motor and intellectual disabilities: Mizuho Kawase, Yoshiyuki Okada, Soichiro Kawase, Nina Wakimoto, Hironori Miyazaki, Masako Morimoto, Tadashi

Ogasawara: *JJSDH* 45 (1), 9-19, 2024

- 4: Survey on the use of mouthguards among college students who belong to an athletic club -A comparative analysis of men's softball and women's basketball teams-: Ryo Nishino, Yuriko Yoshida, Hisaho Yamaguchi, Rieko Fujiwara, Yoshikazu Higashihara, Maki Maekawa, Go Hayata, Fumi Tokui, Yoshiyuki Okada: *SPORTS DENTISTRY*, 28(1), 20-24, 2024.
- 5: A case in which a patient with Down syndrome with an unoperated complete endocardiac defect who developed a brain abscess after multiple tooth extractions was treated immediately through multidisciplinary collaboration prepared in advance: Yuki Oda, Chiaki Furutani, Hironori Miyazaki, Yuriko Yoshida, Aya Oda, Kana Oue, Tamayo Takahashi, Taiga Yoshinaka, Akari Mukai, Katsuya Ogata, Yoshiyuki Okada: *JJSDH*, 45 (2), 94-103, 2024
- 6: A case of systemic management for an autism spectrum disorder and dental phobia patient with fontan circulation: Tamayo Takahashi, Kana Oue, Eiji Imado, Aya Oda, Yuriko Yoshida, Hironori Miyazaki, Yoshitaka Simizu, Yuki Oda, Mitsuhiko Yoshida, Hiroshi Hanamoto, Yoshiyuki Okada: *JJSDH*, 45 (2), 104-111, 2024

B) Review

N/A

C) Publications

- 1: **1: Dental Hygiene Vol144 DH Eye “What is schizophrenia?” Yoshiyuki Okada (co-author) Nippon Iyaku Shuppan, May 2024**
- 2: **Oral Appliances for Traumatic Tooth Protection - Insurance Coverage and Patient Management** (Contribution: Mouthguards for Para-Sports): Yoshimasa Sugiyama, Toshikazu Yasui, Tadaihiro Yanagawa (Supervising Editors), Toshiaki Ueno, Kotaro Katayama, Masatoshi Takeuchi, Kazunori Nakajima (Editors), Yuriko Yoshida, Yoshiyuki Okada, et al: Igaku Joho-Sha (Tokyo), p 69, 2024.

D) Other Publications

N/A

E) Presentations at Scientific Meetings

- 1: Relationship between oral mucosal moisture and morphology of membranous substances in elderly people requiring tube feeding: Hironao Asahina, Yoshiyuki Okada, Ryo Nishino, Tadashi Ogasawara: The 33rd Annual Meeting of Japanese Society of Dentistry for Medically Compromised Patient (Niigata), 2024.
- 2: The effect of pectin-containing oral gel for removing the membranous substances on the palate: Hironao Asahina, Yoshiyuki Okada, Koichi Ogawa, Tadashi Ogasawara: The 34th Annual Meeting of Japanese Society of Gerodontology (Sapporo), 2024.
- 3: Chronological changes in the oral mucosal microbiota of older patients receiving tube feeding and requiring nursing care: Hironao Asahina, Yoshiyuki Okada, Ryo Nishino, Kahoru Todoroki, Yuriko Yoshida, Hironori Miyazaki, Yoshifumi Nishio, Masako Morimoto, Hisaho Yamaguchi, Tadashi Ogasawara: 27th iADH Scientific Conference (Seoul), 2024.
- 4: Impaired cardiac baroreflex in patients with pacemakers is compensated by an increase in sympathetic reactivity: Yoshifumi Nishio, Ryo Nishino, Hisaho Yamaguchi, Masako Morimoto, Hironori Miyazaki, Yuriko Yoshida, Yoshiyuki Okada: International Association for Disability & Oral Health (iADH) (Seoul), 2024.
- 5: Effects of Nitrous Oxide Inhalation on the Regulation of Arterial Pulse Wave: Masako Morimoto, Yoshifumi Nishio, Hironori Miyazaki, Ryo Nishino, Yuriko Yoshida, Yuki Oda, Yoshiyuki Okada: iADH2024 Seoul (Seoul), 2024.
- 6: Survey on the Oral Health Conditions of Participants in Special Olympics 2022 in Hiroshima: Yuriko Yoshida, Hisao Takahashi, Shinji Tsuboi, Saya Shimada, Masako Morimoto, Hisaho Yamaguchi, Yuki Oda, Tadashi Ogasawara, Yoshiyuki Okada: The 27th iADH Seoul (Seoul), 2024.
- 7: A Case Report of Oral Hygiene Management in a Patient with Gaucher Disease Type II: R. Fujiwara,

- H. Asahina, H. Yamaguchi, Y. Nishio, H. Miyazaki, M. Morimoto, R. Nishino, Y. Yoshida, Y. Okada: International Association for Disability & Oral Health (Seoul), 2024.
- 8: Prevalence of Congenital Heart Disease in Patients Visiting a Department of Special Care Dentistry at a University Hospital in Japan: Ryo Nishino, Hironori Miyazaki, Yuriko Yoshida, Chiaki Shimizu, Hironao Asahina, Rieko Fujiwara, Yoshifumi Nishio, Masako Morimoto, Hisaho Yamaguchi, Takuya Miyagi, Yoshiyuki Okada: IADH2024 Seoul (Seoul), 2024
 - 9: The use of nitrous oxide/oxygen inhalation sedation in our department: Hironori Miyazaki, Ryo Nishino, Takuya Miyagi, Yoshifumi Nishio, Masako Morimoto, Chiaki Furutani, Yuriko Yoshida, Yoshiyuki Okada: iADH 2024 (Seoul), 2024
 - 10: Intranasal midazolam as premedication for anesthesia in patients with intellectual disabilities – Report of three cases: Kana Oue, Aya Oda, Yuki Oda, Eiji Imado, Yuriko Yoshida, Yoshiyuki Okada, Hiroshi Hanamoto: The 27th iADH Seoul (Seoul), 2024.
 - 11: Patients with pacemakers have an increased sympathetic baroreflex to maintain blood pressure regulation: Yoshifumi Nishio, Ryo Nishino, Hironori Miyazaki, Hisaho Yamaguchi, Masako Morimoto, Yuriko Yoshida, Yoshiyuki Okada: The 41st Japanese Society for Disability and Oral Health (Ginowan), 2024.
 - 12: The use of pharmacological behavior management in the department of special care dentistry: Hironori Miyazaki, Ryo Nishino, Takuya Miyagi, Yoshifumi Nishio, Masako Morimoto, Chiaki Furutani, Yuriko Yoshida, Yoshiyuki Okada: The 41st Japanese Society for Disability and Oral Health (Ginowan), 2024
 - 13: A case in which retraining was effective in patients with autism spectrum disorder who relapsed maladaptive behavior after physical restraint: Sari Nakamura, Yuriko Yoshida, Haruka Yasuda, Hironao Asahina, Hironori Miyazaki, Miyuki Nakaoka, Yoshiyuki Okada: The 41st Japanese Society for Disability and Oral Health (Ginowan), 2024
 - 14: A case of a Down syndrome patient with recurrent infective endocarditis whose incidence was reduced after regular oral hygiene intervention: Haruka Yasuda, Yuriko Yoshida, Rieko Fujiwara, Hironori Miyazaki, Yoshifumi Nishio, Miyuki Nakaoka, Yuki Oda, Yoshiyuki Okada: The 41st Japanese Society for Disability and Oral Health (Ginowan), 2024
 - 15: Effects of Nitrous Oxide Inhalation on the Components of the Central Artery Pulse Wave: Masako Morimoto, Yoshifumi Nishio, Hironori Miyazaki, Ryo Nishino, Yuriko Yoshida, Yuki Oda, Yoshiyuki Okada: The 41st Japanese Society for Disability and Oral Health (Ginowan), 2024.
 - 16: A case of intensive dental care under general anesthesia in a patient with cerebral palsy at risk of respiratory depression through medical collaboration: Yamaguchi Hisaho, Yoshida Yuriko, Fujiwara Rieko, Nishino Ryo, Morimoto Masako, Nishio Yoshifumi, Miyazaki Hironori, Okada Yoshiyuki: The 41st Japan Society for Disability and Oral Health (Ginowan), 2024
 - 17: Prevalence of Congenital Heart Disease in Patients Presenting to University Hospital Special Needs Dentistry and Comparison with General Prevalence: Ryo Nishino, Hironori Miyazaki, Yoshifumi Nishio, Masako Morimoto, Hisaho Yamaguchi, Takuya Miyagi, Chiaki Shimizu, Hironao Asahina, Rieko Fujiwara, Yuriko Yoshida, Yoshiyuki Okada: The 41st Japanese Society for Disability and Oral Health (Ginowan), 2024.
 - 18: A Case of Massive Hemorrhage from an Ischial Pressure Ulcer During Dental Treatment Leading to Difficult Hemostasis: Yuriko Yoshida, Ryo Nishino, Hironori Miyazaki, Yoshifumi Nishio, Hisaho Yamaguchi, Masako Morimoto, Rieko Fujiwara, Hironao Asahina, Yuki Oda, Yoshiyuki Okada: The 41st Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.
 - 19: A Case Report of Oral Hygiene Management in a Patient with Gaucher Disease Type II: R. Fujiwara, H. Asahina, H. Yamaguchi, Y. Nishio, H. Miyazaki, M. Morimoto, R. Nishino, Y. Yoshida, Y. Okada: International Association for Disability & Oral Health (Ginowan), 2024.
 - 20: A case of a dental approach for a patient with autism spectrum disorder and severe intellectual disability who has had difficulty with dental check-ups after panicking during a previous dental treatment session: Naya Ishimaru, Haruka Yasuda, Hisaho Yamaguchi, Masako Morimoto, Yoshifumi Nishio, Hironao Asahina, Miyuki Nakaoka, Yoshiyuki Okada: The 41th Japanese Society for Disability and Oral Health (Ginowan), 2024.
 - 21: Medical Checkups for Para-Athletes – Exploratory Data Analysis: Yuriko Yoshida, Hisaho Yamaguchi, Ryo Nishino, Rieko Fujiwara, Yoshiyuki Okada: The 35th Annual Meeting of the Japanese Academy of Sports Dentistry (Osaka), 2024.
 - 22: Effects of bite strength and occlusal area on the H-reflex of the soleus muscle: Yamaguchi Hisaho, Yoshida Yuriko, Nishino Ryo, Okada Yoshiyuki: The 35nd Japanese Academy of Sports Dentistry (Osaka), 2024

