

**2011**

# **Research Achievements 2011**

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○ **Dental Clinic**

○ **Dental Medical Information Section**

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

### (1) Staffs and Students

Professor: Koichi Kato  
Assistant Professor: Yuji Nomura, Isao Hirata, Ryo Nishikiori  
Researcher: Jiang Wu  
Undergraduate Student: Takayuki Ooto, Sho Nishimoto, Mizuki Takahashi, Kotaro Watanabe,  
Chiharu Kubota, Hisanobu Kamio

### (2) Main Research Activities

- 1 : Biodevices for producing cells used in stem cell-based regenerative medicine.
- 2 : Biochips for the functional analyses of proteins and stem cells.
- 3 : Molecular design of tissue engineering scaffolds.
- 4 : Surface modification of dental implants.
- 5 : Development of novel disinfectants for dental materials.

### (3) Research Achievements

#### A) Original Papers

- 1 : Design of culture substrates for large-scale expansion of neural stem cells: Konagaya S., Kato K., Nakaji-Hirabayashi T., Iwata H.: *Biomaterials*, 32 (4), 992-1001, 2011.
- 2 : Enhanced proliferation of neural stem cells in a collagen hydrogel incorporating engineered epidermal growth factor: Egawa E. Y., Kato K., Hiraoka M., Nakaji-Hirabayashi T., Iwata H.: *Biomaterials*, 32 (21), 4737-4743, 2011.
- 3 : Array-based functional screening of growth factors toward optimizing neural stem cell microenvironments: Konagaya S., Kato K., Nakaji-Hirabayashi T., Arima Y., Iwata H.: *Biomaterials*, 32 (22), 5015-5022, 2011.
- 4 : Irradiation effect on osteoclastogenesis stimulated by breast cancer cell: Sawajiri M., Nomura Y., Nishikiori R., Banik S., Sonoda Y., Tanimoto K.: *Health Physics*, 101 (3), 259-264, 2011.
- 5 : Detection of synthetic RGDS(PO<sub>3</sub>H<sub>2</sub>)PA peptide adsorption using a titanium surface plasmon resonance biosensor: Abe Y., Hiasa K., Hirata I., Okazaki Y., Nogami K., Mizumachi W., Yoshida

Y., Suzuki K., Okazaki M., Akagawa Y.: J. Mater. Sci. Mater. Med., 22 (3), 657-661, 2011.

## B) Review

- 1 : Synthesis of functional artificial lymphoid tissues: Kobayashi Y., Kato K., Watanabe T.: Discovery Med., 12 (65), 351-362, 2011.
- 2 : Culture substrates enabling the large-scale production of neural stem cells: Kato K.: J. Clin. Exp. Med. (IGAKU NO AYUMI), 238 (13), 1192-1195, 2011.

## C) Publications

- 1 : Biomaterial screening by cell chip-based analysis; Advanced Interdisciplinary Biodevices Based on Nanotechnology (Tamiya E.): Kato K.: CMC Publishing (Tokyo), 183-188, 2011.
- 2 : High-throughput analyses of gene functions on a cell chip by electroporation: Methods in Molecular Biology; Cell-Based Microarrays: Methods and Protocols (Palmer E.): Kato K., Iwata H.: Springer (Heidelberg, Germany), Vol. 706, 181-190, 2011.

## D) Presentation at Scientific Meeting

- 1 : Growth factor-immobilized culture substrates for the selective expansion of human neural progenitor cells: Kato K., Konagaya S., Nakaji-Hirabayashi T., Iwata H.: 2nd Taiwan-Japan Symposium on Nanomedicine (Taipei), 2011.
- 2 : Designing culture substrates for the efficient induction of neural cells from induced pluripotent stem cells: Komura T., Kato K., Iwata H.: 60th Annual Meeting of the Society of Polymer Science, Japan (Osaka) , 2011.
- 3 : Designing culture substrates for the efficient induction of dopaminergic cells from neural progenitor cells: Nakaji T., Kato K., Iwata H.: 60th Annual Meeting of the Society of Polymer Science, Japan (Osaka) , 2011.
- 4 : Growth factor-anchored substrates for use in neural stem cell culture: Kato K., Nakaji T., Konagaya S., Iwata H.: 138th Poval Meeting (Kyoto), 2011.
- 5 : Culture substrates for the expansion of iPS cell-derived neural stem/progenitor cells: Konagaya S., Kato K., Komura T., Iwata H.: 33rd Annual Meeting of the Japanese Society for Biomaterials (Kyoto), 2011.
- 6 : Modulation of neural stem cells on culture substrates with surface-anchored growth factors: Kato K., Konagaya S., Nakaji-Hirabayashi T., Iwata H.: 2011 Annual Meeting of Formosa Association of

- Regenerative Medicine (Taipei), 2011.
- 7 : Designing of biomaterials and biodevices for controlling stem cell functions: Kato K.: 84th Annual Meeting of the Japanese Biochemical Society, Symposium on Nano-Biomaterials and Biochemistry (Kyoto), 2011.
  - 8 : Engineering approaches for regenerative medicine: Kato K.: 2011 Summer Seminar of the Japanese Society for Dental Materials and Devices, Kinki-Chu-Shikoku Branch (Minami-Awaji), 2011.
  - 9 : Designing of biomaterials and biodevices for controlling stem cell functions: Kato K.: Seminar at the Institute for Materials Chemistry and Engineering, Kyushu University (Hakata), 2011.
  - 10 : Effect of heavy ion beams on bone metabolism: Sawajiri M., Nomura Y., Takinami S., Tanimoto K.: 54th Annual Meeting of the Japan Radiation Research Society (Kobe), 2011.
  - 11 : Study on the antimicrobial efficacy of chlorine dioxide as a component of denture cleanser: Hori T., Maeda T., Nomura Y., Sadamori S., Okazaki M., Akagawa Y.: 3rd Academic Meeting of the Japan Denture Care Society (Morioka), 2011.
  - 12 : Study on the antimicrobial effect of chlorine dioxide for *Candida albicans*: Hori T., Maeda T., Nomura Y., Sadamori S., Akagawa Y.: 2011 Annual Meeting of the Chugoku and Shikoku Branch, Japanese Prosthodontic Society (Okayama), 2011.
  - 13 : Disinfection of dental stone casts: Effect on surface morphology: Nishikiori R., Watanabe K., Nomura Y., Hirata I., Sawajiri M., Okazaki M.: International Dental Materials Congress 2011 (Seoul), 2011.
  - 14 : Applications of ozonized water to disinfection of dental materials. I. The effect on the surface roughness of dental stone casts: Nishikiori R., Okuda T., Ootoshi A., Okazaki M., Nishijima A.: 20th Annual Meeting of the Japan Ozone Association (Chiba), 2011.
  - 15 : Calcium phosphate nucleation ability on the titanium surface modification via alkylphosphonic acid with carboxyl group: Wu J., Hirata I., Zhao X., Okazaki M.: International Dental Materials Congress 2011 (Seoul), 2011.
  - 16 : Calcium phosphate nucleation ability on titanium surface influenced by alkyl chain length of phosphate self-assembled monolayers: Wu J., Hirata I., Nagaoka N., Yoshida Y., Zhao X., Okazaki M.: 3rd International Symposium on Surface and Interface of Biomaterials (Sapporo), 2011.
  - 17 : Calcium phosphate nucleation ability on the titanium surface modification by self assembled monolayers: Wu J., Hirata I., Zhao X., Okazaki M., Koichi K.: 4th Hiroshima Conference (Hiroshima), 2011.
  - 18 : Newly developed carbonate apatite-chitosan scaffold for in vitro bone tissue engineering: Ariani MD., Matsuura A., Hirata I., Kuto T., Okazaki M., Akagawa Y.: 4th Hiroshima Conference (Hiroshima), 2011.
  - 19 : Improvement of cell adhesion and growth using chemical defined culture medium and dish.: Hirata I., Saskianti T., Kanawa M., Kawamoto K., Kato K., Kato Y.: 59th Annual

Meeting of Hiroshima University Dental Society (Hiroshima), 2011.

- 20 : Bone formation ability of carbonate apatite-collagen sponge with some cytokines: Ariani MD., Matsuura A., Hirata I., Kubo T., Okazaki M., Akagawa Y.: 2nd Joint Scientific Meeting in Dentistry (Surabaya), 2011.
- 21 : Fabrication of newly developed carbonate apatite chitosan composites: Matsuura A., Ariani M. D., Hirata I., Kubo T., Akagawa Y, 41st Annual General Meeting/Academic Convention of the Japanese Society of Oral Implantology (Nagoya), 2011.
- 22 : Cell viability on newly developed carbonate apatite-chitosan sponges: Ariani M. D., Matsuura A., Hirata I., Kubo T., Okazaki M., Akagawa Y.: 2011 Summer Seminar of the Japanese Society for Dental Materials and Devices, Kinki-Chu-Shikoku Branch (Minami-Awaji), 2011.

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

- 1 : Ministry of Education, Culture, Sports, Science and Technology, Grant-in-Aid for Scientific Research (B): Kato K.: Designing modular biomaterials for functional regulation of neural progenitor cells. No. 22300164 3,200,000 JPY
- 2 : Japan Science and Technology Agency, Adaptable and Seamless Technology Transfer Program through Target-driven R&D, Feasibility Stage: Biochips for the quality control of mesenchymal stem cells. No. AS231Z04602F 1,700,000 JPY
- 3 : Ministry of Education, Culture, Sports, Science and Technology, Gran-in Aid for Young Scientists (B):Hirata I.: Effect of self-assembled monolayers on the growth and differentiation of mesenchymal stem cells in a serum-free medium: No. 23792282 1,900,000JPY
- 4 : Grant for Exploratory Research, Hiroshima University: Nishikiori R.: Identification of prospective surface markers of mesenchymal stem cells using an on-chip cell sorting method. 500,000 JPY

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

- 1 : Hirata I.: Paper Award of the Japanese Dental Material Society in 2010 (April 23, 2011)
- 2 : Wu J.: Poster award at the 4th Hiroshima Conference (October 9, 2011)

#### (6) Patents

- 1 : Iwata H., Kato K., Nakaji T.: Culture substrates for the induction of dopaminergic neurons (Japanese Patent Application No. 2011-118849) (Kyoto University, Nippon Flour Mills Co., Ltd.)

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**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, Kazuko Kitayama
International Student:	Tania Saskianti, Veronica Ronald
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: Mesenchymal stem cell-induced cranial suture-like gap in rats.: Kaku M, Tai M, Kawata T, Fujita T, Motokawa M, Ohtani J, Sakai Y, Kato Y, Tanne K.: *Plast Reconstr Surg.* 2011 Jan;127(1):69-77.
- 2: Basic helix-loop-helix transcription factors DEC1 and DEC2 regulate the paclitaxel-induced apoptotic pathway of MCF-7 human breast cancer cells.: Wu Y, Sato F, Bhawal UK, Kawamoto T, Fujimoto K, Noshiro M, Morohashi S, Kato Y, Kijima H.: *Int J Mol Med.* 2011 Apr;27(4):491-5.
- 3: Basic helix-loop-helix transcription factor DEC1 negatively regulates cyclin D1.: Bhawal UK, Sato F, Arakawa Y, Fujimoto K, Kawamoto T, Tanimoto K, Ito Y, Sasahira T, Sakurai T, Kobayashi M, Kashima I, Kijima H, Kuniyasu H, Abiko Y, Kato Y, Sato S. : *J Pathol.* 2011 Jul;224(3):420-9.
- 4: PERIOD1 (PER1) has anti-apoptotic effects, and PER3 has pro-apoptotic effects during cisplatin



- (CDDP) treatment in human gingival cancer CA9-22 cells. : Sato F, Wu Y, Bhawal UK, Liu Y, Imaizumi T, Morohashi S, Kato Y, Kijima H. : *Eur J Cancer*, 2011 Jul;47(11):1747-58.
- 5: Impact of Zinc Fingers and Homeoboxes 3 (ZHX3) on the Regulation of Mesenchymal Stem Cell Osteogenic Differentiation. : Suehiro F, Nishimura M, Kawamoto T, Kanawa M, Yoshizawa Y, Murata H, Kato Y. : *Stem Cells Dev.*, Sep;20(9):1539-47,2011.
- 6: The effect of synthetic octacalcium phosphate in a collagen scaffold on the osteogenicity of mesenchymal stem cells.: Kawai T, Anada T, Masuda T, Honda Y, Sakai Y, Kato Y, Kamakura S, Echigo S, Suzuki O.: *European Cells and Materials*, 22,124-136,2011.
- 7: Feasibility and limitations of the round robin test for assessment of in vitro chondrogenesis evaluation protocol in a tissue-engineered medical product.: Yokoi M, Hattori K, Narikawa K, Ohgushi H, Tadokoro M, Hoshi K, Takato T, Myoui A, Nanno K, Kato Y, Kanawa M, Sugawara K, Kobo T, Ushida T.: *J Tissue Eng Regen Med.*, Article first published online: 2 AUG 2011.

#### B) Review

#### C) Publications

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1 : Transcription factors regulating differentiation of MSC.: Kawamoto T., Kubo H., Iwata Y., Fujimoto K., Noshiro M., Kato Y.: 3<sup>rd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences. Hiroshima City, Jan. 28-30, 2011.
- 2 : Expression profiles of nuclear receptors and their functions in rat growth plate Chondrocytes.: Ozaki N., Noshiro M., Honda K., Hayashibara K., Kawamoto T., Fujimoto K., Tanne K., Kato Y.: 3<sup>rd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences. Hiroshima City, Jan. 28-30, 2011.
- 3 : Effect of conditioned medium derived from mouse ameloblast lineage cells on differentiation of human dental pulp cells.: Fujii S., Fujimoto K., Nishimura F., Kato Y.: 3<sup>rd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences. Hiroshima City, Jan. 28-30, 2011.
- 4 : Identification of HMGA2 and SIM2 interaction in MSC.: Saskianti T., Kawamoto T., Kato Y.: 3<sup>rd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences. Hiroshima City, Jan. 28-30, 2011.
- 5 : Serum-Free Cultures for Human Mesenchymal Stem Cells using Defined Culture Surfaces.: Yukio Kato: 1<sup>st</sup> Meeting of Surabaya Regenerative Medicine and Stem Cell Centre (SRMSC), 2<sup>nd</sup>

Meeting of Indonesia Association of Tissue Bank (IATB), SYMPOSIUM, Surabaya, Indonesia ,  
Sep.22-23, 2011.

