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## **Programs for Biomedical Research, Division of Molecular Medical Science (Department of Biomaterials Science)**

### (1) Staff and Students

Professor: Masayuki Okazaki  
Research Associate: Yuji Nomura, Isao Hirata, Ryo Nishikiori  
Researcher: Jiang Wu

### (2) Main Research Activities

- 1: Development of functional biomaterials with adhesion molecules
- 2: Biocompatibility of apatite-collagen composites
- 3: Interaction between living system and biomaterials with self-assembled monolayers
- 4: Dynamics of dentine adhesion interface
- 5: Bioassay of endocrine disruptor chemicals
- 6: Mechanism of molecular-level tooth adhesion
- 7: Improvement of implant surface
- 8: Synthesis and polymerization of multi-functional monomers
- 9: Casting of glass ceramics

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

- 1: Nomura Y., Bhawal U.K., Nishikiori R., Sawajiri M., Maeda T., Okazaki M.: Effects of high-dose major components in primary human gingival fibroblasts *in vitro*. Dent Mater J, 29: 75-83, 2010.
- 2: Uddin M.H., Matsumoto T., Ishihara S., Nakahira A., Okazaki M., Sohmura T.: Apatite containing aspartic acid for selective protein loading. J Dent Res 89: 488-492, 2010.
- 3: Hirata I, Akamatsu M, Fujii E, Poolthong S, Okazaki M: Chemical analyses of hydroxyapatite formation on SAM surfaces modified with COOH, NH<sub>2</sub>, CH<sub>3</sub> and OH functions. Dent Mater J 29: 438-445, 2010.
- 4: Nomiyama K., Nomura Y., Takahashi T., Uchiyama Y., Arizono K., Shinohara R.: Hydroxylated polychlorinated biphenyls (OH-PCBs) induce vitellogenin through estrogenic activity in primary-cultured hepatocytes of the *Xenopus laevis*.

Chemosphere: 78 800-806, 2010.

## B) Review

- 1: M. Okazaki: Creation of highly functional CO<sub>3</sub>Ap-collagen scaffold biomaterials. Dent Mater J 29: 1-8, 2010.
- 2: T. Matsumoto, M. Okazaki: Inorganic and organic component of cortical bone matrix. J Japanese Soc Biomat 28(4): 257-263, 2010. (in Japanese)

## C) Publications

- 1: Dental materials and techniques for LED curing: Present and future of LED-UV curing techniques and materials – Ultraviolet curing system using light emitting diode -: M. Okazaki: (M. Kadooka Eds.) CMC Publishing CO.,LTD., Tokyo, Japan, 2010. (in Japanese)

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Symposium 7 "Tissue engineering": Concept of carbonate contained hydroxyapatite and collagen scaffold for bone regeneration ability: M. Okazaki: The 9<sup>th</sup> Congress of the Japanese Society for Regenerative Medicine, Hiroshima, Japan, 2010 (in Japanese)
- 2: Influence of components on the water sorption and solubility of trial tissue conditioners: H. Tsuka, G. Hong, T. Maeda, Y. Nomura, M. Okazaki, T. Hamada, S. Sadamori, Y. Akagawa: The 55<sup>th</sup> General Session of the Japanese Society for Dental Materials and Devices, Tokyo, Japan, 2010 (in Japanese)
- 3: Cell proliferative ability of newly developed carbonate apatite collagen sponges with cytokines: A. Matsuura, Maretaningtias Dwi Ariani, I. Hirata, K. Doi, K. Hayashi, K. Koretake, T. Kubo, M. Okazaki, Y. Akagawa: The 55<sup>th</sup> General Session of the Japanese Society for Dental Materials and Devices, Tokyo, Japan, 2010 (in Japanese)
- 4: Radiation effects of heavy ion particles on bone metabolism: M. Sawajiri, Y. Nomura, S. Takinami, K. Maruyama, K. Tanimoto: 2009 Annual meeting of the research project with heavy ion at NIRS-HIMAC, Chiba, Japan, 2010 (in Japanese)
- 5: Influence of Sr<sup>2+</sup> into hydroxyapatite and carbonate contained apatite crystals: T. Ohto, I. Hirata, Y. Nomura, R. Nishikiori, Y. Mine, H. Nikawa, M. Okazaki: The 43<sup>th</sup> Hiroshima University dentistry society, Hiroshima, Japan, 2010 (in Japanese).
- 6: Availability of carbonated hydroxyapatite as a scaffold for bone regeneration: K. Sumi, K. Tanimoto, Y. Tanne, T. Kamiya, S. Okuma, R. Kunimatu, M. Yoshioka, H. Hayashi, M. Okazaki, Y. Kato, M. Sugiyama, K. Tanne: The 88<sup>th</sup> IADR Barcelona, Spain
- 7: Episode of Apatite Research: M. Okazaki: 2010 summer seminar for Japanese Dental Materials Society Kinki and Chu-Shikoku branch, Matsuyama, Japan, 2010 (in Japanese)
- 8: The antimicrobial Efficacy of Chlorine Dioxide as a Component of Denture Cleanser: T. Hori, T. Maeda, Y. Nomura, S. Sadamori, M. Okazaki, Y. Akagawa: The 56<sup>th</sup> General Session of the Japanese Society for Dental Materials and Devices, Gifu, Japan, 2010 (in Japanese)
- 9: Influence of heat treatment on bonding between a zirconia material and indirect composites: K. Kusano, S. Shimoe, M. Okazaki, N. Tanoue, H. The 56<sup>th</sup> General Session of the Japanese Society for Dental Materials and Devices, Gifu, Japan, 2010 (in Japanese)

- 10: Bone regeneration using apatite-collagen composites: M. Okazaki: Science Council of Japan's Symposium "Advanced Dental Biomaterials", Gifu, Japan. 2010(in Japanese)
- 11: Development of new bone graft material using carbonate apatite-chitosan composite: Maretaningtias Dwi Ariani, A. Matsuura, I. Hirata, K. Doi, K. Hayashi, K. Morita, T. Kubo, M.Okazaki, Y. Akagawa: The 32<sup>nd</sup> Annual Meeting of the Japanese Society for Biomaterials, Hiroshima, Japan, 2010 (in Japanese)
- 12: Sr Substitution into Apatite Crystals: T. Ohto, I. Hirata, R. Nishikiori, Y. Nomura, Y. Mine, H. Nikawa, M. Okazaki: The 32<sup>nd</sup> Annual Meeting of the Japanese Society for Biomaterials, Hiroshima, Japan, 2010 (in Japanese)
- 13: The Significance of the Surface Properties of Micro-arc Oxidized Ti-24Nb-4Zr-7.9Sn Alloy: J. Wu, I. Hirata, Z. Liu, M. Okazaki, B. Gao: The 32<sup>nd</sup> Annual Meeting of the Japanese Society for Biomaterials, Hiroshima, Japan, 2010 (in Japanese)

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

(5) Academic Awards, etc.

- 1: Okazaki M.: the Japanese Society for Dental Materials and Devices: Award of the Japanese Society for Dental Materials and Devices, 17 April 2010.

(6) Patents

**Programs for Biomedical Research,  
Division of Molecular Medical Science  
(Department of Dental and Medical Biochemistry)**

(1) Staff and Students

Professor:	Yukio Kato
Associate Professor:	Mitsuhide Noshiro
Research Associate:	Takeshi Kawamoto , Katsumi Fujimoto
International Student:	Tania Saskianti
Secretary:	Misano Kuramoto

(2) Main Research Activities

- 1) Basic and clinical aspects of mesenchymal stem cells
- 2) Differentiation of chondrocytes
- 3) Molecular clocks

We cloned novel bHLH transcription factors (Dec1 and Dec2), which play roles in differentiation of mesenchymal stem cells (MSC) into chondrocytes, adipocytes, myoblasts and osteoblasts. Furthermore, Dec1 and 2 are involved in core feed back loops of the transcriptional and translational control in molecular clock systems (Honda-S et al. Nature, 2002). In addition, we developed the super-expansion method for MSC and found many molecular markers for MSC.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Anti-apoptotic effect of the basic helix-loop-helix (bHLH) transcription factor DEC2 in human breast cancer cells. : Liu Y, Sato F, Kawamoto T, Fujimoto K, Morohashi S, Akasaka H, Kondo J, Wu Y, Noshiro M, Kato Y, Kijima H. : Genes Cells. 2010 Apr 1;15(4):315-25.
- 2: ENGLISH ASSISTANCE WITH CORPUS ANALYSIS --DICTIONARY, THESAURUS, COLLOCATIONS--.: Ohtake H., Fujita N, Kawamoto T, Ugawa Y, Morren B, Takeuchi H, Takekoshi M, Kaneko S. : IADIS International Conference e-Learning 2010, 285-288.

B) Review

- 1: Roles of DEC1 and DEC2 in the core loop of the circadian clock, and clock outputs to metabolism. :

Kato Y, Noshiro M, Fujimoto K, Kawamoto T.: Hirosaki Med. J. 61(Suppl.), S34-S42, 2010.

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Application of chemically defined media for proliferation and differentiation of mesenchymal stem cells to regenerative medicine : Kato Y.: International symposium concerning support system maintenance business for educational research upgrade. Hiroshima City, Mar. 9, 2010.
- 2: ENGLISH ASSISTANCE WITH CORPUS ANALYSIS--DICTIONARY, THESAURUS, COLLOCATIONS--. : Ohtake H, Nobuyuki Fujita N, Kawamoto T, Ugawa Y, Morren B, Takeuchi H, Takekoshi M, Kaneko S. : IADIS International Conference e-Learning 2010, Jul, 2010, Freiburg.
- 3: Dec1 Regulates Circadian Variation of Blood Pressure : Nakashima A, Kawamoto T, Noshiro M, Honda K, Ozaki N, Ueno T, Taniguchi Y, Tanaka J, Yorioka N, Kato Y.: 43rd annual meeting of American Society of Nephrology, Denver, USA. Nov. 18-21, 2010
- 4: Inhibitory Effect of Mesenchymal Stem Cells on the Progression of Experimental Peritoneal Fibrosis in a Rat Model : Ueno T, Nakashima A, Taniguchi Y, Kawamoto T, Kato Y, Yorioka N. : 3rd annual meeting of American Society of Nephrology, Denver, USA. Nov. 18-21, 2010

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

(5) Academic Awards, etc.

(6) Patents

**Program for Biomedical Research,  
Division of Molecular Medical Science  
(Department of Oral Biology)**

(1) Staff and Students

Professor : Takashi Uchida

Assistant Professor : Shinji Hiyama, Mineo Watanabe

(2) Main Research Activities

- 1 : Morphological and molecular biological studies of the amelogenesis
- 2 : Molecular biological and morphological studies of the mechanism of bone metabolism
- 3 : Referred pain involved with inflammatory cytokines on orofacial regions

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Histological and immunohistochemical analyses of molar tooth germ in enamel-deficient mouse.: Sawada T, Sekiguchi H, Uchida T, Yamashita H, Shintani S, Yanagisawa T. : Acta Histochem. Epub 2010 Jul 2.
- 2 : IL-1beta in the trigeminal subnucleus caudalis contributes to extra-territorial allodynia/hyperalgesia following a trigeminal nerve injury.Takahashi K, Watanabe M, Suekawa Y, Ito G, Inubushi T, Hirose N, Murasaki K, Hiyama S, Uchida T, Tanne K. Eur J Pain. Epub 2010 Nov
- 3 : Synthetic ameloblastin peptide stimulates differentiation of human periodontal ligament cells.Kitagawa M, Kitagawa S, Nagasaki A, Miyauchi M, Uchida T, Takata T. Arch Oral Biol. Epub 2010 Nov 11.
- 4 : 18Ameloblastin regulates osteogenic differentiation by inhibiting Src kinase via cross talk between integrin beta1 and CD63.Iizuka S, Kudo Y, Yoshida M, Tsunematsu T, Yoshiko Y, Uchida T, Ogawa I, Miyauchi M, Takata T.: Mol Cell Biol. Epub 2010 Dec 13.



## B) Review

- 1 : The role of glia in orofacial pain. : Watanabe, M., Murasaki, K., Ito, G., Suekawa, Y., Takahashi, K., Hirose, N., Hiyama, S., Tanne, K., Uchida, T The Journal of Hiroshima University Dental Society, 37, 1-15, 2010.

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1 : Astrocytic interleukin-1beta contributes to neuropathic pain following mental nerve injury: Takahashi K., Watanabe M., Suekawa Y., Ito G., Murasaki K., Hirose N., Hiyama S., Uchida T., Tanne K.: The 88th International Association for Dental Research (Barcelona), 2010.
- 2 : The Osteoclastogenesis in the alteration of bone marrow cells during medullary bone formation in estrogen-treated male Japanese quails. Hiyama, S., Akagi, Y., Watanabe, M., Uchida, T.: 32nd Annual meeting of American Society for Bone and Mineral Research (Toronto), 2010.
- 3 : Formation of pre-osteoclasts during medullary bone formation in estrogen-treated male Japanese quails.: Hiyama, S., Akagi, Y., Watanabe, M., Uchida, T. : Hiyama, S., Akagi, Y., Watanabe, M., Uchida, T. : The 28<sup>th</sup> annual meeting of The Japanese Society of Bone and Mineral Research (Tokyo)、2010.
- 4 : Differentiation of osteoclasts from the bone marrow cell during medullary bone formation in estrogen-treated male Japanese quails. : Yokoi, M., Hiyama, S., Uchida T. : The 65<sup>th</sup> Chugoku and Shikoku regional meeting of The Japanes Association of Anatomist (Kure) 2010.
- 5 : The role of P2X<sub>7</sub> receptor in orofacial neuropathic pain.: Ito, G., Watanabe, M., Inubushi, T., Takahashi, K., Hirose, N., Murasaki, K., Hiyama, S., Uchida, T., Tanne, K.: The 43<sup>th</sup> meeting of Hiroshima University Dental Society (Hiroshima), 2010.

- 6 : Role of ameloblastin during root formation in mice.: Hirose, N., Ito, G., Murasaki, K., Takahashi, K., Watanabe, M., Shimazu, A., Uchida, T., Tanne, K.: The 69th Annual Meeting of the Japanese Orthodontic Society (Yokohama), 2010.
- 7 : IL-1beta in the trigeminal subnucleus caudalis contributes to extra-territorial allodynia/hyperalgesia following a trigeminal nerve injury.: Watanabe, M.: The International Workshop on BioDental Education & Research(Hiroshima), 2010.
- 8 : Phenotype of amelogenesis in the amelogenin gene deficient mouse. : Takano, Y., BabaO.,Iseki, H., Uchida T. : The 52nd annual meeting of Japanese Association of Oral Biology (Tokyo)、 2010.

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

- 1 : Grant-in-Aid for Young Scientists (B) from the Japanese Society for the Promotion of Science : Hiyama, S., Reguration of bone remodeling and stem-cell nicheby the sex hormone and its target factors. NO.21791787. 1,400,000yen
- 2 : Grant-in-aid for Scientific Research from the Japanese Society for the Promotion of Science (C) : Uchida, T., Function of matrix proteins on the reguration of differentiation and function of hard tissue forming cells, and calcificationiduring tooth development.No.21592329. 1,100,000yen
- 3 : Grant-in-aid for Scientific Research from the Japanese Society for the Promotion of Science (C): Watanabe, M.: Mechanisms of orofacial neuropathic pain after trigeminal nerve injury.: No.22592039. 1,200,000yen

## **Program for Biomedical Research, Division of Molecular Medical Science (Department of Bacteriology)**

The study of infectious disease is a constantly challenging field that deals with the emergence and reemergence of diseases as threats to human beings, and drug resistance of bacteria through combat in host-parasite interaction. The research into the basic molecular mechanisms by which bacteria cause disease and become resistant to certain antimicrobial drug is essential for the development of new therapeutic interventions. Molecular bacterial pathogenesis, biogenesis and regulation of cell wall metabolism, and molecular aspect of host-parasite interaction are the research focus of our group of laboratory of bacteriology. Our work concentrates on human pathogens such as *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and oral pathogens *Aggregatibacter actinomycetemcomitans*, oral streptococci and other oral pathogens.

### Undergraduate areas of study

A major in Oral Microbiology is designed to offer you concise and comprehensive guide to understand microbiological principles and essential knowledge about microbes present in oral region. You will learn the role of bacteria, virus and fungus in diseases, including etiology of caries, periodontal diseases and other infectious diseases relevant to dentistry. We also participate in some courses, basic immunology, clinical cariology, periodontal medicine, and laboratory medicine.

### Topics

We recently started genomic approach to understand pathogenicity and drug resistance mechanism of *S. aureus*. We are in collaboration with peoples in genome informatics lab. analyzing and evaluating thousands of genes in certain pathogenic strains by comparative genomic hybridization using microarray. We are also interested in regulation mechanism of gene expression in the bacteria infecting host and keen to know how bacterial genes are coordinately regulated by multiple regulators.

### (1) Faculty members and students

Professor : Motoyuki Sugai  
 Research Associate : Fuminori Kato, Shizuo Kayama, Junzo Hisatsune  
 Graduate Student : Shima Morioka D5, Panida Thanasrisung D4, Kanao Kobayashi D3 (From Dept. Urology), Wataru Shimizu D3 (From Dept. Surgery 1), Norifumi Shigemoto D2 (From Dept. Surgery 1), Itsugun Ko D2 (From Pediatric Dentistry), Ryuichi Kuwabara D1, Taro Kojima D1, Yuko Iwamoto D1 (From Pediatric Dentistry),

Arihiro Nishimoto M3 (till Mar), Yusuke Matoba M (left Mar), Teruaki Murakami M2, Toshie Harino M2, Kazuhisa Koizumi M1.

Research Technician: Naomi Saeki, Naomi Kida, Natsumi Fujiwara

## (2) Main Research Interests

- 1: Research on peptidoglycan hydrolases
- 2: Drug resistance mechanism of nosocomial pathogens and molecular epidemiology
- 3: Research on bacterial toxins modifying signal transduction
- 4: Functional study of virulence factors of periodontopathogenic bacteria
- 5: Comparative genomic analysis of staphylococci
- 6: Gene expression analysis of *S. aureus*

## (3) Research Accomplishments

### A) Original Papers (including Case Reports)

1. Epidemiology, variable genetic organization and regulation of the EDIN-B toxin in *Staphylococcus aureus* from bacteremic patients. Gefron C. Franke, Alexandra Bockenholt, Motoyuki Sugai, Holger Rohde, and Martin Aepfelbacher. *Microbiology* 156:860-872, 2010.
2. Cytotoxic distending toxin from *Aggregatibacter actinomycetemcomitans* induces DNA damage, S/G2 cell cycle arrest and caspase-independent death in budding yeast model. Oranart Matangkasombut, Roongtiwa Wattanawaraporn, Keiko Tsuruda, Masaru Ohara, Motoyuki Sugai, Skorn Mongkolsuk. *Infection and Immunity* 78:783-792, 2010.
3. Late established mutants streptococci in children over 3 years old. Okada M, Taniguchi Y, Hayashi F, Doi T, Suzuki J, Sugai M and Kozai K. *International Journal of Dentistry* 732468, Epub 2010
4. Distinct two-component systems in methicillin-resistant *Staphylococcus aureus* can change the susceptibility to antimicrobial agents. Miki Matsuo, Fuminori Kato, Yuichi Oogai, Toshihisa Kawai, Motoyuki Sugai, Hitoshi Komatsuzawa. *Journal of Antimicrobial Chemotherapy* 65:1536-1537, 2010
5. Identification of a novel *Staphylococcus pseudintermedius* exfoliative toxin gene and its prevalence in isolates from canines with pyoderma and healthy dogs. Keita Iyori, Junzo Hisatsune, Tetsuji

- Kawakami, Sanae Shibata, Nobuo Murayama, Kaori Ide, Masahiko Nagata, Tsuneo Fukata, Toshiroh Iwasaki, Kenshiro Oshima, Masahira Hattori, Motoyuki Sugai, Koji Nishifuji. *FEMS Microbiology Letters* 312:169-175, 2010
6. A novel mechanism of rapid nuclear neutrophil extracellular trap formation in response to *Staphylococcus aureus*. Florian H. Pilszczek, Davide Salina, Karen K. H. Poon, Candace Fahey, Bryan G. Yipp, Christopher D. Sibley, Stephen M. Robbins, Francis H. Y. Green, Mike G. Surette, Motoyuki Sugai, M. Gabriela Bowden, Muzaffar Hussain, Kunyan Zhang, Paul Kubes. *Journal of Immunology* 185, 7413-7425, 2010.
  7. Effect of substrate surface hydrophobicity on the adherence of yeast and hyphal *Candida*. Yoshijima Y, Murakami K, Kayama S, Liu D, Hirota K, Ichikawa T, Miyake Y. *Mycoses*. 2010 53(3):221-226.
  8. High prevalence of *Pseudomonas aeruginosa* from oropharyngeal biofilm in patients with cerebrovascular infarction and dysphagia. Hirota K, Yoneyama T, Sakamoto M, Miyamoto H, Kurihara M, Kayama S, Murakami K, Yumoto H, Matsuo T, Miyake Y. *Chest*. 2010 138(1):237-238.
  9. Methods to study epidemiology of drug resistant bacteria—a trial in Hiroshima—. Sugai, M. *Rinsho-kensa* 54, 547-551, 2010

#### C) Books

1. Basics and Clinics for Infectious Diseases—Towards control of resistant bacteria—. (Sup. Ichiyama, T., Yamaguchi, K. Eds. Iinuma, Y. & Tateda, K.) 2010 4 15 Iyaku-Journal. Resistant staphylococci : Healthcare associated MRSA/Community acquired MRSA. Sugai, M.
2. MRSA –Basic, Clinic and Countermeasure—revised ed. Kouno, S. ed. 2010 8 10 Iyaku-Journal. Drug resistance of MRSA. Komatsuzawa, H. & Sugai, M.
3. Oral Microbiology and Immunology 3<sup>rd</sup> ed. Hamada, S., Kawabata, S., Nishihara, T., Sugai, M., Nakagawa, I. 2010 10 10 Ishiyaku Shuppan
4. Microbiology 10<sup>th</sup> ed. Hiramatsu, K. & Nakagome, O. Ed. 2010 4 1 Igakushoin

## D) Other Publications

## E) Presentation at Scientific Meeting

1. Recent topics in MRSA. Motoyuki Sugai. The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Symposium S1 Now and future of multiple drug resistant bacteria. Pacifico Yokohama, 3/27 Yokohama
2. A hunt for new transcriptional regulator for exfoliative toxin production in *S. aureus*. Kato, F., Sugai, The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Pacifico Yokohama, 3/27 Yokohama
3. The N-terminal binding domain of Aml confers substrate selectivity on cariogenic streptococci. Thanyasrisung, P., Hayashi, I., Tsuruda, K., Sugai, M. The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Pacifico Yokohama, 3/27 Yokohama
4. Study on nosocomially isolated drug-resistant *Pseudomonas aeruginosa* in Hiroshima during 2004 – 2008. Shimizu, W., Kobayashi, K., Kohda, S., Kato, F., Ohge, H., Sugai, M. The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Pacifico Yokohama, 3/27 Yokohama
5. A hunt for new transcriptional regulator for exfoliative toxin production in *S. aureus*. Kato, F., Hirakawa, H., Kuhara, S., Sugai, M. The 4<sup>th</sup> Annual Meeting of Japanese Genome Microbiology Kyushu Univ. 3/7-9 Hakata
6. Analysis of a pathogenic *E. coli* plasmid encoding CNF3 gene. Hisatsune, J., Kato, F., Nakayama, K., Hayashi, T., Sugai, M. The 4<sup>th</sup> Annual Meeting of Japanese Genome Microbiology Kyushu Univ. 3/7-9 Hakata
7. Role of a transposon in diversification of genotype of *bla*<sub>IMP-1</sub> carrying drug-resistant *Pseudomonas aeruginosa*. Shimizu, W., Kohda, S., Kobayashi, K., Kato, F., Matsubara, A., Ohge, H., Sugai, M. The 58<sup>th</sup> General Meeting for Japanese Society of Chemotherapy 6/3-5 Tokyo
8. Phage involved in acquisition of *S. aureus* pathogenicity : Phage propagating exfoliative toxin gene. Sugai, M. Osaka University Institute for Protein Research Seminar 3<sup>rd</sup> Phage Seminar Osaka Univ. 9/9 Osaka
9. Molecular epidemiology of ESBL-producing bacteria in Hiroshima. Kuwabara, R. Clinical

technologist seminar in Hiroshima 10/2 Hiroshima

10. *Staphylococcus aureus* anovel surface protein, Skip. Murakami, T., Hisatsune, J., Kato, F., Sugai, M. The 63<sup>rd</sup> Chugoku-Shikoku Branch Meeting of Japanese Society of Bacteriology 10/16 Matsuyama
11. Molecular epidemiology of *bla*<sub>IMP-1</sub>-positive *P. aeruginosa* isolated in Hiroshima City Hospital for 7 years. Harino, T., Kayama, S., Sugai, M. The 63<sup>rd</sup> Chugoku-Shikoku Branch Meeting of Japanese Society of Bacteriology 10/16 Matsuyama
12. Emergence of Ipm-susceptible Mepm-resistant metallo- $\beta$ -lactamase producing *K. pneumoniae* (ISMARK). Kuwabara, R., Shigemoto, N., Shimizu, W., Kayama, S., Oodera, H., Yokosaki, M., Ohge, H., Sugai, M. The 28<sup>th</sup> Hiroshima Infection Forum 11/13 Hiroshima
13. Analysis of *bla*<sub>IMP-1</sub>-carrying plasmid of MDRP. Kayama, S., Kobayashi, K., Ohge, H., Hirakawa, H., Ohshima, K., Hattori, M., Sugai, M. The 28<sup>th</sup> Hiroshima Infection Forum 11/13 Hiroshima
14. Drug-resistant *Pseudomonas aeruginosa* and ESBL-producing bacteria in Hiroshima. Sugai, M. The 28<sup>th</sup> Hiroshima Infection Forum 11/13 Hiroshima.
15. Molecular epidemiology of ESBL-producing bacteria in Hiroshima (1<sup>st</sup> study). Kuwabara, R., Kayama, S., Sugai, M. The 80<sup>th</sup> West Branch Meeting of Japanese Society of Infectious Diseases 11/19 Matsuyama
16. Study of nosocomially isolated drug-resistant *Pseudomonas aeruginosa* isolated in Chugoku district during 2007 – 2009. Shigemoto, N., Kayama, S., Shimizu, W., Kusano, S., Shimizu, E., Kumon, Y., Kuwabara, M., Ohge, H., Sugai, M. The 80<sup>th</sup> West Branch Meeting of Japanese Society of Infectious Diseases 11/19 Matsuyama
17. Analysis of a new transcriptional regulator of exfoliative toxin production in *S. aureus*. Kato, F., Sugai, M. The 33<sup>rd</sup> Annual Meeting of Japan Society of Molecular Biology 12/12 Kobe
18. *S. aureus* overcoming skin barrier function. Sugai, M. The 33<sup>rd</sup> Annual Meeting of Japan Society of Molecular Biology 12/12 Kobe
19. Surveillance of *Pseudomonas aeruginosa* in Chugoku district :Chugoku district infection forum Kuwabara, M., Kusano, S., Shimizu, E., Shimizu, W., Kobayashi, K., Kohda, S., Sugai, M., Doi, M.,

Kumon, Y. The 44<sup>th</sup> *Pseudomonas* Meeting 2/12-13 Tokyo

20. An efflux system MexMN of *P. aeruginosa* functions on suppression of growth of *S. aureus*. Minagawa, S., Sinnno, K., Kato, F., Okuda, J., Sugai, M., Gotoh, N. The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Pacifico Yokohama, 3/27 Yokohama
21. Analysis of a bacteriolytic enzyme ORF9 derived from bacteriophage phiEF24C. Uchiyama, J., Hayashi, I., Takemura, I., Ujihara, K., Sugiura, T., Sugai, M., Daibata, M., Matsuzaki, S. The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Pacifico Yokohama, 3/27 Yokohama
22. Nosocomial Infection Surveillance of ESBL-producing *E. coli*. Watanabe, Y., Shimizu, S., Doi, M., Kuwabara, M., Sugai, M., Kuwabara, R. The 84<sup>th</sup> General Meeting of Japan Society of Infectious Diseases 4/5-6 Kyoto

#### F) Invited speakers, Symposist and others

1. Recent topics in MRSA. Motoyuki Sugai. Symposium S1. The 83<sup>rd</sup> General Meeting of Japanese Society for Bacteriology Pacifico Yokohama, 3/27 Yokohama
2. Phage involved in acquisition of *S. aureus* pathogenicity : Phage propagating exfoliative toxin gene. Sugai, M. Osaka University Institute for Protein Research Seminar 3<sup>rd</sup> Phage Seminar Osaka Univ. 9/9 Osaka
3. Molecular epidemiology of ESBL-producing bacteria in Hiroshima. Kuwabara, R. Clinical technologist seminar in Hiroshima 10/2 Hiroshima
4. *S. aureus* overcoming skin barrier function. Sugai, M. The 33<sup>rd</sup> Annual Meeting of Japan Society of Molecular Biology 12/12 Kobe

#### (4) Research grants.

- 1: Grant-in-Aid for Scientific Research C from the Ministry of Education, Science, Sports and Culture of Japan : Ssugai M. :Nucleolar effect of cell cycle specific inhibitor, CDT.
- 2 : Grant-in-Aid for Scientific Research for Young Investigator B from the Ministry of Educatio, Science, Sports and Culture of Japan : Kato, F.
- 3 : Grant-in-Aid for Scientific Research for Young Investigator B from the Ministry of Educatio, Science,



Sports and Culture of Japan :Hisatsune, J.

4 : Grant-in-Aid for Scientific Research from the Ministry of Health and Labor of Japan : Sugai, M.  
(share holder) .:

(5) Awards

Young Investigator Award, Chugoku-Shikoku Branch of Japan Society of Bacteriology: Murakami, T.:  
*Staphylococcus aureus* surface protein Skip: The 63<sup>rd</sup> Branch Meeting of Chugoku-Shikoku, Japanese  
Society of Bacteriology 10/16 Matsuyama

(6) Patents

1. Bactericide against streptococcus mutans and streptococcus sobrinus. European Patent Application  
No. 04820505.8 July 28, 2010
2. Bactericide against streptococcus mutans and streptococcus sobrinus. US Letters Patent No.  
7,776,325 Sept 1, 2010

**Programs for Biomedical Research,  
Division of Integrated Medical Science  
(Department of Oral Physiology)**

(1) Staff and Graduate Students

Professor : SHIBA, Yoshiki (~March), SUGITA, Makoto (August~)

Associate Professor : HIRONO, Chikara

Assistant Professor : SUGITA, Makoto (~July)

Research Associate : IWASA, Yoshiko (~March)

Research Assistant : YAMAMOTO, Kuniyo

Graduate Students : MARUYAMA, Takane (~March), INOUE, Machiko (~March)

(2) Current Subjects in Scientific Activity

- 1 : Molecular physiological study on function of ion channels and ion transporters
- 2 : The neuronal mechanisms underlying the taste-evoked behavioral and emotional responses
- 3 : The role of cell communication in proliferation and differentiation of the oral epithelium and salivary glands
- 4 : Study on the system mechanisms of mastication and swallowing

(3) Academic Achievements

A) Original Papers (including Case Reports)

- 1 : Membrane potential modulation of ionomycin-stimulated  $\text{Ca}^{2+}$  entry via  $\text{Ca}^{2+}/\text{H}^{+}$  exchange and SOC in rat submandibular acinar cells: Yoshida H., Hirono C., Shimamoto C., Daikoku E., Kubota T., Sugita M., Shiba Y., Nakahari T.: J Physiol Sci, 60, 363-371, 2010.
- 2 : Secretion of salivary peroxidase by stress: Maruyama T.: J Hiroshima Univ Dent Soc, 42, 34-47, 2010.

B) Review

- 1 : Taste perception and the taste-evoked responses of behavior and emotion: Sugita M.: IGAKU NO AYUMI, 232, 62-66, 2010.

C) Publications

D) Other publication

E) Presentation in academic meetings

- 1 : Driving force of oscillatory  $Cl^-$  currents induced by carbachol in rat submandibular acinar cells : Hirono C., Sugita M., Shiba Y.: 52th Annual Meeting of Japanese Association for Oral Biology (Chiba), 2010.
- 2 : Molecular mechanisms underlying anion secretion from acinar and duct cells of salivary glands analyzed by gramicidin-perforated patch recording: Sugita M., Hirono C.: 2010 NIPS Research Meeting (Okazaki), 2010.
- 3 : The cellular characteristics of the specific populations of taste neurons labeled by genetic tracing: Sugita M.: 2<sup>nd</sup> International Workshop on BioDental Education & Research, Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2010.
- 4 : Salivary peroxidase secretion on mental stress and its modulation by insulin: Maruyama T.: 2<sup>nd</sup> International Workshop on BioDental Education & Research, Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2010.
- 5 : Eating behavior of boiled rice and its influence on the salivary gland function: Inoue M.: 2<sup>nd</sup> International Workshop on BioDental Education & Research, Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2010.
- 6 : Analyses of the identities of the gustatory neurons revealed by genetic tracing: Sugita M.: RITSUMEIKAN Symposium (Kusatsu), 2010.

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

- 1 : Grant-in-Aid for Scientific Research (C): Sugita M., The neuronal mechanisms underlying the taste recognition revealed by genetic tracing. 21592362. ¥1,700,000.

(5) Academic Awards, etc.

(6) Patents

## **Programs for Biomedical Research, Division of Integrated Medical Science (Department of Dental Pharmacology)**

### (1) Staff and Students

Professor: Takashi Kanematsu

Associate professor: Katsuya Morita

Assistant professor: Tomoya Kitayama, Kae Harada

Graduate student: Toshiya Okumura, Hiroto Tanaka

Undergraduate student (Advanced Dental Research course): Ryuichi Tsuruta (6th), Yuya Ogawa (5th),  
Nami Kikushige (5th), Nozomi Hinada (5th)

### (2) Main Research Activities

- 1: Studies on the molecular mechanisms of GABA<sub>A</sub> receptor signaling in the central nervous system
- 2: Studies on the molecular mechanisms controlling insulin secretion
- 3: Studies on the regulatory mechanisms of food intake and energy metabolism
- 4: Studies on the roles of a new autophagy-related molecule in autophagy pathway
- 5: Physiological and pathophysiological roles of neurotransmitter transporters and nucleoside transporters.
- 6: Studies on the mechanisms for neuropathic pain and the development of novel medicaments.

### (3) Research Achievements

#### A) Original Papers

- 1 : GABA<sub>A</sub> receptor subunit alteration-dependent diazepam insensitivity in the cerebellum of phospholipase C-related inactive protein knockout mice.: Mizokami A., Tanaka H., Ishibashi H., Umebayashi H., Fukami K., Takenawa T., Nakayama KI., Yokoyama T., Nabekura J., Kanematsu T., Hirata M.: J. Neurochem., 114(1), 302-310. 2010
- 2: Orofacial movements in phospholipase C-related catalytically inactive protein-1/2 double knockout mice: Effect of the GABAergic agent diazepam and the D(1) dopamine receptor agonist SKF 83959: Tomiyama K., Song L., Kobayashi M., Kinsella A., Kanematsu T., Hirata M., Koshikawa N., Waddington JL.: Synapse, 64(9), 714-720, 2010
- 3: Genetic reduction of GABA<sub>A</sub> receptor gamma2 subunit expression potentiates the immobilizing

- action of isoflurane.: Seo K., Seino H., Yoshikawa H., Petrenko AB., Baba H., Fujiwara N., Someya G., Kawano Y., Maeda T., Matsuda M., Kanematsu T., Hirata M.: *Neurosci. Lett.*, 472(1), 1-4, 2010
- 4: Phospholipase C-related but catalytically inactive protein is required for insulin-induced cell surface expression of gamma-aminobutyric acid type A receptors.: Fujii M., Kanematsu T., Ishibashi H., Fukami K., Takenawa T., Nakayama KI., Moss SJ., Nabekura J., Hirata M.: *J. Biol. Chem.*, 285(7), 4837-4846, 2010
- 5: Nicotine stimulates transcriptional activity of the human dopamine transporter gene.: Ohyama K., Sogawa C., Sogawa N., Morita K., Dohi T., Kitayama S.: *Neurosci. Lett.*, 471(1), 34-37, 2010.
- 6: Expression and function of variants of human catecholamine transporters lacking the fifth transmembrane region encoded by exon 6.: Sogawa C., Mitsuhashi C., Kumagai-Morioka K., Sogawa N., Ohyama K., Morita K., Kozai K., Dohi T., Kitayama S.: *PLoS One*, 5(8), pii: e11945, 2010.

## B) Reviews

- 1 : Surface Expression of GABA<sub>A</sub> Receptors -Roles for the Binding Partners-: Kanematsu T., Fujii M., Tanaka H., Umebayashi H., Hirata M.: *J. Oral Biosci.*, 52(4), 54-79, 2010.

## C) Publications

- 1: Mechanisms of phase-dependent pain-relief activity of glycine transporter inhibitors after nerve injury; in MEDIMOND-Monduzzi Editore International Proceeding Division, 3rd International Congress on Neuropathic Pain NeuPSIG, Athens (Greece), 2010. International Association for the Study of Pain (IASP) working together for pain relief (Christopher D Wells, Editors); Morita K., Motoyama N., Kitayama T., Kanematsu T., Dohi T.: Editografica·Bologna (Italy), pp213-pp216, 2010.
- 2: Glycine transporter; in Current Therapeutic Approach to the Satisfactory Pain Control and Development of Novel Medicaments to the Chronic Neuropathic Pain; Morita K., Dohi T.: Technical Information Institute Co., LTD, (Tokyo), pp400-pp404, 2010.

## D) Other Publications

- 1: I want to foster new and next generation typed dental professionals. I intend to pass researcher's mind learned from PRIP research: Takashi Kanematsu: Department of Dentistry, Hiroshima University (Guide Book 2010), pp15-16, 2010.

## E) Presentation at Scientific Meeting

- 1: Diazepam-insensitivity in PRIP knockout mice: Tanaka H., Mizokami A., Hirata M., Kanematsu T.: The 83<sup>th</sup> Annual Meeting of The Japanese Pharmacological Society (Osaka), 2010.
- 2: Phenotype analysis of pain behaviors in PRIP-1 KO mice: Migita K., Yamada J., Tomiyama M., Kanematsu T., Hirata M., Ueno S.: The 83<sup>th</sup> Annual Meeting of The Japanese Pharmacological Society (Osaka), 2010.
- 3: Autophagy induced by *Staphylococcus aureus* infection and bacterial proliferation in PRIP knockout cells: Harada K., Kanematsu T.: The 83<sup>th</sup> Annual Meeting of The Japanese Pharmacological Society (Osaka), 2010.
- 4: Glycine transporter inhibitors as a potential therapeutic strategy for neuropathic pain: Morita K., Motoyama N., Kitayama T., Kanematsu T., Dohi T.: The 83<sup>th</sup> Annual Meeting of The Japanese Pharmacological Society (Osaka), 2010.
- 5: Involvement of spinal inhibitory glycinergic pathways in the antinociceptive effect of tricyclic antidepressants in the neuropathic pain model: Jinnin Y., Morita K., Motoyama N., Kitayama T., Kitayama S., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (YNBP2010) (Okayama), 2010.
- 6: Studies on regulation of expression of chloride transporter in neuropathic pain model in mice.: Kitayama T., Motoyama N., Morita K., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (YNBP2010) (Okayama), 2010.
- 7: Studies on functions of PRIP in autophagy pathway: Umebayashi H., Matsuda M., Kanematsu T., Hirata M.: H22 Kyushu Branch Meeting of The Japanese Biochemical Society, (Kagoshima), 2010.
- 8: PRIP may be involved in mouse taste nerve responses: Horio N., Kanematsu T., Hirata M., Ninomiya Y.: The 87<sup>th</sup> Annual Meeting of The Physiological Society of Japan (Morioka), 2010.
- 9: Abnormal pain behavior in PRIP-1 KO mice: Ueno S., Migita K., Yamada J., Tomiyama M., Kanematsu T., Hirata M.: The 87<sup>th</sup> Annual Meeting of The Physiological Society of Japan (Morioka), 2010.
- 10: Mechanisms of phase-dependent pain-relief activity of glycine transporter inhibitors after nerve injury.: Morita K., Motoyama N., Kitayama T., Jinnin Y., Nishimura F., Kanematsu T., Dohi T.: Third International Congress on Neuropathic Pain (NeuPSIG) (Athens (Greece)), 2010.
- 11: Glycine transporter inhibitors as a novel drug discovery strategy for neuropathic pain: Dohi T., Morita K., Motoyama N., Kitayama T., Kanematsu T.: Third International Congress on Neuropathic Pain (NeuPSIG) (Athens (Greece)) 2010.
- 12: Modulation of central NMDA signaling induced by neuropathic pain: Tsuruta R., Kitayama T., Morita K., Kanematsu T.: The 43<sup>th</sup> Ordinary Meeting of Hiroshima University Dental society (Hiroshima), 2010.
- 13: PRIP regulates inhibitory transmission in the cerebellum: Tanaka H., Hirata M., Kanematsu T.: The 43<sup>th</sup> Ordinary Meeting of Hiroshima University Dental society (Hiroshima), 2010.