- 23: Questionnaire survey on TMJ disorder among college students who belong to an athletic club.
: Ryo Nishino, Yuriko Yoshida, Hisaho Yamaguchi, Rieko Fujiwara, Erika Takahashi, Yoshikazu Higashihara, Go Hayata, Sakamoto Takahiro, Yoshiyuki Okada: The 35th Annual Meeting of the Japanese Society of Sports Dentistry (Osaka), 2024.
- 24: Dental Examinations for Para-Athletes – Exploratory Data Analysis: Yuriko Yoshida, Minoru Toriyama, Koki Fukuhara, Kai Ushio, Yoshiyuki Okada: The 35th Annual Meeting of the Japanese Society of Clinical Sports Medicine (Niigata), 2024.

F) Special lectures in academic meetings

- 1: Improving Special Health Care Need Children's Quality of Life with Updated Research and Innovation in Pediatric Dentistry : Yoshiyuki Okada (Invited Speaker): 17th National Scientific Meeting in Pediatric Dentistry, The Indonesian Association of Pediatric Dentistry, 2024 (Jakarta)
- 2: Bridging the Gap in Behavioral Controls in Dental Office Setting : Yoshiyuki Okada (Invited Speaker): Planned Anesthetic Approaches, iAHD2024, 2024 (Seoul)
- 3: Support and Oral Care for Patients with Dysphagia: Hironao Asahina (Lecturer): Staff and Consultant Joint Training Seminar, Hikari Association West Chugoku Area Center, 2024
- 4: **Sports Dentistry**: Yuriko Yoshida (Lecturer). Keishu-kai Inohara Dental Clinic Training Seminar, 2024.
- 5: Evaluation of human central circulatory control function - Application of Microneurography -: Yoshiyuki Okada (Lecturer): Special Lecture of Kyushu University Graduate School, Division of Systemic Management and Dentistry for the Elderly, Kyushu University Graduate School of Dentistry, 2024 (Fukuoka).
- 6: Dental treatment for the disabled according to concomitant diseases - Cardiovascular diseases -: Y. Okada (Lecturer), Special Lecture in Special Needs Dentistry, Okayama University Hospital, 2024 (Fukuoka, Japan).
- 7: Basic Knowledge and Dental Response for Persons with Disabilities: Yoshiyuki Okada (Lecturer): Hiroshima Prefecture Training Course for Consultants for Persons with Difficulties in Providing Dental Health Care Services, Hiroshima Prefecture Dental Health Liaison Council, Hiroshima Dental Association 2024 (Hiroshima).
- 8: Smile for All: Behavior Adjustment Method and Selection Criteria -Aiming at Equitable Provision of Dental Health Care Resources-: Okada, Y. (Lecturer): Tokushima Prefectural Dental Association Workshop for Strengthening Responsiveness in Dental Care for (Children) with Disabilities (Tokushima), Tokushima Dental Association 2024 (Tokushima).
- 9: Special Needs in Community Dentistry: Toward Inclusive Dental Care: Okada, Y. (Lecturer): 2023 Fuchu Dental Association Academic Workshop, Hiroshima Prefecture Fuchu Dental Association 2024 (Fuchu).
- 10: Dental Treatment Considerations by Disease - Cardiovascular Disease: Yoshiyuki Okada (Lecturer): Special Lecture on Systemic Dentistry in Kyushu University, Graduate School of Dentistry, Kyushu University, 2024 (Fukuoka, Japan).
- 11: Inclusive Dentistry and Community Medicine: Yoshiyuki Okada (Lecturer): Yusenka Workshop in 2023, Himawari Dentistry, 2024 (Hiroshima).
- 12: Dentistry for the Disabled Supported by the Community: Reference Criteria from the Viewpoint of Behavioral Adjustment: Y. Okada (Lecturer): FY2024 1st Lecture Meeting of Regional Medical Promotion Association, Ama Municipal Hospital, 2024 (Ama, Japan).
- 13: Research Ethics - What to do in such a case - "Essentials of Research Ethics and Ethical Review": Y. Okada (Lecturer): Joint Project of Ethics Committee and Ethical Review Committee, 41st Annual Meeting and Conference of the Japanese Society of Dentistry for Persons with Disabilities, Okinawa, 2024. Okinawa, 2024.

G) Holding of academic conferences and seminars

- 1: Workshop on Ingestion and Swallowing, Japan Society of Dentistry for Persons with Disabilities, 2024 (Hiroshima, Japan) Participation in and support of operation, Japan Society of Dentistry for Persons with Disabilities, 2024
- 2: The 6th Annual Conference of the Pediatric Home Dentistry Study Group (Hiroshima, Japan), 2024
- 3: The 14th Chugoku Regional Clinical Study Group on Dentistry for Persons with Disabilities

Yoshiyuki Okada (Representative and Chairperson of Preparatory Committee), (Yamaguchi, Japan) 2024

- 4: Chugoku Regional Clinical Study Group on Dentistry for Persons with Disabilities Workshop for Certified Dentists and Certified Dental Hygienists of the Japanese Society of Dentistry for Persons with Disabilities (organized by Yoshiyuki Okada) (Yamaguchi-city, Japan) 2024

