

Division of Pediatric Dentistry Department of Oral Growth and Development

Outline

The mission of the pediatric dentistry is to promote healthy oral environment of children and patients with special needs, through clinical care and education. Besides patient care and education, research is an important component of the Division of Pediatric Dentistry. Graduate student in the pediatric dentistry program must complete an approved research project leading to a paper of publishable quality during the student period. Our division research fields are as follows.

Faculty members

Professor and Director: Masato Saitoh D.D.S., Ph.D.

Associate professor: Mina Hirose D.D.S., Ph.D.

Assistant professor/full-time lecturer: Yoshihito Kurashige D.D.S., Ph.D.

Assistant professor/research associate: Maiko Otomo D.D.S., Ph.D., Sayaka Sakakibara D.D.S., Ph.D.,
Yusuke Fujita D.D.S., Ph.D., Erika Minowa D.D.S., Ph.D.

Cinical instructor: Tomoaki Meguri D.D.S.,

Postgraduate students: Taisei Kato D.D.S, Chiaki Kanakubo D.D.S., Akihiro Ichimura D.D.S.
Hiromu Takahashi D.D.S.



Main research in progress

- 1) Characterization of Malassez epithelial rest cultured cells
- 2) Effect of mineralization by enamel matrix protein on early caries lesion
- 3) Characterization of tooth formation and mineralization using a tooth germ cultivation system
- 4) Effects of phenytoin on the calcium responses in human gingival fibroblast
- 5) Development of novel Mineral Trioxide Aggregate for pulp therapy of primary and immature permanent teeth

Current publications

- 1) Sugaya H, Kurashige Y, Suzuki K, Sakakibara S, Fujita Y, ST Islam, Nezu T, Ito S, Abiko Y, Saitoh M. Regaining enamel color quality using enamel matrix derivative. *Medical Molecular Morphology*, 2023.
- 2) Minowa E, Hayashi Y, Goh K, Ishida N, Kurashige Y, Saitoh M, Tanimura A. Enhancement of receptor-

mediated calcium responses by phenytoin through the suppression of calcium excretion in human gingival fibroblasts. *Journal of Periodontal Research*. Dec 13, 2022.

- 3) ST Islam, Kurashige Y, Minowa E, Yoshida K, Paudel D, Uehara O, Okada Y, Dembereldorj B, Sakakibara S, Abiko Y, Saitoh M. Analysis of the cells isolated from epithelial cell rests of Malassez through single-cell limiting dilution. *Scientific reports*, 12(1) 2022.
- 4) Osada M, Aung MS, Urushibara N, Kawaguchiya M, Ohashi N, Hirose M, Kobayashi N. Prevalence and Antimicrobial Resistance of *Staphylococcus aureus* and Coagulase-Negative *Staphylococcus/Mammaliococcus* from Retail Ground Meat: Identification of Broad Genetic Diversity in Fosfomycin Resistance Gene *fosB*. *Pathogens* 11(4), 496-483, 2022.
- 5) Hirose M, Aung MS, Fujita Y, Kato T, Hirose Y, Yahata S, Fukuda A, Saitoh M, Urushibara N, Kobayashi N. Genetic Characterization of *Staphylococcus aureus*, *Staphylococcus argenteus*, and Coagulase-Negative Staphylococci Colonizing Oral Cavity and Hand of Healthy Adults in Northern Japan. *Pathogens* 11(8), 849-862, 2022.
- 6) Onishi A, Yoshida K, Morikawa T, Paudel D, Takahashi S, Khurelchuluun A, Ariwansa D, Harada F, Uehara O, Kurashige Y, Abiko Y. Induction of Periodontal Ligament-like Cells by Coculture of Dental Pulp Cells, Dedifferentiated Cells Generated from Epithelial Cell Rests of Malassez, and Umbilical Vein Endothelial Cells. 48(11):1387-1394. Nov 2022 .
- 7) Mashima I, Theodorea CF, Djais AA, Kunihiro T, Kawamura Y, Otomo M, Saitoh M, Tamai R, Kiyoura Y. *Veillonella nakazawae* sp. nov., an anaerobic Gram-negative coccus isolated from the oral cavity of Japanese children. *Int J Syst Evol Microbiol*. Jan;71(1), 2021.
- 8) Yoshida K, Uehara O, Kurashige Y, Paudel D, Onishi A, Neopane P, Hiraki D, Morikawa T, Harada F, Takai R, Sato J, Saitoh M & Abiko Y. Direct reprogramming of epithelial cell rests of malassez into mesenchymal-like cells by epigenetic agents. *Scientific report*. 11, 1852 2021.
- 9) Aung MS, Urushibara N, Kawaguchiya M, Hirose M, Ike M, Ito M, Kobayashi N. Distribution of Virulence Factors and Resistance Determinants in Three Genotypes of *Staphylococcus argenteus* Clinical Isolates in Japan. *Pathogens* 10: 163-179, 2021.
- 10) Aung MS, Urushibara N, Kawaguchiya M, Hirose M, Ito M, Habaderac S, Kobayashi N. Clonal diversity of methicillin-resistant *Staphylococcus aureus* (MRSA) from bloodstream infections in northern Japan: Identification of spermidine N-acetyltransferase gene (*speG*) in staphylococcal cassette chromosomes (SCCs) associated with type II and IV SCCmec. *Journal of Global Antimicrobial Resist* 24: 207–214,2021.
- 11) Minowa E, Kurashige Y, Islam ST, Yoshida K, Sakakibara S, Okada Y, Fujita Y, Bolortsetseg D, Murai Y, Abiko Y, Saitoh M. Increased integrity of cell-cell junctions accompanied by increased expression of claudin 4 in keratinocytes stimulated with vitamin D3. *Med Mol Morphol*. 2021 Dec;54(4):346-355, 2021.
- 12) Hirose M, Aung MS, Fukuda A, Yahata S, Fujita Y, Saitoh M, Hirose Y, Urushibara N, Kobayashi N. Antimicrobial Resistance and Molecular Epidemiological Characteristics of Methicillin-Resistant and Susceptible Staphylococcal Isolates from Oral Cavity of Dental Patients and Staff in Northern Japan. *Antibiotics* 10: 1316-1330, 2021.
- 13) Saitoh M, Shintani S. Molar incisor hypomineralization: A review and prevalence in Japan. *Japanese Dental Science Review*57:71-77, 2021.
- 14) Aung MS, Matsuda A, Urushibara N, Kawaguchiya M, Ohashi N, Matsuda N, Nakamura M, Ito M, Habadera S, Matsumoto A, Hirose M, Kobayashi N. Clonal diversity of *Clostridium perfringens* human clinical isolates with various toxin gene profiles based on multilocus sequence typing and alpha-toxin

(PLC) typing. *Anaerobe* 72: 102473, 2021.

- 15) Okada Y, Ohke H, Yoshimoto H, Kobashi M, Saitoh M, Terumitsu M. Nasogastric Tube Knotted Around a Nasal Endotracheal Tube in the Nasopharynx: Possible Cause. *Anesth Prog.* 1;68(2):90-93, 2021.