- 14: Modulation of NMDA receptor subunit constriction induced by neuropathic pain: Tsuruta R., Kitayama T., Morita K., Kanematsu T.: 2010 Japan SCRP (Tokyo), 2010.
- 15: Mechanisms of the phase-dependent glycinergic influence on allodynia induced by nerve injury: Motoyama N., Kitayama T., Nishimura F., Kanematsu T., Morita K., Dohi T.: The 52<sup>th</sup> Annual Meeting of Japanese Association for Oral Biology (Tokyo), 2010.
- 16: Neuropathic pain induces a subunit change of NMDA receptors in the brain: Tsuruta R., Kitayama T., Morita K., Kanematsu T.: The 52<sup>th</sup> Annual Meeting of Japanese Association for Oral Biology (Tokyo), 2010.
- 17: PRIP regulates activities of protein phosphatase 1 and protein phosphatase 2A: Sugiyama G., Takeuchi H., Matsuda M., Kanematsu T., Hirata M.: The 52<sup>th</sup> Annual Meeting of Japanese Association for Oral Biology (Tokyo), 2010.
- 18: Effect of tricyclic antidepressant on neuropathic pain.: Jinnin Y., Motoyama N., Morita K., Kitayama S., Nishimura F., Kanematsu T.: The 133<sup>th</sup>, The Japanese Society of Conservative Dentistry, Autumn Meeting in 2010(Gifu), 2010.
- 19: Anti-allodynia effects of glycine transporter inhibitors in neuropathic pain models.: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: 58th Annual Meeting of Japanese Association for Dental Research (Kitakyushu), 2010.
- 20: Energy metabolism is up-regulated in PRIP-DKO mice: Okumura T., Harada K., Kamata N., Kanematsu T.: Scientific Meeting of the 49th Hiroshima Prefecture Dental Association and the 94th Hiroshima University Dental Society (Hiroshima), 2010.
- 21: Mechanisms of the phase-dependent influence of glycine signal on allodynia induced by nerve injury. Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: Scientific Meeting of the 49th Hiroshima Prefecture Dental Association and the 94th Hiroshima University Dental Society (Hiroshima), 2010.
- 22: The role of PRIP in the regulation of autophagy: Umebayashi H., Matsuda M., Kanematsu T., Hirata M.: Incorporating The 12th IUBMB, 21st FAOBMB & ComBio2010 Conference (Melbourne), 2010
- 23: PRIP modulates *Staphylococcus aureus* infection-induced autophagy and bacterial proliferation in mouse embryonic fibroblasts: Harada K., Kanematsu T.: The 83th Biochemistry and 33th Molecular Biology 2010, (Kobe), 2010.
- 24: Regulation of autophagy via PRIP signaling: Umebayashi H., Matsuda M., Kanematsu T., Hirata M.: The 83th Biochemistry and 33th Molecular Biology 2010, (Kobe), 2010.
- 25: Analysis of interactions between PRIP and protein phosphatases, PP1 and PP2A: Sugiyama G., Takeuchi H., Gao J., Zhang Z., Matsuda M., Kanematsu T., Hirata M.: The 83th Biochemistry and 33th Molecular Biology 2010, (Kobe), 2010.

F) Special lectures in academic meeting

- 1 : Regulation of Inhibitory Synaptic Transmission via A Novel Signaling Molecule PRIP, PLC-related but Catalytically Inactive Protein. - Development of an Interface between Neuroscience and Oral Health Science -: Kanematsu T.: The second Workshop for Bio-dental education and research (Hiroshima), 2010.
- 2 : PRIP, a new Ins(1,4,5)P<sub>3</sub> binding protein, its extension to neuroscience and beyond: Hirata M., Gao J., Matsuda M., Takeuchi H., Kanematsu T.: Pohang conference in 2010, (Pohang), 2010.
- 3: Trafficking of insulin secretory granules regulated by a novel molecule: Kanematsu T., Kitayama T.: The 52st Annual Meeting of Japanese Association for Oral Biology (Tokyo), 2010.
- 4: Role of inhibitory glycinergic neurons on developing and established mechanical allodynia in neuropathic pain.: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (YNNBP2010), 「Symposium: Neuroscience on orofacial pain and oral function」(Okayama), 2010.
- 5: Glycine transporters as a target of potential therapeutic strategy for intractable pain.: Morita K., Motoyama N., Kitayama T., Kanematsu T., Dohi T.: The 57th Annual Meeting of Japanese Society of Anesthesiologists in conjunction with The 13th Asian Australasian Congress of Anesthesiologists 「Symposium; Novel target proteins for pain control study」 (Fukuoka), 2010.
- 6: Role of glycine transporters on developing and established mechanical allodynia in neuropathic pain.: Motoyama N., Morita K., Kitayama T., Kanematsu T., Dohi T.: The 5<sup>th</sup> Annual Meeting of the Japan Transporter Research Association (JTRA 2010) 「Symposium : Neurotransmitter transporters and neurological disorders」(Tokyo), 2010.

#### (4) Grants

- 1: Grant-in-Aid for Scientific Research (B): Kanematsu T., Studies on the mechanisms of food intake-regulated by PRIP. Project number 21390495. Amount 6,110,000.
- 2: Grant-in-Aid for Challenging Exploratory Research: Kanematsu T., Studies on the regulatory mechanisms of neuropathic pain by PRIP. Project number 21659429. Amount 1,500,000.
- 3: Funding Program for Next Generation World-Leading Researchers: Kanematsu T., Research on functions of a new protein regulating energy metabolism and food intake. Project number LS087. Amount 62,034,700.
- 4: Cooperative Study Program of National Institute for Physiological Sciences: Kanematsu T., Studies on the pathogenic mechanisms of neuropathic pain via PRIP molecule. Project number 122. Amount 266,000.
- 5: Grant-in-Aid for Scientific Research (B): Morita K., Development of mechanism-based novel medicaments to pain in advanced cancer. Project number 22390349. Amount 11,440,000.



- 6: Grant-in-Aid for challenging Exploratory Research: Morita K., Identification of tumor-cell producing novel analgesic substance. Project number 22659337. Amount 1,600,000.
- 7: Grant-in-Aid for Young Scientific (B): Kitayama T., Mechanism of saliva secretion via novel molecule of trafficking of granules regulator. Project number 22791789. Amount 2,340,000.
- 8: Grant-in-Aid for Young Scientists (B): Harada K., A research and development of novel low-cytotoxic oral self-care methods for the patients who use denture adhesives. Project number 21791898. Amount 1,500,000.

#### (5) Academic Awards

- 1: Ryuichi Tsuruta: Chairman's Award 2010: The 43<sup>th</sup> Ordinary Meeting of Hiroshima University Dental society. 2010.
- 2: Tomoya Kitayama: Incentive award of Hiroshima University, Faculty of Dentistry Alumni Association. 2010.

#### (6) Patents

- 1: Inventors: Morita K., Dohi T., Motoyama N., Kitayama T., Kanematsu T., Shiraishi S.: Management of chronic pain: translating mechanistic advances and evidence-based research into clinical practice (Application No: 2010-274581 filed on 9 December 2010) (Applicants: Hiroshima University; National Cancer Center)

**Program for Biomedical Research,  
Division of Frontier Medical Science  
(Oral and Maxillofacial Pathobiology)**

(1) Staffs and Students

Professor : Takashi Takata

Associate Professor : Mutsumi Miyauchi

Assistant Professor : Yasusei Kudo

Research Associate : Toshihiro Inubushi

Postdoctoral Fellow : Guangying Qi

Visiting Researcher: Ajiravudh Subarnhesaj

Secretary: Yuko Masuda

Graduate Student : Kiyako Sakamoto (D4), Maki Yoshida (D4), Elsayed Deraz (D4), Hisako Furusho (D3), Phuong Thao Nyugen (D3), Intan Suraiya Merican Binti Aljunid Merican (D2), Takaaki Tsunematsu (D1), Mariko Obayashi (D1), Natsumi Shimizu (M2)

(2) Main Research Activities

- 1 : Molecular pathological study on proliferation and development of oral squamous cell carcinoma
- 2 : Experimental pathological study on the mechanism of regeneration of periodontal tissues
- 3 : Experimental pathological study on the mechanism of destruction of periodontal tissues
- 4 : Study on the criteria of diagnosis and cellular differentiation of odontogenic tumors and salivary gland tumors

(3) Research Achievements

A) Original Papers

1. miR-22 provides a direct link between cellular senescence and tumorigenesis.: Xu D, Takeshita F, Hino Y, Fukunaga S, Kudo Y, Tamaki A, Matsunaga J, Takahashi R, Takata T, Shimamoto A, Ochiya T, Tahara H.: J Cell Biol, (in press).
2. Amelogenin enhances the proliferation of cementoblast lineage cells.: Kunimatsu R, Tanimoto K, Tanne Y, Kamiya T, Ohkuma S, Huang YC, Yoshimi Y, Miyauchi M, Takata T, Tanne K.: J Periodontol, (in press).

3. Topical application of *Aggregatibacter actinomycetemcomitans* cytolethal distending toxin induces cell cycle arrest in the rat gingival epithelium in vivo.: Ohara M, Miyauchi M, Tsuruda K, Takata T, Sugai M.: *J Periodontal Res*, (in press).
4. Synthetic ameloblastin peptide stimulates differentiation of human periodontal ligament cells.: Kitagawa M, Kitagawa S, Nagasaki A, Miyauchi M, Uchida T, Takata T.: *Arch Oral Biol*, (in press).
5. Ameloblastin regulates osteogenic differentiation by inhibiting Src kinase via crosstalk between integrin  $\beta$ 1 and CD63.: Iizuka S, Kudo Y, Yoshida M, Tsunematsu T, Yoshiko Y, Uchida T, Ogawa I, Miyauchi M, Takata T.: *Mol Cell Biol*, 2011; 31:783-792.
6. N-cadherin expression is correlated with metastasis of spindle cell carcinoma of head and neck region.: Nguyen PT, Kudo Y, Yoshida M, Iizuka S, Ogawa I, Takata T.: *J Oral Pathol Med*, 2011; 40:77-82.
7. RHAMM / ERK interaction induces proliferative activities of cementifying fibroma cells through a mechanism based on the CD44-EGFR.: Hatano H, Shigeishi H, Kudo Y, Higashikawa K, Tobiume K, Takata T, Kamata N.: *Lab Invest*, 2011; 91:379-391.
8. N-cadherin expression is involved in malignant behavior of head and neck cancer in relation to epithelial-mesenchymal transition.: Nguyen PT, Kudo Y, Yoshida M, Kamata N, Ogawa I, Takata T.: *Histol Histopathol*, 2011; 26:147-156.
9. Histopathological evaluation including cytokeratin 13 and Ki-67 in the border between Lugol-stained and -unstained areas.: Ohta K, Ogawa I, Ono S, Taki M, Mizuta K, Miyauchi M, Takechi M, Shigeishi H, Takata T, Kamata N.: *Oncol Rep*, 2010; 24:9-14.
10. Ultrasound Stimulation Induces PGE(2) Synthesis Promoting Cementoblastic Differentiation Through EP2/EP4 Receptor Pathway.: Rego EB, Inubushi T, Kawazoe A, Tanimoto K, Miyauchi M, Tanaka E, Takata T, Tanne K.: *Ultrasound Med Biol*, 2010; 36:907-915.
11. Inhibitory effects of orally administrated liposomal bovine lactoferrin on the LPS-induced osteoclastogenesis.: Yamano E, Miyauchi M, Furusyo H, Kawazoe A, Ishikado A, Makino T, Tanne K, Tanaka E, Takata T.: *Lab Invest*, 2010; 90:1236-1246.
12. Activation of the hypoxia-inducible factor-1 in overloaded temporomandibular joint, and induction of osteoclastogenesis.: Shirakura M, Eguchi H, Miyauchi M, Nakamura H, Hiyama K, Tanimoto K, Tanaka E, Takata T, Tanne K.: *Biochem Biophys Res Commun*, 2010; 393:800-805.
13. Nuclear Survivin expression is correlated with malignant behaviors of head and neck cancer together with Aurora-B.: Qi G, Kudo Y, Ando T, Tsunematsu T, Shimizu N, Siriwardena S, Yoshida M, Keikhaee M, Ogawa I, Takata T.: *Oral Oncol*, 2010; 46:263-270.
14. Effects of mechanical stimulation by a powered toothbrush on healing of periodontal tissue in rat model of periodontal disease.: Ekuni D, Yamanaka R, Yamamoto T, Miyauchi M, Takata T, Watanabe T.: *J Periodontol*, 2010; 45:45-51.

15. Human trial of liposomal lactoferrin supplementation for periodontal disease. Ishikado A, Uesaki S, Suido H, Nomura Y, Sumikawa K, Maeda M, Miyauchi M, Takata T, Makino T. *Biol Pharm Bull*, 2010; 33:1758-1762.

#### B) Original Papers (Case Reports)

1. A case of lower gingival polypoid mass with pseudomalignant changes.: Yoshioka Y, Ogawa I, Hayashido Y, Toratani S, Takata T, Okamoto T.: *J Jpn Stomalol Soc*, 2010; 59, 63-67.
2. Sclerosing odontogenic carcinoma with benign fibro-osseous lesion of the mandible:An extremely rare case report.: Irie T, Ogawa I, Takata T, et al.: *Pathology International*, 2010; 60:694-700.
3. Central giant cell granuloma of the mandible: presentation of a rare case with prominent osteoblastic differentiation mimicking osteosarcoma.: Mohamed Deraz E, Ogawa I, Miyauchi M, Kudo Y, Nakamoto T, Tani R, Takata T.: *Oral Med & Pathol*, 2010; 14:109-112.

#### C) Original Papers (Review)

1. Oncogenic role of RUNX3 in head and neck cancer.: Kudo Y, Tsunematsu T, Takata T.: *J Cell Biochem*, 2011; 112:387-393.
2. Deregulation of anaphase promoting complex/cyclosome dependent proteolysis in cancer.: Kudo Y, Tsunematsu T, Takata T.: *J Oral Biosciences*, 2010; 52:388-401.
1. Tumors and tumor-like lesions in minor salivary glands.: Ogawa I, Kitagawa M, Kudo Y, Miyauchi M, Takata T.: *J Jpn Saliv Gl*, 2010; 51:39-48.

#### D) Books

1. Chapter 2. Normal structure and diseases of human organs; 7. digestive organs: Mutsumi Miyauchi , Takashi Takata: *Dynamic pathology –Approach by365 cases: Toshimitsu Suzuki, Mitsunori Yamagawa, Tadashi Yoshino, ed., Nishimura Co. Ltd. (Japanese).*
2. 1.Digestive system: oral mucosa and salivary glands, *Atlas of cytology and pathological diagnosis.*(Kamei T., Taniyama K. eds): Ogawa I, Kuyama K, Takata T.: *Igaku-shoin (Tokyo)*, 74-75, 83-85, 2010.
3. *Close up of Oral diseases* (Takata T. and Ogawa I. eds): Takata T, Miyauchi M, Kudo Y, Kitajima S, Ogawa I, Kitagawa M.: *Dental Diamond (Tokyo)*, 2010.
4. 1. Head and neck regions, 2) Extracapsular invasion, *Keywords of Pathomorphology, Pathol and Clin Med.* (Fukayama T, Umemura S, Ohashi K, Kanai Y, Shiraishi Y, Nakatani Y. eds): Ogawa I, Takata T. *Bunkodo (Tokyo)*, 28:2-3, 2010.
5. *Visual Communication –Caries and Periodontal disease-* (Yamamoto H, Takata T, eds): Kawahara S, Yamamoto H, Takata T: *Igaku-Joho-Sha*, 2010.

#### E) Special lectures in academic meetings

1. Innovation of Dental Program in Hiroshima University for Establishing Dental Education in 21st Century: Takata T.: The Third Workshop for BioDental education and research, Aster Plaza (Hiroshima), 31 January, 2011
2. Odontogenic tumours: Takata T, Speight P: 15th International Congress of International Association of Oral Pathologists, COEX (Seoul, Korea), 16 August, 2010
3. Identification and characterization of new invasion relating molecules of head and neck squamous cell carcinoma: Kudo Y.: The 120th Anniversary of Siriraj Medical School Siriraj Scientific Congress (Bangkok, Thailand), 16-20 August 2010.
4. Hope in Society for Japanese Society for Oral and Maxillofacial Radiology –For mutual development- : Takata T. : 51<sup>st</sup> meeting of the Japanese Society for Oral and Maxillofacial Radiology (Yokohama), 25 April, 2010.
5. Histopathological classification of salivary gland tumors (WHO • 2005) • For the clinical usage : Ogawa I, and Takata T. The 33 and 34<sup>th</sup> educational meeting of Japanese Society of Oral and Maxillofacial Surgery and Oral Four Societies (Tokyo & Osaka) 12-13 February & 7-8 August, 2010.
6. Companion meeting [Pathological diagnosis of salivary gland tumors], The histopathological diversity of epithelial-myoeplithelial carcinoma.: Ogawa I., Takata T., Hirokawa M.: The 99th Annual Meeting of the Japanese Society of Pathology (Tokyo), 27-28 April 2010.

#### F) Presentation at International Scientific Meeting

1. Bone Regeneration with Synthetic Ameloblastin Peptide: Takata T, Iizuka S, Kitagawa M, Kudo Y, Miyauchi M: The 96th Annual Meeting of American Academy of Periodontology in collaboration with the Japanese Society of Periodontology (Honolulu, USA), 30 October-2 November, 2010
2. Runx3 has an Oncogenic role in head and neck cancer: Kudo Y, Tsunematsu T, Takata T. 17<sup>th</sup> RUNX Meeting (Hiroshima, Japan), 11-14, July, 2010.
3. hyper-□-glutamyl transpeptidase (GGT)emia is a potent risk factor for osteoporosis: Miyauchi M, Kawazoe Y, Inubushi T, Takata T. The 15th International Congress of Oral Pathology and Medicine (Souel, South Korea), August 16-20, 2010.
4. Anti-inflammatory effects of soybean lecithin liposomalized lactoferrin during orthodontic tooth movement: Kawazoe A, Inubushi T, Miyauchi M, Rego EB, Ishikado A, Tanne K, Takata T. 15<sup>th</sup> International Congress on Oral Pathology and Medicine (Seoul, Korea), 16-20, August, 2010
5. Histological diversity and differential diagnosis of epithelial-myoeplithelial carcinoma of salivary gland: Ogawa I, Ohbayashi M, Mohamed Deraz E, Miyauchi M, Takata T. 15<sup>th</sup> International Congress on Oral Pathology and Medicine (Seoul, Republic of Korea), 16-20, August, 2010.

6. N-cadherin expression is involved in malignant behavior of head and neck cancer in relation to epithelial-mesenchymal transition: Ohbayashi M, Nguyen PT, Kudo Y, Yoshida M, Miyauchi M, Ogawa I, Takata T.: 15<sup>th</sup> International Congress on Oral Pathology and Medicine (Seoul, Republic of Korea), 16-20, August, 2010.
7. Molecular mechanisms of anti-inflammatory effects of Lactoferrin.: Inubushi T, Kawazoe A, Miyauchi M, Kudo Y, Takata T.: 15<sup>th</sup> International Association of Oral pathology Meeting (Seoul, Republic of Korea), 16-20, August, 2010.
8. Low-intensity ultrasound enhanced cementum regeneration in vitro and in vivo.: Inubushi T, Rego EB, Kawazoe A, Tanimoto K, Miyauchi M, Tanaka E, Takata T, Tanne K. International Association of Dental Research (Barcelona, Spain), 14 July, 2010.

#### G) Presentation at Domestic Scientific Meeting

1. Overexpression of Survivin and Aurora-B in oral squamous cell carcinoma.: Kudo Y, Qi G, Ogawa I, Takata T.: 99th Annual Meeting of the Japanese Society of Pathology. April 27-29, 2010. Tokyo.
2. HSulf-1 promotes the invasion of head and neck cancer.: Yoshida M, Kudo Y, Ogawa I, Takata T.: 99th Annual Meeting of the Japanese Society of Pathology. April 27-29, 2010. Tokyo.
3. A case of monoclonal gammopathy of undetermined significance (MGUS) associated with AL amyloidosis diagnosed by multiple nodules formation in oral mucosa.: Kanda T, Yamasaki S, Takesue N, Yoshida M, Ogawa I, Toratani S, Okamoto T.: the 64<sup>th</sup> Annual Meeting of Japanese Stomatological Society (Sapporo), 23-25 June, 2010.
4. A case of MALT lymphoma of palate associated with Sjögren's syndrome: Takesue N, Koizumi K, Ogawa I, Hayashido Y, Okamoto T, Yoshida M.: the 64<sup>th</sup> Annual Meeting of Japanese Stomatological Society (Sapporo), 23-25 June, 2010.
5. A case of bilateral salivary glands swelling masses.: Sato S, Kishino M, Ogawa Y, Ogawa I, Takata T, Toyosawa S.: 21<sup>st</sup> Annual Meeting of the Japanese Society of Oral Pathology (Hirakata), 31 July-1 August, 2010.
6. Experimental study on relationship between periodontitis and systemic diseases. (I) Systemic influence of continuous application of LPS to periodontal tissues: Hisako Furusho, Mutumi Miyauchi, Kiyako Sakamoto, Masae Kitagawa, Takashi Takata: The 53rd Spring Meeting of the Japanese Society of Periodontology. May 14-15, 2010. Morioka.
7. Hyper  $\gamma$ -glutamyl transpeptidase-emia induces osteoporosis: Satoshi Yamaguchi, Atsuhiko Nagasaki, Toshihiro Inubushi, Mutsumi Miyauchi, Takashi Takata: The 92nd Meeting of Hiroshima University Dental Society. Jun 12, 2010. Hiroshima.
8. Comprehensive study of microRNA for oral cancer invasion.: Yoshida M, Kudo Y, Takata T.: The 43rd Meeting of Hiroshima University Dental Society. June 12, 2010. Hiroshima.
9. Anti-inflammatory effects of soybean lecithin liposomalized lactoferrin -Application for control of

- inflammation during orthodontic tooth movement-: Kawazoe A, Inubushi T, Miyauchi M, Rego EB, Ishikado A, Takata T, Tanne K.: The 92<sup>nd</sup> Meeting of Hiroshima University Dental Society. Jun 12, 2010. Hiroshima.
10. Regulation of transcription factor RUNX3 expression and its role in oral squamous cell carcinoma.: Tsunematsu T, Kudo Y, Takata T.: The 64<sup>th</sup> meeting of Japanese Stomatological Society, June 24-25, 2010. Sapporo.
  11. Experimental study on relationship between periodontitis and systemic diseases. - Systemic influence of continuous application of LPS to periodontal tissues -: Furusho H, Miyauchi M, Sakamoto K, Kitagawa M, Takata T.: The 22nd Meeting of the Japanese Society for Oral Pathology. July 30-August 1. 2010, Osaka.
  12. A case of palatal tumor (Extranodal marginal zone B-cell lymphoma of MALT type) : Yoshida M, Ogawa I, Ohbayashi M, Kudo Y, Miyauchi M, Takesue N, Sasaki N, Takata T. : 21<sup>st</sup> Annual Meeting of the Japanese Society of Oral Pathology (Hirakata), 31 July-1 August, 2010.
  13. The enhancement of sensitivity of anti-cancer drug by Emi1 siRNA.: Kudo Y, Shimizu N, Tsunematsu T, Takata T.: The 2<sup>nd</sup> meeting of RNAi Study Group, August 27-28, 2010. Hiroshima.
  14. Regulation of transcription factor RUNX3 expression and its role in oral squamous cell carcinoma.: Tsunematsu T, Kudo Y, Takata T.: Frontal Dental School 2010, September 6-7, 2010. Miura.
  15. The role of miR-22 in senescence and carcinogenesis.: Xu D, Takeshita F, Hino Y, Fukunaga S, Kudo Y, Tamaki A, Takata T, Shimamoto A, Ochiya T, Tahara T.: The 68th Annual Meeting of the Japanese Association for Cancer Research. September 22-24, 2010. Osaka.
  16. Exploring of microRNA for the invasion of head and neck cancer.: Yoshida M, Kudo Y, Takata T.: The 68th Annual Meeting of the Japanese Association for Cancer Research. September 22-24, 2010. Osaka.
  17. The mechanism of RUNX3 overexpression in head and neck squamous cell carcinoma.: Tsunematsu T, Kudo Y, Takata T.: The 68th Annual Meeting of the Japanese Association for Cancer Research. September 22-24, 2010. Osaka.
  18. The enhancement of sensitivity of anti-cancer drug by Emi1 siRNA.: Shimizu N, Kudo Y, Tsunematsu T, Takata T.: The 68th Annual Meeting of the Japanese Association for Cancer Research. September 22-24, 2010. Osaka.
  19. Soybean lecithin liposomalized lactoferrin prevents LPS-induced periodontal tissue inflammation and destruction without inhibition of orthodontic tooth movement: Kawazoe A, Yamano E, Miyauchi M, Inubushi T, Ishikado A, Tanne K, Takata T. : The 4<sup>th</sup> annual meeting of Japanese association for lactoferrin: November 13, 2010 (Nagahama)
  20. Ameloblastin regulates osteogenic differentiation by inhibiting Src kinase: Kudo Y, Iizuka S, Miyauchi M, Takata T. 58<sup>th</sup> JADR Annual Meeting (Kitakyushu), November 20-21, 2010.
  21. □-glutamyl transpeptidase (GGT) is a potent risk factor of periodontitis: Miyauchi M, Kawazoe Y,

- Takata T. 58<sup>th</sup> JADR Annual Meeting (Kitakyushu), November 20-21, 2010.
22. Effects of human recombinant amelogenin on the metabolism of cementoblasts: Kanimatsu R, Tnanimoto K, Tanne Y, Kamina T, Inubushi T, Huang Y-C, Mitsuyoshi T, Yoshimi Y, Miyauchi M, Takata T, Tanne K: 58<sup>th</sup> JADR Annual Meeting (Kitakyushu), November 20-21, 2010.
  23. Synthetic Ameloblastin Peptide Stimulates Differentiation of Human Periodontal Ligament Cells: Kitagawa M, Miyauchi M and Takata T. 58<sup>th</sup> JADR Annual Meeting (Kitakyushu), November 20-21, 2010.
  24. Amelogenin without N-terminal domain affects the metabolism of cementoblasts: Tnanimoto K, Kanimatsu R, Tanne Y, Kamina T, Inubushi T, Huang Y-C, Mitsuyoshi T, Miyauchi M, Takata T, Tanne K: 58<sup>th</sup> JADR Annual Meeting (Kitakyushu), November 20-21, 2010.
  25. Study on the regeneration of bone tissue by using heparin and its derivatives. –Analysis using 2DSH-collagen sponge disk-: Kitagawa M, Nagasaki A, Miyauchi M, Takata T.: 「Study on the Oral Health-related Improvements Promote Quality of Life using network of liaison in dental field」 -Category of Regenerative engineering- 2<sup>nd</sup> Research meeting in Hiroshima University; December 2, 2010. Hiroshima.
  26. Regulation of osteogenic differentiation by ameloblastin.: Kudo Y, Iizuka S, Yoshida M, Tsunematsu T, Ogawa I, Miyauchi M, Takata T.: 「Study on the Oral Health-related Improvements Promote Quality of Life using network of liaison in dental field」 -Category of Regenerative engineering- 2<sup>nd</sup> Research meeting in Hiroshima University; December 2, 2010. Hiroshima.
  27. The role of PEST domain in the degradation of CDC25B by SCF<sup>βTrcp</sup>.: Uchida S, Watanabe N, Kudo Y, Matsunaga T, Nakagama I, Yamashita K.: The 33rd Annual Meeting of the Molecular Biology Society of Japan. December 7-10, 2010. Kobe.
  28. Emi1 siRNA enhances the induction of apoptosis by anticancer agent: Shimizu N, Kudo Y, Tsunematsu T, Takata T. The 33rd Annual Meeting of the Molecular Biology Society of Japan. December 7-10, 2010. Kobe.
  29. Has-miR-22 acts as a potential regulator of cellular senescence and tumorigenesis. Hino Y, Takeshita F, Fukunaga S, Kudo Y, Ochiya T, Tahara H. The 33rd Annual Meeting of the Molecular Biology Society of Japan. December 7-10, 2010. Kobe.
  1. A case of mucoepidermoid carcinoma, clear cell variant in mandible : Ohbayashi M, Yoshida M, Ogawa I, Ri S, Hasegawa T, Yakozaki H, Takata T.: The 55<sup>th</sup> Annual Meeting of Japan Salivary Gland Society (Tokyo), 4 December, 2010.

#### H) Case Reports at Scientific Meeting

1. A palatal tumor (Acinic cell carcinoma) : Ogawa I, Yoshida M, Higashikawa K, Takata T.: The 101<sup>st</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Okayama), 20 February, 2010.



2. A palatal tumor (Extranodal marginal zone B-cell lymphoma of MALT type) : Yoshida M, Ogawa I, Takesue N, Sasaki N, Takata T.: The 54<sup>th</sup> Meeting of Hiroshima Pathological Conference (Hiroshima), 20 March, 2010.
3. A mandibular tumor (Central mucoepidermoid carcinoma, clear cell variant) : Ohbayashi M, Ogawa I, Ri S, Itoh S, Shigeta S, Hasegawa T, Nakano S, Yokozaki H, Miyauchi M, Takata T. : The 102<sup>nd</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Yonago), 17 July, 2010.
4. A submandibular gland tumor (Pleomorphic adenoma with cellular atypia and highly proliferative activity) : Ogawa I, Ohe C, Sakaida N, Yoshida M, Uemura Y, Takata T.: The 12<sup>th</sup> Meeting of Society of Salivary Gland Tumor Pathology (Tokyo), 3 December, 2010.
5. Mandibular lesion (Fibrous dysplasia) : Hisako Furusyo, Mutsumi Miyauchi, Ikuko Ogawa, Shigeaki Toratani, Yoshikazu Suei, Takashi Takata: The 55<sup>th</sup> Meeting of Hiroshima Pathological Conference. December 25, 2010. Hiroshima.
6. A palatal tumor: Tsunematsu T, Ogawa I, Nagasaki M, Ishida K, Murata A, Araki A, Isikawa N, Takata T.: The 103<sup>rd</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Kure), 6 November, 2010.

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

1. Grants-in-Aid for Scientific Research (Scientific Research (A)) Continuance : Takashi Takata : The clarification of the mechanism of invasion and metastasis of oral cancer and its application to diagnosis of malignancy and gene therapy.
2. Grants-in-Aid for Scientific Research (Scientific Research (C)) Continuance: Mutsumi Miyauchi : Study on the development of novel therapy for bone disease targeting  $\gamma$ -GTP.
3. Grants-in-Aid for Scientific Research (Young Scientists (A)) Continuance : Yasusei Kudo : Abnormal regulation of APC/C ubiquitin ligase complex inhibitor Emi1 and its role for carcinogenesis.
4. Grants-in-Aid for Scientific Research (JSPS Fellows) Continuance : Guangying Qi : Overexpression of Survivin and Aurora-B and their roles in oral cancer.
5. Grant from Ministry of Health, Labour and Welfare, New : Takashi Takata : Exploring and analysis of novel marker for health and geriatric disease.
6. Donated fund from Ito ultrasound Ltd., Continuance : Takashi Takata : Study on the influence of ultrasonic irradiation on periodontal tissue.
7. Donated fund from Sanstar Co. Ltd. : Takashi Takata.
8. Donated fund from Clinical laboratory center, Hiroshima city medical association, Continuance : Takashi Takata : Study on diagnosis for oral disease.
9. Donated fund from Mitsubishi-Mihara Hospital, Continuance : Takashi Takata : Study on diagnosis

for oral disease.

10. Donated fund for Hiroshima Prefecture tumor registration business, Continuance : Takashi Takata

(5) Academic Awards, etc.

1. Maki Yoshida : Encouragement Award at The 42nd meeting of Hiroshima University Dental Society, Hiroshima, 2010.
2. Satoshi Yamaguchi : (6<sup>th</sup> grade Student) : Special Award from President of Hiroshima University Dental Society at The 42nd meeting of Hiroshima University Dental Society, Hiroshima, 2010.
3. Takaaki Tsunematsu : Excellent Poster Presentation Award at the 64<sup>th</sup> meeting of Japanese Stomatological Society, Sapporo, 2010.

**Program for Biomedical Research, Division of Frontier  
Medical Science (Department of Periodontal Medicine)  
Department of Preventive and Restorative Dentistry  
(Periodontics and Endodontics)**

(1) Staffs and Students

Professor: Hidemi Kurihara

Associate Professor: Hiroyuki Kawaguchi

Associate Professor, Lecture: Hideki Shiba

Assistant Professor: Takamune Hino, Naohiko Hasegawa, Noriyoshi Mizuno, Tsuyoshi Fujita, Yuushi Uchida, Katsuhiko Takeda, Tomoyuki Iwata, Kazuhisa Ohara

Resident: Yasuko Kitamoto, Fumino Ogawa

Graduate Student: Yoriko Iwasaki, Yoshie Niitani, Shinji Matsuda, Takeshi Ueda, Tomoko Hatakeyama, Naoko Katagiri, Mizuho Kittaka, Akihiro Konishi, Tsuyoshi Miyagawa, Kenji Wada, Kabir MD Ahamedul, Irma Josefina Savitri, Shu Ishida, Haruka Imai, Yusuke Obinata, Eri Kaneda, Takako Fujita, Ryoichi Yagi, Khung Rathvisal

(2) Main Research Activities

- 1: Immunological 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 physiological function and differentiation of the cells derived from periodontal ligament or dental pulp
- 5: Study on pathogenicity of periodontopathogenic bacteria
- 6: Study on interaction between periodontopathogenic bacteria and host cells
- 7: Clinical study on endodontal-periodontal therapy
- 8: Study on interaction between stress and periodontics

(3) Research Achievements

A) Original Papers (including Case Reports)

1. Irsogladine maleate regulates neutrophil migration and E-cadherin expression in gingival epithelium stimulated by *Aggregatibacter actinomycetemcomitans*.: Fujita T., Kishimoto A.,

- Shiba H., Hayashida K., Kajiya M., Uchida Y., Matsuda S., Takeda K., Ouhara K., Kawaguchi H., Abiko Y., Kurihara H.; *Biochemical Pharmacology*. 79:1496-1505, 2010.
2. The expressions of claudin-1 and E-cadherin in junctional epithelium.: Fujita T., Hayashida K., Shiba H., Kishimoto A., Matsuda S., Kawaguchi H., Kurihara H.; *J. Periodontal Res.* 45(4):579-582, 2010
  3. Moesin-induced signaling in response to lipopolysaccharide in macrophages.: Zawawi KH., Kantarci A., Schulze-Spate U., Fujita T., Batista EL Jr., Amar S., Van Dyke TE.; *J. Periodontal Res.* 45(5):589-601, 2010
  4. Diabetes-induced oxidative stress is mediated by Ca<sup>2+</sup>-independent phospholipase A2 in neutrophils.: Ayilavarapu S, Kantarci A, Fredman G, Turkoglu O, Omori K, Liu H, Iwata T, Yagi M, Hasturk H, Van Dyke TE.; *J Immunol.* 1;184(3):1507-15., 2010
  5. The antimicrobial peptide LL37 induces the migration of human pulp cells: a possible adjunct for regenerative endodontics.: Kajiya M., Shiba H., Komatsuzawa H., Ouhara K., Fujita T., Takeda K., Uchida Y., Mizuno N., Kawaguchi H., Kurihara H.; *J Endod.* 36(6):1009-13. 2010

B)

### C) Publications

### E) Presentation at Scientific Meeting

1. Analysis of Volatile Sulfur Compounds (VSCs) Productivity by *Porphyromonas gingivalis*. : Y. Iwasaki , T. Hino, K. Ouhara, N. Hasegawa, H. Shiba, H. Kawaguchi, H. Kurihara; The International Workshop on BioDental Education and Research 2010 (Hiroshima), Feb 2010.
2. Detection of Heterotrophic Bacteria in Dental Unit Waterlines.: Y. Niitani, T. Hino, K. Ouhara, K. Hayashida, H. Shiba, H. Kawaguchi, H. Kurihara.; The International Workshop on BioDental Education and Research 2010 (Hiroshima), Feb 2010.
3. Development of a newly medical device for periodontal tissue regeneration using brain-derived neurotrophic factor( BDNF) / hyaluronic acid complex - Effect of root debridement-: A. Konishi, K. Takeda, H. Shiba, K. Hayashida, M. Kittaka, T. Fujita, S. Matsuda, H. Kawaguchi, M. Hashimoto, K. Tsuji, H. Kurihara; The 9<sup>th</sup> Congress of the Japanese Society for Regenerative Medicine (Hiroshima), March 2010
4. Effect of periodontal ligament cells on osteogenesis in mesenchymal stem cells.: T. Iwata, T. Fujita, T. Nagahara, R. Hirata, H. Shiba, N. Mizuno, H. Kawaguchi, H. Kurihara; The 53<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Iwate), May 2010
5. The production of IL-32 in periodontal tissue and the effect of IL-32 in PBMC; K. Ouhara, T. Fujita, K. Hyashida, M. Kajiya, U. Irma, H. Shiba, H. Kawaguchi, H. Kurihara; The 53<sup>nd</sup>