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

(5) Academic Awards, etc.

(6) Patents

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## Basic Life Sciences

### Department of Bacteriology

#### (1) Faculty members and students

Professor : Motoyuki Sugai  
Assistant Professor : Fuminori Kato, Shizuo Kayama, Junzo Hisatsune  
Co-Researcher : Keiko Tsuruta (Oral Health Care Major)  
Ikue Hayashi (Faculty of Dentistry)  
Keita Iori (Tokyo University of Agriculture and Technology)  
(Aug 15 - Sep 4)

Visiting Research Scholar : Dr. Pratiwi Soesilawati  
(Airlangga Univ. Fac. Dent. Dept. Oral Biol.) (Sep 30 – Oct 13)

Graduate Student : Shuntarou Kouda OD (D7) (From Dept. Urology) Shima Morioka D6, Kanao Kobayashi D4 (From Dept. Urology), Wataru Shimizu D4 (From Dept. Surgery 1), Norifumi Shigemoto D3 (From Dept. Surgery 1), Itsugun Ko D3 (From Pediatric Dentistry), Ryuichi Kuwabara D3, Taro Kojima D2, Yuko Iwamoto D2 (From Pediatric Dentistry), Nobuyuki Tatsukawa D1 (From Pediatric Dentistry), Yoshie Harino D1 (Clinical Laboratory, Hiroshima City Asa Hospital), Shrestha Looniva D1, Kazuhisa Koizumi M2 (Pharmacy, Kimura Eye & Int. Med. Hospital)

Research student : Yu Liansheng (doctoral course enrollment next year)

#### (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. Rapid detection of *bla*<sub>IMP-6</sub> by Amplification Refractory Mutation System. Shizuo Kayama, Norifumi Shigemoto, Ryuichi Kuwahara, Makoto Onodera, Michiya Yokozaki, Hiroki Ohge,

- Fuminori Kato, Junzo Hisatsune, Motoyuki Sugai. *Journal of Microbiological Methods* 88, 182-184, 2012.
2. Emergence in Japan of an Imipenem-Susceptible Meropenem-Resistant *Klebsiella pneumoniae* (ISMRK) carrying *bla<sub>IMP-6</sub>*. Norifumi Shigemoto, Ryuichi Kuwahara, Shizuo Kayama, Wataru Shimizu, Makoto Onodera, Michiya Yokozaki, Junzo Hisatsune, Fuminori Kato, Hiroki Ohge, Motoyuki Sugai. *Diagnostic Microbiology and Infectious Disease* 72, 109-112, 2012.
  3. Expressions of virulence factors in *Staphylococcus aureus* grown in serum. Yuichi Oogai, Miki Matsuo, Masahito Hashimoto, Fuminori Kato, Motoyuki Sugai, and Hitoshi Komatsuzawa. *Applied and Environmental Microbiology* 77, 8097-8105, 2011
  4. A simple method of markerless gene deletion in *Staphylococcus aureus*. Fuminori Kato and Motoyuki Sugai. *Journal of Microbiological Methods* 87: 76-81, 2011
  5. Bacitracin sensing and resistance in *Staphylococcus aureus*. Yuuma Yoshida, Miki Matsuo, Yuichi Oogai, Fuminori Kato, Norifumi Nakamura, Motoyuki Sugai, Hitoshi Komatsuzawa. *FEMS Microbiol Lett* 320:33-39, 2011
  6. Sporadic isolation of a multi-drug resistant *Pseudomonas aeruginosa* clone during a 14 month epidemic in a general hospital in Hiroshima. Shuntaro Kouda, Yoshihiro Fujiue, Yaeko Watanabe, Masaru Ohara, Shizuo Kayama, Fuminori Kato, Junzo Hisatsune, Keiko Tsuruda, Akio Matsubara, Masao Doi, Masao Kuwabara, Motoyuki Sugai. *Infection* 39:247-253, 2011
  7. Growth-phase dependence of cell surface charge in *Staphylococcus aureus*. Miki Matsuo, Yuichi Oogai, Fuminori Kato, Motoyuki Sugai, Hitoshi Komatsuzawa. *Microbiology UK* 157: 1786-1797, 2011.
  8. The regulatory mechanism for exfoliative toxin production in *Staphylococcus aureus*. Fuminori Kato, Noriko Kadomoto, Yuko Iwamoto, Katuaki Bunai, Hitoshi Komatsuzawa, Motoyuki Sugai. *Infection and Immunity* 79: 1660-1670, 2011
  9. *Staphylococcus pseudintermedius* exfoliative toxin selectively digests canine desmoglein 1 and causes intraepidermal splitting resembling canine impetigo. Keita Iyori, Keiko Futagawa-Saito, Junzo Hisatsune, Masahiko Yamamoto, Maiko Sekiguchi, Kaori Ide, Won Geun, Thierry Olivry,

Motoyuki Sugai, Tsuguaki Fukuyasu, Toshiroh Iwasaki, Koji Nishifuji. *Veterinary Dermatology* 22: 319-326, 2011

10. Identification and antimicrobial drug susceptibility of clinical *Staphylococcus* spp. Isolates from canine superficial pyoderma at a primary veterinary hospital. Makiko Yamamoto, Hiroaki Fujimoto, Wataru Shimizu, Fuminori Kato, Junzo Hisatsune, Yusuke Ito, Takeo Minami, Motoyuki Sugai. *Japanese Journal of Veterinary Dermatology* 17: 99-104, 2011
11. Topical application of *Aggregatibacter actinomycetemcomitans* CDT induces cell cycle arrest in the rat gingival epithelium *in vivo*. Masaru Ohara, Mutsumi Miyauchi, Keiko Tsuruda, Takashi Takata, Motoyuki Sugai. *Journal of Periodontal Research* 46, 389-395, 2011
12. Clonal distribution of enterotoxigenic *Staphylococcus aureus* on handles of shopping baskets in supermarkets. Emiri Mizumachi, Fuminori Kato, Junzo Hisatsune, Keiko Tsuruda, Yoshio Uehara, Hiromi Seo, Motoyuki Sugai. *Journal of Applied Microbiology* 110, 562-567, 2011.
13. 中国地方において分離された緑膿菌の疫学的検討と抗菌薬感受性成績. 中国インフェクションフォーラム 桑原正雄、草野展周、清水英治、清水亘、小林加直、甲田俊太郎、土井正男、菅井基行、公文裕巳. *The Japanese Journal of Antibiotics* 64, 97-108, 2011

#### C) Books

#### D) Other Publications

#### E) Presentation at Scientific Meeting

1. 黄色ブドウ球菌表皮剥脱毒素の新規転写調節因子の解析.加藤文紀、平川英樹、田代康介、久原哲、菅井基行. 第5回 ゲノム微生物学会 仙台 (地震の為、開催されず)
2. 膿痂疹/SSSS をおこす *S. aureus* pETB の薬剤耐性遺伝子獲得. 久恒順三、平川英樹、大島健志郎、服部正平、桑原隆一、加藤文紀、菅井基行. 第5回 ゲノム微生物学会 仙台 (地震の為、開催されず)
3. MDRP が保有する *bla*<sub>IMP-1</sub> plasmid の解析. 鹿山鎮男、小林加直、大毛宏喜、平川英樹、大島健志郎、服部正平、菅井基行. 第5回 ゲノム微生物学会 仙台 (地震の為、開催されず)

4. 伝染性膿痂疹/SSSS 由来の ETB 産生黄色ブドウ球菌のアルベカシン耐性化. 久恒順三、桑原隆一、菅井基行. 第 85 回日本感染症学会総会 4/21 東京
5. イミペネム感受性メロペネム耐性 *Klebsiella pneumoniae* (ISM RK) の出現. 繁本憲文, 桑原隆一, 鹿山鎮男, 清水亘, 小野寺一, 横崎典哉, 大毛宏喜, 菅井基行. 第 85 回日本感染症学会総会 東京 4/21
6. イミペネム感受性メロペネム耐性 *Klebsiella pneumoniae* (ISM RK) クロームの出現とその検出. 鹿山鎮男、繁本憲文、桑原隆一、清水亘、小野寺一、横崎典哉、大毛宏喜、菅井基行. 第 59 回日本化学療法学会総会 6/24 札幌
7. 2004~2009 年度の広島地区における院内分離耐性緑膿菌に関する検討. 繁本憲文、清水亘、小林加直、甲田俊太郎、鹿山鎮男、大毛宏喜、菅井基行. 第 59 回日本化学療法学会総会 6/24 札幌
8. 広島県におけるイミペネム感受性メロペネム耐性 *Klebsiella pneumoniae* (ISM RK) の出現. 鹿山鎮男、繁本憲文、桑原隆一、清水亘、小野寺一、横崎典哉、大毛宏喜、菅井基行. 感染症科第 28 回中国地区インフェクションフォーラム 7/23 岡山
9. A novel transcriptional regulator, SptB, of exfoliative toxin A in *Staphylococcus aureus*. Fuminori Kato, Hideki Hirakawa, Kosuke Tashiro, Satoru Kuhara, Motoyuki Sugai. IUMS Sep 7, Sapporo
10. Sequence analysis of the *bla*<sub>IMP-1</sub> plasmid harbored by an MDRP in Hiroshima. Shizuo Kayama, Kanao Kobayashi, Hiroki Ohge, Hideki Hirakawa, Kenshiro Oshima, Masahira Hattori, Motoyuki Sugai. IUMS Sep 9, Sapporo
11. Skip, a versatile cell wall protein of *S. aureus* causing severe skin diseases. Junzo Hisatsune, Teruaki Murakami, Taro Kojima, Ikue Hayashi, Fuminori Kato, Motoyuki Sugai. Symposium: Staphylo-Streptococcus Diseases IUMS Sep 9, Sapporo (Invited)
12. Skip, a Trojan horse of *Staphylococcus aureus* causing severe impetigo/SSSS. Junzo Hisatsune, Teruaki Murakami, Ikue Hayashi, Fuminori Kato, Motoyuki Sugai. IUMS Sep 10, Sapporo
13. CdtC-induced processing of membrane-bound CdtA is a crucial step in complex formation of CDT holotoxin. Keiko Tsuruda, Motoyuki Sugai IUMS Sep 10, Sapporo
14. 黄色ブドウ球菌表皮剥脱毒素の新規転写調節因子 SptA. 加藤文紀、菅井基行. 第 56 回日本

ブドウ球菌研究会. 9/23 高知

15. 膿痂疹をおこす *S. aureus* が保有する pETB の薬剤耐性遺伝子獲得. 久恒順三、平川英樹、大島健志郎、服部正平、桑原隆一、加藤文紀、菅井基行. 第 56 回日本ブドウ球菌研究会. 9/23 高知
16. 「広島県における耐性菌動向—耐性緑膿菌と ESBL 産生菌を中心に—」. 菅井基行. 感染症専門医および感染対策チームの育成のための講演会 9/23 高知市
17. 広島県内の一医療施設で継続的に検出された *bla*<sub>IMP-1</sub> 陽性緑膿菌の分子疫学解析. 播野 俊江、鹿山鎮男、菅井基行. 第 81 回日本感染症学会西日本地方会 10/7 小倉
18. イミペネム感受性メロペネム耐性 *Klebsiella pneumoniae* 感染により重篤な経過をたどった一例. 繁本憲文、石野岳志、井門謙太郎、鹿山鎮男、桑原隆一、小野寺一、横崎典哉、大毛宏喜、菅井基行. 第 81 回日本感染症学会西日本地方会 10/7 小倉
19. 耐性菌検査法 —ESBL 産生菌を中心に—. 桑原隆一. 第 22 回日本臨床微生物学会 ワークショップ 3 (第 12 回 MICRoBE 学術研究会) 10/22 岡山市
20. Imipenem 感受性 Meropenem 耐性 *Klebsiella pneumoniae* (ISM RK) が保有する多剤耐性プラスミド pKPI-6. 繁本憲文、鹿山鎮男、桑原隆一、清水亘、久恒順三、加藤文紀、平川英樹、大島健志郎、服部正平、大毛 宏喜、菅井基行. 第 64 回日本細菌学会中国四国支部総会 10/22 岡山
21. 眼科専門病院で分離された臨床分離 *Staphylococcus aureus* の解析. 小泉一久、鹿山鎮男、菅井基行. 第 64 回日本細菌学会中国四国支部総会 10/23 岡山
22. 広島県における ESBL 産生菌の分子疫学解析 (第 2 期調査). 桑原隆一、鹿山鎮男、菅井基行. 第 59 回日本化学療法学会西日本地方会 11/24 奈良市
23. 広島県におけるイミペネム感受性メロペネム耐性 *Klebsiella pneumoniae* (ISM RK) クローンの動向. 繁本憲文、鹿山鎮男、桑原隆一、清水亘、小野寺一、横崎典哉、大毛宏喜、菅井基行. 第 59 回日本化学療法学会西日本地方会 11/25 奈良市
24. Drug-resistant *Pseudomonas aeruginosa* urinary isolates: clonal dissemination of multidrug-resistant *Pseudomonas aeruginosa* with the *bla*<sub>IMP-1</sub> gene cassette in Hiroshima. Kanao

Kobayashi, Wataru Shimizu, Motoyuki Sugai, Akio Matsubara. The 2011 Urinary Tract Infection and Inflammation – Expert Consensus Conference, 11/26-27 Jeju, Seoul, Korea

25. 広島県における耐性菌動向 –耐性緑膿菌と ESBL 産生菌を中心に-. 菅井基行. 第 40 回薬剤耐性菌研究会 12/1 群馬県渋川市
26. 耐性菌の分子疫学-広島地区における取り組み-. 菅井基行、大毛宏喜. 第 24 回日本外科感染症学会総会学術集会 シンポジウム3 「耐性菌をどうする?」 12/2 三重県志摩市
27. 眼科専門病院で分離された臨床分離 *Staphylococcus aureus* の解析. 小泉一久、鹿山鎮男、菅井基行. 第 30 回広島感染症研究会 12/3 広島市
28. リサーチ検討会学術報告「広島県下の耐性菌サーベイランス報告」. 菅井基行. 第 30 回広島感染症研究会 12/3 広島市
29. *Staphylococcus aureus* の新規表層タンパク質 Skip の機能解析. 久恒順三、村上輝明、小島太郎、達川伸行、林幾江、加藤文紀、菅井基行. 第 34 回日本分子生物学会年会 ポスター発表 12/14 横浜
30. SptB is a novel transcriptional regulator of exfoliative toxin A in *Staphylococcus aureus*. Fuminori Kato, Hideki Hirakawa, Kosuke Tashiro, Satoru Kuhara, Motoyuki Sugai. 第 34 回日本分子生物学会年会 ポスター発表 (12/15) & 一般講演ノミネート (12/16) 4T7pII Functions of Molecules and Complexes/分子・複合体の機能 Transcription/転写 横浜