H) Social Activities

- 1: Special Olympics Nippon Hiroshima 25th Anniversary Grand Sports Festival – HAP (Healthy Athletes Program) Management
- 2: Hiroshima Prefectural Dental Touring Examinations at Residential Facilities Hiroshima Prefectural Dental Association FY2023 Hiroshima Oral Health Promotion Project (January~March 2024)
- 3: Medical Checkup for Designated Elite Athletes of the Hiroshima Para-Sports Association – Dental Examination
- 4: Dental Examination Program at International Pacific University, School Corporation Soshi Gakuen.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: JSPS Grant-in-Aid for Scientific Research (A), Yoshiyuki Okada (co-investigator, continued), Creation of a non-invasive microneurography method: Recovery of peripheral sympathetic nerve activity from a vascular mechanics model. Project No. 22H00197. 41,730 thousand yen
- 2: JSPS Grant-in-Aid for Challenging Exploratory Research (**Hoga**) (Principal investigator, continued), Yoshiyuki Okada (on behalf of the author), Is hypoxic sleep stimulating central chemoreceptors a factor in inducing bruxism? Project number 23K18360, 6,370 thousand yen
- 3: JSPS Grants-in-Aid for Scientific Research (C), Yoshiyuki Okada (co-investigator, continued), Development of new general anesthetics by evaluating the efficacy of drug candidates using EEG and EMG. Project No. 24K13089. 4,550 thousand yen
- 4: JSPS Grant-in-Aid for Scientific Research (C), Yoshiyuki Okada (co-investigator, continued), Relationship between sympathetic baroreflex and occurrence of atrial fibrillation after transcatheter aortic valve replacement. Project No. 21K08053, 4,160 thousand yen
- 5: JSPS Grant-in-Aid for Scientific Research (C), Yoshiyuki Okada (co-investigator, continued), Establishment of a method to evaluate nociceptive stimuli during surgery by measuring electrical activity of peripheral blood vessels. Project No. 21K08923, 4,030,000 yen
- 6: JSPS Grants-in-Aid for Scientific Research, Grant-in-Aid for Scientific Research (C): Oda, T. (co-investigator, continued), Construction of dental capability strategy for people with disabilities and their families: oral and wellbeing survey at other facilities. Proposal No. 21K10206. 3,900 thousand yen
- 7: JSPS Grants-in-Aid for Scientific Research, **Young Scientists**: Oda, T. (Principal investigator, continued, Influence of probiotics on the oral-gut-brain relationship. 21K17199, 4,550,000 yen
- 8: JSPS Grants-in-Aid, **Young Scientists**: Hironao Asahina (Principal investigator, New), Identification of chronological changes in the oral microbiota of elderly patients requiring tube feeding and establishment of appropriate oral care intervals. Grant number 24K19948. 4,680,000 yen.
- 9: JSPS Grants-in-Aid, **Young Scientists**: Rieko Fujiwara (Principal investigator, New). Study on the Relationship Between Behavioral Patterns of Patients with Down Syndrome and Intestinal Microbiota, and the Effects of Probiotics. Project Number: 24K20111. 4,810,000yen.
- 10: Hiroshima University Research Encouragement Award for Female Researchers 2024: Chiaki Shimizu, Effects of Probiotics on sleep duration and depth in Individuals with Autism Spectrum Disorder via the Gut-Brain Axis. 200 thousand yen.

(5) Academic Awards, etc.

- 1: 27th iADH Scientific Conference, Award of Basic/Translational Research Category: Chronological changes in the oral mucosal microbiota of older patients receiving tube feeding and requiring nursing care: Hironao Asahina, Yoshiyuki Okada, Ryo Nishino, Kahoru Todoroki, Yuriko Yoshida, Hironori Miyazaki, Yoshifumi Nishio, Masako Morimoto, Hisaho Yamaguchi, Tadashi Ogasawara
- 2: Travel award in the 27th iADH (International Association of Dentistry for the Handicapped): Hironori

Miyazaki, 2024

(6) Patents

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Central Clinical Divisions Special Dental Treatment

(1) Staff and Students

Chief Professor : Kotaro Tanimoto
Research Associate : Sachiko Yamada
Research Associate : Yukimi Yasuhara

(2) Main Research Activities

- 1: Research for improvement in articulation problem
- 2: Research for relation between lingual pressure and the function of speech/swallowing
- 3: Research for speech and swallowing rehabilitation of oral cancer

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Association between dysphagia risk and sleep quality in community-dwelling older adults: A cross-sectional study : Hama Y., Yamada S., Nishimura R., Yoshida M., Tsuga K., Morita E., Tamada Y., Kato Y., Kubo Y., Okada R., Nagayoshi M., Tamura T., Hishida A, Wakai K., Naito M.: Heliyon, 10(11):e32028. 2024. doi: 10.1016/j.heliyon.2024.e32028
- 2: Association of physical function with masticatory ability and masticatory habits: a cohort study : Takeshita M., Naito M., Nishimura R., Fukutani H., Kondo M., Kurawaki Y., Yamada S., Uchibori N.: BMC Oral Health., 24;24(1):1277, 2024. doi: 10.1186/s12903-024-05051-6

B) Review

1. Actual medical cooperation in Hiroshima University Hospital Dental Department: Tanimoto K, Ogasawara T, Kado I, Koizumi Y, J Hiroshima Dent. 48(1) , 10-15, 2024.

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

1. Relationship Between Videofluoroscopic Swallowing Study Findings and Length of Hospital Stay After Oral Tumor Surgery. :Nagasaki Y, Yamada S, Yoshikawa M, Shimabukuro K, Ohtsuka M, Suei Y, Konishi M, Nakamoto T, Kakimoto NThe 64th Annual Meeting of the Japanese Society for Oral and Maxillofacial Radiology (Niigata), 2024
2. Correlation Between the New JMS Occlusal Force Meter and GC Dental Prescale II : Maruyama S,

Yoshikawa M, Takahashi Y, Haruta A, Yamada S, Kagawa K, Maruyama M, Takeuchi M, Yokoi M, Yoshida M, Tsuga K : Program and Abstracts of Scientific Meeting of Hiroshima Prefectural Dental Association Hiroshima University Dental Society Regular Meeting,(Hiroshima), 2024

F) Special lectures in academic meetings

Lecture

1. "Let's Update Our Knowledge and Discuss Challenges in the Field: Deepening Our Understanding of Dysphagia":Yamada S:Online Training Seminar, Hosted by Nijinohana Home Nursing Station, April 2024
2. "Recommendations from Kameda Rehabilitation OB/OG: Thoughts and Expectations for Kameda Staff":Yamada S:40th anniversary Gathering of the Kameda Medical Center Rehabilitation Department, November 2024
3. Supporting the Joy of Eating with Peace of Mind: Adult Dysphagia Rehabilitation : Yamada S.: Hiroshima University Hospital 2024 Late-Term Recurrent Training Workshop, November 2024.
4. Do You Know What the Speech Therapists Exactly Do at Work? : Yasuhara Y.: Sanyo High School (Hiroshima), November 2024.
5. Do You Know What the Speech Therapists Exactly Do at Work?: Yasuhara Y.: Inokuchi High School (Hiroshima), November 2024.
6. Do You Know What the Speech Therapists Exactly Do at Work? : Yasuhara Y.: Kure Aoyama High School (Kure), December 2024.
7. Assessment and Actuality of Dysphagia Rehabilitation: Yasuhara Y.: Hiroshima pref. Community-based Health Care and Nursing Mutual Security Project: Workshop of the Swallowing Functional Training (Hiroshima), Mar. 2024.
8. How do you deal with a patient who can't speak well? – Speech Problem and Department Should be Introduced- : Yasuhara Y.: Project to Improve Equipment of Remote Lecture system in Hiroshima Pref. 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

(5) Academic Awards, etc.

(6) Patents

- 1.
- 2.

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Central Clinical Divisions

Center of Oral Clinical Examination

(1) Staff and Students

Director: Mikihito Kajiya
 Lecturer: Tomoaki Shintani, Toshinori Ando
 Research Associate: Tetsuya Yoshimoto
 Dentist: Nami Obayashi (In training from the Department of General Dentistry),
 Shin Morimoto, Mai Yoshino
 Graduate Student: Masayuki Suzuki, Yuka Hayashi, Nanako Kataoka, Gakuto Yasuda
 Technician: Rie Miyata, Naomi Abe, Miyako Takenaka