- spring meeting of the Japanese society of Periodontology (Iwate), May 2010
6. Expression and function of claudin-1 in gingival epithelial cells stimulated by *Aggregatibacter actinomycetemcomitans*: T. Fujita, K. Ouhara, H. Yumoto, K. Hayashida, T. Nagahara, T. Miyagawa, T. Iwata, H. Shiba, H. Kawaguchi, T. Matsuo, H. Kurihara ; The 53<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Iwate), May 2010
  7. Involvement of integrin, and phosphoryration of Focal Adhesion Kinase (FAK) in migration of endothelial cells induced by Brain-derived neurotrophic factor (BDNF): S. Matsuda, T. Fujita, M. Kajiya, K. Takeda, H. Shiba, H. Kawaguchi, H. Kurihara; The 53<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Iwate), May 2010
  8. Short-term improvement of inflamed periodontal tissue in a patient with severe chronicperiodontitis: A case report; K. Matsui, Y. Uchida, Y. Tamura, H. Kurihara; The 53<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Iwate), May 2010
  9. Analysis of Heterotrophic Bacteria Detected in Dental Unit Waterlines.: Y. Niitani, K. Ouhara, T. Hino, H. Shiba, H. Kawaguchi, H. Kurihara.; The 43<sup>th</sup> meeting of Hiroshima University Faculty of Dentistry (Hiroshima), June 2010.
  10. Variety of Volatile Sulfur Compounds Productivity by *Porphyromonas gingivalis* of Clinical Isolates.: Y. Iwasaki, K. Ouhara, T. Hino, N. Hasegawa, H. Kawaguchi, H. Kurihara.: The 43<sup>th</sup> meeting of Hiroshima University Faculty of Dentistry (Hiroshima), June 2010.
  11. Irsogladine maleate regulates gingival epithelial barrier function. : T. Fujita, K. Ouhara, H. Yumoto, K. Hayashida, T. Nagahara, T. Miyagawa, T. Iwata, H. Shiba, H. Kawaguchi, T. Matsuo, H. Kurihara; The 132<sup>st</sup> spring meeting of Japanese society of conservative dentistry (Kumamoto), June 2010
  12. BDNF Regulates the Expression of Integrin and Phosphoryration of Focal Adhesion Kinase (FAK) through ERK in Cell Migration: S. Matsuda, T. Fujita, M. Kajiya, K. Takeda, H. Shiba, H. Kawaguchi, H. Kurihara; The 132<sup>st</sup> spring meeting of Japanese society of conservative dentistry (Kumamoto), June 2010.
  13. Expression of S100 superfamily proteins in human gingival epithelial cells induced by *Aggregatibacter actinomycetemcomitans*: Y. Uchida, T. Fujita, H. Shiba, K. Hayashida, M. Kajiya, T. Ueda, H. Kawaguchi, H. Kurihara; The 132<sup>th</sup> spring meeting of Japanese society of conservative dentistry (Kumamoto), June 2010.
  14. Usefulness of anaerobic bacterial examination to infected root canal treatment.: Y. Kitamoto, Y. Uchida, T. Hino, H. Shiba, H. Kawaguchi, H. Kurihara.; The International Association of Dental Research (Barcelona), July 2010.
  15. The-break-of-immunetolerance to oral-commensal-bacteria leads to periodontal bone loss in mouse : K. Ouhara, T. Kawai, T. Fujita, H. Komotsuzawa, M. Kajiya, H. Shiba, H. Kawaguchi, H. Kurihara ; 88th General session and Exhibition of the international association for dental research (Barcelona),

July 2010

16. Treatment of endodontic lesion with perforation using dental computed tomography and microscope-A case report: Y. Uchida, Y. Kitamoto, H. Shiba, T. Fujita, T. Iwata, K. Takeda, T. Ueda, T. Hino, H. Kawaguchi, H. Kurihara; The 31<sup>th</sup> Meeting of Japan Endodontic Association (Tokyo), July 2010.
17. Irsogladine maleate regulates chemokine production and E-cadherin expression in gingival epithelium stimulated by *Aggregatibacter actinomycetemcomitans*. T. Fujita, K. Hayashida, H. Shiba, Y. Uchida, K. Takeda, H. Kawaguchi, H. Kurihara. The 31<sup>th</sup> meeting of the Japanese society of Inflammation and Regeneration (Tokyo), August 2010
18. Brain-derived neurotrophic factor (BDNF) enhances the expression of hyaluronic acid synthases through a TrkB signaling pathway in human gingival fibroblasts: N. Katagiri, K. Takeda, H. Shiba, A. Konishi, M. Kittaka, T. Fujita, S. Matsuda, H. Kawaguchi, H. Kurihara; The 53<sup>rd</sup> autumn meeting of the Japanese society of Periodontology (Kagawa), September 2010
19. We propose self-extracellular matrix as a useful scaffold in cell transplant therapy : M. Kittaka, H. Shiba, K. Hayashida, K. Takeda, T. Iwata, T. Fujita, H. Kawaguchi, H. Kurihara; The 53<sup>rd</sup> autumn meeting of the Japanese society of Periodontology (Kagawa), September 2010
20. Irsogladine maleate inhibits IL-8 expression in human gingival epithelial cell and fibroblasts by *Porphyromonas gingivalis*: I. J. Savitri, K. Ouhara, T. Fujita, T. Miyagawa, Y. Uchida, H. Shiba, H. Kawaguchi, H. Kurihara; The 53<sup>rd</sup> autumn meeting of the Japanese society of Periodontology (Kagawa), September 2010
21. A case report - Treatment of endodontic lesion with perforation using dental computed tomography and microscope: Y. Uchida, Y. Kitamoto, H. Shiba, T. Hino, H. Kawaguchi, H. Kurihara; The Hiroshima University Dental Society (Hiroshima), September 2010.
22. Irsogladine maleate regulates the expression of inflammatory related genes in human gingival epithelium cells stimulated by *Aggregatibacter actinomycetemcomitans*: T. Miyagawa, T. Fujita, K. Ouhara, S. Matsuda, K. Takeda, Y. Uchida, H. Shiba, H. Kawaguchi, H. Kurihara; The 133<sup>st</sup> autumn meeting of Japanese society of conservative dentistry (Gifu), October 2010
23. BDNF induces migration of endothelial cells: S. Matsuda, T. Fujita, H. Shiba, H. Kurihara; Japanese Association For Dental Reserch 58<sup>th</sup> Annual Meeting (Fukuoka), November 2010
24. Brain-derived Neurotrophic Factor / Hyaluronic Acid Complex Enhances Periodontal Tissue Regeneration: K. Takeda, H. Shiba, H. Kawaguchi, H. Kurihara; The Korean Academy of Periodontology. The 50<sup>th</sup> Anniversary and International Congress of Scientific Meeting (Seoul), November 2010
25. Usefullnes of stem cell-produced extracellular matrix as a scaffold : M. Kittaka, H. Shiba, K. Hayashida, K. Takeda, T. Iwata, T. Fujita, H. Kawaguchi, H. Kurihara; The 2<sup>nd</sup> workshop for the resarch aiming for improved QOL through oral health (Hiroshima), December 2010

#### F) Special lectures in academic meetings

1. Novel regenerative therapy on periodontal tissue – potential of mesenchymal stem cells-: Hidemi Kurihara; a seminar of carrier study (Wakayama), June 2010
2. The award winner lecture of DENTSPLY  
Basic study on biologic endodontic treatment in hopes of realization: Hideki Shiba; The 31th Annual Scientific Meeting of Japan Endodontic Association(Tokyo), July 2010
3. Novel regenerative therapy on periodontal tissue – potential of mesenchymal stem cells-: Hidemi Kurihara; a seminar of carrier study (Ohita), July 2010
4. Neurotrophins and Periodontal Tissue Regeneration BDNF: Hidemi Kurihara; IADR (Barcelona), July 2010
5. On "medical care security" and bacteriological inspection in the endodontic treatment: Hidemi Kurihara; The 31<sup>th</sup> Meeting of Japan Endodontic Association (Tokyo), July 2010.
6. Periodontal Tissue Regeneration with Growth Factor: Hidemi Kurihara; FDI (Salvador), September 2010
7. Novel regenerative therapy on periodontal tissue – potential of mesenchymal stem cells-: Hidemi Kurihara; a seminar of carrier study (Gunma), October 2010
8. Novel regenerative therapy on periodontal tissue – potential of mesenchymal stem cells-: Hidemi Kurihara; a seminar of carrier study (Miyagi), November 2010
9. Development of novel periodontal tissue regeneration with Brain-derived Neurotrophic Factor / High molecular weight Hyaluronic Acid Complex  
Regeneration: Hidemi Kurihara; The 32<sup>th</sup> Congress of the Japanese Society for Biomaterials (Hiroshima), November 2010
10. Next-generation medical equipment regenerative medicine examination WG (Tokyo): Hidemi Kurihara, December 2010

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

1. Grants-in aid for scientific research: Hidemi Kurihara: # 20592334
2. Grants-in aid for scientific research : Hideki Shiba, #20592430
3. Grants-in aid for scientific research: Hidemi Kurihara: #21390557
4. Grants-in aid for scientific research: Noriyoshi Mizuno: # 21792122
5. Grants-in aid for scientific research: Hiroyuki Kawaguchi: #22592313
6. Grants-in aid for scientific research: Katsuhiko Takeda: #22791929
7. Grants-in aid for scientific research : Kazuhisa Ouhara : #22792085

8. Grants-in aid for scientific research : Tsuyoshi Fujita: #22792087
9. Grants-in aid for scientific research : Yuushi Uchida: #22792088
10. Grants-in aid for scientific research :Tomoko Hatakeyama: #22932005

(5) Award.

Katsuhiro Takeda

Brain-derived Neurotrophic Factor / Hyaluronic Acid Complex Enhances Periodontal Tissue Regeneration : Korean Academy of Periodontology. The 50<sup>th</sup> Anniversary, General session, and International Congress of the Korean Academy of Periodontology (Seoul); Best Poster Presentation Award, 2010



## Programs for Applied Biomedicine, Division of Medical Intelligence and Informatics (Department of Mucosal Immunology)

### (1) Staffs

Professor:	Ichiro Takahashi
Associate Professor:	Kei Tobiume
Graduate Student:	Hirokazu Toubou

### (2) Main Research Activities

- 1: Immunobiological analysis of the mucosal immune system
- 2: Molecular analysis of cell death

### (3) Research Achievements

#### A) Text book (in japanese)

- 1: Takahashi, I. The inductive and effector tissues for the mucosal immune system. *In "Clinical mucosal immunology"* (Edited by H. Kiyono) pp.178-185, Synergy, Tokyo, 2010.
- 2: Takahashi I, Okahashi N, Kiyono H. Mucosal vaccine. *In "Molecular preventive and environmental medicine"* (Edited by K. Matsushima) pp.807-818, Hon-no-izumi, Tokyo, 2010.

#### B) Review

- 1: Takahashi I, Fujihashi K, Kiyono H. Mucosal regulatory cells in the gastrointestinal tract and periodontium. **Periodontology**2000. 54:247-256, 2010.
- 2: Takahashi I, Nochi T, Yuki Y, Kunisawa J, and Kiyono H. The mucosal immune system for secretory IgA responses and mucosal vaccine development. **Inflammation and Regeneration**. 30:40-47, 2010.

#### C) Presentation at Scientific Meeting

- 1: Takahashi I, Maruyama F, Goto Y, Obata T, Kurashima Y, Nakagawa I, and Kiyono H. Commensal

*proteobacteria* in colonic CD11b<sup>+</sup> cells induce intestinal T cell responses. The 14th International Congress of Immunology. August 26, 2010, Kobe, Japan.

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

1. Grant for the Co-laboratory Research from the Institute of Medical Science, The University of Tokyo: Takahashi, I: Molecular and cellular mechanism for the induction and maintenance of mucosal memory T cells. (No. 2010-3-305) ¥ 1, 000, 000.

**Programs for Applied Biomedicine, Division of Medical Intelligence and Informatics (Department of Oral and Maxillofacial Radiology)**

**Department of Oral and Maxillofacial Surgery and Oral Medicine (Oral and Maxillofacial Radiology)**

(1) Staff and Students

Professor	:Keiji Tanimoto
Associate Professor	:Minoru Fujita
Assistant Professor	:Yoshikazu Suei, Takashi Nakamoto
Research Associate	:Toshikazu Nagasaki, Masahiko Ohtsuka, Masahiko Sawajiri, Masaru Konishi
Graduate Student	: Masaru Konishi, Yukimi Yasuhara, Mitsuko Shimizu, Kiyohito Ota, Md Mahmud Uz Zaman, Satsuki Minamitani,

(2) Main Research Activities

- 1: Radiographic classification of simple bone cyst of the jaw
- 2: Radiographic study of osteomyelitis of the jaw
- 3: Study of radiation dosimetry in X-ray region for diagnosis
- 4: Study on the contrast agents and foods used in videofluoroscopic examination of swallowing
- 5: Radiation effects of heavy ion particles on bone metabolism.

(3) Research Achievements

A) Original Papers

- 1:Radiographic findings and prognosis of simple bone cysts of the jaws: Suei Y., Taguchi A., Nagasaki T., Tanimoto K.: Dentomaxillofac Radiol, 39, 65-71, 2010.
- 2:Effects of high-dose major components in oral disinfectants on the cell cycle and apoptosis in primary human gingival fibroblasts in vitro. Nomura Y, Bhawal UK, Nishikiori R, Sawajiri M, Maeda T, Okazaki M.: Dent Mater J. 2010 Jan;29(1):75-83.
- 3:Development of a Freeware for Analysis of Neuromagnetic Epileptic Discharges.: Hashizume A., Kurisu K., Iida K., Arita K., Akimitsu K, and Nagasaki T. : Hiroshima J Med Sci,59:21-25, 2010.

### E) Presentation at Scientific Meeting

- 1: The evaluation of videofluoroscopic examination of swallowing in postoperative oral cancer patients : Konishi M., Nagasaki T., Yasuhara Y., Banik S., Zaman MD Mahmud UZ., Ohtsuka M., Sawajiri M., Nakamoto T., Suei Y., Fujita M., Tanimoto K.:12<sup>th</sup> European Congress of Dento-maxillofacial Radiology (Istanbul, Turkey), 2010.
- 2: Radiation effects of heavy ion particles on bone metabolism: Sawajiri M., Nomura Y., Takinami S., Maruyama K., Tanimoto K.: 2009 Annual meeting of the research project with heavy ion at NIRS-HIMAC (Chiba), 2010.
- 3: A suspected case of bisphosphonate-related osteomyelitis of the mandible with solid type periosteal reaction: Zaman MD Mahmud UZ., Nakamoto T., Suei Y., Shimasue H., Tanimoto K.: **The 12th congress of clinical imaging for oral and maxillofacial lesions (Kagoshima), 2010.**
- 4: The swallowing dynamic state of the freeze infusion of root vegetables: Nagasaki T., Konishi M., Hirai T., Yamagata H., Kayashia J., Yasuhara Y., Kimura H., Nakatsu S., Sakamoto H., Tanimoto K. :The 54<sup>th</sup> annual meeting of Japan Society of Oral and Maxillofacial Radiology (Yokohama, Japan), 2010.
- 5: The videofluoroscopic findings for dysphagic patients with the freeze infusion of root vegetables examination: Nagasaki T., Konishi M., Hirai T., Yamagata H., Kayashia J., Yasuhara Y., Kimura H., Nakatsu S., Sakamoto H., Tanimoto K. : The 16<sup>th</sup> annual meeting of Japan Society of Dysphagia Rehabilitation (Niigata, Japan), 2010.
- 6: Respiratory pattern on healthy young adult during eating: First report; Development of a simple synchronous system: Nagasaki T., Konishi M., Oota K., Minamitani S., Tanimoto K.,: The 16<sup>th</sup> annual meeting of Japan Society of Dysphagia Rehabilitation (Niigata, Japan), 2010.
- 7: Respiratory pattern on healthy young adult during eating: Second report; The Characteristic respiratory pattern during swallowing: Oota K., Nagasaki T., Minamitani S., Yasuhara Y., Simizu M., Higashijima M., Tanimoto K.,: The 16<sup>th</sup> annual meeting of Japan Society of Dysphagia Rehabilitation (Niigata, Japan), 2010.
- 8: Respiratory pattern on healthy young adult under diet meal: Oota K., Nagasaki T., Minamitani S., Yasuhara Y., Simizu M., Higashijima M., Tanimoto K.,: The 20<sup>th</sup> annual meeting of Japan Society for Respiratory Care and Rehabilitation (Nagasaki, Japan), 2010.

### F) Invited lectures at Scientific Meeting

- 1: Examination of Swallowing by Oral and Maxillofacial Radiologist : Keiji Tanimoto : 8th Asian Congress of Oral and Maxillofacial Radiology(Seoul), 2010.

2: Videofluoroscopy and Imaging of patients with Dysphagia : Keiji Tanimoto : 22<sup>nd</sup> Indian Academy of Oral Medicine and Radiology(New Delhi), 2010.

3: Swallowing; What we know? : Keiji Tanimoto : The Annual Scientific Meeting of the ADS-ROC ABSTRACT FORM (Taipei) , 2010.

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

1: Grant-in-aid for scientific research from the Japan Society for the Promotion of Science:

Sawajiri M: Radioprotective assay on bone metabolism with Japanese Medaka (*Oryzias latipes*). ( no. 20592201) ¥1,170,000

2: Grant-in-aid for scientific research from the Japan Society for the Promotion of Science:

Nagasaki T : Development of a cognitive deficient and dysphagic patient's cure, on the basis of Neuromagnetic findings and /or diffusing MRI findings. ( no. 20592202) ¥780,000

**Programs for Applied Biomedicine,  
Division of Clinical Medical Science  
(Department of Oral Growth and Developmental Biology)**

(1) Staffs and Students

Professor: Norihiko Maeda  
Associate Professor: Yuji Yoshiko  
Research Associate: Tomoko Minamizaki, Hiroataka Yoshioka  
Research Assistant: Satoko Kitabatake  
Graduate Student: Aya Nishikiori

(2) Main Research Activities

- 1: Bone and tooth mineralization
- 2: Phosphate-regulating molecules

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: A subset of osteoblasts expressing high endogenous levels of PPAR $\gamma$  switches fate to adipocytes in the rat calvaria cell culture model: Yoshiko Y., Oizumi K., Hasegawa T., Minamizaki T., Tanne K., Maeda N., Aubin J.E.: PLoS One, 5(7), e11782, 2010.
- 2: 1 $\alpha$ ,25-dihydroxyvitamin D<sub>3</sub> acts predominately in mature osteoblasts under conditions of high extracellular phosphate to increase fibroblast growth factor 23 production *in vitro*: Yamamoto R., Minamizaki T., Yoshiko Y., Yoshioka H., Tanne K., Aubin J.E., Maeda N.: J Endocrinol, 206(3), 279-286, 2010.

E) Presentation at Scientific Meeting

- 1: Senescence-related protein Klotho regulates bone matrix mineralization: Konishi Y., Yoshiko Y., Minamizaki T., Kitabatake S., Yoshioka H., Kozai K., Maeda N.: The 43rd Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
- 2: Soluble Klotho is recruited to FGF23 function in bone matrix mineralization: Minamizaki T., Yoshiko Y., Yoshioka H., Maeda N.: The 28th Annual Meeting of the Japanese Society for Bone and Mineral

Research (Tokyo), 2010.

- 3: Overexpression of the type III NaPi transporter Pit1 perturbs enamel formation preceding bone and mineral metabolism: Yoshioka H., Yoshiko Y., Minamizaki T., Suzuki A., Ito M., Maeda N.: The 28th Annual Meeting of the Japanese Society for Bone and Mineral Research (Tokyo), 2010.
- 4: Overexpression of the type III NaPi transporter Pit1 perturbs enamel formation preceding bone and mineral metabolism. Nishikiori A., Yoshioka H., Yoshiko Y., Minamizaki T., Maeda N.: The 52nd Annual Meeting of Japanese Association for Oral Biology (Tokyo), 2010.
- 5: Soluble Klotho acts as a coactivator of FGF23 in bone but not in kidney to regulate mineralization: Minamizaki T., Yoshiko Y., Konishi Y., Yoshioka H., Kozai K., Aubin J.E., Maeda N.: The 32nd Annual Meeting of the American Society for Bone and Mineral Research (Toronto), 2010.
- 6: Overexpression of the type III sodium-dependent phosphate transporter Pit1 markedly perturbs enamel formation during tooth development: Yoshioka H., Yoshiko Y., Minamizaki T., Suzuki A., Itoh M., Maeda N.: The 32nd Annual Meeting of the American Society for Bone and Mineral Research (Toronto), 2010.

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

- 1: Grants-in-Aid for Young Scientists (B): Hirotaka Yoshioka, Tooth morphogenesis and the regulation of phosphate homeostasis: basic and preclinical studies of tooth hypoplasia., No. 22791768, ¥ 2,080,000
- 2: Grants-in-Aid for Young Scientists (B): Tomoko Minamizaki, A basic study of Klotho as a local factor of hard tissue reproduction., No. 21791788, ¥ 2,210,000
- 3: Japan Society for the Promotion of Science Travel Grant for Academic Meetings: Tomoko Minamizaki, Soluble Klotho acts as a coactivator of FGF23 in bone but not in kidney to regulate mineralization., ¥ 260,000
- 4: Grants-in-Aid for Scientific Research (C): Yuji Yoshiko, A basic study on FGF23 for molecular targeted therapy of bone/tooth diseases., No. 20592139, ¥ 1,430,000
- 5: Research Grant (Raffinee International): Yuji Yoshiko, Screening for mineralization-associated factors., ¥ 3,600,000

#### (5) Academic Awards, etc.

- 1: Yukiko Konishi: Encouragement Award at The 42nd meeting of Hiroshima University
- 2: Tomoko Minamizaki, Yuji Yoshiko, Yukiko Konishi, Hirotaka Yoshioka et al., : Plenary Poster, The 32nd Annual Meeting of the American Society for Bone and Mineral Research, Toronto, 2010.
- 3: Tomoko Minamizaki: Young Investigator Award, The 32nd Annual Meeting of the American Society

for Bone and Mineral Research, Toronto, 2010.

**(6) Patent.**

1: Yuji Yoshiko, Tomoko Minamizaki, Hirotaka Yoshioka, Katsuyuki Kozai, Kazuaki Watanabe, Norihiko Maeda: Applications for Klotho, FGF23 and FGFR in mineralized tissues. (Tokugan 2010-136637)  
(Applicant, Hiroshima University and Raffinee International Co. Ltd.)



**Programs for Applied Biomedicine, Division of Clinical  
Medical Science (Department of Dental Anesthesiology)  
Department of Oral and Maxillofacial Surgery and Oral  
Medicine (Dental Anesthesiology)**

(1) Staff and Students

Professor	: Irifune Masahiro, D.D.S., Ph.D.
Research Associate	: Shimizu Yoshitaka, D.D.S., Ph.D., Doi Mitsuru, D.D.S., Saida Takuya, D.D.S., Ph.D.
Resident	: Miura Kan-na, D.D.S., Nishinakamura Ryo, D.D.S.
Graduate Student	: Mukai Akari, D.D.S., Miyahara Takeshi, D.D.S., Oue Kana, D.D.S.
Clinical Trainee	: Kawahara Michio, M.D., Ph.D., Katayama Sohtaro, D.D.S., Ph.D., Kawahara Toshiya, D.D.S., Fukushima Reiko, D.D.S., Ishida Masatsugu, D.D.S.

(2) Main Research Activities

- 1: Study on mechanisms of general anesthetic action
- 2: Study on role of each neuron in an intravenous anesthetic agent-induced anesthetic factor
- 3: Study on a stage of delirium in general anesthesia
- 4: Study on antianxiety effects of sedative drugs
- 5: Study on effects of nitrous oxide on cardiovascular system
- 6: Study on chronic pain
- 7: Study on efficacy of chest compressions in cardiopulmonary resuscitation
- 8: Acute medicine for emergency during dental treatments

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: A case of a child with idiopathic thrombocytopenic purpura detected by abnormal gingival hemorrhage.  
Katayama S, Ono A, Hamamoto K, Suzawa T, Irifune M, Katayama I. The Journal of Hiroshima Dental  
Association 37 (1): 61-66, 2010.

B) Review

### C) Publications

### D) Other Publications

1: The orofacial pain: Shiiba S, Sakamoto E, Doi M. *Anesthesia Network* 14 (2): 27-33, 2010.

### E) Presentation at Scientific Meeting

- 1: The role of GABAergic neurons in producing anesthetic factors –the difference between pentobarbital and a selective receptor ligand-. Irifune M, Mukai A, Miyahara T, Oue K, Doi M, Shimizu Y, Saida T, Miura K, Nishinakamura R, Fukushima R. The 43th Scientific General Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
- 2: The role of GABAergic and glycinergic neurons in pentobarbital-induced anesthetic factors. Irifune M, Mukai A, Miyahara T, Oue K, Doi M, Shimizu Y, Saida T, Miura K, Nishinakamura R, Fukushima R. The 25th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Hiroshima), 2010.
- 3: Change in drugs used during general anesthetic management in our department –a comparison between in 2005 and in 2009-. Nishinakamura R, Shimizu Y, Doi M, Saida T, Miura K, Mukai A, Miyahara T, Fukushima R, Oue K, Irifune M. The 25th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Hiroshima), 2010.
- 4: Preoperative respiratory training using SOUFFLE™ was useful for a patient with pneumoconiosis and COPD underwent oral surgery under general anesthesia. Oue K, Shimizu Y, Saida T, Doi M, Nishinakamura R, Fukushima R, Miura K, Miyahara T, Mukai A, Fukushima R, Irifune M. The 25th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Hiroshima), 2010.
- 5: Can chromogranin-A and amylase in saliva quantify psychological stress?: Endo C, Irifune M, Kawahara M, Joh S: The 88<sup>th</sup> International Association for Dental research General Session, Barcelona, Spain, July 15, 2010.
- 6: Evaluation of program expecting a review after five years since postgraduate dental training was obligated. Nishi H, Tanaka Y, Taguchi N, Shirai K, Hasegawa N, Tsuga K, Inoue S, Koizumi K, Shimasue H, Shimizu Y, Hayashi H, Kawamura M, Okada M, Irifune M, Ogawa T. The 29th Annual Meeting of Japanese Dental Education Association (Morioka), 2010.
- 7: Outcomes of career designings on postgraduate dental training in Hiroshima University Hospital. Taguchi N, Obayashi T, Ohara M, Tanaka Y, Nishi H, Okada M, Irifune M, Ogawa T. The 29th Annual Meeting of Japanese Dental Education Association (Morioka), 2010.
- 8: The devices for treatment of orofacial pain in Department of Dental Anesthesiology, Hiroshima University Hospital. Doi M. The 15th Scientific Meeting of Japanese Society of Orofacial Pain (Fukuoka), 2010.

- 9: Effects of GABA, glycine and neuronal nicotinic receptor ligands on pentobarbital-induced anesthetic factors. Mukai A, Irifune M, Miyahara T, Oue K, Doi M, Shimizu Y, Saida T, Miura K, Nishinakamura R, Fukushima R. The 38th Annual Meeting of Japanese Dental Society of Anesthesiology (Yokosuka), 2010.
- 10: The evaluation of efficacy of amitriptyline for the patients with intractable traumatic trigeminal neuropathy. Doi M, Taniguchi S, Shimizu Y, Oue K, Nishinakamura R, Fukushima R., Miura K, Irifune M. The 49th Scientific Meeting of Hiroshima Prefecture Dental Association and 94th Scientific Meeting of Hiroshima University Dental Society (Hiroshima), 2010.

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

- 1: Grant-in-Aid No. 20592373 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Irifune M: The role of Substance P in antinociception and immobility as general anesthetic components, ¥500,000.
- 2: Grant-in-Aid No. 20791524 for Young Scientists (B) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (Continued): Doi M: Possibility of symptom specificity for patients with intractable chronic pain, and quantitative evaluation of sociopsychological factors –MEG and f-MRI-, ¥100,000.

(5) Academic Awards, etc.

(6) Patents

**Programs for Applied Biomedicine,  
Division of Cervico-Gnathostomatology  
(Department of Dental Science for Health Promotion)  
Department of Preventive and Restorative Dentistry  
(Operative and Conservative Dentistry)**

(1) Staff and Students

Professor : Fusanori Nishimura

Associate Professor :

Assistant Professor : Masashi Fujii

Research Associate : Kenichi Shirai, Makoto Arakawa, Shigeki Suzuki, Naoyo Motoyama,  
Akane Mineoka, Akiko Yamashita

Graduate Student : Misaki Iwashita, Sonoko Kumamoto, Junko Yonehiro, Yuuki Jinnin,  
Hideo Nakarai, Sakiko Fujii, Takanori Shinjo, Seiji Kobuke

(2) Main Research Activities

- 1: Studies on host factors associated with caries susceptibility
- 2: Studies on relationship between dental disease and systematic diseases
- 3: Studies on association between nutrients and dental diseases
- 4: Development of new laboratory tests for diagnosis of dental diseases
- 5: Development of new preventive therapies for dental diseases based on new laboratory tests
- 6: Development of biocompatible materials and their clinical application
- 7: Pathology of discolored teeth and development of new therapy
- 8: Development of new host-noninvasive therapies using lasers
- 9: Biological regeneration of dentin/pulp complex

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Anti-demineralizing effect on teeth by surface coating: Arakawa M., Shirai K., Suzuki S., Motoyama N., Yamashita A., Mineoka A., Fujii M., Nishimura F.: *The Japanese Journal of Conservative Dentistry*, 53 (1), 73-78, 2010.

- 2: The importance of Valine 114 in ligand binding in  $\beta$ 2-Adrenergic Receptor: Arakawa M., Yanamala N., Upadhyaya J., Halayako A., Klein-Seetharaman J., Chelikani P.: *Protein Sci.*, 19 (1), 85-93, 2010.
- 3: Periodontal conditions in Werner syndrome: Nishimura F., Arakawa M., Goto M.: *J Periodontol*, 81, 3, 2010.
- 4: Total bacterial counts on oral mucosa after using a commercial saliva substitute in patients undergoing hematopoietic cell transplantation: Sugiura Y., Soga Y., Yamabe K., Tsutani S., Tanimoto I., Maeda H., Koheguchi S., Fujii N., Ishimaru F., Tanimoto M., Nishimura F., Takashiba S.: *Supportive Care in Cancer*, 18, 395-398, 2010.
- 5: Macrophage foam cell formation is augmented in serum from patients with diabetic angiopathy: Cui X., Kushiyama A., Yoneda M., Nakatsu Y., Guo Y., Zhang J., Ono H., Kanna M., Sakoda H., Ono H., Kikuchi T., Fujishiro M., Shiomi M., Kamata H., Kurihara H., Kikuchi M., Kawazu S., Nishimura F., Asano T.: *Diabetes Res Clin Pract.*, 87, 57-63, 2010.
- 6: The Availability Assessment of Medical Information System After Introducing in the Dental Section of University Hospital: Hiasa K., Tanaka T., Ono S., Nishi H., Kawamura M., Arakawa M., Uchida Y., Nabeshima T., Kagawa K., Ueda H., Kaihara Y., Nakamoto T., Saida T., Okada M., Yasuhara Y., Ogawa I., Nakaoka M., Makita K., Tanaka T., Ogawa T., Kamata N., Yamada F.: *An Official Journal of the Japan Association for Medical Informatics*, Vol. 30, Supplement, 129-132, 2010.
- 7: Extracellular heat shock protein HSP90 $\beta$  secreted by MG63 osteosarcoma cells inhibits activation of latent TGF- $\beta$ 1: Suzuki S., Kulkarni A.B.: *Biochem Biophys Res Commun.*, 398 (3), 525-31, 2010.
- 8: A method for rapid demineralization of teeth and bones: Cho A., Suzuki S., Hatakeyama J., Haruyama N., Kulkarni A.B.: *Open Dent J.*, in press, 2010.
- 9: Fibroblasts stimulated via HLA-II molecules produce PGE2 and regulate cytokine production from Th cells: Kato-Kogoe N., Ohyama H., Nishimura F., Meguro M., Yoshizawa S., Okada Y., Nakasyo K., Yamanegi K., Yamada N., Hata M., Higashi T., Terada N., Matsushita S.: *Lab Invest.*, in press, 2010.
- 10: Bacterial substitution of coagulase-negative staphylococci for streptococci on the oral mucosa after hematopoietic cell transplantation: Soga Y., Maeda Y., Ishimaru F., Tanimoto M., Maeda H., Nishimura F., Takashiba S.: *Supportive Care in Cancer*, in press, 2010.
- 11: Decreased SIRT1 expression and LKB1 phosphorylation occur with long-term high-fat diet feeding, in addition to AMPK phosphorylation impairment in the early phase: Yoneda M., Guo Y., Ono H., Nakatsu Y., Zhang J., Cui X.L., Iwashita M., Kumamoto S., Tsuchiya Y., Sakoda H., Fujishiro M., Kushiyama A., Koketsu Y., Kikuchi T., Kamata H., Nishimura F., Asano T.: *Obese Res Clin Pract.*, 4, 201-207, 2010.

- 12: Periodontal disease and hyper-triglyceridemia in Japanese subjects: potential association with enhanced lipolysis: Nakarai H., Yamashita A., Takagi M., Adachi M., Sugiyama M., Noda H., Katano M., Yamakawa R., Nakayama K., Takumiya H., Nakai Y., Taniguchi A., Nishimura F.: *Metabolism*, in press, 2010.
- 13: Pin1 associates with and induces translocation of CRTCL2 to the cytosol, thereby suppressing CRE transcriptional activity: Nakatsu Y., Sakoda H., Kushiya A., Ono H., Fujishiro M., Horike N., Yoneda M., Ohno H., Kamata H., Tahara H., Isobe T., Nishimura F., Katagiri H., Oka Y., Fukushima T., Takahashi SI., Kurihara H., Uchida T., Asano T.: *J Biol Chem.*, in press, 2010.
- 14: Clinical and immunological assessment of periodontal disease in Japanese leprosy patients: Ohyama H., Hongyo H., Shimizu N., Shimizu Y., Nishimura F., Nakagawa M., Arai H., Kato-Kogoe N., Terada N., Nagai A., Takashiba S., Kurihara H., Nomura Y., Murayama Y.: *Jpn J Infect Dis.*, 63, 427-432, 2010.
- 15: Adipocyte-macrophage interaction may mediate LPS-induced low-grade inflammation: potential link with metabolic complications: Nakarai H., Yamashita A., Nagayasu S., Iwashita M., Kumamoto S., Ohyama H., Hata M., Soga Y., Kushiya A., Asano T., Abiko Y., Nishimura F.: *Innate Immunity*, in press, 2010.

## B) Review

## C) Publications

- 1: I Preventive Medicine and Diseases 10. Oral health and periodontal disease : Preventive Medicine coordinator text (Hisanori Okumoto, Yasuo Harada ed.) : Nishimura F. (partially contributed) : Japan Preventive Medicine Society (Okayama) , 70-74, 2010.
- 2: 11. Diabetes and Periodontal disease : Scientific Evidence-based clinical guideline for diabetes 2010 (Japan Diabetes Society ed.) : Kono T., Nishimura F. (Partially contributed) : Nanko-do (Tokyo) , 127-134, 2010.
- 3: Mechanisms of phase-dependent pain-relief activity of glycine transporter inhibitors after nerve injury. in MEDIMOND-Monduzzi Editore International Proceeding Division, 3rd International Congress on Neuropathic Pain NeuPSIG, Athens (Greece), 2010. International Association for the Study of Pain (IASP) Working together for pain relief. (Christopher D Wells, Editors) : Morita K., Motoyama N., Kitayama T., Kanemastu T., Dohi T.: Editografica • Bologna (Italy). pp213-pp216, 2010.

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Intraperitoneal low-dose LPS infusion induces chronic inflammation in LDL receptor deficient mouse and Angiotensin receptor blocker attenuates inflammation: Kumamoto S., Iwashita M., Asano T., Nishimura F.: The 2<sup>nd</sup> International Workshop on BioDental Education & Research (Hiroshima), February 11-12, 2010.
- 2: Involvement of infiltrated macrophage in the induction of LPS-induced insulin resistance in adipose tissue and its prevention by ARB: Iwashita M., Kumamoto S., Asano T., Nishimura F.: The 2<sup>nd</sup> International Workshop on BioDental Education & Research (Hiroshima), February 11-12, 2010.
- 3: The effect of spinal glycinergic neuron for the anti-allodynic action of tricyclic antidepressants: Jinnin Y., Morita K., Motoyama N., Kitayama T., Kitayama S., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (Okayama), March 15, 2010.
- 4: Involvement of infiltrated macrophages in the induction of LPS-induced insulin resistance in adipose tissue and its prevention by ARB: Iwashita M., Kumamoto S., Nishimura F.: The 53<sup>rd</sup> Meeting of the Japanese Society of Periodontology (Morioka), May 13-15, 2010.
- 5: Induction of chronic inflammation by low-dose LPS infusion and anti-inflammatory effects of Angiotensin II receptor blocker in LDL-receptor deficient mice: Kumamoto S., Iwashita M., Asano T., Nishimura F.: The 53<sup>rd</sup> Japanese Association of Periodontology (Morioka), May 13-15, 2010.
- 6: Gene expression profiling of 3T3-L1 adipocytes co-cultured with LPS-treated macrophage RAW264.7 cells in the presence or absence of angiotensin receptor 1 blocker valsartan: Kumamoto S., Iwashita M., Nakatsu Y., Kushiyama A., Sakota H., Fujishiro M., Kanna M., Guo Y., Kikuchi T., Nishimura F., Asano T.: The 53<sup>rd</sup> Annual Meeting of Japan Diabetes Society (Okayama), May 27-29, 2010.
- 7: Involvement of infiltrated macrophages in the induction of LPS-induced insulin resistance in adipose tissue and its prevention mechanism by ARB: Iwashita M., Kumamoto S., Sakoda H., Kushiyama A., Fujishiro M., Nakatsu Y., Zhang J., Kikuchi T., Kanna M., Nishimura F., Asano T.: The 53<sup>rd</sup> Meeting of the Japan Diabetes Society (Okayama), May 27-29, 2010.
- 8: Adipocyte-macrophage interaction may mediate LPS-induced acute protein SAA production: Nakarai H., Yamashita A., Soga Y., Iwamoto Y., Abiko Y., Nishimura F.: The 53<sup>th</sup> Japanese Society of Periodontology (Okayama), May 27-29, 2010.
- 9: Report on Dental Check-up in Hawaii-Effects of U.S. life-style on dental status: Mineoka A., Arakawa M., Hasegawa N., Kurihara H., Nishimura F.: The 132<sup>th</sup> Japanese Society of Conservative Dentistry (Kumamoto), June 4-5, 2010.

- 10: Enhanced proliferation and calcification capability of human dental pulp cells exposed to serum-free medium STK2: Fujii S., Fujimoto K., Shao J., Oda R., Nishimura F., Kato Y.: The 132<sup>th</sup> Japanese Society of Conservative Dentistry (Kumamoto), June 4-5, 2010.
- 11: Application of anti-inflammatory effects of flavonoids for pulp cell inflammation-Potential use of phosphorylated pullulan as drug carrier-: Yonehiro J., Yamashita A., Yoshida Y., Nishimura F.: The 132<sup>th</sup> Japanese Society of Conservative Dentistry (Kumamoto), June 4-5, 2010.
- 12: Valsartan suppresses inflammatory response of LPS-induced activated macrophages and thereby improves adipose insulin resistance: Iwashita M., Kumamoto S., Kushiyama A., Nakatsu Y., Tsuchiya Y., Sakoda H., Fujishiro M., Otani Y., Kikuchi T., Nishimura F., Kamata H., Asano T.: American Diabetes Association 70<sup>th</sup> Scientific Sessions (Orlando, Florida), June 25-29, 2010.
- 13: Prevention of LPS-induced insulin resistance in adipose tissue by ARB: Iwashita M., Kumamoto S., Asano T., Nishimura F.: The 88<sup>th</sup> International Association for Dental Research General Session (Barcelona), July 14-17, 2010.
- 14: ARB attenuates LPS-induced inflammatory cytokine expression in LDLR KO mouse: Kumamoto S., Iwashita M., Asano T., Nishimura F.: The International and American Association for Dental Research (Barcelona), July 14-17, 2010.
- 15: Periodontal tissue destruction is associated with high triglycerides in Japanese: Yamashita A., Katano M., Takagi M., Nishimura F.: The International and American Association for Dental Research (Barcelona), July 14-17, 2010.
- 16: Macrophage induce lipolysis via TNF- $\alpha$ , involve in the rise of triglyceride: Nakarai H., Yamashita A., Nishimura F.: The 53<sup>th</sup> Japanese Society of Periodontology in autumn (Kagawa), September 19, 2010.
- 17: Preventive mechanisms of Cacao flavonol against cardiovascular event -study from adipocyte-macrophage interaction-: Nagayasu S., Yamashita A., Suzuki S., Nakarai H., Abiko Y., Nishimura F.: The 54<sup>th</sup> Autumn Meeting of Japanese Society of Periodontology (Kagawa), September 19, 2010.
- 18: Preventive mechanisms of Cacao flavonol against cardiovascular event-study from adipocyte-macrophage interaction: Nagayasu S., Yamashita A., Suzuki S., Nakarai H., Abiko Y., Nishimura F.: The 25<sup>th</sup> Annual Meeting of Japan Society Diabetic Complications (Shiga), October 22-23, 2010.
- 19: The effect of spinal glycinergic interneuron for the analgesic action of tricyclic antidepressants in neuropathic pain: Jinnin Y., Motoyama N., Morita K., Kitayama S., Nishimura F., Kanematsu T.: The 132<sup>th</sup> Japanese Society of Conservative Dentistry (Gifu), October 28-29, 2010.
- 20: The establishment of stable cell lines expressing cleavage-resistant Dentin sialophosphoprotein: Suzuki S., Kobuke S., Nishimura F.: The 132<sup>th</sup> Japanese Society of Conservative Dentistry (Gifu), October 28-29, 2010.