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

1. 問題となっている院内感染症の原因微生物. 桑原隆一. 第 3 回広島地区感染対策指導者セミナー 3/12
2. 「とびひ」の細菌学-系統解析からのアプローチ-. 菅井 基行. 第 64 回日本細菌学会九州支部総会 特別講演-I 8/26 門司 (Invited)
3. Skip, a versatile cell wall protein of *S. aureus* causing severe skin diseases. Motoyuki Sugai. Symposium: Staphylo-Streptococcus Diseases IUMS Sep 9, Sapporo (Organizer and speaker)
4. 「広島県における耐性菌動向-耐性緑膿菌と ESBL 産生菌を中心に-」. 菅井基行. 感染症専門医および感染対策チームの育成のための講演会 9/23 高知市総合あんしんセンター



5. 「ワークショップ『耐性菌検査』～ESBL 産生菌を中心に～」. 桑原隆一. 第 12 回 MICRoBE 学術研究会 広島 10/22
6. 耐性菌検査法 -ESBL 産生菌を中心に-. 桑原隆一. 第 22 回日本臨床微生物学会 ワークショップ 3 (第 12 回 MICRoBE 学術研究会) 10/22 岡山市
7. Drug-resistant *Pseudomonas aeruginosa* urinary isolates: clonal dissemination of multidrug-resistant *Pseudomonas aeruginosa* with the *bla*<sub>IMP-1</sub> gene cassette in Hiroshima. Kanao Kobayashi, Wataru Shimizu, Motoyuki Sugai, Akio Matsubara. The 2011 Urinary Tract Infection and Inflammation – Expert Consensus Conference, 11/26-27 Jeju, Seoul, Korea
8. 広島県における耐性菌動向 -耐性緑膿菌と ESBL 産生菌を中心に-. 菅井基行. 第 40 回薬剤耐性菌研究会 伊香保温泉森秋館会議室 12/1 群馬県渋川市
9. 耐性菌の分子疫学-広島地区における取り組み-. 菅井基行、大毛宏喜. 第 24 回日本外科感染症学会総会学術集会 シンポジウム 3 「耐性菌をどうする?」 12/2 三重県志摩市
10. リサーチ検討会学術報告「広島県下の耐性菌サーベイランス報告」. 菅井基行. 第 30 回広島感染症研究会 12/3 広島市
11. Skip 産生黄色ブドウ球菌の性状解析. 久恒順三、小島太郎、村上輝明、加藤文紀、菅井基行. 厚生科学研究天谷班 第 1 回班会議 慶応大学 6/8, 2011
12. 黄色ブドウ球菌の病原性発現機構に関与するゲノム情報基盤. 加藤文紀、久恒順三、菅井基行. 乳酸菌研究会 6/17
13. FLG-K0 マウスに対する黄色ブドウ球菌の付着・固着性の検討. 小島太郎、久恒順三、菅井基行. 厚生科学研究天谷班 第 2 回班会議 慶応大学 11/16, 2011
14. *Staphylococcus pseudintermedius* が産生する表皮剥脱毒素はイヌ皮膚においてデスマグレイン 1 を標的とする. 伊從慶太、久恒順三、二川慶子、山本昌彦、川上哲司、柴田早苗、村山信雄、関口麻衣子、永田雅彦、深田恒夫、井手香織、大島健志郎、服部正平、福安嗣昭、岩崎利郎、菅井基行、西藤公司. 第 151 回日本獣医学会 3/30-4/1 東京
15. 中国地区で分離された多剤耐性緑膿菌に対する抗菌薬併用効果の検討 (中国インフエクションフォーラム). 桑原正雄, 草野展周, 清水英治, 土井正男, 菅井基行, 公文裕巳. 第 85 回

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16. The autolysin IspC acts as an *N*-Acetylglucosaminidase in *Listeria monocytogenes* serotype 4b. Jennifer Ronholm, Min Lin, Xudong Cao, Motoyuki Sugai, Ikue Hayashi. 2011 CSM Conference
17. The RND efflux system MexMN of *Pseudomonas aeruginosa* extrudes *Pseudomonas* quinolone signal (PQS) and 4-hydroxy-2-heptylquinoline-N-oxide (HQNO), interfering with growth of *Staphylococcus aureus*. Shu Minagawa, Keisuke Shinno, Yukako Kitakaze, Kenji Fujii, Takashi Kitayama, Fuminori Kato, Jun Okuda, Motoyuki Sugai, Naomasa Gotoh IUMS Sep 10, Sapporo

#### (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 : lactobacillus study group scholarship : Sugai, M

#### (5) Awards

1. 4<sup>th</sup> Hiroshima Conference on Education and Science in Dentistry. Poster Award, Mao Tanaka, Hiroshima, 10/10, 2011
2. 第64回日本細菌学会中国四国支部総会若手優秀発表受賞. 繁本憲文. 10/22 岡山 (2011)

#### (6) Patents

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

(1) Staffs and Students

Professor : SUGITA, Makoto

Associate Professor : HIRONO, Chikara

Research Associate : KITAGAWA, Michinori (April~)

Research Assistant : YAMAMOTO, Kuniyo

Graduate Students : YAMAMOTO, Kuniyo (April~)

(2) Main Research Activities

- 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) Research Achievements

A) Original Papers (including Case Reports)

B) Review

- 1 : Interrelationship between taste perception and salivary secretion: Hirono C., Sugita M.: The Journal of Hiroshima Dental Association, 38, 1-9, 2010. (published in 2011)

C) Publications

D) Other publication

E) Presentation at Scientific Meeting

- 1 : Suppression of phenylephrine-induced Cl<sup>-</sup> secretion by dobutamine in rat submandibular acinar cells:

- Hirono C., Sugita M., Shiba Y.: The 53th Annual Meeting of Japanese Association for Oral Biology (Gifu), 2011.
- 2 : The genetic tracing to functionally define the gustatory neurons at a single cell resolution: Sugita M., Yamamoto K., Hirono C., Shiba Y.: The 53th Annual Meeting of Japanese Association for Oral Biology (Gifu), 2011.
- 3 : Genetic tracing of taste representation in the brain reveals its potential interaction with the homeostatic control of feeding: Sugita M.: The 59th Annual Meeting of Japanese Association for Dental Research (Hiroshima), 2011.
- 4 : Effects of sympathetic  $\beta_1$  and  $\beta_2$  agonists on parasympathetically induced  $Ca^{2+}$  increase in rat submandibular acinar cells: Hirono C., Sugita M., Shiba Y.: The 63th Annual Meeting of Chugoku and Shikoku Division in Physiological Society of Japan (Hiroshima), 2011.
- 5 : Involvement of CFTR R domain-interacting proteins in CFTR biogenesis and degradation: Sugita M., Shiba Y.: 2011 NIPS Research Meeting (Okazaki), 2011.
- 6 : Molecular characterization of GDD1/TMEM16E: Tobiume K., Ta To T., Hirono C., Fujimoto S., Mizuta K., Kubozono K., Sugita M., Kamata N.: The 34th Annual Meeting of the Molecular Biology Society of Japan (Yokohama), 2011.

(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. ¥1,000,000.
- 2 : Grant-in-Aid for Young Scientists (B): Kitagawa M., Analysis of the role of transcription factor Tead1 in the differentiation of mouse embryonic stem cells into retinal pigment epithelium and proliferation of the differentiated cells. 22791669. ¥1,300,000.

(5) Academic Awards, etc.

(6) Patents

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## **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

Research Associate: Satoshi Asano

Graduate student: Toshiya Okumura, Hiroto Tanaka

Undergraduate student (Advanced Dental Research course): Ryuichi Tsuruta (6th), Yuya Ogawa (5-6th), Nami Kikushige (5-6th), Nozomi Hinada (5-6th), Kousuke Yokobayashi (4th), Tomohiro Mukai (4th), Seiya Hayashi (4th), Eri Ikeda (4th), Sakura Yamada (4th).

### (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 : Involvement of PRIP, phospholipase C-related, but catalytically inactive protein, in bone formation. Tsutsumi K, Matsuda M, Kotani M, Mizokami A, Murakami A, Takahashi I, Terada Y, Kanematsu T, Fukami K, Takenawa T, Jimi E, Hirata M. *J Biol Chem.* 286(35):31032-31042, 2011.
- 2 : Phenotypes of pain behavior in phospholipase C-related but catalytically inactive protein type 1 knockout mice. Migita K, Tomiyama M, Yamada J, Fukuzawa M, Kanematsu T, Hirata M, Ueno S. *Mol Pain.* 18;7:79, 2011.
- 3 : A case report of prothodontic reconstruction using dental implants for the edentulous patient with

severe gagging reflex: Ono S., Takechi M., Harada K., Ohta K., Okumura T., Kagawa K., Abekura H., Okui G., Ninomiya Y., Takamoto A., Akagawa Y., Kamata N.: the Journal of Hiroshima University Dental Society, 43(1), 57-60, 2011.

## B) Reviews

1: Recommendation for the pharmacological management of neuropathic pain: Tsuruta R., Akagi Y., Nakatao H., Terabe T., Tokunaga A., Nishimura Y., Mori S., Morita K., Kitayama T., Kanematsu T.: Journal of Hiroshima University Dental Society, 43(1), 9-19, 2011.

## C) Publications

## D) Other Publications

1 : Thank you for the Best Presentation Award: Okumura T., The Journal of Hiroshima University Dental Society, 43, 134, 2011.

## E) Presentation at Scientific Meeting

1 : Energy metabolism is up-regulated in PRIP-DKO mice: Okumura T., Harada K., Kamata N., Kanematsu T.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences 2011, (Hiroshima), 2011.

2 : Spinal glycinergic interneuron mediates the analgesic action of tricyclic antidepressants in neuropathic pain models in mice.: Jinnin Y., Motoyama N., Morita K., Kitayama S., Nishimura F., Kanematsu T.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences 2011, (Hiroshima), 2011.

3 : Modulation of insulin secretion by GABARAP and PRIP: Kitayama T., Hirata M., Kikushige N., Kanematsu T.: The 84<sup>th</sup> Annual Meeting of The Japanese Pharmacological Society (Yokohama), 2011.

4 : The inhibitory action of tricyclic and tetracyclic antidepressants on GABA transporter subtypes: Rile G., Sogawa C., Ohyama K., Jinzenji A., Miyawaki T., Masuko T., Kusama T., Morita K., Sogawa N., Kitayama S.: The 84<sup>th</sup> Annual Meeting of the Japanese Pharmacological Society (Yokohama), 2011.

5 : Effects of PRIP on pain-related behavior in mice: Kitayama T., Morita K., Kanematsu T.: The 119<sup>th</sup> Kinki Branch Meeting of Japanese Pharmacological Society (Nagoya), 2011.

6 : Mechanisms of analgesic effect of glycine transporter inhibitors for neuropathic pain in mice:

- Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The 134<sup>th</sup> Meeting of the Japanese Society of Conservative Dentistry (Chiba), 2011.
- 7 : PRIP regulates lipolysis in white adipose tissue: Okumura T., Harada K., Mizokami A., Hirata M., Kamata N., Kanematsu T.: the 44th Ordinary Meeting of Hiroshima University Dental society, (Hiroshima), 2011.
- 8 : Role of platelet-activating factor (PAF) receptor in the developing and established intractable pain: Motoyama N., Morita K., Nishimura F., Kanematsu T., Dohi T.: The 31<sup>st</sup> Annual Meeting of the Japanese Society of Oral Therapeutics and Pharmacology (Chiba), 2011.
- 9 : Evaluation of the removal effect of commercial denture cleaners to the denture adhesives: Harada K., Hong G., Hamada T.: the 3rd Annual Meeting of the Japanese Denture Care Society, (Iwate), 2011.
- 10 : PRIP regulates energy metabolism: Okumura T., Harada K., Mizokami A., Hirata M., Kamata N., Kanematsu T.: the 53rd Annual Meeting of Japanese Association for Oral Biology, (Gifu), 2011.
- 11 : PRIP negatively regulates autophagy : Umebayashi H., Matsuda M., Mizokami A., Takeuchi H., Hirata M., Kanematsu T. : the 53rd Annual Meeting of Japanese Association for Oral Biology, (Gifu), 2011.
- 12 : Effects of PRIP on pain signaling: Kitayama T., Morita K., Kanematsu T.: The 53<sup>rd</sup> Annual Meeting of Japanese Association for Oral Biology (Gifu), 2011.
- 13 : Platelet-activating factor (PAF) receptor; a role of initiation and/or maintenance of pathological pain in mice: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The 53<sup>rd</sup> Annual Meeting of Japanese Association for Oral Biology (Gifu), 2011.
- 14 : The inhibitory action of antidepressants on GABA transporters: Sogawa C, Sogawa N, Ohyama K, Morita K, Kitayama S.: The 53<sup>rd</sup> Annual Meeting of Japanese Association for Oral Biology (Gifu), 2011.
- 15 : PRIP inhibits the proliferation of intracellular *Staphylococcus aureus* by autophagy pathway: Harada K., Hirata M., Kanematsu T.: The 84th Annual Meeting of the Japanese Biochemical Society, (Kyoto) , 2011.
- 16 : New role of PRIP in regulation of lipolysis: Okumura T., Harada K., Hirata M., Kamata N., Kanematsu T.: 4th Hiroshima Conference on Education and Science in Dentistry, (Hiroshima), 2011.
- 17 : PRIP modulates *Staphylococcus aureus* proliferation via infection-induced autophagy: Harada K., Kanematsu T.: The 10th JBS Biofrontier Symposium commemorating Kyushu University Centennial Anniversary International Symposium New Aspects of Phospholipid Biology and Medicine 2011, (Fukuoka), 2011.
- 18 : PLC-related catalytically inactive protein: a novel modulator of lipolysis: Kanematsu T, Okumura T, Harada K, Kamata N.: The 10th JBS Biofrontier Symposium commemorating

Kyushu University Centennial Anniversary International Symposium New Aspects of Phospholipid Biology and Medicine 2011, (Fukuoka), 2011.