(2) Main Research Activities

- 1: Developing the promising tissue regenerative therapy using stem cells and 3D culture techniques.
- 2: Establish a novel culture system that can mimic the oral cavity using 3D cell constructs and micro-devices.
- 3: Diagnostic pathological study on head and neck lesions.
- 4: Study on test and treatment of metal allergy and dry mouth.
- 5: Research on Examination and Treatment for Taste Disorders and Xerostomia
- 6: Molecular pathological study on development and progression of oral squamous cell carcinoma.
- 7: Study on molecular target therapy to oral cancer targeted with HBp17/FGFBP.
- 8: Analysis of actual condition of oral bacterial infection.
- 9: Molecular pathological research on oral/head and neck cancer focusing on genomic alterations and the Hippo pathway.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Role of transglutaminase 2 in promoting biglycan synthesis in idiopathic gingival fibromatosis: Ninomiya Y., Matsuda S., Suzuki S., Hirata-Tsuchiya S., Ueda T., Nakashima F., Yasuda K., Shimada S., Memida T., Yoshimoto T., Yamada S., Ouhara K., Mizuno N.: BMC Oral Health. Nov 21;24(1):1422, 2024.
- 2: Nuclear receptor 4A1 (NR4A1) upregulated by n-butyridenephthalide via the mitogen-activated protein kinase (MAPK) pathway ameliorates drug-induced gingival enlargement: Ueda T., Matsuda S., Ninomiya Y., Nakashima F., Yasuda K., Furutama D., Memida T., Yoshimoto T., Kajiya M., Ohta K., Ouhara K., Mizuno N.: Biofactors. Nov-Dec;50(6):1192-1207, 2024.
- 3: Loss-of-function *OGFRL1* variants identified in autosomal recessive cherubism families : Kittaka M., Mizuno N., Morino H., Yoshimoto T., Zhu T., Liu S., Wang Z., Mayahara K., Iio K., Kondo K., Kondo T., Hayashi T., Coghlan S., Teno Y., Doan AAP., Levitan M., Choi RB., Matsuda S., Ouhara K., Wan J., Cassidy AM., Pelletier S., Nampoothiri S., Urtizberea AJ., Robling AG., Ono M., Kawakami H., Reichenberger EJ., Ueki Y.: JBMR Plus, Apr 9;8(6):ziae050, 2024.
- 4: Mechanosignaling YAP/TAZ-TEAD Axis Regulates the Immunomodulatory Properties of Mesenchymal Stem Cells : Yoshii H., Kajiya M., Yoshino M., Morimoto S., Horikoshi S., Tari M., Motoike S., Iwata T., Ouhara K., Ando T., Yoshimoto T., Shintani T., Mizuno N.: Stem Cell Rev Rep. Jan;20(1):347-361, 2024.
- 5: Primary intraosseous carcinoma complicated by cervical hodgkin lymphoma: a rare case report: Obayashi F., Koizumi K., Ito N., Higaki M., Ando T., Yoshioka Y., Yanamoto S.: Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology, 36(1), 38-43, 2024.
- 6: Two cases of pediatric-onset orofacial granulomatosis: Uehara T., Obayashi F., Ito N., Asada Y., Yamasaki E., Hamada A., Ando T., Koizumi K., Yanamoto S.: Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology, in press, 2024.

- 7: A case of lymphoproliferative disease of the palate while receiving infliximab and azathioprine for Crohn's disease: Ito N., Hamana T., Furusho., Eboshida N., Asada Y., Obayashi F., Higaki M., Hamada A., Yamasaki S., Ando T., Koizumi K., Yanamoto S.: *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, in press, 2024.
- 8: YAP/TAZ interacts with RBM39 to confer resistance against indisulam: Ando T., Okamoto K., Ueda Y., Kataoka N., Shintani T., Yanamoto S., Miyauchi M., Kajiya M.: *Oncogenesis*, 13(1): 25, 2024.
- 9: Relationship of oral bacterial number with medical hospitalization costs in analysis of Diagnosis Procedure Combination database from single institution in Japan: Nishi H., Kajiya M., Ohta K., Shigeishi H., Obayashi T., Munenaga S., Obayashi N., Yoshioka Y., Konishi M., Naruse T., Matsumoto A., Odo A., Kitagawa M., Ando T., Shintani T., Tokikazu T., Ino N., Mihara N., Kakimoto N., Tsuga K., Tanimoto K., Ohge H., Kurihara H., Kawaguchi H.: *Sci Rep*, 14(1): 11114, 2024.
- 10: Carcinoma ex pleomorphic adenoma primarily composed of squamous cell carcinoma in buccal region – Case report: Naruse T., Ohta K., Shigeishi H., Ando T., Nakagawa T., Yamakado N., Ninomiya Y., Sakamoto S., Ishida Y., Aikawa T.: *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, in press, 2024.
- 11: Extranodal extension in oral squamous cell carcinoma: clinical and histopathological analysis: Higaki M., Koizumi K., Ando T., Ito N., Obayashi F., Hamada A., Yanamoto S.: *Oral Surg Oral Med Oral Pathol Oral Radiol*, 137(6): 632-639, 2024.
- 12: A case of supermassive cemento-ossifying fibroma in the mandible: Koizumi K., Mishima T., Ito N., Furusho H., Ando T., Yanamoto S.: *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, 36(5): 716-720, 2024.
- 13: Transformation of an odontogenic keratocyst into a solid variant of odontogenic keratocyst/keratoameloblastoma during long-term follow-up: A case report: Yamasaki S., Shintani T., Ando T., Miyauchi M., Yanamoto S.: *Mol Med Rep*, 29(3): 44, 2024.
- 14: A Kinome-Wide Synthetic Lethal CRISPR/Cas9 Screen Reveals That mTOR Inhibition Prevents Adaptive Resistance to CDK4/CDK6 Blockade in HNSCC: Goto Y., Koshizuka K., Ando T., Izumi H., Wu X., Sato K., Ishikawa T., Ford K., Feng X., Wang Z., Arang N., Allevato MM., Kishore A., Mali P., Gutkind JS.: *Cancer Res Commun*, 4(7): 1850-1862, 2024.
- 15: Consideration of the work environment in a case of an industrial homemaker with allergic contact dermatitis by UV-curing acrylic resin: Obayashi N., Shintani T., Ando T., Kawaguchi H., Kajiya M., Naito M.: *Arch Environ Occup Health*, 79(9-10): 315-320, 2024.
- 16: Potential role of circulating tumor cells and cell-free DNA as biomarkers in oral squamous cell carcinoma: A prospective single-center study: Eboshida N., Hamada A., Higaki M., Obayashi F., Ito N., Yamasaki S., Tani R., Shintani T., Koizumi K., Yanamoto S.: *PLoS One*, 19(12): e0309178, 2024.
- 17: Analysis of Oral and Gut Microbiome Composition and Its Impact in Patients with Oral Squamous Cell Carcinoma: Matsui K., Tani R., Yamasaki S., Ito N., Hamada A., Shintani T., Otomo T., Tokumaru K., Yanamoto S., Okamoto T.: *Int J Mol Sci*, 25(11): 6077, 2024.
- 18: Clinical significance of integrin α V and β superfamily members and focal adhesion kinase activity in oral squamous cell carcinoma: a retrospective observational study: Sakurai S., Ishida Y., Shintani T., Yamasaki S., Matsui K., Hamana T., Nobumoto T., Yanamoto S., Hayashido Y.: *Pathol Oncol Res*, 30: 1611571, 2024.
- 19: During the Blanking Period Improves the Outcome of Atrial Fibrillation Ablation: Miyauchi S., Ouhara K., Shintani T., Tokuyama T., Okubo Y., Okamura S., Miyamoto S., Oguri N., Uotani Y., Takemura T., Tari M., Hiyama T., Miyauchi M., Kajiya M., Mizuno N., Nakano Y.: *J Am Heart Assoc*, 13(8): e033740, 2024.
- 20: Leucine-rich alpha-2-glycoprotein 1 affects bone destruction via IL-6 in mouse periodontitis model: Ouhara K., Takemura T., Taniguchi Y., Fujimori R., Tamura T., Akane Y., Matsuda S., Hamamoto Y., Shintani T., Kajiya M., Munenaga S., Iwata T., Fujita T., Mizuno N.: *Oral Dis*, 30(8): 5294-5304, 2024.
- 21: Potential treatment of squamous cell carcinoma by targeting heparin-binding protein 17/fibroblast growth factor-binding protein 1 with vitamin D3 or eldecalcitol: Shintani T., Higaki M., Rosli SNZ., Okamoto T.: *In Vitro Cell Dev Biol Anim*, 60(6): 583-589, 2024.
- 22: A case of treatment-related myelodysplastic syndrome in the early stage after radiotherapy in a patient with cancer of the oral floor: Ishida Y., Koizumi K., Hayashi S., Obayashi F., Higaki M., Ito N., Shintani T., Yanamoto S.: *J Oral Maxillofac Surg Med Pathol*, 36 (6): 860-865, 2024.
- 23: Role of sclerostin deletion in bisphosphonate-induced osteonecrosis of the jaw: Nakashima F., Matsuda S., Ninomiya Y., Ueda T., Yasuda K., Hatano S., Shimada S., Furutama D., Memida T., Kajiya M., Shukunami C., Ouhara K., Mizuno N.: *Bone*. 2024 Oct;187:117200.
- 24: Characteristics of dental materials in the oral cavities of Asian individuals between their 20s and early

40s living temporarily in Japan based on 38 case studies: Oka H.,Obayashi N.,Yoshikawa M., Kakimoto N.: Journal of Oral Science, 66(3), 198-201, 2024, doi.org/10.2334/josnusd.24-0090.