- 21: Glycine transporter inhibitors as a potential therapeutic strategy for neuropathic pain: Morita K., Motoyama N., Kitayama T., Kanematsu T., Dohi T.: The 83<sup>th</sup> Annual Meeting of The Japanese Pharmacological Society (Osaka), March 16-18, 2010.
- 22: Involvement of spinal inhibitory glycinergic pathways in the antinociceptive effect of tricyclic antidepressants in the neuropathic pain model: Jinnin Y., Morita K., Motoyama N., Kitayama T., Kitayama S., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (YNBP2010) (Okayama), March 15, 2010.
- 23: Studies on regulation of expression of chloride transporter in neuropathic pain model in mice: Kitayama T., Motoyama N., Morita K., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (YNBP2010) (Okayama), March 15, 2010.
- 24: Mechanisms of phase-dependent pain-relief activity of glycine transporter inhibitors after nerve injury: Morita K., Motoyama N., Kitayama T., Jinnin Y., Nishimura F., Kanematsu T., Dohi T.: Third International Congress on Neuropathic Pain (NeuPSIG) (Athens (Greece)), May 27-30, 2010.
- 25: Glycine transporter inhibitors as a novel drug discovery strategy for neuropathic pain: Dohi T., Morita K., Motoyama N., Kitayama T., Kanematsu T.: Third International Congress on Neuropathic Pain (NeuPSIG) (Athens (Greece)), May 27-30, 2010.
- 26: Mechanisms of the phase-dependent glycinergic influence on allodynia induced by nerve injury: Motoyama N., Kitayama T., Nishimura F., Kanematsu T., Morita K., Dohi T.: The 52<sup>th</sup> Annual Meeting of Japanese Association for Oral Biology (Tokyo), September 20-22, 2010.
- 27: Effect to neuropathic pain of tricyclic antidepressant: Jinnin Y., Motoyama N., Morita K., Kitayama S., Nishimura F., Kanematsu T.: The 132<sup>th</sup> Japanese Society of Conservative Dentistry (Gifu), October 28-29, 2010.
- 28: Anti-allodynia Effects of Glycine Transporter inhibitors in Neuropathic Pain Models: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The 58<sup>th</sup> Annual Meeting of Japanese Association for Dental Research (Kitakyushu), 2010.

#### F) Special lectures in academic meetings

- 1: The reason why periodontal disease has been considered as risk factor for diabetes rather than simple complication of diabetes. (symposium「Periodontal Medicine Up-date—What we have learned so far—」: Nishimura F. : 19<sup>th</sup> Japan Society of Dental Medicine for Illness (Kobe), April 24, 2010
- 2: Role of inhibitory glycinergic neurons on developing and established mechanical allodynia in neuropathic pain.: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The Japanese Young Researcher's Society of Neurobehavioral Pharmacology (YNBP2010), 「Symposium: Neuroscience on orofacial pain and oral function」(Okayama), 2010.
- 3: Glycine transporters as a target of potential therapeutic strategy for intractable pain.: Morita K,

Motoyama N, Kitayama T, Kanemastu T, Dohi T.: The 57th Annual Meeting of Japanese Society of Anesthesiologists in conjunction with The 13th Asian Australasian Congress of Anesthesiologists 「Symposium; Novel target proteins for pain control study」 (Fukuoka), 2010.

- 4: Role of glycine transporters on developing and established mechanical allodynia in neuropathic pain.: Motoyama N, Morita K, Kitayama T, Kanemastu T, Dohi T.: The 5<sup>th</sup> Annual Meeting of the Japan Transporter Research Association (JTRA 2010) 「Symposium:Neurotransmitter transporters and neurological disorders」(Tokyo), 2010.

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

- 1: Grant-in-Aid for Scientific Research (B): Nishimura F., Collaborative Basic Research on Periodontal Medicine and Geriatric medicine. No. 80208222. ¥ 2,400,000
- 2: Grant-in-Aid for Scientific Research (C): Shirai K., Development of adhesive system with capacity of self-repair applied by Sr-CaPO<sub>4</sub> complex. No. 20592227. ¥ 1,170,000
- 3: Grant-in-Aid for Young Scientist (Start-up): Suzuki S., The analysis of the mechanism and significance of Dentin sialophosphoprotein cleavage in dentin development. No. 21890158. ¥ 940,000
- 4: Grant-in-Aid for Scientific Research: Mineoka A., Acquisition of good quality re-calcification enamel. -Clarification of mechanism with strontium at nano level-. No. 22791837. ¥ 1,300,000
- 5: Grants-in-Aid for Scientific Research: Arakawa M., Study on relationship between aging and periodontal disease -Evaluation on Werner Syndrome patients-. No. 21722120. ¥ 1,040,000
- 6: Grant-in-Aid for Scientific Research(C): Motoyama N., The potential therapeutic strategy for dental pain. No. 21592421. ¥ 1,950,000
- 7: Grants-in-Aid for Scientific Research: Yamashita A., Global analysis of adipocytes co-cultured with macrophages treated with anti-inflammatory substance. No. 22792086. ¥ 1,560,000

#### (5) Academic Awards, etc.

- 1: Iwashita M.: American Diabetes Association's 70<sup>th</sup> Scientific Sessions: Presidents Poster Award, June 28, 2010.
- 2: Suzuki S.: Densply Merit Award in recognition of distinctive contributions to research in Conservative Dentistry, July, 2010.
- 3: Suzuki S.: Prize for Encouragement:The Japanese Society of Conservative Dentistry October, 2010.

#### (6) Patents

- 1: Inventors: Morita K., Dohi T., Motoyama N., Kitayama T., Kanemastu T., Shiraishi S.: Management of chronic pain: translating mechanistic advances and evidence-based research into clinical practice (Application No: 2010-274581 filed on 9 December 2010) (Applicants: Hiroshima University; National Cancer Center) .

## Programs for Applied Biomedicine,

### Division of Cervico-Gnathostomatology

(Department of Oral and Maxillofacial Surgery) ,

and Department of Oral & Maxillo-facial Surgery and Oral

Medicine (Oral and Maxillofacial Reconstructive Surgery)

#### (1) Staff and Students

Professor : Nobuyuki Kamata

Associate Professor : Masaaki Takechi

Assistant Professor : Kouichiro Higashikawa

Research Associate : Koji Ohta (Diagnosis and treatment lecturer), Yoshiaki Ninomiya,  
Hiroshi Simasue, Shigehiro Ono, Hideo Shigeishi, Kuniko Mizuta,  
Takayuki Nakagawa, Misato Hiraoka

Resident : Shinichi Fujimoto,

Graduate Student : Masahiko Minami, Fumi Tanaka, Gaku Okui, Toshiya Okumura, Akiko Fukui,  
Akira Ohta, Hiroko Hatano, Kahori Negishi, Megumi Takamoto, Ta To Tran,  
Kazumi Kubozono, Sayaka Seino, Andra Rizqiawan

Registered Intern : Masaki Kiyomihara, Yoshihisa Inoue, Sou Hasegawa, Yukio Nakamoto,  
Masaki Yoshioka

#### (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

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

- 1: Recessive mutations in the putative calcium-activated Chloride channel Anoctamin 5 cause proximal LGMD2L and distal MMD3 muscular dystrophies. Bolduc V, Marlow G, Boycott KM, Saleki K, Inoue H, Kroon J, Itakura M, Robitaille Y, Parent L, Baas F, Mizuta K, Kamata N, Richard I, Linssen WH, Mahjneh I, de Visser M, Bashir R, Brais B. *Am J Hum Genet.* 86 (2):213-21, 2010
- 2: Influence of factors related to implant stability detected by wireless resonance frequency analysis device. Ohta K, Takechi M, Minami M, Shigeishi H, Hiraoka M, Nishimura M, Kamata N. *Journal of Oral Rehabilitation.* 37(2): 131-7, 2010
- 3: Histopathological evaluation including Cytokeratin13 and Ki-67 in the border between Lugol-stained and unstained areas. Ohta K, Ogawa I, Ono S, Taki M, Mizuta K, Miyauchi M, Takechi M, Shigeishi H, Takata T, Kamata N. *Oncology reports* 24(1): 9-14, 2010
- 4: CX3CL1 expression induced by *Candida albicans* in oral fibroblasts. Ohta K, Nishi H, Fukui A, Shigeishi H, Takechi M, Kamata N. *FEMS Immunol Med Microbiol.*;60(2):179-85, 2010
- 5: Wound healing effects of gingival fibroblasts cultured in animal-free medium. Nishi H, Ohta K, Takechi M, Yoneda S, Hiraoka M, Kamata N. *Oral Disease* 16(5):438-44, 2010
- 6: Comprehensive analysis of the MYB-NFIB gene fusion in salivary adenoid cystic carcinoma: incidence, variability and clinicopathological significance. Mitani Y, Li J, Rao HP, Zhao Y, Bell D, Lippman MS, Weber SR, Caulin C, El-Naggar, K. *Clinical Cancer Research* 16(19):4722-31, 2010
- 7: Additive effects of orexin B and vasoactive intestinal polypeptide on LL-37-mediated antimicrobial activities. Ohta K, Kajiya M, Zhu T, Nishi H, Mawardi H, Shin J, Elbadawi L, Kamata N, Komatsuzawa H, Kawai T. *J Neuroimmunol.* 2010 Dec 20.
- 8: 2009 dental residency program : clinical education and consciousness research of resident : Motoyama T, Morimoto K, Doe K, Kawahara M, Kumagaya H, Nakamoto M, Yamasaki T, Yamamoto T, Aratani K, Mito A, Kubo Y, Kuriu K, Shimasue K, Mitsuyama T, Yamasaki Y, Nakamura R, Kishitami T, Imoo H, Tanaka C, Shindou N, Ogawa T, Taguchi N, Mishima K, Kashiwa N, Motoyama T, Jinnin Y, Jinnin D, Kamata N.: *The Journal of Hiroshima University Dental Society* 37(1):85-89, 2010
- 9: Two cases of tongue cancer which detected synchronous multiple primary cancer in preoperative PET-CT : Kuniko Mizuta, Shigehiro Ono, Shinichi Fujimoto, Gaku Okui, Yoshitugu Mitani, Masaaki Takechi, Nobuyuki Kamata.: *The Journal of Hiroshima University Dental Society* Vol.42

No.2,2010

- 10: Introducing in the Dental Section of University Hospital.: Hiasa K, Tanaka T, Ono S, Nishi H, Kawamura M, Arakawa M, Uchida Y, Nabeshima T, Kagawa K, Ueda H, Kaihara Y, Nakamoto T, Saida T, Okada M, Yasuhara Y, Ogawa I, Nakaoka M, Makita K, Tanaka T, Ogawa T, Kamata N, Yamada F. JAMI, 30 (S) 129-132, 2010

## B) Review

## C) Publications

- 1: Oral mucous disease examined by doctor in private practice From diagnosis to correspondence  
Disease examined by symptom Disease with dyschromatosis Nevus Pigmentosus: Masaaki Takechi, Nobuyuki Kamata.: DENTAL DIAMOND Vol. 35 No. 10 p48 publication July 1 2010 editing member Mitsuo Amagasa, Mikio Kusama, Ryoichi Kawabe
- 2: Malignant melanoma: Shigehiro Ono, Nobuyuki Kamata, Dental Diamond Co., 35 (10), 49, 2010.
- 3: Allergy to Local Anesthetics : Shigehiro Ono, Nobuyuki Kamata, Dental Diamond Co. ,122-123, 2010.
- 4: Can we examine this disease in the medical department? or dentistry? Mental nerve paralysis.: Masaaki Takechi, Nobuyuki Kamata: DENTAL DIAMOND p118-121 publication April 1 2010 editing member Mitsuo Amagasa, Ken Kitamura, Kazuo Yamada, Hiroyuki Wake, Koichi Nakakuki

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Jaw bone tissue regeneration for reconstruction of ideal jaw form and occlusal function: Takechi M.:  
2<sup>nd</sup> International Workshop on BioDental Education & Research 2010(February 11-12, 2010 Hiroshima)
- 2: A Snail-induced secretory protein associated with the high-invasiveness in oral squamous cell carcinoma cells. : Tanaka F, Higashikawa K, Ono S, Shigeishi H, Fujimoto S, Kamata N. : 2nd International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences. (February 11-12, 2010 Hiroshima)

- 3: Molecular characterization of *GDD1/TMEM16E*, the gene product responsible for autosomal dominant gnathodiaphyseal dysplasia.: Fujimoto S, Shiba T, Hirono C, Mizuta K and Kamata N : biodontist (February 11-12, 2010 Hiroshima)
- 4: Gene Expression Analysis of Cementifying Fibroma Cells and the Participation of overexpressed gene RHAMM to its Proliferation: Hiroko Hatano, Hideo Shigeishi, Nobuyuki Kamata: The 83<sup>th</sup> Annual Meeting of the Japanese Tissue Culture Association. (May 20, 2010 Okayama)
- 5: Expression and function of Toll-like receptor in oral keratinocytes and fibroblasts: Fukui A, Ohta K, Nishi H, Takechi M and Kamata N. The 83<sup>th</sup> Annual meeting of the Japanese Tissue Culture association. (May 20, 2010 Okayama)
- 6: Clinical, statistical examination of bone graft operation for implant treatment in our department.: Ota A, Takechi M, Ono S, Okui G, Ninomiya Y, Hatano H, Takamoto M, Kamata N.: The 39<sup>th</sup> annual meeting of the Chu-Shikoku Branch of the Japanese Society of Oral Surgeons, Tokushima, (May 21, 2010 Okayama)
- 7: Snail-induced Cyr61 in invasion of oral squamous cell carcinoma cells.: Tanaka F, Higashikawa K, Okui G, Shigeishi H, Ono S, Kamata N: The 43<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (June 12, 2010)
- 8: Expression and functional analysis of NR4A2 in human oral squamous cell carcinomas. Shigeishi H, Higashikawa K, Hatano H, Tanaka F, Ono S, Kamata N. The 64<sup>th</sup> Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeon. (June 25, 2010 Sapporo)
- 9: Functional analysis of RHAMM in cementifying fibroma cells: Hiroko Hatano, Hideo Shigeishi, Koichiro Higashikawa, Nobuyuki Kamata: The 64<sup>th</sup> Annual Meeting of the Japanese Stomatological Society( June 25, 2010 Sapporo)
- 10: A case of dental implant placement using the Interconnective Porous Hydroxyapatite Ceramics (NEOBONE<sup>®</sup>) for the vertical bone regeneration.: Ninomiya Y, Takechi M, Ohta K, Takamoto M, Ono S, Okui G, Ohta A, Kamata N. The 64<sup>th</sup> Annual Meeting of the Japanese Stomatological Society. (June 25, 2010 Sapporo)
- 11: Basic study of bone augmentation for dental implant treatment by interconnected porous calcium hydroxyapatite (NEOBONE<sup>®</sup>) block. :Minami M, Takechi M, Hiraoka M, Ninomiya Y, Ohta K, Ohta A, Takamoto M, Kamata N. The 64<sup>th</sup> Annual Meeting of the Japanese Stomatological Society. (June 25, 2010 Sapporo)
- 12: Role of Snail-induced Cyr61 in invasiveness of oral squamous cell carcinoma cells.: Tanaka F, Higashikawa K, Okui G, Shigeishi H, Ono S, Kamata N: The 59<sup>th</sup> Annual Meeting of The Japanese Stomatological Society( June 24-25, 2010 Sapporo)
- 13: Molecular characterization of *GDD1/TMEM16E*.: Fujimoto S, Tobiume K, Hirono C, Mizuta K, Ta To Tran, Shiba Y, Kamata N. The 64<sup>th</sup> Annual Meeting of The Japanese Stomatological Society( June 25, 2010 Sapporo)

- 14: RHAMM Induces Proliferative Activities of Cementifying Fibroma Cells: Hatano H, [Shigeishi H](#), [Kudo Y](#), [Takata T](#), [Kamata N](#).: The 88th General Session of the IADR (2010.7.16 Barcelona)
- 15: PGE2-induced expression of NR4A2 confers anti-apoptotic capability.: Shigeishi H, Higashikawa K, Hatano H, Tobiume K, Kamata N.: The 88th General Session of the IADR (July 16,2010 Barcelona)
- 16: Clinical study of the maxillofacial traumatic injured patients treated with dental implant.:Nakagawa T, Takechi M, Ohta K, Shimasue H, Ninomiya Y, Ono S, Shigeishi H, Mizuta K, Minami M, Okui G, Ohta A, Hatano H, Takamoto M, Kamata N.The 12th Congress of the Japanese Society of Oral and Maxillofacial Trauma. ( July 17, 2010 Hiroshima)
- 17: Molecular characterization of GDD1/ TMEM16E, the gene product responsible for autosomal dominant gnathodiaphyseal dysplasia.: Fujimoto S, Tobiume K, Hirono C, Mizuta K, Kamata N. the 28<sup>th</sup> Annual Meeting of the Japanese Society for Bone and Mineral Research. (2010 Tokyo)
- 18: Expression and function of Retinoic acid – inducible gene I ( RIG-I ) in oral keratinocyte and fibroblast. : Fukui A, Ohta K ,Shigeisi H, Nishi H ,Takechi M and Kamata N. The 20th Annual meeting of the Japanese Society for Oral Mucous Membrane. (August 1 ,2010 Osaka)
- 19: A Clinical study of maxillary sinus floor elevation using interconnected porous calcium hydroxyapatite: Masaaki Takechi, Yoshiaki Ninomiya, Shigehiro Ono, Megumi Takamoto, Nobuyuki Kamata: The 40th Congress of the Japanese Society of Oral Implantology (September 19, 2010 Sapporo)
- 20: Two cases of maxillary venner graft using torus : Ninomiya Y, Takeshi M, Ono S, Takamoto M, Kamata N. The 40th Annual Meeting of the Japanese Society of Oral Implantology (September 19, 2010 Sapporo)
- 21: A Snail target gene product Cyr61 regulates the invasiveness of squamous cell carcinoma.:Tanaka F, Higashikawa K, Tobiume K, Ono S, Shigeishi H, OkuiG, Kamata N. : 69th Annual Meeting of the Japanese Cancer Association (September 23, 2010 Osaka)
- 22: Paracrine PGE2 targets epiregulin-overexpressing squamous cell carcinoma for resistance to anti-5-FU-induced apoptosis : Higashikawa K, Shigeishi H, Tobiume K, Hatano H, Tanaka F, Okui G, Ono S, KamataN.: 69th Annual Meeting of the Japanese Cancer Association (September 23, 2010 Osaka)
- 23: A case report of prothodontic reconstruction using dental implants for the edentulous with severe gagging ewflex: Ono S, Takechi M, Ohta K, Okumura T, Takamoto M, Kamata N: 55th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (2010 Makuhari)
- 24: Clinical study of jaw bone augmentation using interconnected porous calcium hydroxyapatite(NEOBONE): Masaaki Takechi, Kouji Ohta, Yoshiaki Ninomiya, Shigehiro Ono, Megumi Takamoto, Hideo Shigeishi, Gaku Okui, Nobuyuki Kamata.: The 55th Congress of Japanese Society of Oral and Maxillofacial Surgery. (October 17, 2010 Makuhari)
- 25: Cyr61 involves high-malignancy in oral squamous cell carcinoma cells.: Tanaka F, Higashikawa K,



- Okui G, Shigeishi H, Ono S, Kamata N: The 55th Congress of the Japanese Society of Oral and Maxillofacial Surgeons(October 17, 2010 Makuhari)
- 26: The microenvironmental determinants in oral squamous cell carcinoma cells.: Higashikawa K, Shigeishi H, Hatano H, Tanaka F, Okui G, Ono S, Kamata N: The 55th Congress of the Japanese Society of Oral and Maxillofacial Surgeons(October 17, 2010 Makuhari)
- 27: 2010 dental residency program: clinical education and consciousness research of resident: Yamasaki Y, Motoyama T, Morimoto K, Doe K, Kawahara M, Kumagaya H, Nakamoto M, Yamasaki T, Yamamoto T, Aratani K, Mito A, Kubo Y, Kuriu K, Shimasue K, Mitsuyama T, Nakamura R, Kishitami T, Imoo H, Shindou N, Tanaka C, Ogawa T, Kashiwa N, Motoyama T, Jinnin Y, Jinnin D, Ishikura N, Kamata N. :第49回広島県歯科医学会・第94回広島大学歯学会(October 24, 2010 Hiroshima)
- 28: Energy metabolism is regulated by PRIP.: Okumura T, Harada K, Kamata N, Kanematsu T :The 94thHiroshima university dental society. (October 24, 2010 Hiroshima)
- 29: A Case of SAPHO Syndrome with Diffuse Sclerosing Osteomyelitis of the Mandible Treated Successfully with Prednisolone and Bisphosphonate: Hiroko Hatano, Hideo Shigeishi, Koichiro Higashikawa, Hiroshi Shimasue, Nobuyuki Kamata: The 58<sup>th</sup> Chugoku-Shikoku Regional Chapter of the Japanese Stomatological Society (November 6, 2010 Hiroshima)
- 30: Clinical study of the bisphosphonate treated patients.: Nakagawa T, Takevhi M, Higashikawa K, Ohta K, Ninomiya Y, Shimasue H, Ono S, Shigeishi H, Mizuta K, Fujimoto S, Minami M, Okui G, Fukui A, Ohta A, Hatano H, Negishi K, Kubozono K, Kamata N. The 65th Congress of the Japanese Stomatological Society. (November 6, 2010 Hiroshima)
- 31: p63-Id3 pathway suppresses invasiveness of EMT phenotype squamous cell carcinoma.: Okui G, Higashikawa K, Tobiume K, Kamata N. The 47th annual meeting of the Japan Tissue culture society for dental research (November 13, 2010 Kouchi)
- 32: Expression and function of Retinoic acid – inducible gene I ( RIG-I ) in oral keratinocyte and fibroblast. :Fukui A, Ohta K , Shigeishi H, Nishi H ,Takechi M and Kamata N. The 47th Annual meeting of the Japanese Journal of Tissue Culture Society for Dental Reserch (November 13, 2010 Kouchi)
- 33: Two cases of dental implant after keratocystic odontogenic tumor resection: Ninomiya Y, Takechi M, Ono S, Takamoto M, Kamata N: The 30th Annual Scientific Meeting of Chugoku Shikoku Branch(November 14, 2010 Shimane)
- 34: Questionnaire survey about uneasiness and satisfaction to bone augmentation surgery for oral implant .:Takamoto M, Takechi.M, Ninomiya Y, Ono S, Kamata N.: The 30th Annual Meeting of the Japanese Society of Oral Implantology, Chugoku-Shikoku Branch (November 14, 2010 Shimane)
- 35: The Availability Assessment of Medical Information System After Introducing in the Dental Section

- of University Hospital. : Hiasa K, Tanaka T, Ono S, Nishi H, Kawamura M, Arakawa M, Uchida Y, Nabeshima T, Kagawa K, Ueda H, Kaihara Y, Nakamoto T, Saida T, Okada M, Yasuhara Y, Ogawa I, Nakaoka M, Makita K, Tanaka T, Ogawa T, Kamata N, Yamada F.: 30th Joint Conference on Medical Informatics.(November19-21, 2010 Hamamatsu)
- 36: Basic research on osteomyelitis of alpha-TCP/apatite cement containing gentamycin-Basic property and evaluation of bone tissue regeneration-: Ninomiya Y, Takechi M, Ohta K, Minami M, Tada M, Ohta A, Yuasa T, Ishikawa K, Kamata N.: The 32th Annual Meeting of the Japanese society for Biomaterials(November 30, 2010 Hiroshima)
- 37: Bacterial attachment on hydrothermally- treated titanium with CaCl<sub>2</sub> solution.:Takamoto M, Takechi.M, Ohta K, Tsuru K, Mine Y, Takamoto Y, Ishikawa K, Nikawa H, Kamata N.:The 32th Annual Meeting of the Japanese society for Biomaterials(November 30, 2010 Hiroshima)
- 38: Fundamental study of bone augmentation by interconnected porous calcium hydroxyapatite block.: Minami M, Takechi M, Tada M, Ninomiya Y, Ohta K, Fukui A, Ota A, Takamoto M, Kamata N.: The 32th Annual Meeting of the Japanese Society for Biomaterials (November 30, 2010 Hiroshima)
- 39: A case of sinus lift technique using the interconnected porous calcium hydroxyapatite and the mandibular torus: Ono S, Takechi M, Ohta K, Ninomiya Y, Takamoto M, Kamata N: The 14th Annual Meeting of the Japanese Academy of Maxillofacial Implants (2010 Urayasu)

#### F) Special lectures in academic meetings

- 1: Kamata N. Odontogenic tumor (June 14 Okayama University)
- 2: Kamata N. Odontogenic tumor (November 19 Nagasaki University)
- 3: Kamata N. Odontogenic tumor and disease gene (November 12 Osaka University)

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

- 1 : ?in Aid for Scientific ?(A)Novelty:Kamata N, Clarification and Control of oral cancer with highly malignancy through EMT. No22249066.
- 2 : Grants-in-Aid for Young Scientists(B) Novelty:Tada M, Analysis of bone formation molecule mechanism of osteoblasts in porous ceramics. No40572326.
- 3 : Grants-in-Aid for Scientific Research(C)Novelty : Ninomiya Y, Development of the high functional biomaterial possessing the ability of the drug release control. No 22592216.
- 4 : Grants-in-Aid for Scientific Research(C)Continuation : Higashikawa K, Analysis of epithelial integrity in invasion and metastasis of oral cancer. No. 21592526.
- 5 : Grants-in-Aid for Scientific Research (C)Continuation : Shimasue H, Molecular analysis of

mechanisms regulating cell morphology and motility on tumor invasion and metastasis in squamous cell carcinoma: No.21592554

- 6 : Grant-in-Aid for Young Scientists(B)Continuation:Takechi M , Fabrication of the high functional bone replacement apatite cement with drug delivery control capacity. Subject number 21792000.
- 7 : Grants-in-Aid for Young Scientists(B)Continuation : Ohta K, The possible role and identification of the specific protein induced by *Candida albicans* in oral mucosal cells. No20791522.
- 8 : Grants-in-Aid for Young Scientists(B)Continuation : Ono S, The participation of micro RNA acquiring the ability with high-invasiveness via Epithelial-mesenchymal Transition in squamous cell carcinoma. No.21791999.
- 9 : Grants-in-Aid for Scientific Research for Young Scientists(B)Continuation : Shigeishi H, Expression and functional analysis of TPX-2 in human salivary gland carcinomas. A continued grant (No. 21791998).
- 10 : Grants-in-Aid for Young Scientists(B)Continuation: Cell biology research on immune response about refractory oral endermosis generation in the oral keratinocytes and gingival fibroblast. No 20791518.
- 11 : Grants-in-Aid for Young Scientists(B)Continuation: Kuniko Mizuta, Functional analysis of GDD1 gene responsible for gnathodiaphyseal dysplasia(GDD) No.20791517.
- 12 : Grants-in-Aid for JSPS Fellows Novelty : Hatano H, Studies on molecular mechanisms related to the invasiveness of oral tumors and development of the diagnostic tools and treatments: No.22 • 6035

#### (5) Academic Awards, etc.

- 1: Hatano H: Award for excellence: The 64th Annual Meeting of the Japanese Stomatological Society
- 2: Tanaka F: Award for excellence: The 2th International Workshop on BioDental Education & Research
- 3: Tanaka F: Award for excellence: The 53th Congress of the Japanese Society of Oral and Maxillofacial Surgeons

#### (6) Patents

**Programs for Applied Biomedicine,  
Division of Cervico-Gnathostomatology  
(Department of Advanced Prosthodontics)  
Department of Preventive and Restorative Dentistry  
(Implants and Prosthodontics)**

(1) Staff and Students

Professor : Yasumasa Akagawa  
Associate Professor : Kazuhiro Tsuga, Takayasu Kubo  
Assistant Professor : Yasuhiko Abe, Tsuyoshi Taji, Kyou Hiasa  
Assistant :Katsunori Koretake, Mineka Yoshikawa, Kazuhiko Hayashi, Yasunari Miyamoto  
Secretary :Rinko Kurumi  
Resident :Maho Takeuchi, Ayumi Matsuura, Koji Morita, Mariko Maruyama, Norie Fujino  
Graduate Student :Ryo Takeshita, Hiroshi Oue, Yohei Okazaki, Hirokazu Tsuchioka, Kazuhisa Ookura,  
Maretaningtias Dwi Ariani, Shinsuke Okada, Shiho Kajihara

(2) Main Research Activities

- 1: Development and clinical application of new materials for oral implants.
- 2: Development of "bio-hybrid" artificial bone made of interconnected porous hydroxyapatite and mesenchymal stem cells.
- 3: Elucidation of the effect of FGF on bone formation surrounding oral implants.
- 4: Biomechanics analysis of prostheses and their surrounding bone supported by implants.
- 5: Elucidation of the effect of prosthodontic treatments on the quality of life of elderly people.
- 6: Removal prosthodontics and swallowing function of elderly people.
- 7: Development and clinical application of functional oral rehabilitation utilizing tongue pressure measurement.

(3) Research Achievements

A) Original Papers (including Case Reports)

1. A proposed index for residual periodontal ligament support: Abe Y., Taji T, Hiasa K., Tsuga K. and Akagawa Y.: Int J Prosthodont, 23, 472-474, 2010.
2. Degree of immobilization of synthetic RGDS(PO3H2)PA peptides on titanium surfaces: Abe Y.,

- Okazaki Y., Hiasa K., Hirata I., Yoshida Y., Taji T., Suzuki K. Okazaki M. and Akagawa Y.: *Dental Materials Journal*, 29, in press, 2010.
3. Comparison of three types of tongue pressure measurement devices: Yoshikawa M., Yoshida M., Tsuga K., Akagawa Y. and Groher M. E.: *Dysphagia* (E pub ahead of print), 2010.
  4. Comparative evaluation of bone regeneration using spherical and irregularly shaped granules of interconnected porous hydroxyapatite. A beagle dog study: Kubo T., Doi K., Hayashi K., Morita K., Matsuura A., Teixeira R.E. and Akagawa Y.: *J Prosthodont Res* (in press), 2010.
  5. Enhanced initial bone regeneration with inorganic polyphosphate-adsorbed hydroxyapatite: Morita K., Doi K., Kubo T., Takeshita R., Kato S., Shiba T. and Akagawa Y.: *Acta Biomater* 6:2808-2815, 2010.
  6. Numerical occlusal support of remaining teeth using residual periodontal ligament index (RPLI): Abe, Y., Taji, T., Hiasa, K., Okazaki, Y., Ishida, H., Sakurai, H., Tsuga, K. and Akagawa, Y.: *The Journal of Hiroshima University Dental Society*, 42: 1-8, 2010.
  7. A Short-term Clinical Outcome on Oral Implant Treatment with Internal Fixation System: Hiasa K., Abe Y., Taji t., Hayashi K., Miyamoto Y., Okazaki Y., Sakurai H., Kubo T., Tsuga K. and Akagawa Y.: *The Journal of Hiroshima University Dental Society*, 42: 9-15, 2010.
  8. The Availability Assessment of Medical Information System After Introducing in the Dental Section of University Hospital.: Hiasa K., Tanaka T., Ono S., Nishi H., Kawahara M., Arakawa M., Uchida Y., Nabeshima T., Kagawa K., Ueda H., Kaihara Y., Nakamoto T., Saida T., Okada M., Yasuhara Y., Ogawa I., Nakaoka M., Makita K., Tanaka T., Ogawa T., Kamata N. and Yamada F.: *An Official Journal of the Japan Association for Medical Informatics*, 30 Supplement, 129-132, 2010.
  9. Construction of Database on Application of Palatal Augmentation Prosthesis in Eating, Swallowing and Articulation Disorders: Sasaki S., Ono T., Nakajima J., Takahashi Y., Tanaka Y., Suzuki T., Taniguchi H., Komasa Y., Okazaki J., Tsuga K., Yoshikawa M., Nishi H., Inuma T., Kawara M. and Minagi S.: *Journal of The Japanese Association for Dental Science* 29, 72-76, 2010.

## B) Review

- 1: Initial ultra-hydrophilic polyvinyl siloxane impression material: Panasil initial contact: Abe Y.: *The Nippon Dental Review*, 810: 87-91, 2010.
- 2: A Prospective randomized Study on the Immediate Loading of Mandibular Overdentures Supported by one or Two Implants: A 12-Month Follow-up Report1: Oue H., Koretake K. and Akagawa Y.: *Quintessence dental implantology*, 17(4), 2010.

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Examination for Eating and Swallowing: Yoshikawa M.: The Second International Workshop on Biodental Education and Research (Hiroshima), 2010.
- 2: Body weight and serum albumin change after prosthodontic treatment among institutionalized elderly in a long-term care geriatric hospital: Kanehisa Y., Yoshida M., Taji T., Akagawa Y. and Nakamura H.: The first Workshop for Bio-dental education and research (Hiroshima), 2010.
- 3: Influence of occlusal vertical dimension on swallowing dunction in young healthy people: Yoshikawa M., Nagasaki T., Yoshida M., Tanimoto K., Tsuga K. and Akagawa Y.: The 18th Annual Meeting of Dysphagia Research Society (San Diego), 2010.
- 4: Tongue capacity is decreased in frail elderly persons: Tsuga K., Ooue H., Okazaki Y., Tsuchioka H., Maruyama M., Yoshikawa M., Akagawa Y.: The 88th General Session & Exhibition of the IADR (Barcelona), 2010.
- 5: A quantitative candy sucking test aimed at dementia elderly population: Tsuchioka H., Maruyama M., Yoshikawa M., Tsuga K., and Akagawa Y.: The 88th General Session & Exhibition of the IADR (Barcelona), 2010.
- 6: Effects of tongue exercise on stroke patients: Yoshikawa M., Yasuhara Y., Nagasaki T., Tanimoto K., Tsuga K. and Akagawa Y.: The 88th General Session & Exhibition of the IADR (Barcelona), 2010.
- 7: Application of newly developed interconnected porous hydroxyapatite for implant GBR: Doi K., Kubo T., Hiasa K., Koretake K., Hayashi K. and Akagawa Y.: The 88th General Session & Exhibition of the IADR (Barcelona), 2010.
- 8: A fabrication of newly developed carbonate apatite-chitosan composite as a bone substitute: Maretaningtias D. A., Matsuura A., Hirata I., Doi K., Kubo T., Okazaki M. and Akagawa Y.: Summer Seminar of the Japanese Society for Dental Materials and Devices (Matsuyama), 2010.
- 9: Cell proliferative ability of newly developed carbonate apatite-collagen sponges with some cytokines: Matsuura A., Hirata I., Morita K., Doi K., Hayashi K., Koretake K., Kubo T., Okazaki M. and Akagawa Y.: 6th Meeting of Asian Academy of Osseointegration (Seoul), 2010.
- 10: New development of interconnected porous calcium hydroxyapatite/implant complex: Oue H., Doi K., Koretake K., Hayashi K., Matsuura A., Morita K., Okazaki Y., Kubo T., Akagawa Y.: 6th Meeting of Asian Academy of Osseointegration (Seoul), 2010.
- 11: Fabrication and cell compatibility evaluation of newly developed carbonate apatite-chitosan scaffold for bone tissue engineering: Maretaningtias D. A., Matsuura A., Hirata I., Doi K., Hayashi K., Morita K., Kubo T., Okazaki M., Akagawa Y.: 6th Meeting of Asian Academy of Osseointegration (Seoul), 2010.

- 12: Development of new bone graft material using carbonate apatite-chitosan composit: Maretaningtias D. A., Matsuura A., Hirata I., Doi K., Hayashi K., Morita K., Kubo T., Okazaki M. and Akagawa Y.: The 32nd Annual Meeting of the Japanese Society for Biomaterials (Hiroshima), 2010.
- 13: Cell viability of newly developed biomimetic bone graft material: Matsuura A., Maretaningtias D.A., Hirata I., Doi K., Hayashi K., Koretake K., Kubo T., Okazaki M. and Akagawa Y.: The 55th General Session of the Japanese Society for Dental Materials and Devices(Tokyo), 2010.
- 14: Quantification of candy-sucking function: Tuchioka H., Maruyama M., Yoshikawa M., Tsuga H. and Akagawa Y.: The 44th academic meeting of Japanese Society of Stomatognathio Function (Hiroshima), 2010.
- 15: A Case Report of Success of Reacquiring Oral Intake by Palatal Augumentation Prostheses and Swallowing Rehabilitation: Itaki S., Tomihiro Y., Shimada R., Kawahara E., Tomiki H., Ymane T., Kanehisa Y., Yoshikawa M., Taji T. and Kubo T.: The 18th Annual Meeting of Hiroshima Oral Care Research (Hiroshima), 2010.
- 16: A proposed residual periodontal ligament index.: Abe, Y., Taji, T., Hiasa, K., Okazaki, Y., Tsuga, K. and Akagawa, Y.: The 119th Scientific Meeting of Japan Prosthodontic Society (Tokyo), 2010.
- 17: Development of New Evaluation for Oral Muscle Function with a Handy Intraoral Manometric Device.: Maruyama M., Okada G., Yoshikawa M., Tsuga K., Yoshida M. and Akagawa Y.: The 119th Scientific Meeting of Japan Prosthodontic Society (Tokyo), 2010.
- 18: Improved Undergraduate Clinical Training Program at Hiroshima University Faculty of Dentistry- Introduction of OSCE for Evaluation of Achievement: Taji T., Fujii S., Fujita T., Kanda T.,Kaihara Y., Nagasaki S., Okada M., Ogawa I., Uchida T and Kurihara H.: Taji, T., Fujii, M., Fujita, T., Kanda, T., Kaihara, Y., Nagasaki, T., Okada, M., Ogawa, I., Uchida, T. and Kurihara, H.: 29th Meeting of Japanese Dental Education Association (Morioka), 2010.
- 19: Survey of Dental Clinical Training Course Program in Hiroshima University Hospital: Nishi, H., Obayashi, T., Tanaka, Y., Ohara, M., Taguchi, N., Shirai, K., Hasegawa, N., Taji, T., Sadamori, S., Koizumi, K., Shimasue, H., Shimizu, Y., Hayashi, F., Kawamura, M., Okada, M., Irifune, M. and Ogawa, T.: 29th Meeting of Japanese Dental Education Association (Hiroshima), 2010.
- 20: Four aspect mirror system for profile photography of prostheses.: Okazaki Y., Taji T, Tsuga K., Kubo T., Abe Y., Hiasa K., Shitozawa S., Oda M., Nishibata H. and Akagawa Y.: H22 annual meeting of the japan prosthodontic society tyugoku shikoku branche (Takamatu), 2010.
- 21: Development of the quantification of candy-sucking function: Tsuchioka H., Maruyama M., Yoshikawa M., Tsuga K. and Akagawa Y.: The 16th Annual Meeting of the Japanese Society of Dysphagia Rehabilitation (Niigata), 2010.
- 22: A case Report of Success of Reacquiring Oral Intake by Palatal Augumentation Prostheses and Rehabilitation of Tongue Function with Tongue Pressure Measurement Device: Yamane T., Shimada R., Yoshikawa M. and Yoshida M.: The 16th Annual Meeting of the Japanese Society of Dysphagia

- Rehabilitation (Niigata), 2010.
- 23: Effect of polyphosphate adsorbed artificial bone for guided bone: Takeshita R., Doi K., Kubo T., Morita K., and Akagawa Y. : The 40<sup>th</sup> Annual Meeting of the Japanese Society of Oral Implantology (Sapporo), 2010.
  - 24: Development of New Occlusal Support Index -Application to Selection of Abutment Teeth of Fixed Partial Dentures-: Nogami K., Abe Y., Mizumachi W., Taji T., Hiasa K., Okazaki Y., Ishida H., Tsuga K. and Akagawa Y., The 49th Scientific Meeting of Hiroshima Prefecture Dental Association and The 94th Scientific Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
  - 25: Efficiency of Dental Technique by means of the Work Simulation with Visual SLAM: Chiba, S., Murayama, T., Tatebata, K., Tamamoto, M., Eguchi, T., Sasahara, H., Kawahara, K., Taji, T. and Nikawa, H.: 49th Scientific Meeting of Hiroshima Prefecture Dental Association and 94th Scientific Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
  - 26: JMS tongue pressure measurement device - background and future perspective.: Tsuga K.: The 45th academic meeting of Japanese Society of Stomatognathic Function (Kawagoe), 2010.
  - 27: Quantification of candy-sucking function in healthy elderly: Tsuchioka H., Okada S., Kijihara S., Nishimura R., Yamashita K., Maruyama M., Okada G., Morikawa H., Hayashi R., Hara K., Yoshikawa M., Yoshida M., Tsuga K. and Akagawa Y.: The 45th academic meeting of the Japanese Society of Stomatognathic Function (Kawagoe), 2010.
  - 28: A Clinical Outcome on Oral Implant Treatment with Internal Fixation System.: Hayashi K., Hiasa K., Abe Y., Kubo T. and Akagawa Y.: 30th Annual Scientific Meeting of Chugoku Shikoku Branch (Matsue), 2010.
  - 29: Importancy of cewing and the function of the oral implant - What is the implant? -: Kubo T., The 30th Scientific Meeting of the Chugoku-Shikoku branch of the Japanese Society of Oral Implantology (Matsue), 2010.
  - 30: The Availability Assessment of Medical Information System After Introducing in the Dental Section of University Hospital.: Hiasa K., Tanaka T., Ono S., Nishi., Kawahara M., Arakawa M., Uchida Y., Nabeshima T., Kagawa K., Ueda H., Kaihara Y., Nakamoto T., Saida T., Okada M., Yasuhara Y., Ogawa I., Nakaoka M., Makita K., Tanaka T., Ogawa T., Kamata N. and Yamada F.: The 30th joint conference of medical informatics (hamamatsu), 2010.
  - 31: Newly Development of Interconnected Porous Calcium Hydroxyapatite/Implant Complex: Oue H., Doi K., Koretake K., Hayashi K, Matsuura A., Morita K., Okazaki Y., Kubo T. and Akagawa Y.: The 32nd annual meeting of the Japanese society for biomaterials (Hiroshima), 2010.