#### F) Special lectures in academic meeting

- 1 : Trafficking of GABA<sub>A</sub> Receptors is Modulated by Their Phosphoregulation via a Novel GABA<sub>A</sub> Receptor Binding Protein PRIP: Kanematsu T. NeuroTalk 2011, (Dalian, China), 2011.
- 2 : New technology for brain research on the analyses of oral functions: Kanematsu T. The 59th Annual Meeting of Japanese Association for Dental Research, (Hiroshima), 2011.
- 3 : Discovery of a novel gene involved in lipolysis: Kanematsu T., Kasumi Festival in Hiroshima University (Hiroshima), 2011. (Public Lecture)

#### (4) Grants

- 1: 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 35,207,900.
- 2: Grant-in-Aid for Scientific Research (B): Morita K., Development of mechanism-based novel medicaments to pain in advanced cancer. Project number 22390349. Amount 5,070,000.
- 3: Grant-in-Aid for challenging Exploratory Research: Morita K., Identification of tumor-cell producing novel analgesic substance. Project number 22659337. Amount 1,300,000.
- 4: 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 1,690,000.

#### (5) Academic Awards

- 1: Toshiya Okumura: Poster Award, 3rd International workshop on BioDental Education & Research, 2011.
- 2: Toshiya Okumura: Best Presentation Award, the 44th Ordinary Meeting of Hiroshima University Dental society, 2011.
- 3: Toshiya Okumura: Poster Award, 4th Hiroshima Conference on Education and Science in Dentistry, 2011.

#### (6) Patents



1: Inventors: Morita K., Dohi T., Motoyama N., Kitayama T., Kanematsu T., Shiraishi S.: Management of cancer pain: translating mechanistic advances and evidence-based research into clinical practice (International Application No: PCT/JP2011/078508; Basic Application No: 2010-274581 filed on 9 December 2011) (Applicants: Hiroshima University; National Cancer Center)

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

(1) Staffs and Students

Professor : Takashi Takata

Associate Professor : Mutsumi Miyauchi

Assistant Professor : Yasusei Kudo

Research Associate : Toshihiro Inubushi

Visiting Researcher : Chea Chanbora, Istiati Soepricibadi, Nurina Febriyanti Ayuningtyas, Pasutha Thunyak

Secretary: Yuko Masuda

Graduate Student : Hisako Furusho (D4), Phuong Thao Nyugen (D4), Intan Suraiya Merican Binti Aljunid Merican (D3), Takaaki Tsunematsu (D2), Mariko Obayashi (D2), Ajiravudh Subarnhesaj (D1), Mariko Okada (M1)

(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. Frequent Increased Gene Copy Number and High Protein Cancers. Okamoto, M., Hirata, S., Sato, S., Koga, S., Fujii, M., Qi, G., Ogawa, I., Takata, T., Shimamoto, F., Tatsuka, M. DNA Cell Biol. 2011 Dec 2. [Epub ahead of print].
2. Amelogenin enhances the proliferation of cementoblast lineage cells. Kunimatsu, R., Tanimoto, K., Tanne, Y., Kamiya, T., Ohkuma, S., Huang, Y.C., Yoshimi, Y., Miyauchi, M., Takata, T., Tanne, K. J Periodontol. 2011 Nov;82(11):1632-8.

3. Effect of PGE(2) induced by compressive and tensile stresses on cementoblast differentiation in vitro. Rego. E.B., Inubushi. T., Kawazoe. A., Miyauchi. M., Tanaka. E., Takata. T., Tanne. K. Archives of Oral Biology. 2011 Nov;56(11):1238-46.
4. Ultrasound stimulation attenuates root resorption of rat replanted molars and impairs tumor necrosis factor- $\alpha$  signaling in vitro. Rego. E.B., Inubushi. T., Miyauchi. M., Kawazoe. A., Tanaka. E., Takata. T., Tanne. K. J Periodontal Res. 2011 Dec;46(6):648-54.
5. Differential Effects of Amelogenin on Mineralization of Cementoblasts and Periodontal Ligament Cells. Tanimoto, K., Kunimatsu, R., Tanne, Y., Huang, Y.C., Yoshimi, Y., Miyauchi, M., Takata, T., Tanne, K. Journal of Periodontology 2011 Sep 26. [Epub ahead of print].
6. Oral Administration of EP4 Antagonist Inhibits LPS-Induced Osteoclastogenesis in Rat Periodontal Tissue. Oka, H., Miyauchi, M., Furusho, H., Nishihara, T., Takata T. Journal of Periodontology 12 September 2011: 1-23
7. MMP-10/stromelysin-2 promotes invasion of head and neck cancer. Deraz, E.M., Kudo, Y., Yoshida, M., Tani, H., Tsunematsu, T., Siriwardena, B.S.M.S., Kiekhäe, M.R., Qi, G., Iizuka, S., Ogawa, I., Campisi, G, Lo Muzio, L., Abiko, Y., Kikuchi, A., Takata, T. PLoS ONE 6(10): e25438.
8. Overexpression of Receptor for Hyaluronan-Mediated Motility (RHAMM) in MC3T3-E1 induces the proliferation and differentiation through phosphorylation of ERK1/2. Hatano, H., Shigeishi, H., Kudo, Y., Higashikawa, K., Tobiume, K., Takata, T., Kamata, N. J Bone Miner Metabol (2011 Sep 27. Epub ahead of print).
9. Increased telomerase activity and hTERT expression in human salivary gland carcinomas. Shigeishi H, Sugiyama M, Tahara H, Ono S, Bhawal UK, Okura M, Kogo M, Shinohara M, Shindoh M, Shintani S, Hamakawa H, Takata T, Kamata N. Oncology Letter 2:845-850, 2011
10. miR-22 represses cancer progression by inducing cellular senescence. 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 193(2):409-24.
11. Topical application of Aggregatibacter actinomycetemcomitans cytotoxic 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. 2011 Mar 1.
12. 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 Feb;26(2):147-56.
13. Ameloblastin 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. 2011 Feb;31(4):783-92.

14. 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 Jan;40(1):77-82.
15. 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 Mar;91(3):379-91.
16. 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* 2011 Apr;56(4):374-9.
17. Dental service activity report in Cambodia elementary school. Matsumoto A, Iwamoto A, Omae Y, Shimazu A, Amano H, Fujiwara N, Tsuka T, Ashikaga N, Kawano S, Moriyama Y, Matsuzoe K, Ouchi A, Miyasako S, Okita S, Muroi N, Muroi M, Nin E, Ando T, Yoshimoto T, Otani S, Iwamoto Y, Kodama N, Kadomoto N, Kozai K, Nishimura F, Takata T. *The journal of Hiroshima University Dental Society* 43:51-56, 2011.
18. Soy bean liposomal lactoferrin reduces periodontal inflammation and inflammation-induced periodontal tissue destruction without inhibition of tooth movement by orthodontic force. Kawzoe A, Inubushi T, Miyauchi M, Ishikado A, Tanne K, Takata T. *Lactoferrin* 2011:27-34,2011. (Japanese)

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

1. A case of mucoepidermoid carcinoma arising in Warthin tumor of parotid gland.: Ogawa I., Takeshima Y., Inai K., Takata T.: *Jpn J Diag Pathol* 28, 94-98, 2011.
2. A case of multifocal nodular oncocytic hyperplasia. Sato S, Kishino M, Ogawa Y, Ogawa I, Takata T, Toyosawa S. *Pathology-Research and Practice* 207:452-455, 2011.
3. A case of monoclonal gammopathy of underemined significance (MGUS) associated with AL amyloidosis diagnosed by the formation of multiple nodules in oral mucosa.: Yamasaki S., Toratani S., Kanda T., Yoshida M., Okamoto T.: *J Jpn Stomatol Soc*, 60, 271-277, 2011.
4. Multiple cemental tears. Watanabe C, Watanabe Y, Miyauchi M, Fujita M, Watanabe Y. *Oral Surg Oral Med Oral Pathol Oral Radiol* (in press).

#### 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. Clinicopathological features of tumors and tumor-like lesions of the minor salivary glands: Ogawa I., Yoshida M., Ohbayashi M., Takata T.: *Pathol Clin Med*, 23,596-601, 2011.
3. Pathology of salivary gland tumors; Focus on the minor salivary gland tumors-: Ogawa I., Kudo Y., Takata T.: *J Jpn Soc Oral Tumors*, 23,50-58, 2011.

4. Histopathological classification of salivary gland tumors –For practical use of WHO classification 2005-.: Ogawa I., Takata T.: Jpn J Oral Maxillofac Surg, 57, 486-492, 2011.

#### D) Books

1. Pathology of salivary gland tumors; Focus on the diagnostic aspect.: Hand Manual of Oral & Maxillofacial Surgery'11 (Oral Surgery): Ogawa I., Kitagawa M., Kudo Y., Miyauchi M., Takata T.: Quintessence Publishers (Tokyo), 144-150, 2011.

#### E) Special lectures in academic meetings

1. Application of liposomal lactoferrin to prevention and treatment of periodontal diseases.: Takata T.: The 2<sup>nd</sup> joint scientific meeting in dentistry (Surabaya, Indonesia) , December 3-4, 2011.
2. Identification of novel oral cancer invasion related gene.: Takata T. 22th Annual Meeting of the Japanese Society for Oral Mucous Membrane (Kagoshima) , September 24, 2011.
3. The anti-inflammatory effects of lactoferrin and application for orthodontic treatment. Inubushi T. The 29<sup>th</sup> Japan Tip-Edge society of orthodontic Osaka. August 28, 2011.
4. ASOMP Scientific Session: Frontier research of oral pathology in Asia: Identification of novel invasion related molecules in oral cancer. Kudo Y. The 5<sup>th</sup> Meeting of Asian Society of Oral and Maxillofacial Pathology • The 22<sup>nd</sup> Annual Meeting of the Japanese Society of Oral Pathology (Fukuoka) August 24-25, 2011.
5. Salivary gland tumors, Head and neck pathology.: Takata T.: The 7<sup>th</sup> Asia Pacific International Academy of Pathology Congress (Taipei), May 23, 2011.
6. 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) January 31, 2011.
7. Symposium: Diagnosis and Treatment of Salivary Gland Tumors. Pathology of Salivary Gland Tumors; Focus on the Minor Salivary Gland Tumors-.: Ogawa I., Takata T.:The 29<sup>th</sup> Annual Meeting of Japan Society for Oral Tumors (Kumamoto), January 27-28, 2011.

#### F) Presentation at International Scientific Meeting

1. Acemannan induces cementoblast proliferation, alkaline phosphatase activity and collagen expressions.: Thunyakitpisal P, Sahawat D, Takata T.: 25th IADR-SEA Division Annual Scientific Meeting (Singapore), October 28-30, 2011.
2. F-spondin promotes the differentiation of human periodontal ligament cells. Kitagawa M, Miyauchi M, Takata T. 4<sup>th</sup> Hiroshima conference On education and science in dentistry (Hiroshima), October 9-10, 2011.
3. Inhibitory effect of bLF on LPS-induced crosstalk among TLR pathways in osteoblasts. Okada M,

- Morimoto C, Inubushi T, Miyauchi M, Takata T. 4<sup>th</sup> Hiroshima conference On education and science in dentistry (Hiroshima), October 9-10, 2011.
4. Application of Lactoferrin for periodontitis prevention and treatment. Kosai A, Inubushi T, Miyauchi M, Takata T. 2011 Dentsply SCRIP (Las Vegas, USA), October 8, 2011.
  5. Geminin stabilization by Aurora kinase-mediated phosphorylation during mitosis. Tsunematsu T, Kudo Y, Takata T. Cold spring harbor meeting, "The ubiquitin family" (New York, USA), May 17-21, 2011.
  6. Chromosome passenger complex protein, Borealin is regulated by APC/C<sup>Cdh1</sup> ubiquitin ligase complex. Kudo Y, Tsunematsu T, Takata T. Cold spring harbor meeting, "The ubiquitin family" (New York, USA), May 17-21, 2011.
  7. Acemannan induces cementum formation, in vitro study.: Thunyakitpisal P, Sahawat D, Kanthasuwon S, Sangvanich P, Takata T, Kitagawa M.: IADR/AADR/CADR 89th General Session and Exhibition (San Diego, USA), March 16-19, 2011.
  8. Geminin stabilization by Aurora kinases-mediated phosphorylation during mitosis. Tsunematsu T, Kudo Y, Takata T. 3rd International workshop on BioDental Education & Research (Hiroshima) January 30, 2011.
  9. Experimental study on relationship between periodontitis and systemic diseases -Systemic influence of continuous application of LPS to periodontal tissues-. Furusho H, Miyauchi M, Aomin, Inubushi T, Kitagawa M, Takata T. 3rd International workshop on BioDental Education & Research (Hiroshima) January 30, 2011.