B) Review

1. Application of mesenchymal stem/stromal cells in periodontal regeneration: Opportunities and challenges:Gao P., Kajiya M., Motoike S., Ikeya M., Yang J.: Jpn Dent Sci Rev. 2024 Dec;60:95-108.

C) Publications

D) Other Publications

E) Presentations at Scientific Meetings

1. Regulation of Bone Destruction by Osteocyte Innate Immune Response: Yoshimoto T.:The 66th Japanese Association for Oral Biology (Nagasaki), 2024.
2. Bacterially-inflamed osteocytes contribute to the pathogenesis of periodontitis by promoting the migration of inflammatory cells: Yoshimoto T.,Yoshii H.,Morimoto S.,Yoshino M.,Hayashi Y., Suzuki M.,Yasuda G.,Kataoka N.,Kajiya M.:The 67th Autumn Meeting of the Japanese Society of Periodontology (Sapporo), 2024.
3. Mechanism of mechanical response-dependent innate immunity in osteocytes: Yoshimoto T.,Yoshino M.,Yoshii H.,Morimoto S.,Yoshino M.,Gennai K.,Kajiya M.:The 42nd Annual Meeting of the Japanese Society for Bone and Mineral Research (Okinawa), 2024.
4. Investigation of Human Osteoblast Direct Conversion Method Using an HDAC Inhibitor: Gennai K., Yoshimoto T.,Yoshii H.,Morimoto S.,Yoshino M.,Hayashi Y.,Suzuki M.,Seki M.,Kajiya M.: The 42nd Annual Meeting of the Japanese Society for Bone and Mineral Research (Okinawa), 2024.
5. Bone-Organ Linkage Using Microfluidic Devices: Yoshimoto T.:「ARIM “2nd Symposium on Materials Domain for Innovative Energy Conversion」 (Tokyo), 2024.
6. YAP/TAZ hyperactivation enhances PD-L2 transcription to promote immune evasion of oral squamous cell carcinoma: Ando T., Okamoto K., Kataoka N., Ueda Y., Yoshimoto T., Shintani T., Yamamoto S., Miyauchi M., Kajiya M.: The 72nd Annual Meeting of Japanese Association for Dental, Oral, and Craniofacial Research (Kagoshima), 2024.
7. Clarifying the growth promoting mechanism of ALPK2 in oral squamous cell carcinoma: Ueda Y., Ando T., Kataoka N., Okamoto K., Miyauchi M., Kajiya M., Yanamoto S.:The 71st Annual Meeting of the Japanese Stomatological Society, Chugoku-Shikoku Branch (Hiroshima), 2024.
8. The novel transcriptional mechanism of PD-L2 enhanced by the dysregulated Hippo pathway to promote cancer immune evasion: Ando T.: Inaugural Workshop of the IADR APR Mentor-Mentee Programme (Web), 2024.
9. Interaction of YAP and RBM39 confers resistance to indisulam in oral squamous cell carcinoma: Ando T., Okamoto K., Ueda Y., Kataoka N., Shintani T., Yanamoto S., Miyauchi M., Kajiya M.:The 35th Annual Meeting of the Japanese Society of Oral Pathology (Niigata), 2024.
10. Challenge for elucidating the nature of cancer and development of next generation therapeutic drug as an oral pathologist: Ando T.:The 35th Annual Meeting of the Japanese Society of Oral Pathology (Symposium for young oral pathologists) (Niigata), 2024.
11. A study on predictors of extranodal invasion of cervical lymph node metastasis in oral squamous cell carcinoma: Higaki M., Koizumi K., Ando T., Ito N., Obayashi F., Shintani T., Hirota S., Yamasaki S., Tani R., Yanamoto S.:The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.
12. A study of horizontal margins affecting local recurrence of superficial tongue carcinoma: Obayashi F., Ito N., Maeda Y., Higaki M., Hamada A., Yamsasaki S., Ando T., Tani R., Koizumi K., Yanamoto

- S.: The 78th Annual Meeting of Japanese Stomatological Society (Tokyo), 2024.
13. Challenge for elucidating the nature of oral cancer and development of next generation therapeutic drugs -deciphering the link of genetic alterations and aberrant signaling pathways: Ando T.: The 57th Annual Meeting of Hiroshima University Dental Society (Luncheon Seminar) (Hiroshima), 2024.
 14. Prediction of extranodal invasion of cervical lymph node metastasis in oral cancer: Higaki M., Koizumi K., Ando T., Hamada A., Ito N., Obayashi F., Itotagawa T., Omachi K., Maeda Y., Wakita S., Ueda Y., Uehara T., Odahara A., Yamasaki E., Eboshida N., Matsuyama T., Okamoto K., Yamasaki S., Tani R., Yanamoto S.:The 63rd Scientific Meeting of Hiroshima Prefectural Dental Association, joint of the 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.
 15. Prognosis (recurrence/metastasis) study in risk factors for recurrence after surgery for advanced oral cancer and postoperative treatment: Koizumi K., Ito N., Obayashi F., Higaki M., Hamada A., Yamasaki S., Ando T., Tani R., Yanamoto S.:The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
 16. A study of factors predicting extranodal invasion of metastatic lymph nodes in oral squamous cell carcinoma: Higaki M., Koizumi K., Ando T., Ito N., Obayashi F., Shintani T., Hirota S., Yamasaki S., Tani R., Yanamoto S.:The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
 17. Clinicopathological investigations of horizontal resection margins affecting local recurrence of superficial carcinoma and carcinoma in situ of tongue: Obayashi F., Ito N., Maeda Y., Higaki M., Hamada A., Yamasaki S., Ando T., Tani R., Koizumi K., Yanamoto S.:The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
 18. Dysregulated Hippo pathway induces cancer immune evasion through PD-L2 transcription: Ando T.: The 6th Advances in Oral Frontier Science (Sapporo), 2024.
 19. YAP/RBM39 interaction confers resistance to indisulam in oral squamous cell carcinoma: Ando T., Okamoto K., Shintani T., Yanamoto S., Miyauchi M., Kajiya M.:The 113th Annual Meeting of the Japanese Society of Pathology (Aichi), 2024.
 20. A case of treatment-related myelodysplastic syndrome in the early stage after radiotherapy in a patient with cancer of the oral floor: Ishida Y., Koizumi K., Hayashi S., Obayashi F., Higaki M., Ito N., Shintani T., Yanamoto S.:The 53rd Chugoku-Shikoku Branch Academic Conference of the Japanese Society of Oral and Maxillofacial Surgeons (Tottori), 2024.
 21. Quality of life (QOL) before and after surgical treatment in patients with medication-related osteonecrosis of the jaw: Yamasaki S., Omachi K., Hirota S., Odawara A., Ito N., Obayashi F., Hamada A., Koizumi K., Shintani T., Yanamoto S.:The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
 22. Assessment of the oral environment and oral function in hemophilia patients: Okada M., Shintani T., Kawagoe M., Takeda K., Iwata T., Furutama D., Nakanishi J., Nakaoma M., Yamasaki N., Fujii T., Mizuno N., Kajiya M., Shiba H.:The 67th Autumn Meeting of the Japanese Society of Periodontology (Sapporo), 2024.
 23. Quality of life (QOL) before and after surgical treatment in patients with medication-related osteonecrosis of the jaw: Yamasaki S., Omachi K., Hirota S., Odawara A., Ito N., Obayashi F., Hamada A., Koizumi K., Shintani T., Yanamoto S.:The 108th Hiroshima University Dental Society Regular Meeting (Hiroshima), 2024.
 24. Assessment of the oral environment and oral function in HIV-negative and HIV-positive hemophilia patients: Okada M., Shintani T., Kawagoe M., Iwata T., Yamasaki N., Fujii T., Shiba H.:The 38th Annual Meeting of Japanese Society for AIDS Research (Tokyo), 2024.
 25. Comparison of oral environment and oral function in HIV-negative and HIV-positive adult hemophilia patients: Shintani T., Okada M., Kawagoe M., Iwata T., Yamasaki N., Fujii T., Shiba H.:The 26th Japanese HIV dental workshop (Web), 2024.
 26. Development of cartilage tissue with bone shell that shows more effective bone regeneration for large-scale bone defects: Morimoto S., Kajiya M., Horikoshi S., Yoshii H., Yoshino M., Motoike S., Iwata T., Ouhara K., Ando T., Tetsuya Yoshimoto T., Shintani T., Mizuno N.: The 67th Autumn Meeting of the Japanese Society of Periodontology (Award lecture) (Sapporo), 2024.
 27. The development of a human bone marrow adipose tissue-like cellular construct using clumps of MSCs/ECM complexes: Yoshino M., Kajiya M., Yoshimoto T., Iwata T., Mizuno T.: 2024