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

- 1: Ministry of Education, Culture, Sports, Science and Technology (MEXT) Grant-in Aid for scientific



- Research (B): Akagawa Y: Newly development of bFGF-polyphosphate integrated intelligent artificial bone. (Grant No. 2139051). ¥5,100,000
- 2: MEXT Grants-in-Aid for Scientific Research (C): Tsuga K: Development of Rader-chart for enhancing the anti-aging effect of prosthodontic treatments. (Grant No. 20592269). ¥8,000,000
  - 3: MEXT Grants-in-Aid for Scientific Research (C): Abe Y: Development of high-level biofunctional nano-surface modification of bionic titanium implant. (Grant No. 21592452). ¥1,100,000
  - 4: MEXT Grants-in-Aid for Scientific Research (C): Taji T: Occlusal support index for partial denture design. (Grant No. 20592270) ¥2,700,000
  - 5: MEXT Grants-in-Aid for Scientific Research (C): Hiasa K: Development of Multi-physics simulator for Advanced implant integration system of diagnosis and treatment. (Grant No. 20592299). ¥900,000
  - 6: MEXT Grants-in-Aid for Young Scientists (B): Koretake K: The New Bone Quality Improving Method Applying the Bone Modeling for Additional Implant Insertion. (Grant No. 19791443). ¥500,000
  - 7: MEXT Grants-in-Aid for Young Scientists (B): yoshikawa M: Management for Volume of Oral Cavity against Deterioration of Swallowing Function. 吉川峰加 : (Grant No. 19791442). ¥1,500,000
  - 8: MEXT Grants-in-Aid for Young Scientists (B): Yoshikawa M: Anti-aging on swallowing function by maintenance and restoration of occlusion retention. (Grant No. 21791900). ¥900,000
  - 9: MEXT Grants-in-Aid for Young Scientists (Start-up): Hayashi K.: Development of New Implant Augmentation Drug Delivery System Using a rh-BMP-2 - Gelatin Hydrogel Complex. (Grant No. 2279188600). ¥40,000
  - 10: MEXT Grants-in-Aid for Young Scientists (Start-up): Matsuura A: Effect of bone formation ability using a cytokine treated biomimetic bone graft material. (Grant No. 21890159). ¥950,000
  - 11: MEXT Grants-in-Aid for Young Scientists (Start-up): Morita K: Effect of bone formation ability by combined application of bFGF and polyphosphate adsorbed on hydroxyapatite. (Grant No.21890160). ¥1,050,000
  - 12: Grant-in-Aid for Scientific Research from the Ministry of Health, Labour and Welfare: Akagawa Y.: Research on review of provision of information on dental service (Grant No.kose-227901): ¥2,200,000
  - 13: MEXT Grants-in-Aid for Scientific Research (A): Akagawa Y.: Multi center research on Prosthodontic treatment for shortened dental arch. (Grant No. 202490770101): ¥550,000
  - 14: MEXT Grants-in-Aid for Scientific Research (C): Yoshikawa M: Magnetoencephalogram (MEG) and diffusion MRI. (Grant No. 20592202). ¥40,000

#### (5) Academic Awards, etc.

- 1: Japan Prosthodontic Society Research Paper Award: Akagawa Y.

- 2: Japan Society for Dental Materials and Devices the 55th Research Paper Award: Matsuura A.
- 3: Japanese Society for Mastication Science and Health Promotion the 20th Commemoration Meeting  
Poster Award: Maruyama M.

(6) Patents

**Programs for Applied Biomedicine, Division of Cervico-Gnathostomatology  
(Department of Advanced Prosthodontics)  
Department of Preventive and Restorative Dentistry  
(Prosthetic Dentistry)**

(1) Staff and Students

Professor	: Yasumasa Akagawa
Associate Professor	: Shinsuke Sadamori
Associate Professor	: Hitoshi Abekura (in the university),
Assistant	: Shunji Inoue, Kazuko Kagawa, Kazuya Doi
Secretary	: Michiko Miyagawa
Resident	: Shouji Hayashi (Until March), Isao Fujihara, Takeshi Maeda, Wataru Mizumach,
Intern Dentist	: Takeshi Maeda (Until March), Wataru Mizumach (Until March), Keisuke Nogami
Graduate Student	: Shouji Hayashi (Until March), Kouji Kamata, Hiroki Tsuka, Masahiro Tsuboi, Isao Fujihara, Tomoharu Hori , Tomohisa Okura, Takae Ymamamoto (Until July) Keisuke Nogami,
Registered Intern	: Takae Ymamamoto

(2) Main Research Activities

- 1 : Selection of osteoblast-precursor cells from oral tissues using cell surface antigen
- 2 : Relation between prosthetic treatment and general condition in elderly with dementia
- 3 : The study of relationship between oral habits and psychosomatic stress responses measured by salivary chromogranin A
- 4 : The antimicrobial efficacy of chlorine dioxide element to add to dental material
- 5 : Molecular biology of mesenchymal stem cells towards osteogenic differentiation
- 6 : Psychiatric disorders in dental practice

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Comparison of their recognition about the denture cleansers among Japanese, Chinese, and Indonesian dentists: Hong G., Li Y.A., Lian Y.M., Sadamori S., Hamada T., Murata H.: Int Chi J

Dent, 10, 29-34, 2010.

- 2 : Effect of PMMA polymer on the dynamic viscoelasticity and plasticizer leachability of PEMA-based tissue conditioners: Hong G., Maeda T., Li Y.A., Sadamori S., Hamada T., Murata H.: Dent Mater J, 29(4), 374-380, 2010.
- 3 : A questionnaire survey of dental students in Japan, China, and Indonesia about denture cleansers: Hong G., Li Y.A., Lian Y.M., Sadamori S., Hamada T., Murata H.: Int Chin J Dent, 10, 51-56, 2010.
- 4 : Effect of high-dose major components in oral disinfectants on the cell cycle and apoptosis in primary human gingival fibroblasts in vitro: Nomura Y., Bhawal UK., Nishikiori R., Sawagiri M., Maeda T., Okazaki M.: Dental Mater J, 29(1), 75-83, 2010

## B) Review

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1 : Influence of components on dynamic viscoelasticity property, the water sorption and solubility of Alcohol-free trial tissue conditioners: Tsuka H, Hong G, Maeda T, Nomura Y, Okazaki M, Hamada T, Sadamori S, Akagawa Y: 2<sup>nd</sup> Scientific Meeting of The Japan Denture Care Society (Tokyo), 2010.
- 2 : Influence of components on the water sorption and solubility of Trail Tissue Conditioners: Tsuka H, Hong G, Maeda T, Nomura Y, Okazaki M, Hamada T, Sadamori S, Akagawa Y: 55<sup>th</sup> Scientific Meeting of Japanese Society of Dental Materials and Devices (Tokyo), 2010.
- 3 : Relationship among denture wearing, nutritional status, and physical and mental staus in elderly with dementia : Sadamori S, Hayashi S, Fujihara I, Abekura H, Akagawa Y : The 21<sup>st</sup> Annual Meeting of the Japanese Society of Gerodontology (Niigata), 2010.
- 4 : A follow-up study of about 6 years of elderly with dementia in group home -Changes of oral status, mental status, and ADL- : Furuebis M, Sadamori S, Hayashi S, Sasahara H, Sumida E, Hamada T : The 27<sup>th</sup> Annual Meeting of the Japanese Society for Disability and Oral Health (Tokyo), 2010.
- 5 : Relationship between decline of ADL, cognitive function and oral starus in the elderly with dementia. : Fujihara I, Sadamori S, Abekura H, Hamada T, Akagawa Y : Japan prosthodontic society Chugoku and Shikoku branch (Takamatsu), 2010.
- 6 : Relationship between decline of ADL, cognitive function and denture wearing, oral ADL in the elderly with dementia. : Fujihara I, Sadamori S, Hayashi S, Furuebsu M : The Chugoku regional forum, the Japanese society for dementia care (Yonago), 2010.

- 7 : The Antimicrobial Efficacy of Chlorine Dioxide as a Component of Denture Cleanser : Hori T, Maeda T, Nomura Y, Sadamori S, Okazaki M, Akagawa Y : The 56<sup>th</sup> General Session of the Japanese Society for Dental Materials and Devices (Gifu), 2010.
- 8 : Separation of osteoblast-precursor cells from oral tissues using cell surface antigens : Kamada K, Fujimoto K, Nishimura M, Sadamori S, Akagawa Y, Kato Y : The 51<sup>st</sup> Japanese Biochemical Society Tyugoku Shikoku Blanch Meetings (Yamaguchi), 2010.
- 9 : Relationship between the types of stress reaction for experimental mental task and oral habits: Tsuboi M, Abekura H, Okura T, Sadamori S, Akagawa Y: The 119<sup>th</sup> Scientific Meeting of Japan Prosthodontic Society (Kyoto), 2010.
- 10 : Relationship between oral habits and mental stress evaluated by saliva Chromogranin A and questionnaire : Tsuboi M, Abekura H, Okura T, Sadamori S, Akagawa Y : 45<sup>th</sup> Scientific Meeting of the Japanese Society of Stomatognathic Function. (Kawagoe), 2010.

#### F) Special lectures in academic meetings

- 1 : Dental and oral health (Bruxism):Abekura H:Hiroshima Prefecture Dental Hygiene Liaison Council, “Heisei 21 Nendo” Campaign Promotion Project “Keep 20 Teeth Till Your 80”, Promotion Project Workshop “Dental, Oral and Mental positive Health” (Hiroshima), 2010.1.14.
- 2 : Consideration of TMD: Abekura H:Hiroshima Prefecture Dental Hygiene Liaison Council, “Heisei 21 Nendo” Campaign Promotion Project “Keep 20 Teeth Till Your 80”, Promotion Project Workshop “Dental, Oral and Mental positive Health” (Hiroshima), 2010.8.19.

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

- 1 : Grant-in-Aid for Young Scientists(B):Takeshi Maeda : A study of the evaluation of tissue conditioner within stable Chlorine Dioxide. assignment number 22791888.2730.thousand yen.
- 2 : Grant-in-Aid for Scientific Research (C): Abekura H: Relationship between psychological stress evaluated by salivary Chromogranin and oral habits. assignment number 19592242. 1,560 thousand yen
- 3 : Grant-in-Aid for Scientific Research (C): Abekura H: Participation of lifestyle in relationship between oral habits and psychological stress. assignment number 22592152. 2,340 thousand yen.

#### (5) Academic Awards, etc.

#### (6) Patents

Programs for Applied Biomedicine, Division of  
Cervico-Gnathostomatology (Department of Orthodontics and  
Craniofacial Developmental Biology)  
Department of Oral Health and Development (Orthodontics)

## (1) Staffs and students

Professor	: Kazuo Tanne
Associate Professor	: Toshitsugu Kawata
Assistant Professor	: Hiroshi Ueda, Kotaro Tanimoto,
Assistant	: Masato Kaku, Tadashi Fujita, Junji Ohtani, Masahide Motokawa, Myongsun Koh, Yuki Tanne
Intern	: Satoru Ohkuma, Ryouta Sano, Maya Shirakura, Kouji Takahashi, Yasunori Iwabuchi, Ryo Kunimatsu, Genki Watanabe,
Graduate Student	: Goshi Ito, Noritsugu Ozaki, Aki Kawazoe, Hiroyuki Koseki, Hiroko Sunagawa, Tomoko Sasamoto, Naoto Hirose, Huang Yu-ching, Atsushi Horihata, Masahiko Michida, Motoko Yoshioka, Hidetaka Hayashi, Yayoi Matsuda, Tomomi Mitsuyoshi, Emi Ishikawa, Kyoko Murasaki, Sara Abedini, Syunichi Kojima, Keisuke Sumi, Noriko Tsubamoto, Akiko Terao, Yuki Yoshimi, Yuji Tsuka, Su Shao Ching, Hiromi Sumi, Kaori Takahashi, Morio Masunaga (adult graduate student)
Residen	: Kayo Horie
International Student	: Emanuel Braga Rego, Rene Arturo Marquez Hernandez,
Professor (part-time)	: Kazuhiro Ueki, Toshitsugu Kojima, Hiroharu Tsuka, Hiroshi Hanaoka, Junichiro Iida
Registered Intern	: Kuniaki Tanaka, Kazunori Itatani, Hiroko Kamada, Takuro Hasegawa, Eizo Yamano, Youhei Suekawa, Ryouko Yamamoto, Natsumi Tsuka
Dental Hygienist	: Kanako Yano

## (2) Main academic activity

- 1: Viscoelastic property of temporomandibular joint disks.
- 2: Effects of growth factors on the proliferation and differentiation of condylar cartilage and the disk cells.
- 3: Biomechanical investigation of TMJ loading and assessment of lubricating function.
- 4: Mechanisms of pain transmission during experimental tooth movement and clarification of pain

control.

- 5: Changes in stomatognathic functions from orthodontic surgery.
- 6: Association between nasal respiratory disturbances and craniofacial morphology and masticatory and respiratory functions.
- 7: Influences of mechanical stimuli on the proliferation and differentiation of chondrocytes.
- 8: Clarification of PDL regeneration mechanism.
- 9: Metabolism of hyaluronan in TMJ synovial fluid.
- 10: Influences of food consistency on neuropathological changes in the cerebral cortex.
- 11: Regeneration of bone and cartilage with mesenchymal stem cells.
- 12: Control mechanism of bone growth and development with sex hormone.
- 13: Long term cryopreservation of various tissues and cells

### (3) Research achievement

#### A) Original article

1. Effects of mechanical load on the expression and activity of hyaluronidase in cultured synovial membrane cells.: Kitamura R., Tanimoto K., Tanne Y., Kamiya T., Huang YC., Tanaka N., Tanaka E., Tanne K.: *J Biomed Mater Res A*, 92, 87-93, 2010.
2. Effects of mechanical stimuli on the synthesis of superficial zone protein in chondrocytes.: Kamiya T., Tanimoto K., Tanne Y., Lin YY., Kunimatsu R., Yoshioka M., Tanaka N., Tanaka E., Tanne K.: *J Biomed Mater Res A*, 92, 801-805, 2010.
3. Modulation of hyaluronan catabolism in chondrocytes by mechanical stimuli.: Tanimoto K., Kitamura R., Tanne Y., Kamiya T., Kunimatsu R., Yoshioka M., Tanaka N., Tanaka E., Tanne K.: *J Biomed Mater Res A*, 93, 373-380, 2010.
4. Overeruption of periodontally affected unopposed molars in adult rats.: Fujita T., Montet X., Tanne K., Kiliaridis S.: *J Periodontal Res*, 45, 271-276, 2010.
5. Modulation of hyaluronan fragmentation by interleukin-1 beta in synovial membrane cells.: Tanimoto K., Yanagida T., Tanne Y., Kamiya T., Huang YC., Mitsuyoshi T., Tanaka N., Tanaka E., Tanne K.: *Ann Biomed Eng*, 38, 1618-1625, 2010.
6. Orthodontic treatment with tooth transplantation for patients with cleft lip and palate.: Tanimoto K., Yanagida T., Tanne K.: *Cleft Palate Craniofac J*, 47, 499-506, 2010.
7. Activation of the hypoxia-inducible factor-1 in overloaded temporomandibular joint, and induction of osteoclastogenesis.: Shirakura M., Tanimoto K., Eguchi H., Miyauchi M., Nakamura

- H., Hiyama K., Tanimoto K., Tanaka E., Takata T., Tanne K.: *Biochem Biophys Res Commun.* 393, 800-805, 2010.
8. Expression of Sox 9 and type II and X collagens in regenerated condyle.: Fujita T., Nakano M., Ohtani J., Kawata T., Kaku M., Motokawa M., Tsuka N., Hayashi H., Tanne K.: *Eur J Orthod.*: 32, 667-680, 2010.
  9. Inhibitory effects of orally administrated liposomal bovine lactoferrin on the LPS-induced osteoclastogenesis.: Yamano E., Miyauchi M., Furusyo H., Kawazoe A., Ishikado A., Makino T., Tanne K., Tanaka E., Takata T.: *Lab Invest.*: 90, 1236-1246, 2010.
  10. Ultrasound stimulation induces PGE(2) synthesis promoting cementoblastic differentiation through EP2/EP4 receptor pathway.: Rego EB., Inubushi T., Kawazoe A., Tanimoto K., Miyauchi M., Tanaka E., Takata T., Tanne K.: *Ultrasound Med Biol*, 36, 907-915, 2010.
  11. Cryopreservation of periodontal ligament cells with magnetic field for tooth banking.: Kaku M, Kamada H, Kawata T, Koseki H, Abedini S, Kojima S, Motokawa M, Fujita T, Ohtani J, Tsuka N, Matsuda Y, Sunagawa H, Hernandez RA, Ohwada N, Tanne K.: *Cryobiology.*: 61, 73-78, 2010.
  12. Applying an excessive mechanical stress alters the effect of subchondral osteoblasts on chondrocytes in a co-culture system.: Lin YY., Tanaka N., Ohkuma S., Iwabuchi Y., Tanne Y., Kamiya T., Kunimatsu R., Huang YC., Yoshioka M., Mitsuyoshi T., Tanimoto K., Tanaka E., Tanne K.: *Eur J Oral Sci*, 118, 151-158, 2010.
  13.  $1\{\alpha\},25(OH)2D3$  acts predominantly on mature osteoblastic cells under conditions of high extracellular phosphate to increase FGF23 production in vitro.: Yamamoto R., Minamizaki T., Yoshiko Y., Yoshioka H., Tanne K., Aubin JE., Maeda N.: *J Endocrinol*, 206, 279-286, 2010.
  14. Adaptation of rat jaw muscle fibers in postnatal development with a different food consistency: an immunohistochemical and electromyographic study.: Kawai N., Sano R., Korfage JA., Nakamura S., Kinouchi N., Kawakami E., Tanne K., Langenbach GE., Tanaka E.: *J Anat.*, 216, 717-723, 2010.
  15. A subset of osteoblasts expressing high endogenous levels of PPARgamma switches fate to adipocytes in the rat calvaria cell culture model.: Yoshiko Y, Oizumi K, Hasegawa T, Minamizaki T, Tanne K, Maeda N, Aubin JE.: *PLoS One*, 26, 11782, 2010.
  16. Effects of human full-length amelogenin on the proliferation of human mesenchymal stem cells derived from bone marrow.: Huang YC, Tanimoto K, Tanne Y, Kamiya T, Kunimatsu R, Michida M, Yoshioka M, Yoshimi Y, Kato Y, Tanne K.: *Cell Tissue Res*, 342, 205-212, 2010.
  17. Jaw muscle exercises affect occlusal function after oral appliances wear in obstructive sleep apnea patients.: Ueda H., Almeida F., Chen H., Lowe A.: *Best of Sleep Medicine*, 69-71, 2010.
  18. A consideration of occlusal stability after orthognathic treatment of jaw deformity.: Fujita T., Ohtani J., Ueda H., Kawata T., Tanne K.: *J Hiroshima Dent Asso*, 37, 55-60, 2010.



19. Association of scoliosis with maxillofacial malformation and temporomandibular joint disorder in jaw deformity patients.: Sunagawa H., Ohtani J., Sano R., Tsubamoto N., Fujita T., Tanne K.: *The Japanese Journal of Jaw Deformities*, 20, 8-14, 2010.
20. Association between TMJ pathology and craniofacial morphology in patients with malocclusions: Sano R., Tanimoto K., Tanne Y., Kamiya T., Mitsuyosi T., Ohtani J., Sugiyama T., Ozawa S., Tanne K.: *Journal of the Japanese Society for the Temporomandibular Joint*, 31, 21-25, 2010.
21. Orofacial pain and roles of glia pain.: Watanabe M., Muraski K., Ito G., Suekawa Y., Takahashi K., Hirose N., Hiyama S., Tanne K., Uchida T.: *The Journal of Hiroshima Dental Medicine*, 37, 1-15, 2010.
22. A case of adult severe crowding re-treated by extraction of canine teeth with root exposure.: Kouji T., Watanabe M., Ito G., Murasaki K., Suekawa Y., Inubushi T., Hirose N., Ueda H., Tanne K.: *The Journal of Hiroshima University Dental Society*, 42, 105-106, 2010.
23. The upper alveolar bone and both-sides central incisors loss by trauma after an orthodontic treatment -A role of teeth bank- : Haneda Y., Uchida Y., Sawada N., Niki Y., Kaku M., Kawata T., Tanne K.: *The Journal of Hiroshima University Dental Society*, 42, 86-91, 2010.
24. Orthodontic treatment for open bite induced by inappropriate splint therapy.: Nishi A., Tanimoto K., Tanne Y., Kamiya T., Tanne K.: *The Journal of Hiroshima University Dental Society*, 42, 81-85, 2010.
25. A treatment case of high angle deep bite case with maxillary high canine.: Kamada H., Kaku M., Motokawa M., Fujita T., Ohtani J., Tsuka N., Koseki H., Kawazoe A., Kojima S., Kawata T., Tanne K.: *The Journal of Hiroshima University Dental Society*, 42, 75-80, 2010.
26. Orthodontic treatment with autotransplantation of tooth in cleft lip and palate patients.: Suekawa T., Tanne Y., Huang Y.C., Yoshioka M., Tanne K.: *The Journal of Hiroshima University Dental Society*, 42, 67-74, 2010.
27. Statistical survey of jaw deformity patients in the department of orthodontics, Hiroshima university hospital.: Koh M., Ito G., Watanabe G., Horihata A., Fujita T., Ueda M., Tanne K.: *The Journal of Hiroshima University Dental Society*, 42, 30-33, 2010.
28. An orthodontic treatment case of mandibular protrusion with congenital teeth defect.: Kojima S., Kaku M., Koseki H., Kawazoe A., Abedini S., Kamiya T., Motokawa M., Ohtani J., Fujita T., Kawata T., Tanne K.: *The Journal of Chu-Shikoku Orthodontic Society*, 22, 17-26, 2010.
29. A treatment case of cleft palate with maxillary distraction osteogenesis using a rigid external distraction (RED) system.: Yoshioka M., Tanimoto K., Tanne Y., Huang Y.C., Mitsuyoshi T., Tanne K.: *The Journal of Chu-Shikoku Orthodontic Society*, 22, 57-65, 2010.
30. An orthodontic treatment case of achondroplasia with mandibular protrusion and open bite.: Mitsuyoshi T., Tanne Y., Tanimoto K., Huang Y.C., Kamiya T., Yoshioka M., Tanne K.: *The Journal of Chu-Shikoku Orthodontic Society*, 22, 67-76, 2010.

31. A case of bimaxillary protrusion treated with two-jaw surgery and genioplasty.: Yamamoto R., Motokawa M., Kaku M., Kawata T., Tsuka N., Sasamoto T., Koseki H., Ozaki N., Kawazoe A., Matsuda Y., AbediniS., Tanne K.: *Orthodontic Waves-Japanese Edition*, 69, 126-133, 2010.

#### B) General remarks

1. Current technology: aesthetic restoration with autotransplantation –The role of teeth bank-: Kawata T., Kamiya T., Kaku M., Tanne K.: *DENTAL DIAMOND*, 35, 7, 76-80, 2010.
2. Autotransplantation of cryopreserved tooth by tooth bank.: Kaku M., Kawata T., Haneda Y., Niki Y., Uchida Y., Tanne K.: *The Quintessence*, 29, 151-157, 2010.
3. Consideration of ext- non ext confrontation for orthodontic treatment in2010: Departure from apparition of Dr.Angle for 80 years.: Kawata T., Kamiya T., Kaku M., Ueda H., Fujita T., Motokawa M., Tsuka N., Ohtani J., Abedini S., Tanne K.: *Journal of Orthodontic Practice*, 26, 6, 67-80, 2010.
4. Transplantation of teeth crown –The possibility and problem- .: Kawata T., Kamiya T., Shirai K., Kaku M., Kunimatsu R., Ueda H., Kurihara H., Okazaki M., Nishimura H., Hujii S., Tanne K.: *DENTAL OUTLOOK*, 115, 6, 1104-1108, 2010.

#### C) Books

1. Tanne K: *Dental • oral surgery disease malocclusion; Therapeutic strategy, my method of therapy* (Yamaguchi T., Kitahara M., Fukui T., edit) , Igakusyoin, Tokyo, 1239, 2010.
2. Tanne K: *Surgery for jaw deformities, Orthodontic treatment of pre- and post-operation; Oral surgery* (Shirasuna K., Kogo A., edit), Igakusyosyuppan, Tokyo, 620-628, 2010.
3. Tanne K: *Orthodontic treatment for TMJ patient; Companion of oral examination for doctor and dentist* (Takado I., edit), Kanehara syuppan, p58, 2010.

#### D) Other publications

#### E) Presentation at Scientific Meeting

1. Changes in the treatment strategy with edgewise appliances for Class II open bite.: Tanne K., Ohtani, J., Sunagawa H., Fujita T., Kaku M.: *The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima)*, 2010.
2. Innovation of mini-screw implantation method and instruments to achieve the high success rate.:

- Ohtani J.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
3. Changes in occlusal function and tooth pain after using an oral appliance for obstructive sleep apnea.: Horihata A., Ueda H., Watanabe G., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  4. Ultrasound stimulation induces PGE2 synthesis promoting cementoblastic differentiation in vitro and cementum repair in vivo.: Rego EB., Inubushi T., Kawazoe A., Miyauchi M., Takata T., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  5. Comparison of the side effects on occlusal function between different oral appliances for obstructive sleep apnea: Watanabe G., Ueda H., Horihata A., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  6. Factors of skeletal stability after surgical correction in open bite.: Ito G, Koh M., Fujita T., Shirakura M., Ueda H., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  7. Significance of HIF-1 signaling pathway in condylar cartilage with osteoarthrotic changes.: Shirakura M., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  8. Influences of experimentally-induced TMJ-OA on jaw muscle activity in rats.: Kawai N., Sano R., Nakamura S., Tanaka E., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  9. Sex hormone receptors role in the growth of the femur and mandible.: Márquez Hernández R.A., Ohtani J., Fujita T., Kawata T., Kaku M., Motokawa M, Tsuka N., Sunagawa H., Koseki H., Hayashi H., Matsuda Y., Abedini S., Tsubamoto N., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  10. Application of recombinant amelogenin to regeneration of cementum.: Kunimatsu R., Tanimoto K., Tanne Y., Kamiya T., Ohkuma S., Inubushi T., Huang Y.C., Yoshioka M., Hirose N., Mitsuyoshi T., Yoshimi Y., Miyauchi M., Takata T., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  11. Effects of long-term cryopreservation on PDL cells with the use of magnetic field programmed freezer.: Abedini S., Kaku M., Kawata T., Koseki H., Kojima S., Motokawa M., Tsuka N., Ohtani J., Fujita T., Matsuda Y., Sunagawa H., Márquez Hernández R.A., Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  12. Regeneration of condyle by use of a functional appliance.: Fujita T, Ohtani J, Tanne K.: The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  13. Amelogenin modulates the proliferation of human mesenchymal stem cells through the MAPK-ERK pathway.: Huang Y.C., Tanimoto K., Tanne Y., Kamiya T., Ohkuma S., Inubushi T., Kunimatsu R., Yoshioka M., Michida M., Mitsuyoshi T., Yoshimi Y., Kato Y., Tanne K.: The 2<sup>nd</sup> International

- Conference on Orthodontic Treatment (Hiroshima), 2010.
14. Availability of carbonated hydroxyapatite as a scaffold for bone regeneration: Sumi K., Tanimoto K., Tanne Y., Kamiya T., Okuma S., Kunimatsu R., Yoshioka M., Hayashi H., Okazaki M., Kato Y., Sugiyama M., Tanne K.: The 88<sup>th</sup> General Session & Exhibition of the International Association for Dental Research (Barcelona), 2010.
  15. Bone regeneration in artificial jaw cleft by use of mesenchymal stem cells: Yoshioka M., Tanimoto K., Sumi K., Tanne Y., Kamiya T., Okuma S., Kunimatsu R., Huang Y.C., Yoshimi Y., Kato Y., Sugiyama M., Tanne K.: The 88<sup>th</sup> General Session & Exhibition of the International Association for Dental Research (Barcelona), 2010.
  16. Effect of Human Amelogenin on the Proliferation of Periodontal cells: Yoshimi Y., Tanimoto K., Tanne Y., Motokawa M., Kamiya T., Inubushi T., Kunimatsu R., Huang Y.-C., Yoshioka M., Hirose N., Mitsuyoshi T., Tanne K.: The 88<sup>th</sup> General Session & Exhibition of the International Association for Dental Research (Barcelona), 2010.
  17. Modulation of PRG4 expression by hyaluronan through CD44 receptor: Mitsuyoshi T., Kamiya T., Tanimoto K., Tanne Y., Kunimatsu R., Yoshioka M., Yu-Ching H., Sano R., Matsuda Y., Yoshimi Y., Tanne K.: The 88<sup>th</sup> General Session & Exhibition of the International Association for Dental Research (Barcelona), 2010.
  18. Astrocytic Interleukin-1beta contributes to neuropathic pain following mental nerve injury: Takahashi K., Watanabe M., Suekawa Y., Ito G., Murasaki K., Hirose N., Hiyama S., Uchida T., Tanne K.: The 88<sup>th</sup> General Session & Exhibition of the International Association for Dental Research (Barcelona), 2010.
  19. Effects of human recombinant amelogenin on the metabolism of cementoblasts.: Kunimatsu R., Tanimoto K., Tanne Y., Kamiya T., Inubushi T., Huang Y.C., Mitsuyoshi T., Yoshimi Y., Miyauchi M., Takata T., Tanne K.: The 58<sup>th</sup> Annual Meeting of Japanese Association for Dental Research (Fukuoka), 2010.
  20. Amelogenin without N-terminal domain affects the metabolism of cementoblasts: Yoshimi Y., Tanimoto K., Kunimatsu R., Tanne Y., Kamiya T., Inubushi T., Huang Y.C., Mitsuyoshi T., Miyauchi M., Takata T., Tanne K.: The 58<sup>th</sup> Annual Meeting of Japanese Association for Dental Research (Fukuoka), 2010.
  21. Histochemical analysis of root resorption in rats by jiggling forces: Matsuda Y., Motokawa M., Kaku K., Kawata T., Fujita T., Ohtani J., Sunagawa H., Koseki H., Abedini S., Hayashi H., Terao A., Kojima S., Tsubamoto N., Ishikawa E., Tanne K.: The 58<sup>th</sup> Annual Meeting of Japanese Association for Dental Research (Fukuoka), 2010.
  22. Effects of recombinant human amelogenin on the proliferation of cementoblasts and periodontal ligament cells.: Kunimatsu R., Tanimoto K., Tanne Y., Kamiya T., Okuma S., Inubushi T., Huang Y.C., Yoshioka M., Hirose H., Mitsuyoshi T., Yoshimi Y., Miyauchi M., Takata T., Tanne K.: The 2<sup>nd</sup>

- International Workshop on Biodental Education&Research (Hiroshima), 2010.
23. The role of P2X<sub>7</sub> receptor in neuropathic pain of maxillofacial region.: Ito G, Watanabe M., Inubushi T., Takahashi K., Hirose N., Murasaki K., Hiyama S., Uchida T., Tanne K.: The 43<sup>th</sup> Dental meeting of Hiroshima university (Hiroshima), 2010.
  24. Anti-inflammatory effects of soybean lecithin liposomalized lactoferrin during orthodontic tooth movement.: Kawazoe A., Inubushi T., Miyauchi M., Rego EB., Ishikado A., Tanne K., Takata T.: The 15<sup>th</sup> International Congress on Oral Pathology and Medicine (Seoul), 2010.
  25. Long-term changes in tongue and pharyngeal airway morphology in the lymphangioma patient with macroglossia.: Watanabe G., Ueda H., Koh M., Ito G., Michida M., Horihata A., Tanne K.: The 20<sup>th</sup> Annual Meeting of the Society for Jaw Deformities (Sapporo), 2010.
  26. Variation in the direction of mandibular relapse after surgery.: Koh M., Fujita T., Ito G., Shirakura M., Watanabe G, Horihata A., Murasaki K., Ueda H., Tanne K.: The 20<sup>th</sup> Annual Meeting of the Society for Jaw Deformities (Sapporo), 2010.
  27. Orthodontic-surgical correction of a skeletal Class II malocclusion with IVRO and Le Fort I osteotomy.: Abedini S., Kaku M., Koseki H., Kojima S., Tanne K.: The 20<sup>th</sup> Annual Meeting of the Society for Jaw Deformities (Sapporo), 2010.
  28. Changes in the lip-line in asymmetrical cases treated with one-jaw surgery.: Shirakura M., Fujita T., Koh M., Tanne K.: The 20<sup>th</sup> Annual Meeting of the Society for Jaw Deformities (Sapporo), 2010.
  29. Investigations of the factors affecting upper and lower lip vermilion area in mandibular prognathic patients undergoing orthognathic surgery: Tsubamoto N., Ohtani J., Sano R., Sunagawa H., Fujita T., Ueda H., Tanne K.: The 20<sup>th</sup> Annual Meeting of the Society for Jaw Deformities(Sapporo), 2010.
  30. Association between TMJ pathology and craniofacial morphology in patients with malocclusions: Sano R., Tanimoto K., Tanne Y., Kamiya T., Mitsuyoshi T., Sugiyama T., Ozawa S., Tanne K.: The 20<sup>th</sup> Annual Meeting of the Society for Jaw Deformities(Sapporo), 2010.
  31. Difference in the masticatory muscle activity between cleft lip and palate patients and normal subjects.: Ueda H., Watanabe G, Koh M., Ohtani J., Sai H., Tanne K.: 34<sup>th</sup> Annual Meeting of Japanese Cleft Palate Association (Tokyo), 2010.
  32. Effect of bEGF and HA on the modulation of apoptosis during wound healing in gingival tissue with different host ages.: Ohkuma S., Tanimoto K., Tanne Y., Kamiya T., Inubushi T., Iwabuchi Y., Yoshioka M., Ozaki N., Michida M., Hirose N., Mitsuyoshi T., Yoshimi Y., Tanne K.: 34<sup>th</sup> Annual Meeting of Japanese Cleft Palate Association (Tokyo), 2010.
  33. Teeth bank for cleft lip and palate patients.: Kawata T., Kaku M., Tanne K.: 34<sup>th</sup> Annual Meeting of Japanese Cleft Palate Association(Tokyo), 2010.
  34. Treatment of jaw cleft with bone regeneration by use of mesenchymal stem cells derived from bone marrow: Orthodontic tooth movement into regenerated bone area.: Yoshioka M., Tanimoto K., Tanne Y., Ohkuma S., Kamiya T., Inubushi T., Kunimatsu R., Huang Y.C., Sasamoto T., Sumi K., Sugiyama M., Kato Y., Tanne K.: 34<sup>th</sup> Annual Meeting of Japanese Cleft Palate Association(Tokyo), 2010.
  35. Influences of different oral appliances for obstructive sleep apnea on occlusal function.: Watanabe G, Horihata A., Ueda H., Tanne K.: The 35<sup>th</sup> Annual Meeting of Japanese Society of Sleep Research (Nagoya), 2010.