#### G) Presentation at Domestic Scientific Meeting

1. The challenge of the regeneration of periodontal tissue -Study on cementum regeneration by a cementoblast specific gene, f-spondin-: Kitagawa M., Miyauchi M., Takata T.: The 50th Annual Meeting of Hiroshima Dental Association and the 95th Annual Meeting of Hiroshima University Dental Society (Hiroshima), November 13, 2011.
2. Geminin escapes from ubiquitin-mediated degradation by Aurora-A induced phosphorylation during mitosis. Tsunematsu T, Kudo Y, Takata T. 59<sup>th</sup> JADR Annual Meeting (Hiroshima), October 8-9, 2011.
3. Dental infection of Porphyromonas gingivalis induces pathological progression of non-alcoholic steatohepatitis. Furusho H, Miyauchi M, Aomin, Inubushi T, Ouhara K, Hisatune J, Kurihara H, Sugai M, Takata T. 59<sup>th</sup> JADR Annual Meeting (Hiroshima), October 8-9, 2011.
4. Molecular mechanisms of inhibitory effects of lactoferrin on LPS-mediated osteoclastogenesis. Inubushi T, Miyauchi M, Kawazoe A, Okada M, Aomin, Kudo Y, Ishikado A, Makino T, Tanne K, Tanaka E, Takata T. 59<sup>th</sup> JADR Annual Meeting (Hiroshima), October 8-9, 2011.
5. Identification of microRNA-203 as an inhibitor of invasion in oral cancer. Obayashi M, Kudo Y,

- Yoshida M, Hino Y, Fukunaga S, Tahara H, Takata T. 59<sup>th</sup> JADR Annual Meeting (Hiroshima), October 8-9, 2011.
6. Amelogenin differentially affects mineralization of cementblasts and periodontal ligament cells. Y Yoshimi, K Tanimoto, R Kunimatsu, T Takata, K Tanne, 59<sup>th</sup> JADR Annual Meeting (Hiroshima), October 8-9, 2011.
  7. Mechanism of hypoxia-inducible factor-1a in cartilage degradation by mechanical stress. M Shirakura, K Tanimoto, T Takata, K Tanne, 59<sup>th</sup> JADR Annual Meeting (Hiroshima), October 8-9, 2011.
  8. Dental infection of *P. gingivalis* progresses non-alcoholic steatohepatitis (NASH). Hisako Furusho. Frontal Dental School 2011, (Miura) ,September 1-2, 2011.
  9. Identification of miR-203 as a invasion related molecule in oral cancer. Ohbayashi M, Kudo Y, Yoshida M, Hino Y, Fukunaga S, Tahara H, Takata T. 3<sup>rd</sup> RNAi Meeting (Hiroshima) , August 26-27, 2011.
  10. Nuclear survivin expression is well correlated with tumor progression of Head and Neck Cancer. Aljunid Merican ISM, Kudo Y, Qi G, Ogawa I, Takata T. The 22<sup>nd</sup> Annual Meeting of the Japanese Society of Oral Pathology (Fukuoka) August 24-25, 2011.
  11. Application of Lactoferrin for periodontitis prevention and treatment. Kosai A, Inubushi T, Miyauchi M, Takata T. 2011 Dentsply (Tokyo), August 19, 2011.
  12. Identification of miR-203 as an invasion related molecule in oral cancer. Ohbayashi M, Kudo Y, Yoshida M, Hino Y, Fukunaga S, Tahara H, Takata T. 30<sup>th</sup> Molecular Pathology Meeting (Kurashiki) , July 22-24, 2011.
  13. Phosphorylation and ubiquitin-mediated proteolysis of geminin regulated by Aurora-A in mitosis. Tsunematsu T, Kudo Y, Takata T. 30<sup>th</sup> Molecular Pathology Meeting (Kurashiki) , July 22-24, 2011.
  14. Experimental study on effects of periodontitis on systemic diseases – Dental infection of *P. gingivalis* on liver tissue-. Furusho H, Miyauchi M, Aomin, Inubushi T, Ouhara K, Hisatsune J, Kouzai K, Kurihara H, Sugai M, Takata T. The 93<sup>rd</sup> Meeting of Hiroshima University Dental Society. Jun 11, 2011. Hiroshima.
  15. Elucidation of mechanism for periodontal pathogen-induced cytokines expression. – Induction of cytokine expression through TLRs and inhibitory effect of lactoferrin -. Morimoto C, Inubushi T, Miyauchi M, Takata T. The 93<sup>rd</sup> Meeting of Hiroshima University Dental Society. Jun 11, 2011. Hiroshima.

#### H) Case Reports at Scientific Meeting

1. Tumor of the parotid (Myoepithelial carcinoma, invasive, ex pleomorphic adenoma):. Ogawa I, Takata T., Mizobuchi K., Morito T.: The 57<sup>th</sup> Meeting of Hiroshima Pathological Conference (Hiroshima), December 10, 2011.

2. A case of “benign metastasizing myoepithelioma” with multiple pulmonary metastasis nine years after operation of primary parotid lesion.: Ogawa I., Ohbayashi M., Nakano R., Sakaida N, Konobu T., Saito S., Torii Y., Maruyama H., Takata T.: The 56<sup>th</sup> Annual Meeting for the Salivary Gland (Tokyo), December 3, 2011.
3. A case of osseous dysplasia arising bilaterally in the mandible that long-term progress observation was performed before extraction-: Hamada M., Kanda T., Ando T., Ogawa I., Toratani S., Okamoto T.: The 59<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Japanese Somatological Society (Matsuyama), November 26, 2011.
4. Tumor of the palate (Mucoepidermoid carcinoma, clear cell variant).: Ohbayashi M., Ando T., Tani R., Konishi M., Ogawa I., Takata T.: The 106<sup>th</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Okayama), October 29, 2011.
5. A case of synchronous double cancer of the posterior mandible cystadenocarcinoma and papillary thyroid carcinoma.: Mizuta K., Ohta A., Shimasue H., Higashikawa K., Miyauchi M., Ogawa I., Kamata N.:The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgery (Osaka), October 21-23,2011.
6. A case of myoepithelial carcinoma ex pleomorphic adenoma of the hard palate.: Fukui Y., Toratani S., Fujii T., Miyauchi M., Ogawa I., Okamoto T.:The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgery (Osaka), October 21-23,2011.
7. Tumor of the palate (Signet-ring cell [Mucin-producing] adenocarcinoma of minor salivary gland).: Ogawa I. Kushitani K., Sakamoto T., Miyauchi M., Inai K., Takata T.: The 22<sup>nd</sup> Annual Meeting of the Japanese Society of Oral Pathology (Fukuoka) August 24-25, 2011.
8. Tumor of the tongue (Ectomesenchymal chondromyxoid tumor of the anterior tongue).: Ogawa I., Tsunematsu T., Kitagawa M., Yoshioka Y, Takata T.: The 105<sup>th</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Kida-gun, Kagawa), June 25, 2011.
9. A case of bilateral osseous dysplasia in the mandible.: Ando T., Kanda T., Furusho H., Ogawa I., Toratani S., Miyauchi M., Takata T.: The 44<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), June 11, 2011.
10. Mandibular lesion (Osseous dysplasia). : Ando T., Furusho H., Miyauchi M., Fujita M., Kanda T., Toratani S., Ogawa I., Takata T.:The 56<sup>th</sup> Meeting of Hiroshima Pathological Conference (Hiroshima), May 28, 2011.
11. A case of calcifying cystic odontogenic tumor occurring in the mandible of very elderly
12. woman. : Kubozono K, Shimasue H, Shigeishi H, Tsunematsu T, Ogawa I, Takechi M, Kamata N. The 40<sup>th</sup> Meeting of Chugoku-Shikoku Branch of the Japanese Society of oral and maxillofacial surgeons (Matsue), May 28, 2011.
13. A case of myoepithelial carcinoma ex pleomorphic adenoma of the palate. : Fukui Y., Toratani S.,



Fujii T., Miyauchi M., Ogawa I., Okamoto T. : The 40<sup>th</sup> Meeting of Chugoku-Shikoku Branch of the Japanese Society of oral and maxillofacial surgeons (Matsue), May 28, 2011.

14. A case of calcified lymph node at left submandibular.: Fujii Y, Yoshioka Y, Shintani T, Tsunematsu T, Ogawa I, Toratani S, Okamoto T. The 40<sup>th</sup> Meeting of Chugoku-Shikoku Branch of the Japanese Society of oral and maxillofacial surgeons (Matsue), May 28, 2011.
15. Tumor of the palate (Myoepithelial carcinoma ex pleomorphic adenoma).: Yoshida M., Furusho H., Fukui Y., Toratani S., Miyauchi M., Ogawa I., Takata T.: The 104<sup>th</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Ube), February 19, 2011.

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

1. Grants-in-Aid for Scientific Research (Young Scientists (A)) New: Yasusei Kudo: Clarification of carcinogenesis induced by abnormal regulation of cell cycle regulators through ubiquitin dependent proteolysis.
2. Grants-in-Aid for Scientific Research (Grant-in-Aid for Challenging Exploratory Research) New: Yasusei Kudo: Clarify of involvement of microRNA in oral cancer invasion.
3. JST Adaptable and Seamless Technology transfer Program through target-driven R & D: A-STEP (FS) New: Yasusei Kudo: Identification and application to clinical diagnosis of invasion related microRNA in oral cancer.
4. Grants-in-Aid for Scientific Research (Research fellowship for young scientists) New: Takaaki Tsunematsu: The role and regulation of RUNX3 in oral squamous cell carcinoma.
5. Grants-in-Aid for Scientific Research (Research fellowship for international scientists) New: Phuong Thao Nguyen: Study on the development of novel treatment for targeting N-cadherin in oral cancer.
6. 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.
7. 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.
8. Donated fund from Ito ultrasound Ltd., Continuance : Takashi Takata : Study on the influence of ultrasonic irradiation on periodontal tissue.
9. Donated fund from Sanstar Co. Ltd. : Takashi Takata.
10. Donated fund from Clinical laboratory center, Hiroshima city medical association, Continuance : Takashi Takata : Study on diagnosis for oral disease.
11. Donated fund from Mitsubishi-Mihara Hospital, Continuance : Takashi Takata : Study on diagnosis for oral disease.
12. Donated fund for Hiroshima Prefecture tumor registration business, Continuance : Takashi Takata

## (5) Academic Awards, etc.

1. Maki Yoshida : 3rd International workshop on BioDental Education & Research. Oral Presentation Award, January 30, 2011 (Hiroshima).
2. Takaaki Tsunematsu : 3rd International workshop on BioDental Education & Research. Poster Award, January 30, 2011 (Hiroshima).
3. Takaaki Tsunematsu : Encouragement Award of Hiroshima University Faculty of Dentistry Alumni Association, May 14, 2011 (Hiroshima).
4. Hisako Furusho : The 43rd meeting of Hiroshima University Dental Society, Encouragement Award, June 11, 2011 (Hiroshima).
5. Fumitaka Obayashi (6<sup>th</sup> grade Student) : The 43rd meeting of Hiroshima University Dental Society, Encouragement Award, June 11, 2011 (Hiroshima).
6. Chiaki Morimoto (6<sup>th</sup> grade Student) : The 43rd meeting of Hiroshima University Dental Society, Special Award from President of Hiroshima University Dental Society, June 11, 2011 (Hiroshima).
7. Azuma Kosai (5<sup>th</sup> grade Student) : Japan dental association organized (DENTSPLY International sponsored) Student Clinician Research Program (SCRIP) , invitational tournament for represent Japan, First prize 19<sup>th</sup> August, 2011, (Tokyo.)
8. Hisako Furusho : Frontal dental school 2011 Excellence Award 2 September, 2011, (Miura).
9. Toshihiro Inubushi : 59<sup>th</sup> The 59th Annual Meeting of Japanese Association for Dental Research (JADR) Young Researcher's Award, October8, 2011 (Hiroshima).
10. Hisako Furusho : The 59th Annual Meeting of Japanese Association for Dental Research (JADR) Young Researcher's Award, October8, 2011 (Hiroshima).

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## **Program for Department of Periodontal Medicine, Division of Frontier Medical Science and 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, Takamune Hino (additional post of Hiroshima University Dental Clinic Director)

Assistant Professor: Naohiko Hasegawa, Noriyoshi Mizuno, Tsuyoshi Fujita, Yuushi Uchida, Katsuhiro Takeda, Tomoyuki Iwata, Kazuhisa Ohara, Shinji Matsuda

Resident: Yasuko Kitamoto, Fumino Ogawa

Graduate Student: Yoriko Iwasaki, Yoshie Niitani, 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, Daisuke Ito, Kei Kashiwai, Masahiro Yamakawa, Tetsuya Yoshimoto

### (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 neurotrophines
- 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. Proteome analysis of proteins related to aggressive periodontitis combined with neutrophil

chemotaxis dysfunction. : Mizuno N, Niitani M, Shiba H, Iwata T, Hayashi I, Kawaguchi H, Kurihara H. ; J Clin Periodontol. 2011 Apr;38(4):310-7.

2. Characteristics of High-Molecular-Weight Hyaluronic Acid as a Brain-Derived Neurotrophic Factor Scaffold in Periodontal Tissue Regeneration.: Takeda K, Sakai N, Shiba H, Nagahara T, Fujita T, Kajiya M, Iwata T, Matsuda S, Kawahara K, Kawaguchi H, Kurihara H.; Tissue Eng Part A. Apr;17(7-8):955-67, 2011.
3. Susceptibility test and systemic administration of antibiotics for the treatment of alveolar abscess infected by *Pseudomonas aeruginosa*: A case report: Uchida Y, Kitamoto Y, Hino T, Shiba H, Kawaguchi H, Kurihara H; Journal of Japan Endodontic Association, 32(1): 38-46, 2011
4. Diagnosis with cone-beam computed tomography and treatment using microscope for endodontic lesion caused by root canal perforation; A case report Uchida Y, Shiba H, Kawaguchi H, Kurihara H; Journal of Japan Endodontic Association, 32(3): 226-231, 2011

#### B) Review

#### C) Publications

#### D) Other Publications

1. Toward the Realization of Biologic Endodontics : H. Shiba, H. Kurihara ; Supplemental issue of the Quintessence Let's change clinical treatment best by ENDO Quintessence publication Co., 128-137
2. Examination study for DHs: What is the bacterial examination for samples from root canals? : H. Kurihara, I. Ogawa, M. Kitagawa; DHstyle. Dental Diamond Co., 5(9):66-70, 2011.
3. Examination study for DHs: Examination of serum IgG antibody titer for periodontopathic bacteria: H. Kurihara, T. Shintani; DHstyle. Dental Diamond Co., 5(12):62-66, 2011.

#### E) Presentation at Scientific Meeting

1. Development of a newly medical device for periodontal tissue regeneration using brain-derived neurotrophic factor( BDNF) / hyaluronic acid complex : K. Takeda, H. Shiba, T. Fujita, S. Matsuda, A. Konishi, N. Katagiri, H. Kawaguchi, H. Kurihara; The 10<sup>th</sup> Congress of the Japanese Society for Regenerative Medicine (Tokyo), March 2011
2. BDNF induces migration of endothelial cells: S. Matsuda, T. Fujita, H. Shiba, H. Kurihara; the 89th General Session & Exhibition of the International Association for Dental Research (San Diego), March 2011
3. Irsogladine Maleate Regulates Gingival Epithelial Barrier Functions In Inflammatory Condition: T.