- IADR/AADOCR/CADR General Session & Exhibition (U.S.A • New Orleans) , 2024.
28. 3D-engineered osteogenic cellular constructs for bone regenerative therapy by Direct Conversion: Yoshino M., Yoshimoto T., Kajiya M. Second Round Selection for the Hatton Award 2025 and The 72nd Annual Meeting and Scientific Session of the Japanese Division of the International Association for Dental Research (IADR)(Kagoshima),2024.
 29. Development of Periodontal Tissue Regenerative Therapy Using Mesenchymal Stem Cells and Bio-3D Printer: Kajiya M: NSU Dental Symposium 2024, AADOCR Florida-JSPS Joint Meeting.
 30. Development of Bio-3D Printed Grafting Tissue for Periodontal Regeneration: Kajiya M., Yoshii H., Yoshino M., Yoshimoto T.: IADR/AADOCR/CADR General Session & Exhibition (New Orleans), 2024.
 31. Development of novel periodontal tissue regenerative cell graft using with human clumps of MSCs/ECM complexes and Bio-3D printing. Kajiya M, Yoshii H, Yoshino M, Mizuno N, Suzuki M, Yoshimoto T, Takai H, Torii Y, Maekawa T: The 23rd Annual Meeting of the Japanese Society for Regenerative Medicine (Niigata) , 2024.
 32. Development of Bio-3D Printed Grafting Tissue for Periodontal Regeneration: Kajiya M.: AMED Regenerative Medicine, Cell Therapy, and Gene Therapy Project Research Symposium (Tokyo) , 2024.
 33. Scaffold-free 3D cell clumps culture technique opens new avenues for periodontal tissue regenerative therapy: Kajiya M.: AAP annual meeting (San Diego) , 2024.
 34. Development of Periodontal Tissue Regenerative Therapy Using Mesenchymal Stem Cells and Bio-3D Printer: Kajiya M.: Biofabrication (Japan), 2024
 35. Development of Periodontal Tissue Regenerative Therapy Using Mesenchymal Stem Cells and Bio-3D Printer: Kajiya M.: The 72nd Annual Meeting and Scientific Session of the Japanese Division of the International Association for Dental Research (IADR)(Kagoshima),2024.
 36. The Chemotherapeutic agent irinotecan impairs amiloride-sensitive sodium taste responses in mice: Sugita M., Sakayori N., Kawaguchi H., Obayashi N.: The 101th Annual Meeting of The Physiological Society of Japan (Fukuoka), 2024
 37. A case of contact dermatitis caused by commercially available acrylic resin and issues with allergy test for resin: Obayashi N., Shintani T., Ando T., Kawaguchi H., Kajiya M.: The 17th Annual Meeting of the Japanese Society for Evidence and the Dental Professional (Chiba), 2024

F) Case presentations

- 1: A case of oncocytoma in mandibular bucco-gingival region: Nakatani T., Yoshioka Y., Okanishi T., Ishida Y., Sugawara K., Shirakawa J, Sasabe E., Ando T., Yamamoto T.: The 69th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Yokohama), 2024.
- 2: A case of developmental odontogenic cyst with characteristic features of glandular odontogenic cyst and odontogenic keratocyst: Kataoka N., Ando T., Asada T., Fukutani T., Tani R., Suei R., Kakimoto N., Yanamoto S., Miyauchi M., Ogawa I., Kajiya M.: The 35th Annual Meeting of the Japanese Society of Oral Pathology (Niigata), 2024.
- 3: A case of myofibroma of the mandibular body: Taguchi Y., Ito N., Ando T., Asada K., Sakamoto A., Shintani T., Hamana T., Koizumi K., Yanamoto S.: The 53rd Chugoku-Shikoku Branch Academic Conference of the Japanese Society of Oral and Maxillofacial Surgeons (Tottori) , 2024.
- 4: A case of periodontal therapy in a chronic periodontitis accompanied by periodontal-endodontic lesion : Kajiya M, Iwata T, Ouhara K, Mizuno N. : The 67th Spring Meeting of the Japanese Society of Periodontology (Fukushima) , 2024
- 5: A case of allergic contact dermatitis caused by UV-curing resin for crafts in an industrial homemaker: Obayashi N., Naito M., Shintani T., Ando T., Kawaguchi H., Kajiya M.: The 97th Annual Meeting of the Japan Society for Occupational Health (Hiroshima), 2024

G) Special lectures in academic meetings

- 1: Oral Pathology, Toshinori Ando, The 22nd Summer School of Pathology in Hiroshima, 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: AMED Program for Accelerating the Realization of Regenerative Medicine, Cell Therapy, and Gene Therapy (Non-clinical PoC Acquisition Research Projects) : Yoshimoto T (Co-researcher, Continue): Development of promising periodontal regenerative therapy using 3D grafting tissue fabricated by a bio-3D printer. 23bm1223015h0001, 2,000,000 yen
- 2: Japan Society for the Promotion of Science, Grant-in-Aid for Research Activity Start-up: Yoshimoto T (Co-researcher, Continue): Molecular Elucidation of Immune Regulation by Bone Cells: Fundamental Research for a New Strategy of Periodontal Disease Treatment. 1,100,000 yen
- 3: The Nakatomi Foundation: Yoshimoto T (PI, New): Challenges in Human Bone Organoid-on-a-Chip Fabrication Using Microfluidic Devices. 1,500,000 yen
- 4: MEXT, International Symposium on Biomedical Engineering: Yoshimoto T (PI, Continue), Fabrication of Bone-BBB (blood-brain barrier) coupled microfluidic devices, 150,000 yen
- 5: The Naito Science & Engineering Foundation: Yoshimoto T (PI, Continue), Elucidation of the mechanism of chronic inflammation using osteocytes as a novel mechanism, 1,500,000 yen
- 6: Astellas Foundation for Research on Metabolic Disorders: Yoshimoto T (PI, Continue), Chronic Inflammatory Mechanisms with Osteocytes as a Novel Mechanism, 1,000,000 yen
- 7: MOCHIDA MEMORIAL FOUNDATION FOR MEDICAL AND PHARMACEUTICAL RESEARCH : Yoshimoto T (PI, New), Generation of human iPS cell-derived bone marrow organoids using a novel microfluidic device, 3,000,000 yen
- 8: SENSHIN Medical Research Foundation: Yoshimoto T (PI, New), Elucidation of the pathogenesis of aggressive periodontitis using novel disease iPS cells and development of therapeutic strategies, 1,000,000 yen
- 9: AMED-PRIME : Yoshimoto T (PI, New), Elucidating the Mechanisms of Osteocyte senescence and Its Pathophysiological Significance Through a Mechanobiology Approach, 7,100,000 yen
- 10: Grants-in-Aid for Scientific Research (B): Ando T. (PI, New): Deciphering the regulatory mechanism of cancer microenvironment induced by disruption of the Hippo pathway and novel therapeutic approach. 24K02645, 18,590,000 yen
- 11: Science Foundation: Ando T. (PI, New): Clarifying the mechanism of transcriptional and growth promoting role of ALPK2 in head and neck squamous cell carcinoma. 2,000,000 yen
- 12: Grants-in-Aid for Scientific Research (C): Shintani T. (PI, Continue), Mechanism of induction of squamous cell differentiation by HBp17/FGFBP knockout. 22K10147, 1,200,000 yen
- 13: Grant-in-Aid for Research Activity Start-up: Morimoto S. (PI, New), Development of cartilage tissue with bone shell that shows more effective bone regeneration for large-scale bone defects. 24K23555, 2,100,000 yen
- 14: Grant-in-Aid for Research Activity Start-up: Yoshino M. (PI, New), Establishment of an in vitro 3D model of mandibular bone marrow using human neural crest-derived mesenchymal stem cells. 24K23589, 2,100,000 yen
- 15: Grants-in-Aid for Early-Career Scientists: Obayashi N. (PI, Continue), Elucidation of the mechanism of taste alteration induced by irinotecan, an anticancer drug focusing on salty taste. 22K17207A, 4,550,000 yen
- 16: Grants-in-Aid for Scientific Research (B): Kajijiya M.: Development of iPS Cell-derived jawbone/gingival organoids using clumps culture technique for the oral regenerative medicine. 22H03275, 17,290,000 yen
- 17: AMED AMED Program for Accelerating the Realization of Regenerative Medicine, Cell Therapy, and Gene Therapy (Non-clinical PoC Acquisition Research Projects) : Kajijiya M.: Development of promising periodontal regenerative therapy using 3D grafting tissue fabricated by a bio-3D printer. Project Number 23bm1223015h0001, 58,240,000 yen

(5) Academic Awards, etc.