36. Statistical survey of jaw deformity patients in the department of orthodontics, Hiroshima University Hospital.: Ishikawa E., Koh M., Ito G., Watanabe G., Horihata A., Fujita T., Ueda M., Tanne K.: 53<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Tottori), 2010.
37. An examination about the dentition and occlusion of school children with their study models.: Murasaki K., Koh M., Ito G., Sano R., Ohkuma S., Takahashi K., Horihata A., Tsubamoto N., Ishikawa E., Ohtani J., Ueda M., Tanne K.: 53<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Tottori), 2010.
38. A clinical survey for the prevalence of root resorption in open bite after treatment with multi-bracket system.: Terao A., Motokawa M., Kaku M., Kawata T., Sasamoto T., Ozaki N., Koseki H., Kawazoe A., Matsuda Y., Kojima S., Tanne K.: 53<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Tottori), 2010.
39. An orthodontic treatment case of severe skeletal open bite with anterior crowding.: Kojima S., Kaku M., Koseki H., Kawazoe A., Kamiya T., Motokawa M., Ohtani J., Fujita T., Kawata Y., Tanne K.: 53<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Tottori), 2010.
40. Regulation of the basic helix-loop-helix transcription factors Dec1 / Dec2 by RORa.: Ozaki N., Noshiro M., Kawamoto K., Fujimoto K., Kato Y., Tanne K.: The 50th meeting of the Japanese Biochemical Society , Chugoku, Sikoku (Yamaguchi), 2010.
41. Modulation of PRG4 expression by hyaluronan through CD44 receptor.: Mitsuyoshi T., Kamiya T., Tanne Y., Tanimoto K., and Tanne K.: 23<sup>th</sup> Annual Meeting of Japanese Society for the Temporomandibular Joint(Tokyo) , 2010.
42. Mechanism of degeneration and destruction of condylar cartilage for excessive mechanical stimuli.: Kamiya T., Tanimoto K., Tanne Y., Iwabuchi Y., Mitsuyoshi T., Tanne K.: 23<sup>th</sup> Annual Meeting of Japanese Society for the Temporomandibular Joint(Tokyo) , 2010.
43. The clinical consideration of jaw deformities with Le Fort I osteotomy.: Yamazaki S., Ito T., Okazaki F., Fujii Y., Kimura N., Takesue N., Nabeshima T., Ishida Y., Hamana T., Fukui Y., Sumi K., Okamoto Y., Kanda T., Shintani T., Koizumi K., Yoshioka Y., Tani R., Rindo Y., Toratani S., Tanne K., Okamoto T.: The 4<sup>3th</sup> Dental meeting of Hiroshima University(Hiroshima), 2010.
44. Anti-inflammatory effects of soybean lecithin liposomalized lactoferrin during orthodontic tooth movement.: Kawazoe A., Inubushi T., Miyauchi M., Rego EB., Ishikado A., Takata T., Tanne K.: The 43<sup>th</sup> Dental meeting of Hiroshima University(Hiroshima), 2010.
45. The role of Dec2 in osteogenic, adipogenic and chondrogenic differentiation of bone marrow derived mesenchymal stem cells.: Sasamoto T, Fujimoto K, Kanawa M, Kawamoto K, Noshiro M, Michida M, Ozaki N, Tanne K, Kato Y.: The 43<sup>th</sup> Dental meeting of Hiroshima University(Hiroshima), 2010.
46. Regeneration of the mandibular condyle with use of a functional appliance.: Hayashi H., Fujita T., Shirakura M., Kawata T., Kaku M., Ohtani J., Motokawa M., Koseki H., Sunagawa H., Marquez

- Hernandez R.A., Matsuda Y., Abedini S., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
47. Expression of sex hormone receptors on mandibular growth.: Ohtani J., Marquez Hernandez R.A., Fujita T., Sunagawa H., Tsubamoto N., Ishikawa E., Kawata T., Kaku M., Motokawa M., Koseki H., Hayashi H., Matsuda Y., Abedini., Kojima S., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  48. Long-term cryopreservation of rat MSCs by use of a programmed freezer with a magnetic field.: Kojima S., Kaku M., Kawata T., Motokawa M., Fujita T., Ohtani J., Koseki H., Abedini S., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  49. Role of ameloblastin during root formation in mice.: Hirose N., Ito G., Murasaki K., Takahashi K., Watanabe M., Shimazu A., Uchida T., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  50. Long-term cryopreservation of bone tissues by using of a programmed freezer with a magnetic field.: Koseki H., Kaku M., Kawata T., Motokawa M., Fujita T., Ohtani J., Abedini S., Kojima S., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  51. Effect of amelogenin on the metabolism of periodontal tissue and the mechanisms of signaling transmission.: Kunimatsu R., Tanimoto K., Tanne Y., Kamiya T., Ohkuma S., Iwabuchi Y., Huang Y.C., Yoshioka M., Ozaki N., Sasamoto T., Michida M., Hirose N., Mitsuyoshi T., Yoshimi Y., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  52. Effect of amelogenin without N-terminal domain on the proliferation and differentiation of periodontal ligament cells.: Yoshimi Y., Tanimoto K., Kunimatsu R., Tanne Y., Kamiya T., Ohkuma S., Iwabuchi Y., Huang Y.C., Yoshioka M., Ozaki N., Sasamoto T., Michida M., Hirose N., Inubushi T., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  53. Influence of low-intensity pulsed ultrasound on condylar chondrocytes with degenerated change of temporomandibular joint osteoarthritis.: Iwabuchi Y., Tanimoto K., Motokawa M., Tanne Y., Inubushi T., Kamiya T., Ohkuma S., Kunimatsu R., Huang Y.C., Yoshioka M., Michida M., Sasamoto T., Mitsuyoshi T., Tanaka E., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  54. Effect of bEGF and HA on the modulation of apoptosis in gingival fibroblasts.: Ohkuma S., Tanimoto K., Tanne Y., Kamiya T., Kunimatsu R., Huang Y.C., Yoshioka M., Ozaki N., Michida M., Sasamoto T., Hirose N., Mitsuyoshi T., Sumi K., Yoshimi Y., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
  55. A clinical survey for the prevalence of root resorption in open bite(Part 1):. Terao A., Motokawa M., Kaku M., Kawata T., Sasamoto T., Ozaki N., Koseki H., Kawazoe A., Matsuda Y., Abedini S.,

- Kojima S., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
56. A clinical survey for the prevalence of root resorption in open bite(Part 2).: Motokawa M., Terao A., Kaku M., Kawata T., Sasamoto T., Ozaki N., Koseki H., Kawazoe A., Matsuda Y., Abedini S., Kojima S., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
57. Autotransplantation of cryopreserved teeth –The role of teeth bank- : Uchida Y., Kawata T., Kaku M., Kamiya T., Haneda Y., Tanne K.: The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
58. Autotransplantation of cryopreserved tooth using programmed freezer with a magnetic field.: Kaku M., Kawata T., Koseki H., Abedini S., Kojima S., Sumi H., Fujita T., Motokawa M., Ohtani J., Niki Y., Haneda Y., Tanne K.: The 49<sup>th</sup> Annual Meeting of Hiroshima Prefecture Dental Science, The 94<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
59. Changes in the pharyngeal airway after use of the activator in Class II patients.: Horihata A, Ueda H., Watanabe G, Sano R, Koh M, Tanne K.: The 49<sup>th</sup> Annual Meeting of Hiroshima Prefecture Dental Science, The 94<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
60. A case report of openbite caused by using inappropriate splint.: Sumi K., Tanimoto K., Tanne Y., Kamiya T., Kunimatsu R., Hirose N., Mitsuyoshi T., Tanne K.: The 49<sup>th</sup> Annual Meeting of Hiroshima Prefecture Dental Science, The 94<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
61. Regulation of the basic helix-loop-helix transcription factors Dec1 and Dec2 by ROR $\alpha$  and SREBP1c and their roles in adipogenesis.: Ozaki N., Noshiro M., Kawamoto K., Fujimoto K., Kato Y., Tanne K.: 83<sup>th</sup> Annual Meeting of Biochemical Society of Japan (Kobe), 2010.
62. Soybean lecithin liposomalized lactoferrin prevents LPS-induced periodontal tissue inflammation and destruction without inhibition of orthodontic tooth movement.: Kawazoe A., Miyauchi M., Yamano E., Inubushi T., Ishikado A., Tanne K., Takata T.: The 4<sup>th</sup> Annual Meeting of Japanese Lactoferrin Society (Shiga), 2010
63. The role of transcription factor GATA6 in integrin expression levels of Mesenchymal Stem Cell (MSC).: Michida M., Kawamoto K., Kubo H., Kanawa M., Tanne K., Kato Y.: 51<sup>th</sup> Annual Meeting of Biochemical Society of Japan (Yamaguchi), 2010.

#### F) Academic society symposium and special lecture

1. Tanne K.: Mini-symposium “Importance of TMJ for jaw deformity” , Association of temporomandibular joint disorder with the onset of jaw deformity. : The 20<sup>th</sup> Annual



- Meeting of Japanese Society for Jaw Deformity (Sapporo), 2010.
2. Tanne K.: Current status of TMD and the treatment strategy integrated with orthodontic approach. : The 7<sup>th</sup> International Orthodontic Congress (Sydney), 2010.
  3. Tanne K.: Changes in orthodontic treatment system with edgewise appliances for Class II open bite. : The 2<sup>nd</sup> International Conference on Orthodontic Treatment (Hiroshima), 2010.
  4. Tanne K.: Tissue regeneration therapy for the defects of bony structures and teeth in the craniofacial region. : Joint Scientific Meeting in Dentistry (JSDiD) (Surabaya), 2010.
  5. Tanne K.: Current status of TMD and the therapeutic strategy integrated with orthodontic approach. : Joint Scientific Meeting in Dentistry (JSDiD) (Surabaya), 2010.
  6. Tanne K.: Recent academic and clinical topics in orthodontics: tissue regeneration and micro-implant anchorage. : 2010 QingDao International Orthodontic and Scientific Meeting (QingDao), 2010.
  7. Tanne K.: Current status of temporomandibular joint disorder and the therapeutic strategy. : 2010 QingDao International Orthodontic and Scientific Meeting (QingDao), 2010.
  8. Tanne K.: Vertical skeletal discrepancy, open bite: current principles and techniques for the treatment.: The 3<sup>rd</sup> Asian Micro Implant Anchorage Meeting (Bangkok), 2010.
  9. Tanne K.: A significance of molar intrusion in the treatment of open bite with vertical skeletal discrepancy: treatment strategy derived from the etiologic consideration. : The 2<sup>nd</sup> World Implant Orthodontic Conference (Taipei), 2010.
  10. Ohtani J.: Molar movement and chin control: The 9<sup>th</sup> Implant-Orthodontics Conference (Sendai), 2010.
  11. Ohtani J.: Innovation of implantation method and instruments based on evidence.: The 2<sup>nd</sup> World implant orthodontic conference (Taipei), 2010.
  12. Kaku M.: Treatment of temporomandibular joint disorders using miniscrew anchorage.: The 2<sup>nd</sup> World Implant Orthodontic Conference (Taipei), 2010.
  13. Ueda H.: Changes in occlusal contact area in obstructive sleep apnea patients during oral appliance therapy.: The 35<sup>th</sup> Annual Meeting of Japanese Society of Sleep Research (Nagoya), 2010.

#### (4) Scientific research grant -in-aid

1. Grant-in-aid for Scientific Research (B): Tanne K.: Responses of each cartilaginous layer of mandibular condyle to external stimuli and the association with progressive condylar resorption. No. 20390523. 3,100,000 yen

2. Grant-in-Aid for Scientific Research: Tanimoto K.: Elucidation of onset mechanism of amelogenesis imperfecta (AI) using a biomineralization model: No. 20390522.: 4,290,000yen.
3. Grant-in-Aid for Scientific Research (C): Ueda H.: Clinical application of the oral appliance for sleep apnea to diminish the side effect on occlusal function: No 20592403.: 300,000yen.
4. Grant-in-Aid for Scientific Research: Tanaka N.: Availability of low-pulse ultrasound stimulation for temporomandibular joint disfunction.: No. 22592285. 1000 千円
5. Grant-in-Aid for Scientific Research: Tanimoto K.: Development of biomineralization technology using nano-process and its application to regeneration of tooth enamel: No. 21659474.: 1,600,000yen.
6. Grant-in-Aid from the Ministry of Education, Science, Sports and Culture of Japan, Wakate(B): Kaku M: Long term cryopreservation of bone tissue: No. 22792054.: 1,600,000Yen.
7. Grant-in-Aid for Scientific Research: Shirakura M.: Molecular mechanisms of condroclastogenesis in temporomandibular joint – osteoarthritis; clarification of the hypoxia-inducible factor-1 activity. : No. 22792053. 900,000yen.
8. Grant-in-Aid for Scientific Research: Tanne Y.: Applications of amelogenin to the induction of bone regeneration by using mesenchymal stem cells: No21890164. 880,000yen.
9. Grant-in-Aid for Scientific Research: Kamiya T.: Clarification in regulatory expression mechanism of lubrication functional protein SZP and therapeutic development of temporomandibular joint function: No 21890163. 950,000yen.
10. Grant-in-Aid for Scientific Research: Takahashi K.: Role of gap junction in orofacial chronic pain: No21890162. 950,000yen.
11. Grant-in-Aid for Scientific Research: Iwabuchi Y.: Regenerative therapy of temporomandibular joint osteoarthritis developed by the regulative technology of matrix metabolism with low intensity pulsed ultrasound irradiation: No22890122. 1,120,000yen.
12. Grant-in-Aid for small business developing technologies in Hiroshima city.: Ishikawa Corp.: Verification of commoditizing and efficacy of disinfect in calcium iron water: 1,820,000yen.
13. Collaborative project in faculty and fuzoku.: Koh M.: Confirmation and clinical application of quantitative appraisal method of nasal resistance affect the buccinator mechanism.: 30,000yen.

#### (5) Commendation

1. Tanne K.: Performance award of cooperation for government, industry and academia in Chugoku area (Collaboration center of government, industry and academia in Chugoku area)、2010.
2. Ohtani J.: A newly developed snack effective for enhancing bone volume: The 13<sup>th</sup> Reunion of Hiroshima University Faculty of Dentistry, Incentive thesis award, 2010. The 1<sup>st</sup> Intellectual property of Hiroshima University incentive award, 2010.

3. Yoshioka M.: Treatment of Jaw Cleft with Bone Regeneration by use of Mesenchymal Stem Cells Derived from Bone Marrow: Orthodontic tooth movement into regenerated bone area.: Poster award : 3<sup>4</sup><sup>th</sup> Annual Meeting of Japanese Cleft Palate Association(Tokyo), 2010.
4. Kawazoe A: Soybean lecithin liposomalized lactoferrin prevents LPS-induced periodontal tissue inflammation and destruction without inhibition of orthodontic tooth movement.: Presentation award: The 4<sup>th</sup> Annual Meeting of Japanese Lactoferrin Society (Shiga), 2010
5. Uchida Y.: Autotransplantation of cryopreserved teeth –The role of teeth bank- : Poster award : The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.
6. Hayashi H.: Regeneration of the mandibular condyle with use of a functional appliance.: Poster award : The 69<sup>th</sup> Annual Meeting of the Japanese Orthodontic Society(Yokohama), 2010.

(6) Patent

**Programs for Applied Biomedicine, Division of Cervico-Gnathostomatology  
(Department of Pediatric Dentistry)  
Department of Oral Health and Development  
(Pediatric Dentistry)**

(1) Staff and Students

- Professor : Katsuyuki Kozai
- Associate Professor : Junji Suzuki (~March)  
: Fumiko Hayashi (August~)
- Research Associate : Yasutaka Kaihara, Fumiko Hayashi, Chieko Mitsuhata  
Goh Yoshimura, Meiko Tachikake (April~), Noriko Kadomoto
- Physician : Noriko Kadomoto (April~), Kozue Miura (~March), Mihaya Arika,  
Ryoko Hirata , Satoko Otani, Nami Miyake
- Graduate Student : Aya Tsuboi, Yukari Ohara, Hu Yiqun Yukiko Konishi, Ayumi Shimada  
Aomin (April~), Kazunori Matsuura (~March), Akira Yamane (~March)  
Yuko Iwamoto(April~), Noriko Kozama(April~)
- Research Student : Kaori Saiga (~March), Ayako Banshoudani(~March),  
Mie Hirakawa(~March) , Kazunori Matsuura (April~), Akira Yamane (April~)
- Registered Intern : Mami Yamashiro(~March), Mie Hirakawa(~March)  
: Ayako Banshoudani(~March), Noriko Kashiwa (April~)

(2) Main Research Activities

- 1 : Automutanolysin in oral streptococci
- 2 : Research in oral bacteria especially *Staphylococcus aureus* in children
- 3 : Effect of PG agonist differentiation of osteoblast
- 4 : Molecular analysis of cell-cell communication in differentiation of osteoblast
- 5 : Bacteriological and epidemiological research in periodontal diseases in children
- 6 : Behavior evaluation of psychological stress in dental treatment in children
- 7 : Transmission of mutans streptococci
- 8 : Seeking for anti-cariogenic substance from natural foods
- 9 : Denaturalization of tooth by low pH beverage
- 10 : Research in Maltreated children's Oral Health and study for construction of health improvement system
- 11 : Surveillance study to construct a preventive and educational program for oral health promotion of

Cambodian children

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

- 1 : A survey of the patients referred from Medical Departments in Hiroshima University Hospital: Otani S., Yoshimura G, Tsuboi A., Kadomoto N., Tachikake M., Suzuki J., Kozai K: *Jpn J Ped Dent*, 48(3), 409-413, 2010.
- 2 : A case report : the effectiveness of pictures made by an autistic young patient of her dental treatment: Miura K., Hayashi F., Otani S., Tsuboi A., Mitsuhata C., Mitsuhata C., Suzuki J, Kozai K: *JJSDH.*, 31(2), 232-236, 2010.
- 3 : Expression and function of variants of human catecholamine transporters lacking the fifth transmembrane region encoded by exon 6.: Sogawa C., Mitsuhata C., Kumagai-Morioka K., Sogawa N., Ohshima K., Morita K., Kozai K., Dohi T., Kitayama S.: *PLoS One*. Aug 5; 5(8): e11945, 2010.
- 4 : Use of a cognitive behavioral therapy-type approach to achieve successful dental treatment on a child suspected of dental phobia: Mitsuhata C., Mihaya A., Hirata R., Kaihara Y., Suzuki J., Amano H., Kozai K.: *Japanese Journal of Psychosomatic Dentistry*, 25(1), 14-20, 2010.
- 5 : Investigation on eating habits of elementary school children: Kaihara Y., Hayashi F., Ishitoku Y., Omatsu Y., Suzuki J., Kozai K.: *The annals of educational research*, 38,191-196, 2010.
- 6 : The availability assessment of medical information system after introducing in the Dental Section of University Hospital.: Hiasa K., Tanaka T., Ono S., Nishi H., Kawamura M., Arakawa M., Uchida Y., Nabeshima T., Kagawa K., Ueda H., Kaihara Y., Nakamoto T., Saida T., Okada M., Yasuhara Y., Ogawa I., Nakaoka M., Makita K., Tanaka T., Ogawa T., Kamata N., Yamada F.: *Japanese Journal of Medical Informatics*, 30(Supple.), 129-133, 2010.
- 7 : Dental treatment and oral care for a child receiving hematopoietic stem cell transplantation against rhabdomyosarcoma.: Tsuboi A., Kaihara Y., Kadomoto N., Mitsuhata C., Kozai K.: *JDW*, 15(1), 18-23, 2010.
- 8 : Status of periodontal diseases and prevalence in Junior high school students: Hayashi F., Yasuda R., Nakata K., Suzuki J., Okada M., Kawamura M., Kozai K.: *The annals of educational research*, 38, 315-318, 2010.
- 9 : Examination errors in a mass dental checkup without calibration at a school: Sasahara H., Hayashi F., Okada M., Shimazu A., Kawamura M., Kozai K.: *J Dent Hlth*, 60(5): 569-574, 2010.
- 10 : Late established mutans streptococci in children over 3 years old.: Okada M., Taniguchi Y.,

Hayashi F., Doi T., Suzuki J., Sugai M., Kozai K.: International Journal of Dentistry, 2010, 732468.

## B) Review

- 1 : LPS derived from *Aggregatibacter actinomycetemcomitans* inhibits differentiation and cell to cell communication in osteoclast: Suzuki J.: Jpn J Ped Dent, 48(1), 20-28, 2010.
- 2 : Tooth brushing instruction for preschool children (DVD) Brushing teeth for the first time: A point of practical use and the guidance: Kozai K.: Journal of the Japanese Association of School Dentists, 106, 26-27, 2010.

## C) Publications

- 1 : Pediatric Dentistry (The 3<sup>rd</sup> edition ): Periodontal disease in children, 155-167, Treatment for children periodontitis, 268-276, Treatment and prevention of traumatic dental injuries in childhood, 407-430, Kozai K.: Ishiyaku Publisher, Inc., 2009.

## D) Other Publications

- 1 : A case study of effective appliance toward mesial inclination and ectopic eruption of molar teeth, Yoshimura G., DENTAL DIAMOND, 35(506), 104-106, 2010.
- 2 : Dental caries prevention for children at each stage of eruption: Hayashi F., Kozai K.: DENTAL DIAMOND, 37(4), 46-51, 2010.
- 3 : Bases of the most advanced pediatric dentistry: Periodontal disease in children (1) Classification of periodontal diseases: Suzuki J., Kozai K.: Japanese Journal of Clinical Dentistry for Children, 15(2), 49-53, 2010.
- 4 : Bases of the most advanced pediatric dentistry: Periodontal disease in children (2) The difference between gingivitis and periodontitis: Suzuki J., Kozai K.: Japanese Journal of Clinical Dentistry for Children, 15(3), 37-39, 2010.
- 5 : Special issue: Cooperation between pediatric dentistry and pediatrics. —The 14<sup>th</sup> conference of the society of dentistry for child health and development — Dental treatment for Pervasive Developmental Disorders.: Hayashi F., Kozai K.: Japanese Journal of Clinical Dentistry for Children, 15(4), 18-23, 2010.
- 6 : Special issue: Cooperation between pediatric dentistry and pediatrics. —The 14<sup>th</sup> conference of the society of dentistry for child health and development — Current conditions childhood cancer of the children with cancer and oral complications caused by bone marrow transplantation caused by chemotherapy and radiation: Nakamura K., Kobayashi M., Suzuki J., Kozai K.: Japanese Journal of

- Clinical Dentistry for Children, 15(4), 24-28, 2010.
- 7 : Special issue Cooperation between Pediatric Dentistry and pediatrics. —The 14<sup>th</sup> conference of the society of dentistry for child health and development support for childhood cancer patients: Tsuboi A., Suzuki J., Kozai K.: Japanese Journal of Clinical Dentistry for Children, 15(4), 29-35, 2010.
  - 8 : The process for a specialist of pediatric dentistry —Japanese Society of Pediatric Dentistry②A milestone in my carrier of pediatric dentist: Miura K.: The Nippon Dental Review, 70(8), 87-94, 2010.
  - 9 : Preventive effects of pomace extracts from wine against dental caries: Konishi T., Aida K., Yoshimura G., Kozai K: FOOD Style 21, 14(11), 61-63, 2010.
  - 10 : Pediatric Dentistry need to know; 1. Delayed eruption of teeth — Diagnosis of tooth eruption —: Kozai K., Japanese Journal of Pediatrics 63(11): 2233-2440, 2010.
  - 11 : Training education and perspective of pediatric dental specialist: Kozai K.: Japanese Journal of Clinical Dentistry for Children, 15(5): 54-57, 2010.

#### E) Presentation at Scientific Meeting

- 1 : Isolation of oral lactic acid bacteria from children before school age and its relationship with primary teeth caries: Shimada A., Noda M., Sugimoto Y., Kumagai T., Matoba Y., Yoshimura G., Kozai K., Sugiyama M.: The 130<sup>th</sup> Congress of the Pharmaceutical Society of Japan (Okayama), 2010.
- 2 : Quantitative analysis of the ratio of mutans streptococci in dental plaque sampling from children: Ohara Y., Yoshimura G., Suzuki J., Kozai K.: 2<sup>nd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Science, 2010.
- 3 : Chemotherapy and radiation against neuroblastoma inhibit forming of permanent teeth : Tsuboi A., Suzuki J., Kozai K.: 2<sup>nd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Science, 2010.
- 4 : Oral complications caused by immunosuppressive therapy and effectiveness of oral treatment: Tsuboi A., Yoshimura G., Kaihara Y., Nakaoka M., Kadomoto N., Otani S., Ohara Y., Matsuura K., Kozai K.: The 48<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Nagoya), 2010.
- 5 : A survey of passive exposure to tabaco smoke and melanin pigmentation of gingiva in children: Otani S., Miura K., Mitsuata C., Konishi Y., Suzuki J., Kozai K.: The 48<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Nagoya), 2010.
- 6 : Effects of the oral appliance of patients with dysphagia in our hospital: Tachikake M., Suzuki J., Hayashi F., Otani S., Kadomoto N., Kozai K. : The 48<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Nagoya), 2010.
- 7 : Research on the spread of periodontal bacteria among families: Kadomoto N., Hayashi F., Kozai K.:

- The 48<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Nagoya), 2010.
- 8 : Frequency of congenitally missing or supernumerary teeth in patients visited at the pediatric dental clinic of our university hospital: Mitsuhashi C., Ohara Y., Kozai K.: The 43<sup>rd</sup> Congress of The Hiroshima University Dental Society (Hiroshima), 2010.
  - 9 : Senescence-related protein Klotho regulates bone mineralization: Konishi Y., Yoshiko Y., Minamizaki T., Kitabatake S., Yoshioka H., Kozai K., Maeda N. : The 43<sup>rd</sup> Congress of The Hiroshima University Dental Society (Hiroshima), 2010.
  - 10 : Dental stress of children with developmental disability: Mitsuhashi C., Ariki M., Hirata R., Kozai K.: 25<sup>th</sup> Annual Meeting of The Japanese Society of Psychosomatic Dentistry (Hiroshima), 2010.
  - 11 : Experimental study on relationship between periodontitis and systemic diseases—Systemic influence of continuous application of LPS to periodontal tissues—: Furusho H., Aomin., Inubushi T., Miyauchi M., Kitagawa M., Takata T.: 21<sup>st</sup> Annual Meeting of the Japanese Society of Oral Pathology, 2010.
  - 12 : Improved undergraduate clinical training program at Hiroshima University Faculty of Dentistry - Introduction of OSCE for Evaluation of Achievement - : Taji T., Fujii M., Fujita T., Kanda T., Kaihara Y., Nagasaki T., Okada M., Ogawa I., Uchida T., Kurihara H.: 29<sup>th</sup> Meeting of Japanese Dental Education Association (Morioka), 2010.
  - 13 : The availability assessment of medical information system after introducing in the Dental Section of University Hospital. : Hiasa K., Tanaka T., Ono S., Nishi H., Kawamura M., Arakawa M., Uchida Y., Nabeshima T., Kagawa K., Ueda H., Kaihara Y., Nakamoto T., Saida T., Okada M., Yasuhara Y., Ogawa I., Nakaoka M., Makita K., Tanaka T., Ogawa T., Kamata N., Yamada F.: The 30<sup>th</sup> Joint Conference on Medical Informatics (Hamamatsu), 2010.
  - 14 : A survey on the dental treatment for the intellectually disabled children in Department of Pediatric Dentistry of Hiroshima University Hospital in 2004 to 2009: Hayashi F., Mitsuhashi C., Ariki M., Nakaoka M., Kozai K.: The 27<sup>th</sup> General Session and Exhibition of Japanese Society for Disability and Oral Health (Tokyo), 2010.
  - 15 : The dental support activities for abused children admitted to the shelters: Kodama N., Banshoudani A., Kadomoto N., Otani S., Yamasaki K., Yamane Y., Iwamoto Y., Kozai K.: The 94<sup>th</sup> congress of The Hiroshima University Dental Society(Hiroshima), 2010.
  - 16 : Investigation of the characteristics of new patients that visited Department of Pediatric Dentistry of Hiroshima University Hospital: Hirata R, Ariki M., Miyake N, Otani S., Mitsuhashi C., Hayashi F., Kozai K.: The 29<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Okayama), 2010.
  - 17 : The oral health support activities in Sasar Sdam primary school, Siem Reap province, Kingdom of Cambodia: Iwamoto Y., Kadomoto N., Kodama N., Otani S., Amano H., Kozai K.: The 29<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Okayama), 2010.



- 18 : Accuracy and reproducibility of three-dimensional (3D) optical laser-scanning device: Kaihara Y., Amano H., Nikawa H., Kozai K.: The Congress of Autumn in 2010 of Japanese Society of Pediatric Dentistry (Koriyama), 2010.
- 19 : About the inhibition effect of wine pomece on the plaque formation of *S.mutans*.: Yoshimura G, Konishi T., Ohara Y., Kozai K.: The Congress of Autumn in 2010 of Japanese Society of Pediatric Dentistry (Koriyama), 2010.
- 20 : Investigation of distribution and properties of *S.mutans* sampling from children: Ohara Y., Yoshimura G, Kozai K.: The Congress of Autumn in 2010 of Japanese Society of Pediatric Dentistry (Koriyama), 2010.
- 21 : The oral condition of abused children admitted to the shelters: Kodama N., Banshoudani A., Kadomoto N., Otani S., Yamasaki K., Yamane Y., Iwamoto Y., Kozai K.: The Congress of Autumn in 2010 of Japanese Society of Pediatric Dentistry (Koriyama), 2010.

#### F) Special lectures in academic meetings

- 1 : Special Lecture organized by the Yamaguchi prefecture branch of alumni association of Hiroshima University Faculty of Dentistry: Growth and development of dentition and occlusion and appliance therapy in pediatric dentistry: Kaihara Y., Shunan-shi Shikaisi Kaikan (Shunan), 2010.
- 2 : 2010 Hiroshima Nursing Association seminar: Development and oral health care of children: In case of children with systematic diseases and children with disabilities: Kozai K., Hiroshima Nursing Association(Hiroshima), 2010.
- 3 : 2010 Showa East Elementary School educational lecture: Oral health for children -What should we do first ? : Kozai K., Showa East Elementary School (Kure), 2010.
- 4 : 2010 the 8020 movement seminar:: Kozai K., Miyoshi-shi Shikaishi Kaikan(Miyoshi), 2010.
- 5 : 2010 Dental hygienist recurrent seminar: Children's oral health care: Kozai K.: Faculty of Dentistry Hiroshima University (Hiroshima), 2010.
- 6 : 2010 the 8020 movement seminar: Children's dental health promotes the zest for living and the health power : Kozai K.: Fukuyama City Central Library (Fukuyama), 2010.
- 7 : The 29<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch Syposium: The most advanced clinical pediatric dentistry: Treatment of gingivitis and periodontitis in children: Arika M.: Okayama-ken Shikaishi Kaikan(Hiroshima), 2010.
- 8 : Lecture for JICA students at Kyushu University: Etiology and clinical approach for periodontal disease of children: Kozai K., Kyushu University (Fukuoka), 2010.
- 9 : 2010 Hiroshima University Open Lecture for High School-Students, Dental Caries and Chewing Force: Kozai K.: Hiroshima University School of Dentistry(Hiroshima), 2010.
- 10 : The 3<sup>rd</sup> International Symposium for Lactic Acid Bacteria to Urge Industry-University Cooperation

- Etiology of dental caries and the inhibitory potential of Lactobacilli: Kozai K.: Mielparque Hiroshima (Hiroshima), 2010.
- 11 : 21<sup>st</sup> Meeting of West Japan Association of Clinical Pediatric Oral and Maxillofacial Surgery. The Specialty Required for Children Request in Dentistry: Kozai K.: Osaka University Nakanosima Center (Osaka), 2010.
- 12 : 14<sup>th</sup> Meeting of Promotion of Home-Dentist and School-Dentist in Hiroshima Prefecture, Health Education of Dental Health in School: Kozai K.: Center of Hiroshima Prefecture Dental Association (Hiroshima), 2010.
- 13 : The seminar for Japan Association of Dental Traumatology Specialist. Dental Trauma and Safety Education in Children. : Kozai K.: Hiroshima University School of Dentistry (Hiroshima), 2010.
- 14 : Clinical treatment of occlusal guidance on Department of Pediatric Dentistry in Hiroshima University Hospital: Kadomoto N.: Special lecture at University of Health Sciences Faculty of Odonto-Stomatology, Phnom Penh, Kingdom of Cambodia, 2010.
- 15 : The introduction of my school life and International Dental Course in Hiroshima University: Iwamoto Y.: Special lecture at University of Health Sciences Faculty of Odonto-Stomatology, Phnom Penh, Kingdom of Cambodia, 2010.

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

- 1 : Grant-in-Aid for Challenging Exploratory Research: Kozai K.: Effects of removal of oral biofilm to improve of factors of diabetes in children. (No. 21659475), 2009: 1,000,000, 2010: 1,100,000.
- 2 : Grant-in-Aid for Scientific Research (B): Kozai K.: Effects of plaque-eco system on gene of cariogenic bacteria. (No 22390391) : 2010: direct expenses: ¥7,500,000, indirect expenses: ¥2,250,000)
- 3 : Grant-in-Aid for Scientific Research (B): Kadomoto N.: Development of oral care program using dental drug delivery system for patients who underwent hematopoietic stem cell transplantation.(No.21792073). ¥1,170,000
- 4 : Grant-in-Aid for Scientific Research (B): Tachikake M.: Inhibition of osteoblastic cell differentiation by lipopolysaccharide from periodontopathic bacteria (*A.a*) and its mechanism (No. 21792074). ¥2,600,000
- 5 : Grant-in-Aid for Scientific Research (B): Kozai K.: Resolution of mechanism of transmission of periodontitis related bacterial strains in children and development of prevention from adult periodontitis. (No.19390530). ¥2,200,000
- 6 : Grant-in-aid scientific research (C) : Suzuki J.: Unknown virulence factors produced by periodontal pathogen. (No.18592236). ¥600,000

- 7 : Grant-in-Aid for Scientific Research (C): Mitsuata C.: Effects of endocrine disorders on developing dopaminergic system in Brain (No.19592354). ¥1,500,000
- 8 : Hiroshima University Educational research.: Hayashi F.: Status of periodontal diseases and prevalence of periodontal pathogens in Junior high school students, ¥ 96,000
- 9 : Hiroshima University Educational research 2009: Kaihara Y.: Investigation on eating habits of elementary school children. ¥ 133,000
- 10 : Grant-in-Aid of Futoku-kai: 2009: Hu Yiqun.. ¥ 300,000
- 11 : Hiroshima University Educational research 2010: : Hayashi F.: Status of periodontal diseases in Junior high school students. ¥ 74,000
- 12 : Hiroshima University Educational research 2010: Kaihara Y.: Investigation on dental health behavior of elementary school children. ¥ 62,000
- 13 : Grant-in-aid scientific research (C): Yoshimura G : Intervention from pediatric dentistry in blood formation stem cell transplant of children.(No.22592286). ¥2,340,000
- 14 : Grant-in-Aid of Futoku-kai: 2010: Ao min.: ¥ 300,000
- 15 : Grant-in-Aid of Futoku-kai:2010: Tsuboi A.: ¥ 300,000

(5) Academic Awards, etc.

- 1 : Satoko Otani: 2010 JSPD Distinguished Scientists Awards at the 48<sup>th</sup> Annual Meeting of JSPD, 2010.
- 2 : Yukiko Konishi: Encouragement Award at The 43<sup>rd</sup> meeting of Hiroshima University Dental Society, Hiroshima, 2010.

(6) Patents

**Master's Program for Oral Health Sciences,  
Division of Oral Health Sciences  
(Department of Public Oral Health)**

(1) Staffs and Students

Professor : Masaru Sugiyama  
Assistant Professor : Maki Nosou  
Assistant Professor : Atsushi Shimazu (Department)  
Graduate Student : Rumi Nishimura, Tiekko Kawai, Kaoru Yamasita, Aya Tamura

(2) Main Research Activities

- 1 : Study on the relationship between oral microorganism infection and oral mucosal lesion.
- 2 : Study on the relationship between oral sensitivity and oral functions in elders.
- 3 : Experimental study on the mechanism of growth and regeneration of periodontal tissues.
- 4 : Study on the activities of oral health at school.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : The Factor Related to the Increase of Awareness in Oral Health Promotion for Junior High School Students : Shimazu A, Sasahara H and Kawamura M : J Dent Hlth 60: 104-111, 2010.
- 2 : Experience Activity of Dental School Students in the Planning, Preparation, and Performance of Oral Health Education in a Junior High School : Shimazu A, Sasahara H , Niitani Y, Matsumoto A, Hara K, Nosou M, Sugiyama M and Kawamura M : Journal of Japanese Dental Education Association 26(4) : 338-344, 2010.
- 3 : Examination Errors in a Mass Dental Checkup without Calibration at a School : Sasahara H , Hayashi F, Okada M, Shimazu A, , Kawamura M and Kozai K : J Dent Hlth 60: 569-574, 2010.
- 4 : Immobilized-OPG-Fc on a titanium surface inhibits RANKL-dependent osteoclast differentiation in vitro : Makihara S, Mine Y, Nikawa H, Syuto T, Kosaka E, Sugiyama M, Hosokawa R : J Mater Sci Mater Med 21, 647-653, 2010.

B) Review

### C) Publications

### D) Other Publications

- 1 : Environmental Education in Graduate School of Biomedical Sciences, Faculty of Medicine, Dentistry and Pharmaceutical Sciences, and Graduate School of Health Science ; Oral Public Health (Dental Basic Course in Faculty of Dentistry) : Shimazu A, Hiroshima University Environmental Report 2009 11-12 : 2010.

### E) Presentation at Scientific Meeting

- 1 : The Factor Related to the Increase of Awareness in Oral Health Promotion for Junior High School Students : Shimazu A, Sasahara H and Kawamura M : The 59th Annual meeting of Japanese Society for Dental Health (Niigata), 2010.
- 2 : Role of ameloblastin during root formation in mice : Hirose N, Shimazu A, Watanabe M, Ito G, Murasaki K, Takahashi H, Tanimoto K, Uchida T, Tanne K : The 69th Annual meeting of Japanese Orthodontic Society (Yokohara), 2010.
- 3 : Study on the educational effects of practicum of basic nursing in the medical outpatient department for the dental hygienist students in school nurse program : Nosou M, Naitou A, Shimazu A, Sugiyama M, Niitani Y, Matsumoto A, Takemoto T, Turuda K, Hara K, Amano H : The 43<sup>th</sup> Annual Meeting of Hiroshima University Dental Society, (Hiroshima), 2010.
- 4 : Study on the health concept of high school and university students : Nishimura R, Yamashita K, Sugiyama M, Hara K, Amano H : The 5<sup>th</sup> Annual Meeting of Dental Hygiene Society, (Tiba), 2010.
- 5 : Study on the health concept of university students in the school of Oral Health Sciences, Hiroshima University : Yamashita K, Iwamoto A, Kubo K, Kawai T, Nishimura R, Naitou A, Nosou M, Niitani Y, Matsumoto A, Turuda K, Shimazu A, Takemoto T, Sugiyama M, Hara K, Amano H : The 29<sup>th</sup> Annual Meeting of Japanese Dental Education Association, (Morioka), 2010.
- 6 : Availability of carbonated hydroxyapatite as a scaffold for bone regeneration. : K. Sumi, K. Tanimoto, Y. Tanne, T. Kamiya, S. Okuma, R. Kunimatu, M. Yoshioka, H. Hayashi, M. Okazaki, Y. Kato, M. Sugiyama, and K. Tanne. the 88th General Session & Exhibition of the International Association for Dental Research, (Barcelona, Spain), 2010.

### F) Contribution to Community

- 1 : Atsushi SHIMAZU : Dental Support Activity in Cambodia (Cambodia), 2010.
- 2 : Atsushi SHIMAZU : Oral health activity in Junior High School Students in Hiroshima (Hiroshima),

2010.

- 3 : Atsushi SHIMAZU : Dental Examination for Acidity and Alkalinity (Hiroshima), 2010.
- 4 : Atsushi SHIMAZU : Hiroshima University Oral Health Promotion Project Center (Hiroshima), 2010.
- 5 : Atsushi SHIMAZU : Dental Kids Project : Hiroshima Univ. Dental Sch. (Hiroshima), 2010.
- 6 : Atsushi SHIMAZU : 2010 Hiroshima Univ. Open School : Hiroshima Univ. (Hiroshima), 2010.

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

- 1 : Grants-in-Aid for Scientific Research (Scientific Research (C)) Continuance : Atsushi SHIMAZU :  
Effects of Stress induced Proteins in Periodontal disease. (No. 20592456). ¥1,000,000.

(5) Academic Awards, etc.

(6) Patents

## **Master's Program for Oral Health Science, Division of Oral Health Sciences (Department of Maxillofacial Functional Development)**

### (1) Staff and Students

Professor : AMANO Hideaki

Assistant Professor : HARA Kumiko

Research Associate : TSURUDA Keiko

Graduate Student : IWAMOTO Akiko, FUKADA Eri

### (2) Specialized Fields

- 1 : Clinical research of the growth and development of dento-maxillofacial complex in children
- 2 : Study on the Dentistry for children and disabilities
- 3 : Study on the activation of the function of salivary glands
- 4 : Study on the methods for Oral health care
- 5 : Study on the education program for Oral health
- 6 : Study on education program for graduate dental hygienists
- 7 : Study on the Mechanism of *Aggregatibacter actinomycetemcomitans*-CDT complex formation and secretion

### (3) Achievements

- 1 : An effort of the practical program for oral rehabilitation : Hara K, Naito A, Noso M, Tsuruda K, Shimazu A, Niitani Y, Matsumoto A, Takemoto T, Sugiyama M, Amano H: The Study Report of the annual autumn workshop for teachers of dental hygienist school in 2009:85-93,2010.
- 2 : Changes in the Hand-washing Skill and Attitudes According to Infection Control Training Program in Dental Hygienists Education : Ishikawa Y, Takemoto T, Kubo K, Niitani Y, Matsumoto A, Hara K, Sugiyama M, Amano H : Journal of the Japanese society of dental health 5(1),57-65,2010.
- 3 : An activity of the dental health guidance for the junior high-school students by the dental students, and its plan, preparation and operation : Shimazu A, Sasahara H, Niitani Y, Matsumoto A, Hara K, Noso M, Sugiyama M, Kawamura M : Journal of the Japanese Dental Education Association 26, 338-344, 2010.
- 4 : Cytotoxic distending toxin from *Aggregatibacter actinomycetemcomitans* induces DNA damage,

S/G2 cell cycle arrest and caspase-independent death in budding yeast model. Matangasombut O, Wattanawaraporn R, Tsuruda K, Ohara M, Sugai M and Mongkolsku S. *Infection and Immunity*, vol 78, 783-792, 2010.