- Fujita, H. Yumoto, K. Ouhara, T. Miyagawa, S. Matsuda, H. Kawaguchi, T. Matsuo, H. Kurihara; the 89th General Session & Exhibition of the International Association for Dental Research (San Diego), March 2011
4. Inflammatory reaction of S100 protein in human gingival epithelial cells: Y. Uchida, K. Ohara, T. Fujita, H. Shiba H. Kawaguchi, H. Kurihara; the 89th General Session & Exhibition of the International Association for Dental Research (San Diego), March 2011
  5. Usefulness 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 89th General Session & Exhibition of the International Association for Dental Research (San Diego), March 2011
  6. A case report of localized aggressive periodontitis improved by early phase of periodontal regenerative therapy: K. Takeda, H. Shiba, H. Kawaguchi, H. Kurihara; The 54<sup>th</sup> spring meeting of the Japanese society of Periodontology (Fukuoka), May 2011
  7. The antimicrobial peptide LL37 promotes the expression of VEGF in human periodontal ligament cell: M. Kittaka, H. Shiba, K. Ouhara, K. Takeda, T. Fujita, T. Fujita, H. Kawaguchi, H. Kurihara; The 54<sup>th</sup> spring meeting of the Japanese society of Periodontology (Fukuoka), May 2011
  8. The involvement of SMAD2 of apoptosis in gingival epithelium: T. Fujita, K. Ouhara, H. Shiba, H. Kawaguchi, H. Kurihara ; The 54<sup>th</sup> spring meeting of the Japanese society of Periodontology (Fukuoka), May 2011
  9. Anti-inflammatory effects of Azithromycin on human gingival epithelial cells: Tsuyoshi Miyagawa, T. Fujita, K. Ouhara, S. Matsuda, K. Takeda, Y. Uchida, H. Imai, Hideki Shiba, H. Kawaguchi, H. Kurihara; The 54<sup>th</sup> spring meeting of the Japanese society of Periodontology (Fukuoka), May 2011
  10. The effect of IL-32 in osteoclastogenesis of human peripheral blood derived mononuclear cell: K. Ouhara, T. Fujita, T. Iwata, H. Shiba, H. Kawaguchi, H. Kurihara; The 10<sup>th</sup> Congress of the Japanese Society for Regenerative Medicine (Tokyo), March 2011
  11. Irsogladine maleate regulates epithelial barrier functions in human gingival epithelial cells stimulated by TNF- $\alpha$ .: T. Fujita, H. Shiba, Takeda, H. Kurihara.; The 32<sup>nd</sup> annual meeting of Japanese society of Inflammation and Regeneration (Kyoto) , June 2011
  12. Trial of selective antibiotics therapy for radicular cystic lesion - Embodiment of the concept called the biological endodontic treatment - : H. Kurihara, Y. Uchida, Y. Kitamoto, H. Shiba, H. Kawaguchi, I. Ogawa, T. Shintani, M. Kitagawa ; The 44th meeting of The Hiroshima University Dental Society (Hiroshima), June 2011.
  13. Anti-inflammatory effect of Azithromycin on human gingival epithelial cells: Tsuyoshi Miyagawa, T. Fujita, K. Ouhara, S. Matsuda, K. Takeda, Y. Uchida, H. Imai, H. Shiba, H. Kawaguchi, H. Kurihara; The 44th meeting of The Hiroshima University Dental Society (Hiroshima), June 2011.
  14. The antimicrobial peptide LL37 promotes the expression of VEGF in human periodontal ligament

- cell: M. Kittaka, H. Shiba, K. Ouhara, K. Takeda, T. Fujita, T. Fujita, H. Kawaguchi, H. Kurihara; The 44th meeting of The Hiroshima University Dental Society (Hiroshima), June 2011.
15. The necessity for the metal allergy test before the operation of dental implant: M. Kitagawa, M. Ohbayashi, T. Ando, T. Shintani, I. Ogawa, H. Kawaguchi, K. Kagawa, T. Nakagawa, M. Takechi, H. Kurihara; The 44th meeting of The Hiroshima University Dental Society (Hiroshima), June 2011.
  16. Trend of dental metal allergy: M. Kitagawa, T. Ando, T. Shintani, I. Ogawa, H. Kurihara; 4th Annual Meeting of Japanese Society for Evidence and the Dental Professional (Chiba), August 2011
  17. Effects of Dokudami (*Houttuynia cordata*) on IL-8 expression in human gingival epithelial cells stimulated by *Aggregatibacter actinomycetemcomitans*: M. Kabir, T. Fujita, K. Ouhara, I. Savitri, T. Miyagawa, M. Kittaka, H. Imai, Y. Uchida, S. Matsuda, H. Shiba, H. Kawaguchi, H. Kurihara; The 54<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Shimonoseki), 2011 September
  18. Adhesion of mesenchymal stem cells to root surface of teeth *in vitro*: K. Wada, Y. Uchida, T. Ueda, H. Kawaguchi, H. Kurihara; The 54<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Shimonoseki), September 2011
  19. Immunohistochemical study of periodontal tissue regenerative process by BDNF.: A. Konishi, K. Takeda, H. Shiba, T. Ueda, T. Fujita, S. Matsuda, H. Kawaguchi, H. Kurihara.; The 54<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Shimonoseki), September 2011
  20. The ability of osteogenic differentiation of mesenchymal stem cell isolated from dog alveolar bone : T. Ueda, H. Kawaguchi, Y. Uchida, K. Takeda, K. Wada, T. Fujita, H. Kurihara; The 54th autumn meeting of the Japanese society of Periodontology (Shimonoseki) September 2011
  21. The effect of BDNF on permeability of endothelial cells: S. Matsuda, T. Fujita, K. Takeda, M. Kittaka, H. Imai, H. Shiba, H. Kawaguchi, H. Kurihara; The 135<sup>st</sup> autumn meeting of Japanese society of conservative dentistry (Osaka), October 2011
  22. Amphotericin B regulates IL-8 expression in human gingival epithelial cells : H. Imai, T. Fujita, K. Ouhara, S. Matsuda, Y. Uchida, T. Miyagawa, H. Shiba, H. Kawaguchi, H. Kurihara; The 135<sup>st</sup> autumn meeting of Japanese society of conservative dentistry (Osaka), October 2011
  23. Immunohistochemical study of periodontal tissue regenerative process by BDNF.: A. Konishi, K. Takeda, H. Shiba, T. Ueda, T. Fujita, S. Matsuda, H. Kawaguchi, H. Kurihara.; 4th Hiroshima Conference on Education Science in Dentistry (Hiroshima), October 2011
  24. Isolation and osteogenic differentiation of jaw bone marrow derived mesenchymal stem cells in beagle dogs: T. Ueda, H. Kawaguchi, K. Wada, K. Takeda, T. Fujita, Y. Uchida, H. Kurihara; 4th Hiroshima Conference on Education Science in Dentistry (Hiroshima), October 2011
  25. The inhibitory effect of irsogladine maleate against Toll-like receptor 2 induction mediated by *Porphyromonas gingivalis* in human gingival epithelial cells: Irma Josefina Savitri, K. Ouhara, T. Fujita, T. Miyagawa, Y. Uchida, H. Shiba, H. Kawaguchi, H. Kurihara; 4th Hiroshima Conference on Education Science in Dentistry (Hiroshima), October 2011

26. The establishment of the method to make marrow mesenchyma stem cells adhere to the tooth root surface : K. Wada, Y. Uchida, T. Ueda, H. Kawaguchi, H. Kurihara : The 97th Hiroshima dental society (Hiroshima), November 2011
27. Isolation and osteogenic differentiation of jaw bone marrow derived mesenchymal stem cells in beagle dogs: T.Ueda, H.Kawaguchi, K.Wada, K.Takeda, T.Fujita, Y.Uchida, H.Kurihara; 44th meeting of Hiroshima University Faculty of Dentistry (Hiroshima) November 2011
28. Immunohistochemical study of periodontal tissue regenerative process byBDNF.: A. Konishi, K. Takeda, H. Shiba, T. Ueda, T. Fujita, S. Matsuda, H. Kawaguchi, H. Kurihara.; 44th meeting of Hiroshima University Faculty of Dentistry (Hiroshima) November 2011
29. The reality of dental metal allergy -From the result of patch test in Dental Departments, Hiroshima University Hospital- : M. Kitagawa, T. Ando, T. Shintani, I. Ogawa, H. Kurihara ; 44th meeting of Hiroshima University Faculty of Dentistry (Hiroshima) November 2011

#### F) Special lectures in academic meetings

1. Consideration for biological treatment : Hidemi Kurihara ; Numazu-shi dental association lecture (Shizuoka) , January 2011
2. How much can periodontal tissue be regenerated? : Hidemi Kurihara ; The 10<sup>th</sup> Congress of the Japanese Society for Regenerative Medicine (Tokyo), March 2011
3. Fact and limit for cell cryopreservation – Consideration for the standard of cell cryopreservation from medical care to food – : Hidemi Kurihara ; Hiroshima University international industry-university co-operation and regional alliances center international symposium (Tokyo), March 2011
4. Hidemi Kurihara; Seminar of the department of Collagenosis (Hiroshima), May 2011
5. Hidemi Kurihara; ADS-ROC annual meeting (Taiwan) , August 2011
6. Dental Professionals Improve QOL of HIV-positive Persons: H. Shiba; The 54<sup>nd</sup> Autumn Meeting of the Japanese Society of Periodontology (Shimonoseki), September 2011
7. Development of a newly medical device for periodontal tissue regeneration using brain-derived neurotrophic factor(BDNF) / hyaluronic acid complex: Katsuhiko Takeda; a luncheon seminar of the 54<sup>nd</sup> autumn meeting of the Japanese society of Periodontology (Shimonoseki), September 2011
8. Irsogladine maleate regulates neutrophil migration and E-cadherin expression in gingival epithelium stimulated by *Aggregatibacter actinomycetemcomitans*. T. Fujita. The 53<sup>rd</sup> Annual meeting of Japanese association for oral biology (Gifu), October 2011
9. Embodiment of the concept called the biological endodontic treatment : Hidemi Kurihara ; Education lecture of Japan Association of Dental Traumatology (Osaka) , October 2011

10. Dentistry and infection control : Hidemi Kurihara ; Recurrent education for Dental hygienist (Hiroshima) , October 2011
11. Vision for new periodontal regenerative therapy : Hidemi Kurihara ; 29th annual meeting of Japan Academy of Clinical periodontology Special lecture (Hiroshima) , October 2011
12. Dentistry and infection control : Hidemi Kurihara ; Ehime dental association medical care security workshop (Matsuyama) , November 2011
13. Development of new methods for periodontal regenerative therapy : Hidemi Kurihara ; Japan –China Medical interchange meeting memorial event (China) , November 2011

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

1. Grants-in aid for scientific research: Hidemi Kurihara: #21390557
2. Grants-in aid for scientific research: Hiroyuki Kawaguchi: #22592313
3. Grants-in aid for scientific research: Katsuhiko Takeda: #22791929
4. Grants-in aid for scientific research : Kazuhisa Ouhara : #22792085
5. Grants-in aid for scientific research : Tsuyoshi Fujita: #22792087
6. Grants-in aid for scientific research : Yuushi Uchida: #22792088
7. Grants-in aid for scientific research: Hidemi Kurihara: #23592923
8. Grants-in aid for scientific research: Noriyoshi Mizuno #23593061
9. Grants-in aid for scientific research: Hidemi Kurihara: #23659978
10. Grants-in aid for scientific research :Tomoyuki Iwata: #23792478
11. Grants-in aid for scientific research :Yoriko Iwataki: #23932002
12. Japanese Society of Periodontology Encouragement research grants – in aid for Seeds foster young researcher (the year of 2011): Kazuhisa Ouhara; Basic research for development of examination of periodontal disease sensitivity focused on microRNA expression

(5) Award.

Katsuhiko Takeda

Best Poster Presentation Award of the 54<sup>nd</sup> spring meeting of the Japanese society of Periodontology (Fukuoka): A case report of localized aggressive periodontitis improved by early phase of periodontal regenerative therapy

Tsuyoshi Fujita

Japanese Society of Conservative Dentistry prize for encouragement (2011) :



Irsogladine maleate regulates neutrophil migration and E-cadherin expression in gingival epithelium stimulated by *Aggregatibacter actinomycetemcomitans.*; *Biochemical Pharmacology.* 79:1496-1505, 2010.

The 23rd Japanese Association for Oral Biology prize pharmacology section (2011) : Irsogladine maleate regulates neutrophil migration and E-cadherin expression in gingival epithelium stimulated by *Aggregatibacter actinomycetemcomitans.*; *Biochemical Pharmacology.* 79:1496-1505, 2010.

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## 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 host defense against oxidized stress

### (3) Research Achievements

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

- 1: Takahashi, I. The intraepithelial lymphocytes. *In "Encyclopedia of Food immunity & Allergy"* (Edited by Japanese Society of Food Immunology) pp.66-67, Asakura Shoten, Tokyo, 2011.

#### B) Review (in japanese)

- 1: Takahashi I, Nagatake T, Kiyono H. Basic concept of Mucosal Immunology. **Cell Technology**. 30:342-347, 2011.

#### C) Original papers

- 1: Hatano H, Shigeishi H, Kudo Y, Higashikawa K, Tobiume K, Takata T, Kamata N. Overexpression of receptor for hyaluronan-mediated motility (RHAMM) in MC3T3-E1 cells induces proliferation and differentiation through phosphorylation of ERK1/2. *J Bone Miner Metab*. PMID: 21947782, 2011.
- 2: Hatano H, Shigeishi H, Kudo Y, Higashikawa K, Tobiume K, Takata T, Kamata N. RHAMM/ERK interaction induces proliferative activities of cementifying fibroma cells through a mechanism based on the CD44-EGFR. *Lab Invest*. 91: 379-91, 2011.

D) Presentation at Scientific Meeting

- 1: Toubou H, Goto Y, Kurashima Y, Kiyono H, Maruyama F, Nakagawa I, Kurushima J, Abe A, Hayashi I and Takahashi I. Indigenous environmental bacteria involve the creation of mucosal homeostasis. The 40th Annual Meeting of Japanese Society of Immunology. November 28, 2011, Chiba, 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. 2011-3-305) ¥ 1, 000, 000.
2. Grant for the Co-laboratory Research entitled “Molecular and cellular analysis of mucosal immune responses to food derived immunomodulators” from the Kobayashi Pharmaceutical Company. ¥ 1, 500, 000.

(5) Patents.

“The gut-resident commensal bacteria derived polypeptide and the method of its production”  
(#2011-033867) Hiroshima University, The University of Tokyo, Tokyo Medical and Dental University, and Kitasato University. February 18, 2011.

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## **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, Atia Hossain, Kimio Okada, Keiji Harada

#### (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 videofluoroscopic examination of swallowing
- 5: Radiation effects of heavy ion particles on bone metabolism.

#### (3) Research Achievements

##### A) Original Papers

- 1:Reproducibility and diagnostic accuracy of a computer-aided diagnosis system of osteoporosis for detecting linearly eroded endosteal margine of the mandible lower border on panoramic radiographs: Nakamoto T., Taguchi A., Asano A., Zaman M., Tanimoto K.: Dental Radiology, 51, 33-38, 2011.
- 2:Irradiation Effect on Osteoclastogenesis Stimulated by Breast Cancer Cell : Sawajiri M, Nomura Y., Nishikiori R., Banik S., Sonoda Y., Tanimoto K. : Health Physics, 101(3), 259-264, 2011.
- 3:Experience of using a filmless system in dental practice at Hiroshima University Hospital, a former University Dental Hospital: Ohtsuka M., Nakamoto T., Konishi M., Yamane Y.,

Tamura M., Takaba J., Sumida H., Tanimoto K.: Japanese Journal of Radiological Technology, 67(6), 673-678, 2011.