- 1: Yoshimoto T: Best Paper Award for Periodontal Tissue Regenerative Medicine, The Japanese Society of Periodontology, The 67th Autumn Meeting of the Japanese Society of Periodontology (Sapporo), 2024
- 2: Gennai K: (Dentistry student, supervised by Dr. Ando Dr. Yoshimoto): Student Poster Award, Best Poster Award, The 42nd Annual Meeting of the Japanese Society for Bone and Mineral Research (Okinawa), 2024
- 3: Morimoto S: Best Paper Award for Periodontal Tissue Regenerative Medicine, The Japanese Society of Periodontology, The 67th Autumn Meeting of the Japanese Society of Periodontology (Sapporo), 2024
- 4: Yoshino M: Best Paper Award for Periodontal Tissue Regenerative Medicine, The Japanese Society of Periodontology, The 67th Autumn Meeting of the Japanese Society of Periodontology (Sapporo), 2024

(6) Patent

- 1: 2024-103122: Method for Producing Osteoblast-Containing Cell Aggregates – Mikihiro Kajiya, Mai Yoshino, Makoto Seki; National University Corporation Hiroshima University, Cell Axia Co., Ltd.
- 2: 2024-199743: Pharmaceutical Composition and Cancer Treatment Method – Toshinori Ando, Mikihiro Kajiya; National University Corporation Hiroshima University

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Central Clinical Divisions Dental Laboratory

(1) Staff and Students

Director of Dental Technicians Section : Hiroki Nikawa (Prof.)
 Assistant Chief Dental Technician : Ryoji Kato
 Dental Technician : Shogo Iwaguro, Yukihiro Takayama, Mai Ohtaku,
 Momoyo Higo, Haruya Kawabata, Sumire Oba

(2) Main Research Activities

- 1: Management of the patient's information by the use of implanted devices in the denture.
- 2: Radioprotective prostheses for irradiation therapies
- 3: Clinical analysis of superstructure of implant.
- 4: Esthetic dentistry
- 5: Accuracy of castings
- 6: Information processing in the dental laboratory
- 7: Study on dental composite materials for esthetic

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Effect of laser engraving on shear bond strength of polyetheretherketone to indirect composite and denture-base resins : Peng TY, Shimoe S, Higo M, Kato M, Hirata S, Iwaguro S, Kaku M : J Dent Sci, 19, 32-38, 2024.
- 2: In vitro study of optimal removable partial denture clasp design made from novel high-performance polyetherketoneketone. P.-W. Peng, M.-S. Chen, T.-Y. Peng, P.-C. Huang, H. Nikawa, W.-F. Lee: J Prosthodont Res, 8,68(3),466-473, 2024.
- 3: Comparative analysis of the retention force and deformation of PEEK and PEKK removable partial denture clasps with different thicknesses and undercut depths : W.-F. Lee, M.-S. Chen, T.-Y. Peng, P.-C. Huang, H. Nikawa, P.-W. Peng : Journal of Prosthetic Dentistry (JPD), 131(2),291.e1-291.e9, 2024.
- 4: Effects of various functional monomers' reaction on the surface characteristics and bonding performance of polyetheretherketone : Huang HY, Feng SW, Chiang KY, Li YC, Peng TY, Nikawa H : J Prosthodont Res, 8;68(2),319-325, 2024 .
- 5: A novel implant placement technique using a three-dimensionally printed duplicate denture for implant-supported overdenture in patients with severe residual ridge resorption: A case report : Izumikawa T, Doi K, Iwaguro S, Tsuga K : Clinical Case Reports: 12(9), 2024

B) Review

C) Publications

D) Other Publications

E) Presentations at Scientific Meetings

F) Symposium and special lecture

- 1: Application of Probiotics strain Lactobacillus rhamnosus L8020 to oral health : Hiroki Nikawa : Taiwan Lactic Acid Bacteria Association 2024 Annual Meeting & Conference (Taiwan),2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

(5) Academic Awards, etc.

(6) Patents

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Central Clinical Divisions

Dental Hygiene Section

(1) Staff and Students

Director of Dental Hygiene Section: Kouji Ohta

Section leader of Dental Hygiene Section: Miyuki Nakaoka

Section sub-leader of Dental Hygiene Section: Miho Okada

Chief Dental Hygienists: Maiko Kawagoe, Natsumi Ino (Till March) , Haruka Yasuda (From April)

Dental Hygienists: Atsuko Wakita, Kanako Yano, Tomoko Tokikazu, Kana Dainobu, Yasuko Yokoyama

(Till March), Kotone Tanabe (Till June) , Kiho Naganuma, Fuki Matsuda (Till March) , Ruri Miyano,

Su chengyih, Honami Kitasaki, Nayu Ishimaru, Yuki Kuwabara, Miho Sakai, Otoha Kawahara,

Sari Nakamura, Yurina Nakamura, Suzuka Kuroko (From April), Rin Tunaba (From April),

Makiko Okamoto (From November)

Dental Assistants: Saori Nagamine, Ayako Masuda, Yudai Miyoshi

(2) Main Research Activities

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: A Case of Perioperative Oral Management for Tongue Cancer Patient Treated With High Dose Rate Interstitial Brachytherapy: Ino N., Tokikazu T., Nishi H., Nakaoka M., Konishi M., Kawaguchi H., Ohta K., Kakimoto N.: J. Hiroshima Univ. Dent. Soc, 56(1), 9-17, 2024.
- 2: Oral condition at admission predicts functional outcomes and hospital-acquired pneumonia development among acute ischemic stroke patients: Eto F., Nezu T., Nishi N., Aoki S., Tasaka S., Horikoshi S., Yano K., Kawaguchi H., Maruyama H.: Clin Oral Investig 2024 Jul 19;28(8):434. doi: 10.1007/s00784-024-05833-w.

B) Review

C) Publications

- 1: 환자구강위생관리학: 오상환, 최지원, 박성숙, 김윤경, 곽정숙, 이명진, 이명성, 김선경, 윤서현, Sugiyama M., Nishimura R., Yano K.: Booksaem Publishing(South Korea), 55 — 87, 2024.

D) Other Publications

- 1: Close relationship between diabetes and periodontal disease: Yano K.: Japan association for diabetes education and care Hiroshima (Hiroshima), TouenVol281, 2024.

E) Presentations at Scientific Meetings

- 1: Biochemical characteristics and antifungal susceptibility of *Candida* spp. isolated from patients with head and neck cancer and esophageal cancer : Yano K., Nishi H., Shigeishi H., Kaneyasu Y., Niitani Y., Nakaoka M., Kawaguchi H., Ohta K.: International Symposium Dental Hygiene 2024 (South Korea, Seoul), 2024.
- 2: The currently situation of oral health and future perspective of dental hygienist in Taiwan: Su,Cheng-Yih: International Symposium on Dental Hygiene 2024(South Korea, Seoul), 2024.
- 3: Assessment of the oral environment and oral function in haemophiliacs: Okada M., Shintani T., Kawagoe M., Takeda K., Iwata T., Furutama D., Nakanishi J., Nakaoka M., Yamazaki N., Fujii T., Mizuno N., Kajiya M., Shiba H.: The 67th Autumn Meeting of the Japan Society of Periodontology (Sapporo), 2024.