#### B) Reviews

#### C) Books

#### D) Other Publications

#### E) Presentations

- 1 : A practical program for oral rehabilitation in School of Oral Health Sciences, Hiroshima University Faculty of Dentistry : Hara K, Tsuruda K, Niitani Y, Matsumoto A, Takemoto T, Naitou A, Noso M, Shimazu A, Sugiyama M, Amano H: 43rd Annual meeting of the Hiroshima University Dental Association(Hiroshima), 2010.6.12.
- 2 : Study on the educational effects of practicum of basic nursing in the medical outpatient department for the dental hygienist students in schoolnurse program : Nosou M, Naitou A, Shimazu A, Sugiyama M, Niitani Y, Matsumoto A, Takemoto T, Turuda K, Hara K, Shimazu A, Amano H : 43th Annual meeting of the Hiroshima University Dental Association(Hiroshima), 2010.6.12.
- 3 : A survey on the health concepts of the high-school students and university students : Nishimura R, Yamashita K, Iwamoto A, Hara K, Amano H : 5<sup>th</sup> Annual meeting of the Japanese society of dental health(Chiba), 2010.9.19-20.
- 4 : A consciousness investigation of the dental professionals for their sound circumstances : Iwamoto A, Sasahara H, Sugiyama M, Amano H : 94th ordinary meeting of the Hiroshima University Dental Association(Hiroshima),2010.10.24.
- 5 : Quantification of candy-sucking function in healthy elderly : Tsuchioka H, Okada S, Kajihara S, Nishimura R, Yamashita K, Maruyama M, Okada G, Morikawa H, Hayashi R, Hara K, Yoshikawa M, Yoshida M, Tsuga K, Akagawa Y : 45<sup>th</sup> annual meeting of the Japanese Society of stomatognathic function (Saitama), 2010. 11. 6-8.

#### F) Lectures

- 1 : Practical Oral Health Care : Hara K. : Workshop for the staff of nursing service department in Healthcare Corporation Kousei-kai Kusatsu Hospital (Hiroshima) : 2010
- 2 : Some Techniques for Mouth Cleaning - Basic of the skills- : Hara K. : 11th Seminar for Practical Oral Care (Hiroshima) : 2010.
- 3 : Some Techniques for Mouth Cleaning - application of the skills- : Hara K. : 11th Seminar for Practical



Oral Care (Hiroshima) : 2010.

4 : Provide Oral health to People on All Life Stages : Hideaki AMANO : : JADR 58<sup>th</sup> Annual Meeting (Kokura), 2010.

#### G) Social Contributions

1 : Program for kids from elementary schools, Dental Kids, “Let’s Be a Dentist!”: Hiroshima University Faculty of Dentistry, 2010.

2 : Program for high school students, Dental Kids: Hiroshima University Faculty of Dentistry, 2010.

3 : Cooperate to the assessment of the Program for improvement of oral function in the ambulatory care facility “Kosei-En”, 2010.

#### (4) Grant-in-Aid for Scientific Research

1 : 2010th grant-in-aid for scientific research : Hara K.: An analysis of lowering factors of salivary secretion and development of the preventive program for the xerostomia. (No. 21592650)

2 : 2010th grant-in-aid for scientific research : Tsuruda K. : Development of the method of preventing infection under control of the mucosal genes. (No.22592333)

#### (5) Awards

#### (6) Patents

**Master's Program for Oral Health Sciences,  
Division of Oral Health Sciences  
(Department of Oral Health Management)**

( 1 ) Staffs

Professor: Toshinobu TAKEMOTO  
Assistant professor: Atsue MATSUMOTO  
Research associate: Yoshie NIITANI  
Graduate student: Koutarou KUBO

( 2 ) Research Fields

- 1 : Dental hygienists education
- 2 : Research about dental hygienists occupation
- 3 : Career formation of students
- 4 : Oral relaxation method
- 5 : Relation between saliva flow and emotion
- 6 : Education about counseling
- 7 : Infection control in dentistry
- 8 : Research about halitosis

( 3 ) Achievements

A) Original Articles

- 1 : [Changes in the hand-washing skill and attitudes according to infection control training program in dental hygienists education] [ja]: Ishikawa Y, Takemoto T, Kubo K, Niitani Y, Matsumoto A, Hara K, Sugiyama M, The Journal of Japan Society for Dental Hygiene, 5(1), 57-66, 2010.
- 2 : [Experience Activity of Dental School Students in the Planning,Preparation,and Performance of Oral Health Education in a Junior High School] [ja]: Shimazu A, Sasahara H, Niitani Y, Matsumoto A, Hara K, Nosou M, Sugiyama M, Kawamura M, The Journal of Japanese Dental Education Association, 26(3), 337-343, 2010.

C) Books

- 1 : [Prophylaxis of transmission and audit in dentistry] [ja]: Niitani Y: JICHG (Hatae S, Kurihara H.) ed,

Ishiyaku Publishers Inc. (Tokyo), 2010

- 2 : [Handbook for clinical practice] [ja]: Maki Y, Fujiwara I, Niitani Y, et al: Quintessence Publishing Co, Ltd. (Tokyo), 2010.

#### D) Other Publications

- 1 : [A Practice of Oral Rehabilitation for dental hygienist students] [ja]: Hara K, Naitou a, Nosou M, Tsuruda K, Shimazu A, Niitani Y, Matsumoto A, Takemoto T, Sugiyama M, Amano H: Annual Reports of JAHDA autumn meeting, P85-93, 2010.
- 2 : [A report as a member of Cambodia Health Care Support Team] [ja]: Matsumoto A.: Report of BioDentist Education Program, 133, 2010.

#### E) Presentations at Scientific Meeting

- 1 : [Cross-sectional survey about consciousness for career formation in dental hygienists' 4-years university course] [ja], Takemoto T, Kubo K, Niitani Y, Matsumoto A, Hara K, Nosou M, Amano H.: The 29th Annual Meeting of Japanese Dental Education Association (Morioka), 2010.
- 2 : [Longitudinal analysis of career formation in Oral Health Science Major] [ja]. Kubo K, Takemoto T: The 29th Annual Meeting of Japanese Dental Education Association (Morioka), 2010.
- 3 : [Questionnaire Survey on Oral Health Counseling Practice for Oral Health Science Students] [ja] : Matsumoto A, Takemoto T, Sadamori S: The 25<sup>th</sup> Anniversary Scientific Meeting of Japanese Association of Psychosomatic Dentistry (Hiroshima), 2010.
- 4 : [Report of international dental support activity at primary schools in Cambodia –The participation of students at Oral Health Science Major-] [ja]: Matsumoto A, Fujiwara N, Shimazu A, Amano H, Moriyama Y, Matsuzoe K, Kawano S, Tsuka T, Ashikaga N, Iwamoto A, Ohmae I, Kouzai K, Nishimura F, Takata A, JAHDA autumn meeting 2010 (Chiba), 2010.
- 5 : [Oral findings of primary school students in agricultural district in Cambodia] [ja]: Moriyama Y, Matsuzoe K, Kawano S, Matsumoto A, Shimazu A, Takemoto T, Amano H, Takata T: The 21st annual meeting of the Kinki-Chugalgug-Shikoku Branch of the Japanese Society for Dental Health (Matsue), 2010.
- 6 : [Consciousness about mouth of primary school students in agricultural district in Cambodia] [ja]: Matsuzoe K, Kawano S, Moriyama Y, Matsumoto A, Shimazu A, Takemoto T, Amano H, Takata T: The 21st annual meeting of the Kinki-Chugalgug-Shikoku Branch of the Japanese Society for Dental Health (Matsue), 2010.
- 7 : [Findings from salivary test of primary school students in agricultural district in Cambodia] [ja]: Kawano S, Moriyama Y, Matsuzoe K, Matsumoto A, Shimazu A, Takemoto T, Amano H, Takata T:

The 21st annual meeting of the Kinki-Chugug-Shikoku Branch of the Japanese Society for Dental Health (Matsue), 2010.

- 8 : [Oral rehabilitation practice program at Oral Health Science major] [ja]: Hara K, Tsuruda K, Niitani Y, Matsumoto A, Takemoto T, Nosou M, Naitoh a, Shimazu A, Sugiyama M, Amano H: 43rd annual Meeting of the Hiroshima University Dental Society (Hiroshima), 2010.
- 9 : [The educational effect of basic nursing practice at medical outpatient clinic for“Yougo” teacher elective course students at Oral health science major in Hiroshima University School of Dentistry] [ja]: Nosou M, Naitoh A, Shimazu A, Sugiyama M, Niitani Y, Matsumoto A, Takemoto T, Tsuruda K, Hara K, Amano H: 43rd annual Meeting of the Hiroshima University Dental Society (Hiroshima), 2010.
- 10 : [Analysis of heterotrophic bacteria detected from dental unit chair] [ja]: Niitani Y, Ouhara K, Hino T, Shiba H, Kawaguchi H, Kurihara H: 43rd annual Meeting of the Hiroshima University Dental Society (Hiroshima), 2010.
- 11 : Detection of Heterotrophic Bacteria in Dental Unit Waterlines : Niitani Y, Hino T, Ouhara K, Hayashida K, Shiba H, Kawaguchi H, and Kurihara H, 2<sup>nd</sup> International Workshop on BioDental Education & Research (Hiroshima), 2010.

#### F) Lectures

- 1 : [What is the purpose of dental hygienists students at 4-year university to acquire research ability? ] [ja]: Takemoto T.: Panel Discussion “To consider the reinforcement of research ability in dental hygienists under-graduate and lifelong education”: The 59<sup>th</sup> academic meeting of Japanese Association for Dental Health (Niigata), 2010.
- 2 : [Lecture about mouth, group instruction of tooth][ja]: Matsumoto A. : Child-care course of a community program of the nursery school, Mimyo Nursery School (Hiroshima) : 2010.
- 3 : [Lecture about mouth, group instruction of tooth][ja]: Matsumoto A.: Child-care course of a community program of the nursery school, Danbara Mimyo Nursery School (Hiroshima) : 2010.
- 4 : [Oral care for pregnant woman and new born infant][ja]: Matsumoto A, Niitani Y. : School for pregnant women in Gynecology department of Hiroshima University Hospital (Hiroshima) , 2010.
- 5 : [Dental Hygiene 3][ja]: Niitani Y,: JADHE program I for teachers in dental hygienists schools (Aichi) 2010.
- 6 : Outpatient Preventive Long-Term Care Project for Specified elderly person at Hatsukaichi city : Matsumoto A.: Hatsukaichi Ai Plaza (Hiroshima), 2010.
- 7 : Outpatient Preventive Long-Term Care Project for Specified elderly person at Hatsukaichi city : Matsumoto A.: Ohno Welfare Center (Hiroshima), 2010.

G) Social Contributions

- 1 : Program for kids from elementary schools, Dental Kids, “Let’s Be a Dentist!”: Hiroshima University Faculty of Dentistry, 2010.
- 2 : Renewal seminar for teacher’s license: Takemoto T, Hiroshima University (Hiroshima), 2010.
- 3 : Member of Dental Hygienists’ Examination committee: Matsumoto A. : Foundation of Promoting Dental Care and Training, 2010.
- 4 : Secretary of the regional association of Kinki , Chugoku and Shikoku area for Japanese Society for Dental Health: Matsumoto A, 2010.
- 5 : Member of dental hygienists authorization committee: Matsumoto A., Japan Dental Hygienists’ Association, 2010.
- 6 : Editorial board of The Journal of Japan Society for Dental Hygiene.: Matsumoto A, Japan Society for Dental Hygiene (Tokyo), 2010.
- 7 : Volunteer activity for international dental support: Matsumoto A (Cambodia) 2010.
- 8 : Educational committee of Japanese Association for Dental Hygienists Education, Niitani Y, JADHE (Tokyo), 2010.
- 9 : Member in the dental project team in committee of National University Hospital infection control association: Niitani Y., 2010

**Master's Program for Oral Health Sciences,  
Division of Oral Health Sciences  
(Department of Anatomy and Functional Restorations)**

(1) Staff and Students

Professor : Takahiro Satoda  
Assistant Professor : Saiji Shimoe  
Graduate Students : Kenta Kusano, Yuko Araki, Shougo Iwaguro

(2) Main Research Activities

- 1 : Development of Effective model for anatomy education
- 2 : Morphological Research on masticatory neuronal network
- 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: Evaluation of single liquid primers with organic sulfur compound for bonding between indirect composite material and silver-palladium-copper-gold alloy: Shimoe S, Tanue N, Satoda T, Murayama T, Nikawa H, Matsumura H: Dental Materials Journal; 29(1): 25-29,2010.
- 2: Objective evaluation of tooth carving using the non-contact three-dimensional surface scanner Part 1: Quantification of volume and reference points: T Kihara, S Shimoe, H Nikawa, T Murayama, S Makihira, T Satoda, M Tamamoto, K Kawahara, H Sasahara, H Kumagai: The Journal of Japanese Dental Education Association, 26(2), 248-252, 2010.

B) Review

C) Publications

- 1: The new series of textbooks for dental technologist-Dental technology of restoration : Suese K, Matsumura H, Marumo Y, Kumono Y, Shimoe S : Ishiyaku Publishers, Inc , Tokyo, 174, 2007 ~.

- 2: The new series of textbooks for dental technologist-Dental technology practical training : Kanai M, Kuwata M, Shimoe S, Maeda Y, Matsumura H, Miura H et al : Ishiyaku Publishers, Inc ,Tokyo, 207, 2008～.

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1: Functional model of the eye ball: Satoda T, Honda H, Arima Y, Hirose K, Shimoe S, : The 115<sup>th</sup> Annual Meeting of Japanese Association of Anatomists (Morioka) , 2010.
- 2: Functional model of the suprahyoid and infrahyoid muscles : Nishida H, Hirose K, Kyoda R, Shimoe S, Satoda T: The 9<sup>th</sup> Annual Meeting of Co-Medical Function and Structure Association (Niigata) , 2010.
- 3: Functional model of the suprahyoid and infrahyoid muscles: Nishida H, Hirose K, Kyoda R, Arima Y, Shimoe S, Satoda T: The 65<sup>th</sup> Annual Meeting of Japanese Association of Anatomist, Cyugoku-Shikoku regional meeting (Kure) , 2010
- 4: A model for embryological instruction of the face development: Hirose K, Nishida H, Kyoda R, Arima Y, Shimoe S, Satoda T: The 65<sup>th</sup> Annual Meeting of Japanese Association of Anatomist, Cyugoku-Shikoku regional meeting (Kure) , 2010
- 5: Influence of heat treatment on bonding between a zirconia material and indirect composites: Kusano K, Shimoe S, Okazaki M, Tanoue N, Matsumura H: 56<sup>th</sup> General Session of The Japanese Society for Dental Materials and Devices (Gifu), 2010.
- 6: Effect of alumina-blasting on bond strength between an indirect composite and a zirconia framework material: Araki Y, Shimoe S, Satoda T, Tanoue N, Matsumura H: The 32<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Nagoya), 2010.
- 7: Influence of surface treatments on the bond strength between zirconia and veneering porcelain: Iwaguro S, Shimoe S, Satoda T, Chiba Y, Tamamoto M, T Murayama, H Nikawa: The 32<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Nagoya), 2010.
- 8: Influence of surface treatments on bonding of denture base resin to zirconia: Chiba Y, Shimoe S, Satoda T, Iwaguro S, Tamamoto M, Kawahara K: The 32<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Nagoya), 2010.
- 9: Objective evaluation of tooth carving using the three-dimensional image -Evaluation of posterior tooth-: Kyouda R, Kihara T, S Shimoe, K Kawahara, T Murayama, T Satoda, H Nikawa: The 32<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Nagoya), 2010.
- 10: Objective evaluation of tooth carving using the three-dimensional image -Comparison with subjective

evaluation-: Kihara, S Shimoe, H Nikawa, T Murayama, S Makihira, M Tamamoto, T Satoda, H Sasahara, K Kawahara, H Kumagai: The 32<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Nagoya), 2010.

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

- 1: Grant-in-Aid for Scientific Research(C) (Continuance): Shimoe S: Development of tooth-friendly zirconia crown restorations optimized polymer composite resins. (No. 21592453). ¥1,200,000

(5) Academic Awards, etc.

- 1: N Tsumura: Technical Competition in the 32<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Nagoya), Silver prize, 2010, 11, 6

(6) Patents



**Master's Program for Oral Health Sciences,  
Division of Oral Health Sciences  
(Department of Medical System and Biomaterial Engineering)**

(1) Staff and Students

Professor	: Takeshi Murayama
Associate Professor	: Mitsuhiro Tamamoto
Graduate Student	: Kozue Miyamoto, Keita Yauchi, Daigo Tomonari, Mana Kawakami
Graduation Research Students	: Yuta Takumi, Tsuyoshi Hidaka, Mana Kawaguchi, Masamine Ogasawara, Kaoru Wada, Shinya Chiba, Koki Ishizu, Kousei Ohno, Setsuri Shimazaki, Keisuke Hayashida, Asumi Yamaguchi

(2) Main Research Activities

- 1: Application of CAD/CAM and rapid prototyping to dentistry
- 2: Concurrent engineering in dentistry
- 3: 3d-modeling and computer simulation in dentistry
- 4: Development and clinical application of maxillofacial prosthetic apparatus for treatment and protection
- 5: Study on esthetic dentistry
- 6: Study on dental education
- 7: Analysis of dental techniques using sensors
- 8: Simulation-based analysis of work processes in dental technology
- 9: Study on sports dentistry ( mouthguard )
- 10: Study on musical dentistry ( adapter )

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Evaluation of single liquid primers with organic sulfur compound for bonding between indirect composite material and silver-palladium-copper-gold alloy: Saiji SHIMOE, Naomi TANOUE, Takahiro SATODA, Takeshi MURAYAMA, Hiroki NIKAWA, Hideo MATSUMURA: Dent Mater J, 29(1), 25-29, 2010.
- 2: Three-dimensional finite element analysis of cartilaginous tissues in human temporomandibular joint

during prolonged clenching: Hiroko Mori, Shinya Horiuchi, Satoshi Nishimura; Hiroki Nikawa, Takeshi Murayama, Kanji Ueda, Daiichi Ogawa; Shingo Kuroda, Fumiaki Kawano, Hisashi Naito, Masao Tanaka, Jan Harm Koolstra, Eiji Tanaka: Archives of Oral Biology, 55, 879-886, 2010.

- 3: An objective evaluation of tooth carving using a non-contact three-dimensional surface scanner –Quantification of volume and gap of reference points–: Kihara T, Shimoe S, Nikawa H, Murayama T, Makihira S, Satoda T, Tamamoto M, Kawahara K, Sasahara K, Kumagaya H: Journal of Japanese Dental Education Association, 26(2), 248-252, 2010.
- 4: Radiation therapy auxiliary equipments used in oral area – spacer in interstitial brachytherapy for carcinoma of the mobile tongue – : Tamamoto M: Journal of the Japan Dental Technologists Association, No.498, 33-40,2010.

## B) Review

- 1: Trend of Dental CAD/CAM: Murayama T: Hiroshima City Dental Association "Ohtagawa", 2010.

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Objective evaluation of tooth carving using the three-dimensional image: Kihara T, Nikawa H, Shimoe S, Murayama T, Satoda T, Makihira S, Tamamoto M, Sasahara K, Kawahara K, Kumagaya H: 2010 Annual Meeting of the Chugoku-shikoku Branch of Japan Prosthodontic Society (Tokushima), 2010.
- 2: Development of a system that evaluates abutment teeth for dental CAD/CAM: Kawakami M, Miyamoto K, Yanagibashi M, Murayama T, Tamamoto M, Eguchi T: 2010 Annual Meeting of the Chugoku-shikoku Branch of Japan Society for Precision Engineering(Tokushima), 2010.
- 3: Influence that ultraviolet and artificial sweat exert on dimensional changes in maxillofacial silicone: Kawaguchi M, Kaoka M, Tamamoto M, Morishita Y, Nikawa H, Murayama T, Satoda T: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.
- 4: Influence that ultraviolet and artificial sweat exert on color change in maxillofacial silicone: Kaoka M, Kawaguchi M, Nikawa H, Morishita Y, Tamamoto M, Murayama T, Satoda T: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.
- 5: Attempt of compatibility improvement of crown produced by the CAD/CAM: Tatehata K, Tamamoto M, Murayama T, Shimoe S, Satoda T, Nikawa H, Makihira S: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.

- 6: Influence of alumina-blasting on the bond strength of zirconia to veneering porcelain: Iwaguro S, Shimoe S, Satoda T, Chiba Y, Tamamoto M, Murayama T, Nikawa H: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.
- 7: Objective evaluation of tooth carving using the three-dimensional image -Evaluation of molar teeth-: Kyoda R, Kihara T, Shimoe S, Kawahara K, Murayama T, Satoda T, Nikawa H: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.
- 8: Objective evaluation of tooth carving using the three-dimensional image -Comparison with subjective evaluation-: Kihara T, Shimoe S, Nikawa H, Makihira S, Murayama T, Satoda T, Tamamoto M, Sasahara K, Kawahara K, Kumagaya H: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.
- 9: Analysis of skills in dental technology by using a motion-capture system: Hidaka T, Murayama T, Kihara T, Shimoe S, Tamamoto M, Satoda T, Nikawa H: 32nd Meeting of the Nippon Academy of Dental Technology (Nagoya), 2010.
- 10: Fabrication of auricle prostheses by using CAD and 3d-printer: Ogasawara M, Murayama T, Kihara T, Tamamoto M, Morishita H, Nagami M, Eguchi T, Makihira S, Shimoe S, Satoda T: 94th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
- 11: System Simulation of Dental Laboratory using Visual SLAM: Chiba S, Murayama T, Tatehata K, Tamamoto M, Eguchi T, Sasahara K, Kawahara K, Taji T, Nikawa H: 94th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
- 12: Changes in physical properties and adaptability of mouthguard by the storage methods: Ishizu K, Tamamoto M, Murayama T, Kihara T, Shimoe S, Makihira S, Sasahara K, Kawahara K, Satoda T, Nikawa H: 94th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2010.

#### F)Special Lectures in Academic Meetings

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

(5) Academic Awards, etc.

- 1 : Mana Kawakami: Development of a system that evaluates abutment teeth for dental CAD/CAM, The Best Presentation Award at 2010 Annual Meeting of the Chugoku-shikoku Branch of Japan Society for Precision Engineering, 2010.

(6) Patents

## **Master's Program for Oral Health Sciences, Division of Oral Health Sciences (Department of Oral Biology & Engineering)**

### (1) Staff and Students

Professor : Hiroki Nikawa

Associate Professor : Seicho Makihira (-H22.9)

Assistant Professor : Hisako Sasahara, Tsuyoshi Taji (H22.10-)

Research Associate : Kazuko Kawahara

Research Associate : Yuichi Mine (H22.11-)

(Special Appointment)

Secretary : Miki Onji

Research Assistant : Kaori Taguchi

Graduate Student : Naoya Imari, Yuko Omae, Takuya Kihara, Takahiro Syuto, Airi Takahashi, Sachie Hogaki, Aya Hiyama, Yuichi Mine, Sumiyo Mimura, Azusa Yamada, Hitomi Ishii, Satoshi Iwata, Fumiko Uehara (H22.4-H22.9) , Emi Okura, Shota Okazaki, Suguru Kawamura, Yuko Takamoto, Yukihiro Takayama

Undergraduate Student : Minako Okamura, Yuko Katabuchi, Minako Shinkawa, Tomoya Tamura, Minako Hiramatsu, Rie Fukuda, Eri Morooka, Yu Yamaguchi, Kaori Yushita, Hitomi Kajiwara, Asami Katayama, Megumi Kurose, Mao Shiba, Hideki Tanaka, Ayane Toda, Yu Tomiyama, Yukari Muraoka, Natsumi Yamamoto, Yusuke Yamamoto

### (2) Main Research Activities

- 1 : Mechanisms on allergy caused by dental materials
- 2 : Study on candidal biofilms and denture plaque
- 3 : Study on dental caries and probiotics
- 4 : Design for cationic antimicrobial peptides
- 5 : Study on large-scale proliferation of the mesenchymal stem cells using antimicrobial peptides
- 6 : Study on mechanisms of the alveolar bone resorption and on bone - resorption inhibitors
- 7 : Study on dental implant materials

### (3) Research Achievements

## A) Original Papers (including Case Reports)

- 1 : Impact of titanium ions on osteoblast-, osteoclast- and gingival epithelial-like cells. : Mine Y, Makihira S, Nikawa H, Murata H, Hosokawa R, Hiyama A, Mimura S. : *Journal of Prosthodontic Research*. 54:1-6. 2010
- 2 : Immobilized-OPG-Fc on a titanium surface inhibits RANKL-dependent osteoclast differentiation in vitro. : Makihira S, Mine Y, Nikawa H, Shuto T, Kosaka E, Sugiyama M, Hosokawa R. : *Journal of Materials Science: Materials in Medicine*. 21:647-53. 2010
- 3 : Evaluation of single liquid primers with organic sulfur compound for bonding between indirect composite material and silver-palladium-copper-gold alloy. : Shimoe S, Tanoue N, Satoda T, Murayama T, Nikawa H, Matsumura H. : *Dental Materials Journal*. 29:25-9. 2010
- 4 : Titanium immobilized with an antimicrobial peptide derived from histatin accelerates the differentiation of osteoblastic cell line, MC3T3-E1. : Makihira S, Shuto T, Nikawa H, Okamoto K, Mine Y, Takamoto Y, Ohara M, Tsuji K. : *International Journal of Molecular Sciences*. 11:1458-70. 2010
- 5 : Differentiation Capability Evaluation of Osteoblast by Functionalized DLC Thin Films with Plasma Processing. : Okamoto K, Nakatani T, Nitta Y, Makihira S, Iwata S, Nikawa H, Takahagi T : *Journal of Photopolymer Science and Technology*. 23:591-94. 2010
- 6 : Compatibility of tissue conditioners and denture cleansers: influence on surface conditions. : Murata H, Chimori H, Hong G, Hamada T, Nikawa H. : *Dental Materials Journal*. 29:446-53. 2010
- 7 : Titanium ion induces necrosis and sensitivity to lipopolysaccharide in gingival epithelial-like cells. : Makihira S, Mine Y, Nikawa H, Shuto T, Iwata S, Hosokawa R, Kamoi K, Okazaki S, Yamaguchi Y. : *Toxicology in Vitro*. 24:1905-10. 2010
- 8 : Three-dimensional finite element analysis of cartilaginous tissues in human temporomandibular joint during prolonged clenching. : Mori H, Horiuchi S, Nishimura S, Nikawa H, Murayama T, Ueda K, Ogawa D, Kuroda S, Kawano F, Naito H, Tanaka M, Koolstra JH, Tanaka E. : *Archives of Oral Biology*. 55:879-86.2010
- 9 : Growth factor-defined culture medium for human mesenchymal stem cells : Mimura S., Kimura N., Hirata M., Tateyama D., Hayashida M., Umezawa A., Kohara A., Nikawa H., Okamoto T., Furue M. K.. *International Journal of Developmental Biology* (in press)
- 10 : Takeda K, Sakai N, Shiba H, Nagahara T, Fujita T, Kajiya M, Iwata T, Matsuda S, Kawahara K, Kawaguchi H, Kurihara H : Characteristics of High Molecular Weight Hyaluronic Acid as a BDNF Scaffold in Periodontal Tissue Regeneration. *Tissue Engineering PartA* (in press)

## B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Study on the function of Na<sup>+</sup>/H<sup>+</sup> exchanger 10 in Osteoclast Cell - Contribution of Microarray Analysis Support - : Seicho Makihira, Hiroki Nikawa, Yuichi Mine, Yu Yamaguchi : INTERNATIONAL SYMPOSIUM ON THE INNOVATION FOR HEALTH AND SUSTAINABLE LIFE (Hiroshima), 2010
- 2 : PRECEDE-PROCEED Model modification in community-based oral health promotion in Japan : Kawamura M, Komabayashi T, Sasahara H, Taguchi N, Ogawa T : *The AADR Annual Meeting* (Washington, DC.), 2010
- 3 : Immune-cell-mediated bone resorption in periimplantitis and periodontitis : Seicho Makihira: 2nd international Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2010
- 4 : A novel strategies for oral health from biofilm research. New Vision in Oral Health –Present and Future- : Hiroki Nikawa : Joint Scientific Meeting in Dentistry (Surabaya, Indonesia) , 2010

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

(5) Academic Awards, etc.

(6) Patents

## Central Research Laboratory

### (1) Staff and Students

Director :Fusanori Nishimura (by-work)

Research Associate : Ikue Hayashi

### (2) Main Research Activities

- 1 : Proteomics approach for protein identification
- 2 : Structural analysis of biologically active substances

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

#### B) Review

#### C) Publications

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1: The N-terminal binding domain of Aml confers substrate selectivity on cariogenic streptococci : Panida T., Hayashi I., Tsuruda K., Sugai M. : 83<sup>rd</sup> Annual Meeting for Japanese Society for Bacteriology (Yokohama) 2010.
- 2: Analysis of a bacteriolytic enzyme ORF9 derived from bacteriophage phiEF24C: Uchiyama J., Hayashi I., Takemura I., Ujihara K., Sugiura T., Sugai M., Oobatake M., Matsuzaki S. : 83<sup>rd</sup> Annual Meeting for Japanese Society for Bacteriology (Yokohama) 2010.
- 3: Novel H2AX-binding factor, nucleolin functions for ATM-dependent DNA damage response: Kobayashi J., Fujimoto H., Katou A., Hayashi I., Komatsu T. : 83<sup>rd</sup> Annual Meeting for Japanese Society for Biochemistry and 33<sup>rd</sup> Annual Meeting for Japanese Society for Molecular Biology (Kobe) 2010.

- 4: The autolysin IspC acts as an N-acetylglucosaminidase in *Listeria monocytogenes* serotype 4b and has significantly reduced activity on de-acetylated glucosamine residues: Ronhorm J., Wang L., Hayashi I., Sugai M., Cao X., Lin M: International Symposium on Problems of Listeriosis (ISOPOL) XVII (Porto) 2010.
- 5: Commensal proteobacteria in colonic CD11b+ mononuclear phagocytes influence intestinal T cell responses : Toubou H., Maruyama F., Kurashima Y., Hayashi I., Obata T., Goto Y., Kiyono H., Abe, A., Nakagawa I., Takahashi I. : 14<sup>th</sup> International Congress on Immunology (Kobe) 2010.
- 6 : The role of nucleolin in DNA double-strand break-induced damage response: Kobayashi J., Hayashi I., Fujimoto H., Komatsu K. : AACR Special Conference ” The Role of Telomerase and Telomerase in Cancer Research” (Fort Worth) 2010.

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

(5) Academic Awards, etc.

(6) Patents



## Department of Advanced General Dentistry, General Dentistry

### (1) Staff and Students

Professor : Tetsuji Ogawa (※) Vice President of Hospital : Tetsuji Ogawa  
 Associate Professor : Norihiro Taguchi (until March 2010)  
 Research Associate : Yoshihara Tanaka, Masaru Ohara, Hiromi Nishi (from April, 2010)  
 Graduate Student : Taiji Obayashi (from April, 2010)  
 Secretary : Tomoe Sasaki

### (2) Main Research Activities

1. Research in patient-centered dentistry based on narrative approach
2. Research in general dentistry
3. Examination of postgraduate dental training program
4. Research in health communication strategy
5. Research in clinical education
6. Research in assessment of clinical skills
7. Research in development and standardization of Simulated Patients

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

1. OSCEs in Japanese postgraduate clinical training Hiroshima experience 2000-2009 Norihiro Taguchi, Tetsuji Ogawa : *European Journal of Dental Education*, 14, 203-209, 2010.
2. Cytotoxic Distending Toxin from *Aggregatibacter actinomycetemcomitans* Induces DNA Damage, S/G2 Cell Cycle Arrest, and Caspase-Independent Death in a *Saccharomyces cerevisiae* Model : Oranart Matangkasombut, Roontitwa Wattanawaraporn, Keiko Tsuruda, Masaru Ohara, Motoyuki Sugai, and Skorn Mongkolsuk : *Infection and Immunity* Vol.78, 783-792, 2010.
3. Titanium immobilized with an antimicrobial peptide derived from histatin accelerates the differentiation of osteoblastic cell line, MC3T3-E1: Seicho Makihira, Takahiro Shuto, Hiroki Nikawa, Keishi Okamoto, Yuichi Mine, Yuko Takamoto, Masaru Ohara, and Koichiro Tsuji : *Int J Mol Sci* 11(4), 1458-70, 2010.
4. Wound healing effects of gingival fibroblasts cultured in animal-free medium. : Nishi H, Ohta K,

- Takechi M, Yoneda S, Hiraoka M, Kamata N. : Oral Dis. 2010 Jul;16(5):438-44.
5. CX3CL1 expression induced by *Candida albicans* in oral fibroblasts : Ohta K, Nishi H, Fukui A, Shigeishi H, Takechi M, Kamata N. : FEMS Immunol Med Microbiol. 2010 Nov;60(2):179-85.
  6. Additive effects of orexin B and vasoactive intestinal polypeptide on LL-37-mediated antimicrobial activities. : Kouji Ohta, Mikihiko Kajiya, Tongbo Zhu, Hiromi Nishi, Hani Mawardi, Jane Shinab, Leena Elbadawi, Nobuyuki Kamata, Hitoshi Komatsuzawa, Toshihisa Kawai : J Neuroimmunol. 2010 Dec 20. [Epub]
  7. The Availability Assessment of Medical Information System After Introducing in the Dental Section of University Hospital : Kyou Hiasa, Takeshi Tanaka, Shigehiro Ono, Hiromi Nishi, Makoto Kawamura, Makoto Arakawa, Yuushi Uchida, Takumi Nabeshima, Kazuko Kagawa, Ueda Hiroshi, Yasutaka Kaihara, Takashi Nakamoto, Takukya Saida, Mitsugu Okada, Yukimi Yasuhara, Ikuko Ogawa, Miyuki Nakaoka, Kazuko Makita, Toshio Tanaka, Tetsuji Ogawa, Nobuyuki Kamata, Fumika Yamada : Japan Association for Medical informatics Vol.30 Supplement 2010.

## B) Review

## C) Publications

1. Etiology and Pathogenesis of Periodontal Disease : Koji Inagaki, Junya Kobayashi, Makoto Kawamura, Masaru Ohara, Mitsugi Okada, Akira Taguchi, Masashi Tanaka, F.A.Clive Wright : Section2 Periodontal Microbiology. P39 - 76. 2010.

## D) Other Publications

1. A Study to Evaluate the Questionnaire on Clinical Training as Vocational Education. : Sasahara H., Kawamura M., Taguchi N., Ogawa T. and Nikawa H. : The Journal of Japanese Association in Dental Education 26,32-39,2010.
2. Research Designs and Techniques of Dental Education for Evidence-Based Education : Ogawa T., Sekimoto T., Onishi H., Taguchi A., Ohyama A. : The Journal of Japanese Association in Dental Education 26,20-25,2010.

## E) Presentation at Scientific Meeting

1. Education of Professionalism Utilized Existing Class Subjects and Spiral Type Curriculum : ○ Tetsuji Ogawa, Hiromi Nishi, Masaru Ohara, Taiji Obayashi, Tomoe Sasaki, Yoshiharu Tanaka and Norihiro Taguchi : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
2. Medical interview training for oral health care in continuous professional development : ○Kayo Kajitani, Tomoe Sasaki, Jyunko Maeda, Norihiro Taguchi, Hiroko Tamura, Tetsuji Ogawa and Tohru

- Yamashina : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
3. A standardization of clinical training programs for dental hygiene students : ○Miyuki Nakaoka, Yoriko Iwasaki, Kayo Kajitani, Tomoko Hatakeyama, Kanako Matsui, Mitsugi Okada, Hiroko Tamura and Tetsuji Ogawa : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  4. Inspection of Dental Clinical Training Course Program ahead of a review five years later : ○ Hiromi Nishi, Yoshiharu Tanaka, Norihiro Taguchi, Kenichi Shirai, Naohiko Hasegawa, Kazuhiro Tsuga, Syunji Inoue, Koichi Koizumi, Hiroshi Shimasue, Yasutaka Shimizu, Fumiko Hayashi, Makoto Kawamura, Mitsugi Okada, Masahiro Irifune and Tetsuji Ogawa : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  5. Facilitation of Self-Regulated Learning for First Steps to Continuous Professional Development (CPD) : Tetsuji Ogawa, ○Taiji Obayashi, Hiromi Nishi, Masaru Ohara, Yoshiharu Tanaka, Tomoe Sasaki and Norihiro Taguchi : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  6. Professionalism of Clinical Competency in Dental Clinical Training Course -The oath (charter) of the Dental Trainees- : Tetsuji Ogawa, ○Taiji Obayashi, Hiromi Nishi, Masaru Ohara, Tomoe Sasaki and Yoshiharu Tanaka : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  7. Total Quality Management (TQM) and Continuous Quality Improvement(CQI) in Dental Clinical Training Course : ○Yoshiharu Tanaka, Hiromi Nishi, Hisako Sasahara, Makoto Kawamura, Masaru Ohara, Kayo Kajitani, Hiroko Tamura, Taiji Obayashi, Norihiro Taguchi and Tetsuji Ogawa : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  8. Survey of dental clinical training course in Hiroshima University Hospital : ○Hiromi Nishi, Taiji Obayashi, Yoshiharu Tanaka, Masaru Ohara, Norihiro Taguchi, Kenichi Shirai, Naohiko Hasegawa, Tsuyoshi Taji, Shinsuke Sadamori, Koichi Koizumi, Hiroshi Shimasue, Yasutaka Shimizu, Fumiko Hayashi, Makoto Kawamura, Mitsugi Okada, Masahiro Irifune and Tetsuji Ogawa : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  9. Outcome of Career Design on Postgraduate Dental Training at Hiroshima University Hospital : ○ Norihiro Taguchi, Taiji Obayashi, Masaru Ohara, Yoshiharu Tanaka, Hiromi Nishi, Mitsugi Okada, Masahiro Irifune and Tetsuji Ogawa: 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  10. Analysis of Learning Style for Dental Students : ○Tetsuji Ogawa, Yoshiharu Tanaka, Hiromi Nishi, Masaru Ohara, Taiji Obayashi, Tomoe Sasaki and Norihiro Taguchi : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  11. Study of Feedbacks from Simulated patient(SP) : ○Tomoe Sasaki, Taiji Obayashi, Hiromi Nishi, Masaru Ohara, Yoshiharu Tanaka, Junko Maeda, Norihiro Taguchi and Tetsuji Ogawa : 29<sup>th</sup> Meeting of Japanese Dental Education Association, Iwate, 2010.
  12. Prevalence of methicillin-resistant *Staphylococci* carriage in the residents at the department of Advanced General Dentistry in Hiroshima University Hospital : ○Masaru Ohara, Takamune Hino,

Yoshiharu Tanaka, Hiromi Nishi, Taiji Obayashi, Mitsugi Okada and Tetsuji Ogawa :Research Seminar in General Dental Medicine 2010. Fukuoka, 2010.

13. The analysis of the JAK/STAT signal transduction pathway by inflammatory cytokines in the oral keratinocytes and gingival fibroblast : ○Hiromi Nishi, Kouji Ohta, Akiko Fukui, Masaaki Takechi , Nobuyuki Kamata : The 55<sup>th</sup> Congress of the Japanese Society of Oral and Maxillofacial Surgeons, Chiba, 2010

#### F) Implementation of Seminars / Workshops

1. Workshop for postgraduate trainees 2009 (Hiroshima)
2. Communication Association in Japan Chugoku-Shikoku branch, Educational Research Seminar in Health Communication, Hiroshima, 2009.