### C) Publications

- 1: Dysphagia Clinical Management in Adults & Children (Groher M. Crary M. eds. Takahashi K.(translation supervisor)): Konishi M. Tanimoto K. (partially contributed), Ishiyaku Pub.Inc. (Tokyo), chapter 10, 189-214, 2011
- 2 : Evaluation of Dysphagia (In Japanese): Tanimoto K. (partially contributed), Ishiyaku Pub.Inc. (Tokyo), 62-68, 2011

### E) Presentation at Scientific Meeting

- 1: Irradiation Effect on Osteoclastogenesis Stimulated by Breast Cancer Cell: Sawajiri M., Nomura Y., Takinami S., Maruyama K., Tanimoto K: The 54th Annual Meeting of The Japan Radiation Research Society (Kobe), 2011.
- 2 : Disinfection of Dental Stone Casts: Effect on Surface Morphology. : Nishikiori R., Watanabe ., Nomura y., Hirata I., Sawajiri M., Okazaki M. : International Dental Materials Congress 2011 (Seoul), 2011.
- 3: Two cases of bisphosphonate-related osteomyelitis of the mandible with solid type periosteal reaction: Zaman M., Nakamoto T., Suei Y., Tanimoto K.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
- 4: Important technical parameters are not presented in studies on intra oral radiography in endodontic treatment –Results of a systematic review-: Konishi M. Lindh C. Nilsson M. Tanimoto K. Rohlin M.:18th International Congress of Dento-maxillofacial Radiology (Hiroshima), 2011
- 5: Contrast agents used in the videofluoroscopic swallowing study: Konishi M. Nagasaki T. Yasuhara Y. Tanimoto K.: 18th International Congress of Dento-maxillofacial Radiology (Hiroshima), 2011
- 6: Visualization of Rice Swallowing: Konishi M. Nagasaki T. Yasuhara Y. Tanimoto K.: 2th Joint Scientific meeting in Dentistry (Surabaya), 2011
- 7: Are freeze infusion of root vegetables suitable as a dysphagia diet? : Nagasaki T, Konishi M, Hirai T, Kimura H, Yasuhara A, Kayashita J, Nakamura S, Sakamoto H, Tanimoto T : Dysphagia Research Society 19<sup>th</sup> Annual Meeting(San Antonio, USA), 2011.
- 8: The swallowing dynamic state of the freeze infusion of foods: Tanimoto K., Nagasaki T.,

Konishi M., Hirai T., Yamagata H., Kayashia J., Yasuhara Y., Kimura H., Nakatsu S., Sakamoto H. :The 23<sup>th</sup> annual meeting of the Society of Japanese Clinical dysphagia Research. (Hiroshima), 2011.

9: The assessment of effects on oral music splint forms: Tomonari A., Tamamoto M., Nagasaki T., Murakami O., Nikawa H., Satoda T., Tanimoto K. : The 95<sup>th</sup> Scientific meeting of Hiroshima University Dental Society (Hiroshima), 2011.

10: The analysis of the oral internal pressures during sucking and swallowing movement: a trial clinical measuring instrument for oral internal pressures: Fukada M., Amano H., Nagasaki T., Hara K., Sugiyama M., Tanimoto K. : Hiroshima University Dental Society (Hiroshima), 2011.

#### (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. 23592765) ¥1,800,000

2: Grant-in-aid for scientific research from the Japan Society for the Promotion of Science: Nagasaki T :The assessment of the oropharyngeal functions for determination of liquid concentration in dysphagic patients. (No. 2359284952) ¥150,000

#### (6) Patents

1: Osteoporosis diagnosis support device: United States Patent (US 7,916,921 B2) (Asano A., Taguchi A., Nakamoto T., Tanimoto K., Arrifin AZ.)

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**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, Hirotaka Yoshioka  
Graduate Student: Aya Nishikiori  
Yukiko Konishi (Pediatric Dentistry)  
Undergraduate Student: Maya Mohri, Aoi Nozu, Yasumasa Irie

(2) Main Research Activities

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

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Incisor enamel formation is impaired in transgenic rats overexpressing the type III NaPi transporter Slc20a1.: Yoshioka H., Yoshiko Y., Minamizaki T., Suzuki S., Koma Y., Nobukiyo A., Sotomaru Y., Suzuki A., Itoh M., Maeda N.: *Calcif Tissue Int.* 89 (3):192-202, 2011.
- 2: Ameloblastin regulates osteogenic differentiation by inhibiting Src kinase via cross talk between integrin  $\beta$ 1 and CD63.: Iizuka S., Kudo Y., Yoshida M., Tsunematsu T., Yoshiko Y., Uchida T., Ogawa I., Miyachi M., Takata T.: *Mol Cell Biol.* 31 (4):783-92, 2011.

E) Presentation at Scientific Meeting

- 1: Inorganic phosphate suppresses Fibromodulin expression in ameloblasts via the ERK1/2 signaling pathway : Irie Y., Yoshioka H., Yoshiko Y., Minamizaki T., Kato Y., Maeda N.: The 53rd Annual Meeting of Japanese Association for Oral Biology (Gifu), 2011.
- 2: 可溶化型 Klotho は FGF23 を介して新生骨石灰化を調節する : 南崎朋子, 吉子裕二, 小西有希子, 吉岡広陽, 香西克之, 前田憲彦 : 第 88 回日本生理学会大会/第 116



回日本解剖学会総会・全国学術集会合同大会（誌上開催），2011.

3: FGF signaling in bone mineralization with a focus on the FGF23-Phex pathway: Minamizaki T., Yoshiko Y., Konishi Y., Yoshioka H., Kozai K., Maeda N.: The 29th Annual Meeting of the Japanese Society for Bone and Mineral Research (Osaka), 2011.

4: MEPE-derived phosphorylated ASARM and Phex are involved in FGF23/soluble Klotho-dependent hypomineralization: Konishi Y., Yoshiko Y., Minamizaki T., Yoshioka H., Kozai K., Maeda N.: The 29th Annual Meeting of the Japanese Society for Bone and Mineral Research (Osaka), 2011.

5: MEPE-derived phosphorylated ASARM is involved in FGF23/soluble Klotho-dependent hypomineralization: Konishi Y., Minamizaki T., Yoshiko Y., Yoshioka H., Kozai K., Aubin J.E., Maeda N.: The American Society for Bone and Mineral Research 2012 Annual Meeting (San Diego), 2011.

6: MEPE-associated phosphorylated ASARM is a potential target to facilitate bone mineralization: Mohri M., Yoshiko Y., Minamizaki T., Yoshioka H., Maeda N.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.

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

- 1: JST A-STEP Feasibility Study (Search Type): Yuji Yoshiko, Analysis of (p)ASARM as a bone-vascular calcification-related molecule in a mouse model. ¥1,700,000.
- 2: Research Grant (Ono pharmaceutical): Yuji Yoshiko, Molecular basis of mineralization in bone and other tissues. ¥3,000,000.
- 3: Grants-in-Aid for Scientific Research (C): Yuji Yoshiko, A study on “A FGF23-soluble Klotho System” in bone/tooth diseases. No. 23592701, ¥1,820,000
  - 4: Research Grant (Raffinee International): Yuji Yoshiko, Screening for mineralization-associated factors. ¥3,600,000.
  - 5: Grants-in-Aid for Young Scientists (B): Tomoko Minamizaki, A basic study of mineral metabolic disorders with a focus on de novo effect of PTH. No. 23792105, ¥2,080,000
  - 6: The Hiroshima University Support Foundation (Satake Education and Research Fund): Tomoko Minamizaki: Identify of downstream of PTH which inhibits FGF23 production and signaling. ¥300,000.
  - 7: Grants-in-Aid for Young Scientists (B): Hiroataka Yoshioka, Tooth morphogenesis and the regulation of phosphate homeostasis: basic and preclinical studies of tooth hypoplasia., No. 22791768, ¥1,820,000

(5) Academic Awards, etc.

- 1: Irie Y.: Undergraduate Poster Award, The 53rd Annual Meeting of Japanese Association for Oral Biology, Gifu, 2011.
- 2: Konishi Y., Yoshiko Y., Minamizaki T., Yoshioka H., Maeda N., et. al.: Plenary Poster, The American Society for Bone and Mineral Research 2012 Annual Meeting (San Diego), 16 Sep. 2011.
- 3: Konishi Y.: Travel Award, The American Society for Bone and Mineral Research 2012 Annual Meeting (San Diego), 16 Sep. 2011.

(6) Patent.

- 1: Use with utilization of soluble Klotho-, FGF23- and FGFR-complex formation mechanism in calcified tissue. Applicant, Hiroshima University. Inventors, Yuji Yoshiko, Tomoko Minamizaki, Hirotaka Yoshioka, Norihiko Maeda, Kazuaki Kozai, Kazuaki Watanabe. WO/2011/158655, 2011.

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## **Programs for Applied Biomedicine, Division of Clinical Medical Science (Department of Dental Anesthesiology) , and 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., Mukai Akari, D.D.S., Ph.D., Yoshida Keita, D.D.S.
Resident	: Nishinakamura Ryo, D.D.S., Fukushima Reiko, D.D.S.
Graduate Student	: Miyahara Takeshi, D.D.S., Oue Kana, D.D.S., Ishii Hiroaki, D.D.S., Yamashita Mieko, D.D.S.
Clinical Trainee	: Kawahara Michio, M.D., Ph.D., Katayama Sohtaro, D.D.S., Ph.D., Kawahara Toshiya, D.D.S., Kawamoto Yasuo, 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: General anesthetic management for a patient underwent oral surgery with pneumoconiosis and chronic obstructive pulmonary disease who received preoperative respiratory training using SOUFLE®: Oue K, Shimizu Y, Yoshida K, Doi M, Miyahara T, Fukushima R, Irifune M: Journal of Japanese Dental Society of Anesthesiology, 39 (3), 306-307, 2011.
- 2: General anesthetic management for a patient with strictured trachea caused by malignant lymphoma:

Shimizu Y, Oue K, Doi M, Yoshida K, Nishinakamura R, Miyahara T, Mukai A, Katayama S, Takahashi K, Irifune M: Journal of Japanese Dental Society of Anesthesiology, 39 (3), 320-321, 2011.

#### B) Review

#### C) Publications

- 1: Mechanisms of general anesthetic action: Dental Anesthesiology, 7th edn. (Fukushima K, Harada J, Shimada M, Ichinohe T, Niwa H): Irifune M: Ishiyaku Publishers, Inc. (Tokyo), 254-257, 2011.
- 2: Stress responses of body: Clinical Dental Anesthesiology, 4th edn. (Niwa H, Shibutani T, Joh S, Sugiyama K, Fukayama H): Irifune M: Nagasueshoten, Inc. (Kyoto), 42-46, 2011.

#### D) Other Publications

- 1: I aim at training excellent dental anesthesiologists: Irifune M: Journal of Japanese Dental Society of Anesthesiology, 39 (5), 688, 2011.

#### E) Presentation at Scientific Meeting

- 1: A case of general anesthesia who was suffered from renal tubular acidosis accompanied with hypotassemia during surgery: Shimizu Y, Fukushima R, Yoshida K, Yamashita M, Ishii H, Oue K, Nishinakamura R, Miyahara T, Mukai A, Doi M, Irifune M: The 26th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Tokushima), 2011.
- 2: General anesthetic management of a patient undergoing dental treatment with mucopolysaccharidosis: Nishinakamura R, Shimizu Y, Doi M, Yoshida K, Mukai A, Miyahara T, Fukushima R, Oue K, Ishii H, Irifune M: The 26th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Tokushima), 2011.
- 3: A way to make a mouthguard for a patient undergoing surgery using transcranial muscle evoked potential monitoring under general anesthesia: Cooperation between medical and dental doctors: Fukushima R, Shimizu Y, Saeki N, Kubo T, Abekura H, Doi M, Yoshida K, Mukai A, Nishinakamura R, Akagawa Y, Irifune M: The 26th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Tokushima), 2011.
- 4: The present status of OSCE performing to junior residents in Department of Dental Anesthesiology, Hiroshima University Hospital: Ishii H, Yoshida K, Oue K, Fukushima R, Nishinakamura R, Miyahara T, Mukai A, Doi M, Shimizu Y, Irifune M: The 26th Scientific Meeting of Dental Anesthesiology in Chugoku and Shikoku branch (Tokushima), 2011.

- 5: Effects of propofol on translocation and enzyme activity of Protein Kinase C (PKC): Miyahara T, Sakai N, Irifune M: The 39th Annual Meeting of Japanese Dental Society of Anesthesiology (Kobe), 2011.
- 6: Effects of GABAergic, glycinergic, neuronal nicotinic acetylcholinergic, and Substance P neurons on pentobarbital-induced anesthetic factors: Mukai A, Irifune M, Miyahara T, Oue K, Ishii H, Doi M, Shimizu Y, Yoshida K, Fukushima R, Nishinakamura R: The 39th Annual Meeting of Japanese Dental Society of Anesthesiology (Kobe), 2011.
- 7: Usefulness of cone-beam CT in diagnosis of pain for a patient with fenestration of jaw caused by trauma: Doi M, Ishii H, Oue K, Fukushima R, Nishinakamura R, Miyahara T, Mukai A, Yoshida K, Shimizu Y, Irifune M: The 16th Scientific Meeting of the Japanese Society of Orofacial Pain (Kobe), 2011.
- 8: Efficacy of propofol on translocation and enzyme activity of Protein Kinase C: Miyahara T, Seki T, Hide I, Tanaka S, Saito S, Irifune M, Sakai N: The 120th Kinki Branch Meeting of Japanese Pharmacological Society (Kyoto), 2011.
- 9: A report of Basic Life Support course and its future aims in the Hiroshima Dental Association: Katayama S, Shimizu Y, Doi M, Irifune M, Ishikawa M, Taniguchi Y, Nakamura S, Harada Y, Izumikawa T, Miyamura K, Yamano R, Hirata Y, Matushima H, Yokohata H, Santanda T: The 50th Scientific Meeting of Hiroshima Prefecture Dental Association and 95th Scientific Meeting of Hiroshima University Dental Society (Hiroshima), 2011.