- 4: Effects of Probiotics during Chemotherapy for Breast Cancer ~Approach to Preventing Oral Mucositis and Maintaining Nutritional Status~: Kuwabara Y., Nishi H., Ohta K., Shigeishi H., Konishi M., Kakimoto N., Yoshioka Y., Horikoshi I., Yano K., Nakaoka M., Kawaguchi H.: The 71th Annual Meeting of the Japanese Stomatological Society Chugoku Shikoku Branch (Hiroshima), 2024.
- 5: Antifungal susceptibility of *Candida* species isolated from oral cavity in cancer patients during perioperative period: Yano K., Nishi H., Shigeishi H., Kaneyasu Y., Niitani Y., Miyuki N., Kawaguchi H., Ohta K.: The 71th Annual Meeting of the Japanese Stomatological Society Chugoku Shikoku Branch (Hiroshima), 2024.
- 6: Consideration of the importance of oral care in preventing postoperative pneumonia and the timing of its intervention: Naganuma K., Nishi H., Shigeishi H., Ohta K., Yoshioka Y., Konishi M., Kakimoto N., Horikoshi I., Yano K., Nakaoka M., Kawaguchi H.: The 71th Annual Meeting of the Japanese Stomatological Society Chugoku Shikoku Branch (Hiroshima), 2024.
- 7: Effect of probiotic therapy for pus suppuration on peri-implantitis: Ogino T., Yasuda K., Kawagoe M., Hashimoto Y., Tsuga K.: The 54th Japanese Society of Oral Implantology (Kyoto), 2024.
- 8: Assessment of the oral environment and oral function in HIV-negative and HIV-positive hemophiliacs: Okada M., Shintani T., Kawagoe M., Iwata T., Yamazaki N., Fujii T., Shiba H.: The 38th Annual Meeting of the Japan AIDS Society (Tokyo), 2024.
- 9: A case of implant supported fixed prosthesis applied to the mandibular bone defect after segmentectomy of bone dysplasia: Kagawa K., Wakita A., Fuluebisu M., Thsga, Okada Y.: The 41th Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.
- 10: A case of a Down syndrome patient with recurrent infective endocarditis whose incidence was reduced after regular oral hygiene intervention: Yasuda H., Yoshida Y., Fujiwara R., Miyazaki H., Nishio Y., Nakaoka M., Oda Y., Okada Y.: The 41th Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.
- 11: A case in which retraining was effective in patients with autism spectrum disorder who relapsed maladaptive behavior after physical restraint: Nakamura S., Yoshida Y., Yasuda H., Asahina H., Miyazaki H., Nakaoka M., Okada Y.: The 41th Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.
- 12: A case of a dental approach for a patient with autism spectrum disorder and severe intellectual disability who has had difficulty with dental check-ups after panicking during a previous dental treatment session: Ishimaru N., Yasuda H., Yamaguchi H., Morimoto M., Nishio Y., Asahina H., Nakaoka M., Okada Y.: The 41th Annual Meeting of the Japanese Society for Disability and Oral Health (Ginowan), 2024.

F) Special lectures in academic meetings

1. Oral health management in Special care Dentistry: Yano K.: Hiroshima prefecture regional medical care nursing comprehensive securing business Education at Hiroshima Oral Health Center Research function development project Hiroshima prefecture dental health service provision difficult person consultation physician training workshop (Hiroshima), 2024.01.21.
2. The importance of oral care in hemophilia treatment: Okada M.: Hemophilia Collaboration Web Seminar (WEB), 2024.
3. Close relationship between diabetes and periodontal disease: Yano K.: The 305th Diabetes Seminar (Hiroshima), 2024.
4. Oral health management in Disabled Dentistry: Tokikazu T.: Hiroshima prefecture regional medical care nursing comprehensive securing business Education at Hiroshima Oral Health Center Research function development project Hiroshima prefecture dental health service provision difficult person consultation physician training workshop (Hiroshima), 2024.
5. Oral hygiene care for hospitalized patients: Yano K.: Oral rehabilitation society Advance Course1(WEB), 2024.
6. Brushing your teeth every day can change your future! Key point for preventing periodontal disease: Yano K.: BioGaiaTALKS (Hiroshima), 2024.
7. HIV Disease and Dentistry: Okada M.: AIDS practitioner Training Course for Nurses (Hiroshima), 2024.
8. HIV Disease and Dentistry: Kawagoe M.: AIDS practitioner Training Course for Nurses (Hiroshima), 2024.
9. Oral care taught through videos: Yano K.: The 40th Hiroshima Hospital Infection Control Research Meeting (Hiroshima), 2024.

10. Pitfalls in diabetes treatment: Yano K.: The 10th Japanese Society of Physical Therapy for Diabetes Mellitus (Hiroshima), 2024.
11. Oral health management in Special care Dentistry: Yano K.: Hiroshima prefecture regional medical care nursing comprehensive securing business Education at Hiroshima Oral Health Center Research function development project Hiroshima prefecture dental health service provision difficult person consultation physician training workshop (Hiroshima), 2024.10.06
12. Oral health management in Disabled Dentistry~throughout the case of~: Tokikazu T.: Japanese Society of Pediatric Dentistry 43rd Chugoku-Shikoku Regional Conference (Hiroshima), 2024.
13. Dental Hygienist upgrade ~Utilizing your qualifications as a certified dental hygienist 2~:Nakaoka M.: Host by Japanese Dental Science Federation.Medical Professional Cooperation Committee Forum (WEB),2024.
14. Role of dental hygienists in supporting dental care for HIV-positive patients at Hiroshima University Hospital: Okada M.: Workshop on HIV infection for members and associate members of the Hiroshima Dental Association (Hiroshima), 2024.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

(5) Academic Awards, etc.

(6) Patents

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Central Clinical Facilities

Division of Medical Informatics and Systems

(1) Staff and Students

Director : Yoshiyuki Okada(Co.)
Assistant Professor : Masahiko Ohtsuka (Co.), Takeshi Tanaka(Co.)
Technician : Tokue Yanagida (Co.)

(2) Main Research Activities

- 1: Research on development and management of healthcare and welfare information system.
- 2: Research on Medical Informatics.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Tanaka T et al.: A Questionnaire Survey on Awareness of Visual Rehabilitation among People with Visually Impairment. J Japanese Society for Low-vision Research and Rehabilitation 24: 120-127, 2024.
- 2: Tanaka T et al.: Tendencies of Persons with Visual Impairments who needs Extremely Enlarged Characters in Web Browsing. J J Med Info 43 (Suppl.): 1189-1123, 2024.

B) Review

None.

C) Publications

None.

D) Other Publications

None.

E) Presentation at Scientific Meeting

- 1: Tanaka T et al: Case Studies of Persons without White Cane among Intermediate Outreach Consultation Clients: The 25th Meeting of Japan Society for Low-vision Research and Rehabilitation (Saitama, Japan), 2024.
- 2: Fujita R, Tanaka T, Kiuchi Y, Narai A: Differences in the tendencies of specialists and general ophthalmologists in their critique of a prototype regional collaboration pathway for children with eye diseases: The 32nd Conference for Researches on Rehabilitation of Visually Impaired (Tokyo, Japan), 2024.
- 3: Fujita R, Ando H, Tanaka T, Nakakura S, Kiuchi Y, Narai A: A Trial of an Outpatient Ophthalmology Pathway for Infants and Children Taken into Account of the starting point of a Regional Collaboration Pathway: The 25nd Annual Meeting of the Japan Society for Clinical Pathway (Matsuyama, Japan), 2024.
- 4: Tanaka T et al.: Tendencies of Persons with Visual Impairments who needs Extremely Enlarged Characters in Web Browsing: The 44th Joint Conference on Medical Informatics (Fukuoka, Japan), 2024.
- 5: Tanaka T, Ujima K, Narai A, Kiuchi Y: Evaluation of a Medical Institution Webpage Model for Browsing in Extremely Enlarged Characters: APAMI2024; 13th Biennial Conference of the Asia Pacific Association for Medical Informatics (Manila, Philippines), 2024.

F) Special lectures in academic meetings

None.

(4) Status of Receiving Grants-in Aid for Scientific Research, etc.

- 1: MEXT KAKENHI Grant-in-aid for Scientific Research(C), No. 24K151920. 900 thousand JPY.
- 2: MEXT KAKENHI Grant-in-aid for Scientific Research(C), No. 23K151920. 50 thousand JPY.

(5) Academic Awards, etc.

None.

(6) Patents

None.

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