#### G)Lecturer • Symposiast

#### H) Attending of Lectures, Seminars, and Workshops

1. Seminar for Postgraduate Training Program Manager 2010. Ohara M. Foundation of Promoting Dental Care and Training, Chiba, 2010.

#### I) Implementation of OSCE, CSA

1. 2<sup>nd</sup> Advanced OSCE for Postgraduate Trainees 2009-2010
2. 1<sup>st</sup> Advanced OSCE for Postgraduate Trainees 2010-2011

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

(5) Academic Awards, etc.

(6) Patents

## Department of Oral Health and Development, Preventive Dentistry

(1) Staff and Postgraduate students

Assistant Professor: Makoto Kawamura

(2) Research fields

1: Behavioral science regarding oral health

2: International studies on oral health promotion

3: Studies on community dental health

4: Studies on school dental health

5: Studies on development of computer-aided diagnosis scheme for periodontal disease

(3) Publication

A) Original Papers (including Case Reports)

1: Relation of achievement motives, satisfaction with life, happiness and oral health in Romanian university students. Dumitrescu A. L., Kawamura M., Dogaru B.C., Dogaru C.D., *Oral Health and Preventive Dentistry*, **8**(1): 15-22, 2010.

2: Involvement of psychosocial factors in the association of obesity with periodontitis. Dumitrescu A. L., Kawamura M., *Journal of Oral Science*, **52**(1):115-24, 2010.

**3:** The factor related to the increase of awareness in oral health promotion for junior high-school students.

Shimazu A., Sasahara H., Kawamura M., *Journal of Dental Health*, **60**(2): 104-111, 2010.

**4:** Examination errors in a mass dental checkup without calibration at a school. Sasahara H., Hayashi F.,

Okada M., Shimazu A., Kawamura M., Kozai K., , *Journal of Dental Health*, **60**(5):569-574, 2010.

**5:** Experience Activity of Dental School Students in the Planning, Preparation, and Performance of Oral

Health Education in a Junior High School. Shimazu A., Sasahara H., Niitani Y., Matsumoto A., Hara K.,

Nosou M., Sugiyama M., Kawamura M., *Journal of Japanese Dental Education Association*, 26(4) :

338-344, 2010.

**6:** PRECEDE-PROCEED Model modification in community-based oral health promotion by using the

linear structural relations program. Kawamura M., Komabayashi T., Sasahara H., Okada M., Taguchi N.,

Ogawa T. , *Oral Health and Preventive Dentistry*, **8**: (in press), 2010.

## B) Reviews

## C) Books/Book Chapters

## D) Proceedings/Others

**1:** Status of periodontal diseases and prevalence of periodontal pathogens in Junior high school students.

Hayashi F., Yasuda R., Nakata K., Suzuki J., Okada M., Kawamura M., Kozai K., *The annals of*

*educational research of Hiroshima University* (Faculties and Schools Attached to Hiroshima University),

**37**; 275-278, 2009.

E) Presentations

**1:** PRECEDE-PROCEED Model modification in community-based oral health promotion in Japan.  
Kawamura M., Komabayashi T., Sasahara H., Taguchi N., Ogawa T., *The AADR Annual Meeting*  
(Washington, DC.), 3-5 March, 2010.

(4) Grants-in-aid

**1:** Grant-in-aid for Scientific Research(C), No.20592455, Continued: Kawamura M. (representative),  
Okada M., Taguchi N., Sasahara H., Ogawa T.: Calibration of GO and G for school dental health on the  
basis of CAD. 800,000yen.

(5) Awards

(6) Patents

## Department of Oral Health and Development (Special Care Dentistry)

### (1) Staffs and Students

Associate Professor	: Mitsugi Okada	(※) Head of Dentistry
Research Associate	: Koichi Hayashida	
Resident	: Yuki Oda (from October to present)	
Senior Resident	: Tomoko Takitani (from April to August)	
Senior Resident	: Taro Kojima (from April to present)	
Graduate Resident	: Megumi Iwamoto	

### (2) Main Research Activities

- 1: A study on caries risk of patients with disabled
- 2: A study on risk of periodontal disease of patients with disabled
- 3: A study on dental problems of patients with disabled
- 4: A study on PBL task for dental problem of patients with mental retardation
- 5: A study on periodontal tissue regeneration using bone marrow mesenchymal stem cells
- 6: A clinical study on endodontal-periodontal therapy

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

- 1 : Late established mutans streptococci in children over 3 years old: Okada M, Taniguchi Y, Hayashi F, Doi T, Suzuki J, Sugai M, Kozai K: *Int J Dent.* 2010;2010:732468. Epub 2010 Feb 14.
- 2 : The expressions of claudin-1 and E-cadherin in junctional epithelium: Fujita T, Hayashida K, Shiba H, Kishimoto A, Matsuda S, Takeda K, Kawaguchi H, Kurihara H: *J Periodontal Res.* 45, 579-582, 2010.
- 3 : Irsogladine maleate regulates neutrophil migration and E-cadherin expression in gingival epithelium stimulated by *Aggregatibacter actinomycetemcomitans*: Tsuyoshi Fujita, Akiyoshi Kishimoto, Hideki Shiba, Koichi Hayashida, Mikihito Kajiya, Yuushi Uchida, Shinji Matsuda, Katsuhiko Takeda, Kazuhisa Ouhara, Hiroyuki Kawaguchi, Yoshimitsu Abiko, Hidemi Kurihara: *Biochemical Pharmacology.* 79, 1496-505, 2010.
- 4 : PRECEDE-PROCEED Model modification in community- based oral health promotion by using the linear structural relations program: Kawamura M, Komabayashi T, Sasahara H, Okada M, Taguchi N,



Ogawa T: Oral Health and Preventive Dentistry 8, 315-321, 2010.

B) Review

C) Publications

- 1 : Etiology and Pathogenesis of Periodontal Disease. Dumitrescu AL, ed. Chapter 9. Periodontal-Restorative Interaction. Dumitrescu AL, Okada M, Inagaki K: Springer-Verlag, 2010.

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Longitudinal study of dental caries in patients with mental retardation. Okada M, Hayashida K, Tokikazu T, Wakita A, Nagatani Y, Iwamoto M, Takitani T: IADR 88th General Session & Exhibition (Barcelona, Spain), 2010.

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

(5) Academic Awards, etc.

(6) Patents

## Central Clinical Sections, Special Dental Clinic Section

### (1) Staff and Students

Chief Professor : Keiji Tanimoto  
Research Associate : Yukimi Yasuhara

### (2) Main Research Activities

- 1: Perceptual Evaluation of Cleft Palate Speech
- 2: Clinical Application of Electropalatography
- 3: Research for improvement in articulation problem
- 4: Research for relation between lingual pressure and the function of speech/swallowing

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

#### B) Review

#### C) Publications

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1: Comparison of viscosity on commercial thickeners : Yasuhara Y., Konishi M., Nagasaki T., Tanimoto K. : The 16<sup>th</sup> annual meeting of Japan Society of Dysphasia Rehabilitation (Niigata), 2010.
- 2: The evaluation of videofluoroscopic examination of swallowing in postoperative oral cancer patients : Konishi M., Nagasaki T., Yasuhara Y., Banik S., Zaman MD Mahmud UZ., Ohtsuka M., Sawajiri M., Nakamoto T., Suei Y., Fujita M., Tanimoto K.:12<sup>th</sup> European Congress of Dento-maxillofacial Radiology (Istanbul, Turkey), 2010.
- 3: The videofluoroscopic findings for dysphagic patients with the freeze infusion of root vegetables examination: Nagasaki T., Konishi M., Hirai T., Yamagata H., Kayashia J.,

Yasuhara A., Kimura H., Nakatsu S., Sakamoto H., Tanimoto K. : The 16<sup>th</sup> annual meeting of

Japan Society of Dysphagia Rehabilitation (Niigata, Japan), 2010.

4: Respiratory pattern on healthy young adult under diet meal: Oota K., Nagasaki T., Minamitani

S., Yasuhara A., Simizu N., Higashijima M., Tanimoto K.,: The 20<sup>th</sup> annual meeting of Japan

Society for Respiratory Care and Rehabilitation (Nagasaki, Japan), 2010.

5: Respiratory pattern on healthy young adult during eating: Second report; The Characteristic

respiratory pattern during swallowing: Oota K., Nagasaki T., Minamitani S., Yasuhara A.,

Simizu N., Higashijima M., Tanimoto K.,: The 16<sup>th</sup> annual meeting of Japan Society of

Dysphagia Rehabilitation (Niigata, Japan), 2010.

6: The swallowing dynamic state of the freeze infusion of root vegetables: Nagasaki T., Konishi

M., Hirai T., Yamagata H., Kayashia J., Yasuhara A., Kimura H., Nakatsu S., Sakamoto H.,

Tanimoto K. :The 54<sup>th</sup> annual meeting of Japan Society of Oral and Maxillofacial Radiology

(Yokohama, Japan), 2010.

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

1: Grant-in-aid for exploratory research from Hiroshima University: Oral function research in school-age children: the relationship between tongue pressure and speech. ¥500,000

(5) Academic Awards, etc.

(6) Patents

## Central Clinical Sections, Center of Oral Clinical Examination

### (1) Staff and Students

Director:	Hidemi Kurihara
Associate Professor:	Ikuko Ogawa (Clinic)
Research Associate:	Tomoaki Shintani, Masae Kitagawa
Technician:	Keiko Banno
Intern:	Mariko Ohbayashi

### (2) Main Research Activities

- 1: Study on test and treatment in metal allergy and dry mouth.
- 2: Clinical study on endodontal-periodontal therapy.
- 3: Clinicopathological study on head and neck lesions.
- 4: Developmental study of treatment to dysgeusia.
- 5: Molecular pathological study on proliferation and development of oral squamous cell carcinoma.
- 6: Study on molecular target therapy to oral cancer targeted with VEGFR and EGFR.
- 7: Study on function of cementoblast specific genes in human cementoblast.

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

- 1: Histopathological evaluation including cytokeratin 13 and Ki-67 in the border between Lugol-stained and -unstained areas: Ohta K., Ogawa I., Ono S., Taki M., Mizuta K., Miyauchi M., Takechi M., Shigeishi H., Takata T., Kamata N.: *Oncol Rep*, 24, 9-14, 2010.
- 2: Nuclear Survivin expression is correlated with malignant behaviors of head and neck cancer together with Aurora-B: Qi G, Kudo Y., Ando T., Tsunematsu T., Shimizu N., Siriwardena S., Yoshida M., Keikhaee M., Ogawa I., Takata T.: *Oral Oncol*, 46, 263-270, 2010.
- 3: A case of lower gingival polypoid mass with pseudomalignant changes: Yoshioka Y, Ogawa I, Hayashido Y, Toratani S, Takata T, Okamoto T.: *J Jpn Stomalol Soc*, 59, 63-67, 2010.
- 4: Sclerosing odontogenic carcinoma with benign fibro-osseous lesion of the mandible: An extremely rare case report: Irie T., Ogawa I., Takata T., Toyosawa S., Saito N., Akiba M., Isobe T., Hokazono

C., Tachikawa T., Suzuki Y.: *Pathol Int*, 60, 694-700, 2010.

- 5: Central giant cell granuloma of the mandible: presentation of a rare case with prominent osteoblastic differentiation mimicking osteosarcoma: Mohamed Deraz E., Ogawa I., Miyauchi M., Kudo Y., Nakamoto T., Tani R., Takata T.: *Oral Med Pathol*, 14, 109-112, 2010.
- 6: Synthetic ameloblastin peptide stimulates differentiation of human periodontal ligament cells: Kitagawa M., Kitagawa S., Nagasaki A., Miyauchi M., Uchida T., Takata T.: *Arch Oral Biol*, Nov 10, [Epub ahead of print], 2010.

#### B) Review

- 1: Tumors and tumor-like lesions in minor salivary glands: Ogawa I., Kitagawa M., Kudo Y., Miyauchi M., Takata T.: *J Jpn Saliv Gl*, 51, 39-48, 2010.

#### C) Publications

6. 1. Digestive system: oral mucosa and salivary glands, *Atlas of cytology and pathological diagnosis*. (Kamei T., Taniyama K. eds): Ogawa I., Kuyama K., Takata T.: Igaku-shoin (Tokyo), 74-75, 83-85, 2010.
7. Close up of Oral diseases (Takata T. and Ogawa I. eds): Takata T., Miyauchi M., Kudo Y., Kitajima S., Ogawa I., Kitagawa M.: *Dental Diamond* (Tokyo), 2010.
8. 1. Head and neck regions, 2) Extracapsular invasion, *Keywords of Pathomorphology, Pathol and Clin Med*. (Fukayama T., Umemura S., Ohashi K., Kanai Y., Shiraishi Y., Nakatani Y. eds): Ogawa I., an Takata T. *Bunkodo* (Tokyo), 28:2-3, 2010.

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1: Histological diversity and differential diagnosis of epithelial-myoepithelial carcinoma of salivary gland: Ogawa I., Ohbayashi M., Mohamed Deraz E., Miyauchi M., Takata T.: 15<sup>th</sup> International Congress on Oral Pathology and Medicine (Seoul, Republic of Korea), 2010.
- 2: N-cadherin expression is involved in malignant behavior of head and neck cancer in relation to epithelial-mesenchymal transition: Ohbayashi M., Nguyen P.T., Kudo Y., Yoshida M., Miyauchi M., Ogawa I., Takata T.: 15<sup>th</sup> International Congress on Oral Pathology and Medicine (Seoul, Republic of Korea), 2010.
- 3: Overexpression of Survivin and Aurora-B in oral squamous cell carcinoma: Kudo Y., Qi G., Ogawa

- I., Takata T.: 99<sup>th</sup> Annual Meeting of the Japanese Society of Pathology (Tokyo), 2010.
- 4: HSulf-1 promotes the invasion of head and neck cancer: Yoshida M., Kudo Y., Ogawa I., Takata T.: 99<sup>th</sup> Annual Meeting of the Japanese Society of Pathology (Tokyo), 2010.
  - 5: Experimental study on relationship between periodontitis and systemic diseases. (I) Systemic influence of continuous application of LPS to periodontal tissues: Furusho H., Miyauchi M., Sakamoto K., Kitagawa M., Takata T.: The 53<sup>rd</sup> Spring Meeting of the Japanese Society of Periodontology (Morioka), 2010.
  - 6: A case of monoclonal gammopathy of undetermined significance (MGUS) associated with AL amyloidosis diagnosed by multiple nodules formation in oral mucosa: Kanda T., Yamasaki S., Takesue N., Yoshida M., Ogawa I., Toratani S., Okamoto T.: The 64<sup>th</sup> Annual Meeting of Japanese Stomatological Society (Sapporo), 2010.
  - 7: A case of MALT lymphoma of palate associated with Sjögren's syndrome: Takesue N., Koizumi K., Ogawa I., Hayashido Y., Okamoto T., Yoshida M.: The 64<sup>th</sup> Annual Meeting of Japanese Stomatological Society (Sapporo), 2010.
  - 8: Analysis of growth inhibition of oral squamous cell carcinoma cells using RNAi targeting with FGF-binding protein/HBp17: Okazaki F., Shintani T., Hayashido Y., Fujii Y., Usui E., Toratani S., Okamoto T.: The 64<sup>th</sup> Annual Meeting of Japanese Somatological Society (Sapporo), 2010.
  - 9: Diagnosis of dry mouth by salivary test and glossoscopy. New approach of oral clinical examination center : Kitagawa M., Ohbayashi M., Shintani T., Ogawa I., Kurihara H.: The 43<sup>rd</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
  - 10: A case of bilateral salivary glands swelling masses: Sato S., Kishino M., Ogawa Y., Ogawa I., Takata T., Toyosawa S.: 21<sup>st</sup> Annual Meeting of the Japanese Society of Oral Pathology (Hirakata), 2010.
  - 11: Experimental study on relationship between periodontitis and systemic diseases. -Systemic influence of continuous application of LPS to periodontal tissues-: Furusho H., Miyauchi M., Sakamoto K., Kitagawa M., Takata T.: 21<sup>st</sup> Annual Meeting of the Japanese Society of Oral Pathology (Hirakata), 2010.
  - 12: A case of palatal tumor (Extranodal marginal zone B-cell lymphoma of MALT type) : Yoshida M., Ogawa I., Ohbayashi M., Kudo Y., Miyauchi M., Takesue N., Sasaki N., Takata T. : 21<sup>st</sup> Annual Meeting of the Japanese Society of Oral Pathology (Hirakata), 2010.
  - 13: Diagnosis and treatment by salivary test and glossoscopy: Kitagawa M., Ohbayashi M., Shintani T., Ogawa I., Kurihara H.: 3<sup>rd</sup> Annual Meeting of Japanese Society for Evidence and the Dental Professional (Sapporo), 2010.
  - 14: Enzyme-linked immunosorbent assays for serum antibiotics against periodontal microorganisms at the first medical examination of the patients of periodontitis: Shintani T., Hino T., Ogawa F., Ogawa I., Kitagawa M., Shiba H., Kawaguchi H., Kurihara H.: 3<sup>rd</sup> Annual Meeting of Japanese Society for Evidence and the Dental Professional (Sapporo), 2010.

- 15: Therapeutic experience of bisphosphonate related osteonecrosis of the jaw in our department: Mukasa H., Shintani T., Koizumi K., Okamoto K., Kanda T., Hamana T., Fukui Y., Mashima T., Yoshioka Y., Tani R., Hayashido Y., Sakamoto A., Tanimoto Y., Sakamoto T., Ogawa I., Toratani S., Okamoto T.:The 49<sup>th</sup> Annual Meeting of Hiroshima Dental Association and the 94<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
- 16: Clinical statistics of trauma of the jaw in our department: Sakaue T., Fukui Y., Taguchi Y., Fujii T., Mukasa H., Ito Y., Yamasaki S., Okazaki F., Fujii Y., Kimura N., Takesue N., Nabeshima K., Ishida Y., Hamana T., Sumi K., Okamoto K., Kanda T., Shintani T., Koizumi K., Yoshioka Y., Tani R., Hayashido Y., Toratani S., Okamoto T.:The 49<sup>th</sup> Annual Meeting of Hiroshima Dental Association and the 94<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2010.
- 17: A case of pleomorphic adenoma in upper lip: Ishida Y., Shintani T., Fujii Y., Hamana T., Koizumi K., Yoshioka Y., Hayashido Y., Okamoto T.: The 55<sup>th</sup> Annual Meeting of Oral and Maxillofacial Surgery (Tokyo), 2010.
- 18: Clinical statistics of bisphosphonate related osteonecrosis of the jaw in our department: Mukasa H., Shintani T., Sakaue T., Taguchi Y., Fujii T., Ito Y., Yamasaki S., Okazaki F., Fujii Y., Kimura N., Takesue N., Nabeshima K., Ishida Y., Sado T., Hamana T., Mashima T., Sumi K., Fukui Y., Arita Y., Okamoto K., Kanda T., Koizumi K., Yoshioka Y., Tani R., Hayashido Y., Sakamoto A, Tanimoto Y, Sakamoto T, Yoshimura Y, Ogawa I, Toratani S. Okamoto T.: The 58<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Japanese Somatological Society (Hiroshima), 2010.
- 19: Synthetic ameloblastin peptide stimulates differentiation of human periodontal ligament cells: Kitagawa M, Miyauchi M and Takata T.: 58<sup>th</sup> JADR Annual Meeting (Kitakyusyu) , 2010.
- 20: Study on the regeneration of bone tissue by using heparin and its derivatives. –Analysis using 2DSH-collagen sponge disk-: Kitagawa M., Nagasaki A., Miyauchi M., Takata T.: 「Study on the Oral Health-related Improvements Promote Quality of Life using network of liaison in dental field」 -Category of Regenerative engineering- 2<sup>nd</sup> Research meeting in Hiroshima University (Hiroshima), 2010.
- 21: Regulation of osteogenic differentiation by ameloblastin:Kudo Y., Iizuka S., Yoshida M., Tsunematsu T., Ogawa I., Miyauchi M., Takata T.: 「Study on the Oral Health-related Improvements Promote Quality of Life using network of liaison in dental field」 -Category of Regenerative engineering- 2<sup>nd</sup> Research meeting in Hiroshima University (Hiroshima), 2010.
- 22: A case of mucoepidermoid carcinoma, clear cell variant in mandible : Ohbayashi M., Yoshida M., Ogawa I., Ri S., Hasegawa T., Yakozaki H., Takata T.: The 55<sup>th</sup> Annual Meeting of Japan Salivary Gland Society (Tokyo), 2010.
- 23: A palatal tumor (Acinic cell carcinoma) : Ogawa I., Yoshida M., Higashikawa K., Takata T.: The 101<sup>st</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Okayama), 2010.

- 24: A palatal tumor (Extranodal marginal zone B-cell lymphoma of MALT type) : Yoshida M., Ogawa I., Takesue N., Sasaki N., Takata T.: The 54<sup>th</sup> Meeting of Hiroshima Pathological Conference (Hiroshima), 2010.
- 25: A mandibular tumor (Central mucoepidermoid carcinoma, clear cell variant): Ohbayashi M., Ogawa I., Ri S., Idoh S., Shigeta S., Hasegawa T., Nakano S., Yokozaki H., Miyauchi M., Takata T. : The 102<sup>nd</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Yonago), 2010.
- 26: A palatal tumor (Polymorphous low-grade adenocarcinoma): Tsunematsu T., Ogawa I., Nagasaki M., Ishida K., Murata A., Araki A., Isikawa N., Takata T.: The 103<sup>rd</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Kure), 2010.
- 27: A submandibular gland tumor (Pleomorphic adenoma with cellular atypia and highly proliferative activity) : Ogawa I., Ohe C., Sakaida N., Yoshida M., Uemura Y., Takata T.: The 12<sup>th</sup> Meeting of Society of Salivary Gland Tumor Pathology (Tokyo), 2010.
- 28: Mandibular lesion (Fibrous dysplasia) : Furusyo H., Miyauchi M., Ogawa I., Toratani S., Sui Y., Takata T.: The 55<sup>th</sup> Meeting of Hiroshima Pathological Conference (Hiroshima), 2010.

#### F) Special Lectures in Academic Meetings

- 1: Histopathological classification of salivary gland tumors (WHO • 2005) • For the clinical usage : Ogawa I., and Takata T. :The 33<sup>rd</sup> and 34<sup>th</sup> educational meeting of Japanese Society of Oral and Maxillofacial Surgery and Oral Four Societies (Tokyo & Hirakata) , 2010.
- 2: Companion meeting [Pathological diagnosis of salivary gland tumors], The histopathological diversity of epithelial-myoepithelial carcinoma.: Ogawa I., Takata T., Hirokawa M.: The 99<sup>th</sup> Annual Meeting of the Japanese Society of Pathology (Tokyo), 2010.
- 3: Clinical examination in the field of dentistry – The present state and the prospects-: Ogawa I.: The 49<sup>th</sup> Annual Meeting of Hiroshima Dental Association and the 94<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2010.

#### G) Others (Social contribution)

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

- 1: Research project, Grant-in-Aid for Scientific Research (C) Continuance: Ogawa I.: Histological and molecular biological study of standardization of the pathological diagnosis of salivary gland tumors:(No.20592141), ¥1,300,000
- 2: Research project, Grants-in-Aid for Young Scientists (B) : Kitagawa M.: Functional analysis of



cementoblast maker gene, f-spodin: (22791767), ¥1,820,000

- 3: Research project, Grants-in-Aid for Young Scientists (B) : Shintani T.: The role of FGF binding protein/HBp17 of cancer stem cells in oral cancer and an application for the molecular target therapy:(22791982), ¥2,300,000

(5) Academic Awards, etc.

(6) Patents

## Central Clinical Sections, Dental Technicians Section

### (1) Staff and Students

Director of Dental Technicians Section : Hiroki Nikawa (Prof.)  
Chief Dental Technician : Hiroataka Okura  
Supervisor Dental Technician : Masanobu Yamamoto, Eisaku Habu, Yoshihiro Otani, Meiji  
Yamamoto, Ryoji Kato  
Dental Technician : Yuko Araki

### (2) Main Research Activities

- 1: Management of the patients' 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

### (3) Research Achievements

A) Original Papers (including Case Reports)

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Effect of alumina-blasting on bond strength between an indirect composite and a zirconia framework material: Araki Y, Shimoe S, Satoda T, Tanoue N, Matsumura H: The 31th Annual Meeting of Nippon Academy of Dental Technology (Nagoya), 2010.

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

(5) Academic Awards, etc.

(6) Patents

## Central Clinical Sections, Dental Hygiene Section

### (1) Staff and Students

Director of Dental Hygiene Section : Nobuyuki Kamata

Chief Dental Hygienist : Hiroko Tamura

Supervisor Dental Hygienists : Yoriko Iwasaki, Miyuki Nakaoka

Dental Hygienists : Miho Yoneda, Tomoko Hatakeyama, Kayo Kajitani, Kanako Matsui,

Megumi Takamoto, Kumi Miyakawa(Till July), Tomoko Tokikazu, Kanako Yano, Kana Dainobu, Naomi Hara, Miho Okada, Ayumi Kouchi, Rie Kanna(Till February) , Itsuka Kouno, Atsuko Wakita, Risako Inoue(Till March),

Chieko Kawai, Yukiko Nagatani, Yurie Nakano

Dental Assistants : Yuri Ota, Yuka Tamamoto, Hisako Ozaki, Mayumi Yatabe

### (2) Main Research Activities

1 : A study about the dentistry health guidance that dental hygienist performs.

2 : A study about improvement of local dentistry health.

3 : About a role of dental hygienist in dentistry medical examination and treatment.

### (3) Research Achievements

A) Original Papers (including Case Reports)

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

1 : A case of professional oral care for toxic epidermal necrolysis.:Kajitani K, Dinobu K Hara N, Takamoto M, Matsui K, Okamoto K, Isida Y, Ninomiya Y, Nakagawa T, Takeda T, Tamura H, Okamoto T, Kamata N, Tanigawa K.:(2010.2)

2 : Short-term improvement of inflamed periodontal tissue in a patient with severe chronic periodontitis;A case report.: Matsui K, Uchida Y, Tamura H, Kurihara H.:(2010.5.13.14 Morioka)

3: Clinical, statistical examination of osseous transplantation for implant treatment in our department.: Ohta A, Takechi M, Ono S, Okui G, Ninomiya Y, Hatano H, Takamoto M, Kamata N.: The 38th Congress of the Japanese Society of Oral and Maxillofacial Surgeons, Chugoku-Shikoku Branch (2010.5.21-22 Tokushima)

4 : A case of dental implant placement using the Interconnective Porous Hydroxyapatite Ceramics (NEOBONE<sup>®</sup>) for the vertical bone regeneration.: Ninomiya Y, Takechi M, Ohta K, Takamoto M, Ono S, Okui G, Ohta A, Kamata N.: The 64th Annual Meeting of the Japanese Stomatological Society (2010.6.25 Sapporo)

5 : M Fundamental study of bone augmentation for clinical implant by interconnected porous calcium

- hydroxyapatite block.: Minami M, Takechi M, Hiraoka M, Ninomiya Y, Ohta K, Ohta A, Takamoto M, Kamata N.: The 64th Annual Meeting of the Japanese Stomatological Society (2010.6.25 Sapporo)
- 6 : Clinical study of the maxillofacial traumatic injured patients treated with dental implant.: Nakagawa T, Takechi M, Ohta K, Ninomiya Y, Shimasue H, Ono S, Shigeishi H, Mizuta K, Minami M, Okui G, Ohta A, Hatano H, Takamoto M, Kamata N.: The 12th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (2010.7.17 Hiroshima)
- 7 : A standardization of clinical training programs for dental hygiene students.:Nakaokam, Iwasaki Y, Kajitani K, Hatakeyama T, Matsui K, Okada M, Tamura H, Ogawa T.:(2010.7.23.24 Iwate)
- 8 : Medical interview training for oral health care in continuous professional development: Kajitani K, Sasaki T, Maeda J, Taguchi N, Tamura H, Ogawa T, Yamashina T.:(2010.7.23.24 Iwate)
- 9 : A Clinical study of maxillary sinus floor elevation using interconnected porous calcium hydroxyapatite.: Takechi M, Ninomiya Y, Ono S, Takamoto M, Kamata N.: The 40th Annual Meeting of the Japanese Society of Oral Implantology (2010.9.19 Sapporo)
- 10 : .:Two cases of maxillary veneer graft using torus.: Ninomiya Y, Takechi M, Ono S, Takamoto M, Kamata N.: The 40th Annual Meeting of the Japanese Society of Oral Implantology (2010.9.19 Sapporo)  
A case report of prothodontic reconstruction using dental implants for the edentulous patient with severe gagging reflex.: Ono S, Takechi M, Ohta K, Okumura T, Takamoto M, Kamata N.:The 55th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (2010.10.17 Makuhari)
- 11 : Clinical study of jaw bone augmentation using interconnected porous calcium hydroxyapatite.: Takechi M, Ohta K, Ninomiya Y, Ono S, Takamoto M, Shigeishi H, Okui G, Kamata N.: The 55th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (2010.10.17 Makuhari)
- 12 : Oral complications caused by immunosuppressive therapy and effectiveness of oral treatment: Tsuboi A, Yoshimura G, Kaihara Y, Nakaoka M, Kadomoto N, Otani S, Matsuura K, Kozai K.:The 48th Congress of Japanese Society of Pediatric Dentistry (2010.10.19.20 Nagoya)
- 13 : A Survey on the Dental Treatment for the Intellectually Disabled Children in Department of Pediatric Dentistry of Hiroshima University Hospital in 2004 to 2009.:Hayashi F, Mitsuhata C, Ariki M, Nakaoka M, Kouzai K.:The 27th Annual Meeting of the Japanese Society for Disability and Oral Health(2010.10.22-23 Tokyo)
- 14 : Two cases of dental implant after keratocystic odontogenic tumor resection.: Ninomiya Y, Takechi M, Ono S, h Takamoto M, Kamata N.: The 30th Annual Meeting of the Japanese Society of Oral Implantology, Chugoku-Shikoku Branch (2010.11.14 Shimane)
- 15 : Questionnaire survey about uneasiness and satisfaction to bone augmentation surgery for oral implant .:Takamoto M, Takechi.M, Ninomiya Y, Ono S, Kamata N.: The 30th Annual Meeting of the Japanese Society of Oral Implantology, Chugoku-Shikoku Branch (2010.11.14 Shimane)
- 16 : Bacterial attachment on hydrothermally- treated titanium with CaCl<sub>2</sub> solution  
:Takamoto M, Takechi M, Ohta K, Tsuru K,Mine Y, Takamoto Y, Ishikawa K, Nikawa H, Kamata

N.:The 32th Annual Meeting of the Japanese society for Biomaterials(2010.11.30 Hiroshima)

17 : Fundamental study of bone augmentation by interconnected porous calcium hydroxyapatite block hydroxyapatite block.: Minami M, Takechi M, Tada M, Ninomiya Y, Ohta K, Fukui A, Ohta A, Takamoto M, Kamata N.: The 32th Annual Meeting of the Japanese society for Biomaterials (2010.11.30 Hiroshima)

18 : A Case of Sinus Lift Technique using the Interconnected Porous Calcium Hydroapatite and the Mandibular Torus.: Ono S, Takechi M, Ohta K, Ninomiya Y, Takamoto M, Kamata N.: The 14th Annual Meeting of the Japanese Academy of Maxillo Facial Implants (2010.12.5 Chiba)

19 : Variety of Volatile Sulfur Compounds Productivity by *Porphyromonas gingivalis* of Clinical Isolates. : Yoriko Iwasaki, Kazuhisa Ouhara, Takamune Hino, Naohiko Hasegawa, Hiroyuki Kawaguchi, and Hidemi Kurihara. : The 43<sup>th</sup> meeting of Hiroshima University Faculty of Dentistry, (2010.12.5 Hiroshima)

20 : Analysis of Volatile Sulfur Compounds (VSCs) Productivity by *Porphyromonas gingivalis*. : Yoriko Iwasaki, Kazuhisa Ouhara, Takamune Hino, Naohiko Hasegawa, Hiroyuki Kawaguchi, and Hidemi Kurihara. : The 43<sup>th</sup> meeting of Hiroshima University Faculty of Dentistry,(2010,2,11 Hiroshima)

F) Special lectures in academic meetings

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

1 : Prevention for the periodontal inflammation functional regulation of gingival epithelial cells with the antimicrobial peptide (LL37) .: encouragement study.: Tomoko Hatakeyama:22932005

2 : Assessment of dental care stress of children with developmental disorders. :encouragement study.: Miyuki Nakaoka:2293200400

## Dental Clinic

### (1) Staff and Students

Assistant Professor : Takamune Hino

Research Associate : Masaru Ohara

### (2) Main Research Activities

- 1 : Pathogenesis of the periodontal diseases
- 2 : A study on the drug-resistant bacteria from nosocomial infection

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

1. Makihira S, Shuto T, Nikawa H, Okamoto K, Mine Y, Takamoto Y, Ohara M, Tsuji K. Titanium immobilized with an antimicrobial peptide derived from histatin accelerates the differentiation of osteoblastic cell line, MC3T3-E1. Int J Mol Sci. 2010 ; 11(4):1458-70.
2. Matangkasombut O, Wattanawaraporn R, Tsuruda K, Ohara M, Sugai M, Mongkolsuk S. Cytotoxic distending toxin from *Aggregatibacter actinomycetemcomitans* induces DNA damage, S/G2 cell cycle arrest, and caspase-independent death in a *Saccharomyces cerevisiae* model. Infect Immun. 2010; 78(2):783-92.

#### B) Review

#### C) Publications

Etiology and pathogenesis of periodontal disease

Editor: Alexandria L. Dumitrescu

Chapter 2 "Periodontal Microbiology": Alexandria L. Dumitrescu and Masaru Ohara p39-76

Springer-Verlag Berlin Heidelberg 2010

#### D) Other Publications

## E) Presentation at Scientific Meeting

26. Usefulness of anaerobic bacterial examination to infected root canal treatment. Yasuko Kitamoto, Yuushi Uchida, Takamune Hino, Hideki Shiba, Hiroyuki Kawaguchi, and Hidemi Kurihara. The International Association of Dental Research, Barcelona, Spain, July 14-17, 2010.
27. Therapy of Endodontic Lesion with Perforation at the Root used Dental CT and Microscope: A Case of Report. Yuushi Uchida, Yasuko Kitamoto, Hideki Shiba, Tsuyoshi Fujita, Noriyuki Iwata, Katsuhiko Takeda, Takeshi Ueda, Takamune Hino, Hiroyuki Kawaguchi, and Hidemi Kurihara. The 31<sup>th</sup> Meeting of Japan Endodontic Association, Tokyo, July 24-25, 2010.
28. Variety of Volatile Sulfur Compounds Productivity by *Porphyromonas gingivalis* of Clinical Isolates. Yoriko Iwasaki, Kazuhisa Ouhara, Takamune Hino, Naohiko Hasegawa, Hiroyuki Kawaguchi, and Hidemi Kurihara. The 43<sup>th</sup> meeting of Hiroshima University Faculty of Dentistry, Hiroshima, June 12, 2010.
29. Analysis of Volatile Sulfur Compounds (VSCs) Productivity by *Porphyromonas gingivalis*. Yoriko Iwasaki, Takamune Hino, Kazuhisa Ouhara, Naohiko Hasegawa, Hideki Shiba, Hiroyuki Kawaguchi, and Hidemi Kurihara. The International Workshop on BioDental Education and Research 2010, Hiroshima, Feb 11-12, 2010.
30. Detection of Heterotrophic Bacteria in Dental Unit Waterlines. Yoshie Niitani, Takamune Hino, Kazuhisa Ouhara, Kouichi Hayashida, Hideki Shiba, Hiroyuki Kawaguchi, and Hidemi Kurihara. The International Workshop on BioDental Education and Research 2010, Hiroshima, Feb 11-12, 2010.
31. Analysis of Heterotrophic Bacteria Detected in Dental Unit Waterlines. Yoshie Niitani, Kazuhisa Ouhara, Takamune Hino, Hideki Shiba, Hiroyuki Kawaguchi, and Hidemi Kurihara. The 43<sup>th</sup> meeting of Hiroshima University Faculty of Dentistry, Hiroshima, June 12, 2010.

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

1 : Grants-in-Aid for Scientific Research <KAKENHI>, New Research Projects under Scientific Research (B): The basic research for developing the cytokine regeneration therapy as order housemaid medical treatment. Number: 21390557. ¥300,000.

## (5) Academic Awards, etc.

## (6) Patents

## Dental Medical Information Section

### (1) Staff and Students

Director	: Nobuyuki Kamata (Co.)
Professor	: Hideaki Amano (Co.)
Assistant	: Kyou Hiasa (Co.), Masahiko Ohtsuka (Co.), Takeshi Tanaka
Technician	: Tokue Yanagida (Co.)

### (2) Main Research Activities

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

### (3) Research Achievements

#### A) Original Papers (including Case Reports)

- 1 : The Availability Assessment of Medical Information System After Introducing in the Dental Section of University Hospital: Kyou HIASA et al.: Japan Journal of Medical Informatics **30** Suppl. pp. 129-132, 2010.
- 2 : Requirements to Secure Authenticity of Clinical Data Accumulated in Hospital Information System: Hidehiko TSUKUMA et al.: Japan Journal of Medical Informatics **30** Suppl. pp. 514-517, 2010.
- 3 : The Correlation between Adverse Events in Hospitals and Their Administration and Education Structure on Hospital Information Systems: Takeshi Tanaka et al.: Japan Journal of Medical Informatics **30** Suppl. pp. 514-517, 2010.
- 4 : The importance of information training for medical staff of healthcare information technologist: Nobuhiro WAKABAYASHI et al.: Japan Journal of Medical Informatics **30** Suppl. pp. 1064-1066, 2010.
- 5 : The current situation of patient data access control settings in hospital information systems: Takeshi Tanaka et al.: Journal of the Japan Society for Healthcare Administration **47** Suppl. pp. 275, 2010.
- 6 : Does electronic health records prevent harmful events in a hospital?: Hidehiko TSUKUMA et al.: Journal of the Japan Society for Healthcare Administration **47** Suppl. pp. 279, 2010.



## B) Review

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1 : Hospital Information Systems: are they sufficiently helpful for the management of patient safety? Valuable lessons from the Japanese experience: Minoru Ikeuchi et al.: 13<sup>th</sup> World Congress on Medical and Health Informatics (MEDINFO 2010) (Cape Town, South Africa) 2010.
- 2 : Hospital Information Systems brought to troubles –Survey of JCQHC -: Takeshi Tanaka et al.: Japan Association for Medical Informatics Spring Conference 2010 (Takamatsu), 2010.
- 3 : Requirements to Secure Authenticity of Clinical Data Accumulated in Hospital Information System: Hidehiko TSUKUMA et al.: The 30<sup>th</sup> Joint Conference of Medical Informatics (Hamamatsu) 2010.  
Suppl. pp. 514–517, 2010.
- 4 : The Correlation between Adverse Events in Hospitals and Their Administration and Education Structure on Hospital Information Systems: Takeshi Tanaka et al.: The 30<sup>th</sup> Joint Conference of Medical Informatics (Hamamatsu) 2010.
- 5 : The importance of information training for medical staff of healthcare information technologist: Nobuhiro WAKABAYASHI et al.: The 30<sup>th</sup> Joint Conference of Medical Informatics (Hamamatsu) 2010.
- 6 : The Availability Assessment of Medical Information System After Introducing in the Dental Section of University Hospital: Kyou HIASA et al.: The 30<sup>th</sup> Joint Conference of Medical Informatics (Hamamatsu) 2010.
- 7 : The current situation of patient data access control settings in hospital information systems: Takeshi Tanaka et al.: The 48<sup>th</sup> Academic Meeting of the Japan Society for Healthcare Administration (Hiroshima), 2010.
- 8 : Does electronic health records prevent harmful events in a hospital?: Hidehiko TSUKUMA et al.: The 48<sup>th</sup> Academic Meeting of the Japan Society for Healthcare Administration (Hiroshima), 2010.

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

(5) Academic Awards, etc.

(6) Patents