#### F) Special lectures in academic meetings

- 1: Minimum knowledge requirements concerning dentistry for anesthesiologists: Irifune M: The 48th Chugoku · Shikoku Branch Scientific Meeting of the Japanese Society of Anesthesiologists (Hiroshima), 2011.

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

- 1: Grant-in-Aid No. 23592992 for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (New): Irifune M: Elucidation of the role of pain and motor neurons of the spinal cord in antinociception, muscle relaxation, and immobility as general anesthetic components. ¥2600,000.
- 2: Grant-in-Aid No. 23792348 for Young Scientists (B) from the Ministry of Education, Culture, Sports, Science, and Technology of Japan (New): Doi M: To diagnose lingual pain by imaging: by use of brain functional imaging. ¥1200,000.

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

#### (6) Patents

**Programs for Applied Biomedicine,  
Division of Cervico-Gnathostomatology  
(Department of Dental Science for Health Promotion),  
and 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 : Makoto Arakawa, Shigeki Suzuki, Naoyo Motoyama, Akane Mineoka, Akiko Yamashita, Misaki Iwashita

Graduate Student : Hideo Nakarai, Shintara Nagayasu, Takanori Shinjo, Sakiko Fujii, 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: Valsartan, independently of the AT1 receptor or PPAR $\gamma$ , suppresses the inflammatory response of macrophages and thereby improves insulin resistance in co-cultured adipocytes : Iwashita M., Sakoda H., Kushiyama A., Fujishiro M., Ohno H., Nakatsu Y., Kumamoto S., Tsuchiya Y., Kikuchi T., Kurihara H., Akazawa H., Komuro I., Kamata H., Nishimura F., Asano T.: *Am J Physiol Endo Metab*, in press, 2011.

- 2: Xanthine oxidoreductase is involved in macrophage foam cell formation and atherosclerosis development : Kushiyama A., Okubo H., Sakoda H., Kikuchi T., Fujishiro M., Sato H., Kushiyama S., Iwashita M., Nishimura F., Fukushima T., Nakatsu Y., Kamata H., Kawazu S., Higashi Y., Kurihara H., Asano T. : *Arterioscler Thromb Vasc Biol*, 32, 291-298, 2012.
- 3: Structural and functional role of small group-conserved amino acids present on helix-H7 in  $\beta_2$ -adrenoreceptor : Arakawa M., Kim S-K., Upadhyaya J., Singh N., Eilers M., Reeves P., Goddard WA., Smith SO., Chelikani P. : *Biochimica et Biophysica Acta (BBA) – Biomembranes*, 1808(4): 1170-1178, 2011.
- 4: 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*, 60: 823 - 829, 2011.
- 5: 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., Kushiyama A., Asano T., Abiko Y., Nishimura F.: *Innate Immunity*, [E-pub ahead of print: 2010]18: 164-170, 2012.
- 6: 4F2hc stabilizes GLUT1 protein and increases glucose transport activity.: Ohno H., Nakatsu Y., Sakoda H., Kushiyama A., Ono H., Fujishiro M., Otani Y., Okubo H., Yoneda M., Fukushima T., Kamata H., Nishimura F., Kurihara H., Katagiri H., Oka Y., Asano T.: *Am J Physiol-Cell Physiol*, 300:C1047-1054, 2011.
- 7: Peptidyl-prolyl cis/trans isomerase NIMA-interacting 1 associates with IRS-1 and enhances insulin actions and adipogenesis.: Nakatsu Y., Sakoda H., Kushiyama A., Zhang J., Ono H., Fujishiro M., Kikuchi T., Fukushima T., Yoneda M., Ohno H., Horike N., Kanna M., Tsuchiya Y., Kamata H., Nishimura F., Isobe T., Ogihara T., Katagiri H., Oka Y., Takahashi SI., Kurihara H., Uchida T., Asano T.: *J Biol Chem*, 286:20812-20822, 2011.
- 8: Smoking, white blood cell counts, and TNF system activity in Japanese male subjects with normal glucose tolerance.: Watanabe N., Fukushima M., Taniguchi A., Okumura T., Nomura Y., Nishimura F., Aoyama S., Yabe D., Izumi Y., Otsubo R., Nakai Y., Nagasaka S.: *Tob Induc Dis*, 9:12. [Epub ahead of print], 2011.

## B) Review

- 1: Periodontal disease and diabetes mellitus (special topic- diabetes mellitus and chronic inflammation-): Nishimura F, Iwashita M, Yamashita A.: *Diabetes mellitus*

(Journal of the Japan Diabetes Society), (54) 490-492, 2011.

### C) Publications

- 1: Periodontal disease; The therapy of diabetes mellitus-4. –The therapy of diabetic complication for managing cardiovascular risk-. (Kadowaki T, Ueki K, Odawara M, Sakura H, Hamano K, Matsuda M, Mori Y): Nishimura F :Nanzan-do (Tokyo), 369-375, 2011.
- 2: The risk factors of periodontal disease; “Basic and clinical of Periodontal therapy” second edition(Ueda M, Tanaka A, Maeda K): Kono Y, Nishimura F: Nagasue-syoten (Tokyo), 51-57, 2011
- 3: Diabetic complication. 12. Diabetes and periodontal disease; Diabetic therapy, care, education (Kadowaki T, Sanada H): Nishimura F, Soga Y: syorin-sya (Tokyo), 249-253, 2011
- 4: Periodontal disease as risk factor of diabetes mellitus; Diabetic education 2011(The Japan Diabetes Society) Nishimura F : shindan to chiriyosha (Tokyo) 96-99, 2011

### D) Other Publications

- 1: Periodontal disease. Diabetes mellitus and Oxidant stress: Soga Y, Nishimura F: medical review (Tokyo), 119-128, 2011.
- 2: Diabetes mellitus and Periodontal disease: Diagnosis and therapy, 99: Nishimura F: shindan to chiriyosha (Tokyo), 1897-1901, 2011.
- 3: Periodontal disease and Diabetes mellitus (special topic “bone and tooth in lifestyle disease”): THE BONE: Nishimura F, Soga Y: medical review (Tokyo), 79-83, 2011.
- 4: This disease and this treatment ” hypersensitive”:Chugoku Shinbunsha(Hiroshima): Fujii M.:2011

### E) 学会発表

- 1: 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. : 3<sup>rd</sup> International Workshop on BioDental Education & Research (Hiroshima), January 28-30, 2011.
- 2: Study on inhibitory effects of Cacao flavonol on arteriosclerosis by its anti-inflammatory action: Shintaro Nagayasu, Akiko Yamashita, Shigeki Suzuki , Yoshimitu Abiko, Fusanori Nishimura : 3<sup>rd</sup> International Workshop on BioDental Education and Research (Hiroshima) : 2011, January 28-30.
- 3: Elucidation of amelioration mechanisms of LPS-induced insulin resistance in



- macrophage-infiltrated adipose tissue by ARB : Iwashita M., Nishimura F. : 3<sup>rd</sup> Meeting of Oral Environmental Research (Nagasaki), February 4, 2011.
- 4: Periodontal disease may up-regulates triglycerides in Japanese via enhanced lipolysis: Nakarai H., Yamashita A., Nishimura F.: The 89<sup>th</sup> International and American Association for Dental Research (San Diego), March 16-19, 2011.
  - 5: The establishment of stable cell lines expressing cleavage-resistant Dentin sialophosphoprotein: Suzuki S., Nishimura F.: The 89<sup>th</sup> IADR General Session and Exhibition, (San Diego), March 16-19, 2011.
  - 6: Gender differences in pain syndromes: mechanisms of pain modulation by sex hormones: Motoyama N., Morita K., Kashiwa N., Motoyama T., Nishimura F.: The 6<sup>nd</sup> Meeting of the Japan Society for Dental Anti-Aging (Sapporo), May 21-22, 2011.
  - 7: Analysis of the mechanism of preventing cardiovascular event by cocoa flavonoid.: Yamashita A, Nagayasu S, Suzuki S, Iwashita M, Nakarai H, Abiko Y, Nishimura F.: 54<sup>th</sup> annual meeting of the japan diabetes society (Sapporo), May 19-21, 2011.
  - 8: Elucidation of amelioration mechanisms of LPS-induced insulin resistance in macrophage-infiltrated adipose tissue by ARB : Iwashita M., Kumamoto S., Nishimura F. : The 54<sup>th</sup> Meeting of the Japanese Society of Periodontology (Fukuoka), May 27-28, 2011.
  - 9: Study on inhibitory effects of Cacao flavonol on arteriosclerosis by its anti-inflammatory action: Shintaro Nagayasu, Akiko Yamashita, Shigeki Suzuki , Yoshimitu Abiko, Fusanori Nishimura : The 54<sup>th</sup> Spring Meeting of the Japanese Society of Periodontology (Fukuoka): May 27-28, 2011
  - 10: Mechanisms of analgesic effect of glycine transporter inhibitors for neuropathic pain in mice: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The 134<sup>th</sup> Meeting of the Japanese Society of Conservative Dentistry (Chiba), June 9-11, 2011.
  - 11: Effect of Ameloblast cell line on human dental pulp cells for mineralization: Fujii S., Oda R., Nishimura F.: The 134<sup>th</sup> Japanese Society of Conservative Dentistry (Chiba), June 9-10, 2011.
  - 12: Role of platelet-activating factor (PAF) receptor in the developing and established intractable pain: Motoyama N., Morita K., Nishimura F., Kanematsu T., Dohi T.: The 31<sup>st</sup> Annual Meeting of the Japanese Society of Oral Therapeutics and Pharmacology (Chiba), June 25-26, 2011.
  - 13: Adipose tissue inflammation and smoking synergistically suppress leptin expression in Japanese obese males: Potential mechanism of resistance to weight

- loss among obese smokers : Shintaro Nagayasu, Aiko Yamashita, Shigeki Suzuki, Misaki Iwasita, Fusanori Nishimura : The 54<sup>th</sup> Autumn Meeting of the Japanese Society of Periodontology (Shimonoseki): 2011, September 24.
- 14: Platelet-activating factor (PAF) receptor; a role of initiation and/or maintenance of pathological pain in mice: Motoyama N., Morita K., Kitayama T., Nishimura F., Kanematsu T., Dohi T.: The 53<sup>rd</sup> Annual Meeting of Japanese Association for Oral Biology (Gifu), September30-October 2, 2011.
- 15: Valsartan suppresses LPS-induced inflammation in macrophages independently of AT1 receptor : Iwashita M., Asano T., Nishimura F. : The 59<sup>th</sup> Annual Meeting of Japanese Association for Dental Research (Hiroshima) October 8-9, 2011.
- 16: Genomics and proteomics analyze for factors that produced by pulp cells: Kobuke S., Suzuki S., Yonehiro J., Nakarai H., Fujii S., Nishimura F.: The 135<sup>th</sup> Japanese Society of Conservative Dentistry (Osaka), October 20-21, 2011.
- 17: Mechanisms of dysfunction of inhibitory neuronal regulation of pain signal transduction may be relevant to the development of neuropathic pain: Motoyama N., Nishimura F.: The 135<sup>th</sup>, Meeting of the Japanese Society of Conservative Dentistry (Osaka), October 20-21, 2011.
- 18: Dentin sialophosphoprotein induction of osteoblastic differentiation and the analysis of its cleavage into two functional proteins : Suzuki S., Kobuke S., Nishimura F.: The 135<sup>th</sup> Japanese Society of Conservative Dentistry (Osaka), October 20-21, 2011.
- 19: Adipose tissue inflammation and smoking synergistically suppress leptin expression in Japanese obese males: Potential mechanism of resistance to weight loss among obese smokers : Shintaro Nagayasu, Aiko Yamashita, Shigeki Suzuki, Misaki Iwasita, Fusanori Nishimura : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima) : 2011, October 9 - 10.

#### F) Other Publications

- 1: The periodontal host response with type 2 diabetes.: Nishimura F.: 24<sup>th</sup> Indonesian Dentist Association Congress (Bali) , April 1-2, 2011.
- 2: The periodontal host response with type 2 diabetes.: Nishimura F.: The 2nd Joint Scientific Meeting in Dentistry (JSMiD II) (Surabaya), Dec 3-4, 2011.

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

- 1: Grant-in-Aid for Scientific Research(C): Arakawa M., The analysis of congenital gingival enlargement complicated with hypertrichosis. No. 23593059 ¥ 4,550,000

- 2: 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. ¥ 600,000
- 3: Grant-in-Aid for Scientific Research(C): Motoyama N., The potential therapeutic strategy for dental pain. No. 21592421. ¥ 1,000,000
- 4: Grant-in-Aid for Scientific Research: Suzuki S., The establishment of ameloblast cell line from adult stem cells and of the method of tooth germ regeneration. No. 23792176. ¥ 2,470,000
- 5: JST A-step FS stage: Suzuki S., The application of highly phosphorylated protein delivered from bone and tooth for hard tissue regeneration. No. AS231Z05041F ¥1,700,000
- 6: Grant-in-Aid for Scientific Research :Challenging Exploratory Research : Nishimura F, Global analysis of molecules the expression is fluctuated in pulp cell cultured with macrophage. No. 23659889. ¥1,560,000
- 7: Grant-in-Aid for Scientific Research (B)(general): Nishimura F, Collaborative Basic Research on Periodontal Medicine and Geriatric medicine. No. 80208222. ¥2,990,000
- 8: 3. Grant-in-Aid for Scientific Research (C)(general): Fujii M, Development of non-serum culture medium for selective proliferation of pulp stem cell. 21592422, ¥1,300,000
- 9: Grants-in-Aid for Scientific Research: Yamashita A., Global analysis of adipocytes co-cultured with macrophages treated with anti-inflammatory substance. No. 22792086. ¥ 1,170,000

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

- 1: Misaki Iwashita : 3<sup>rd</sup> International Workshop on BioDental Education & Research : Selected Symposium Speaker , January 28-30, 2011

#### (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 (International Application No: PCT/JP2011/078508; Basic Application No: 2010-274581 filed on 9 December 2011) (Applicants: Hiroshima University; National Cancer Center) .

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**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, Kyou Hiasa  
Assistant : Katsunori Koretake, Mineka Yoshikawa, Kazuhiko Hayashi, Yasunari Miyamoto,  
Kana Harada  
Secretary : Rinko Kurumi  
Resident : Maho Takeuchi, Ayumi Matsuura, Koji Morita, Mariko Maruyama, Ryo Takeshita  
Graduate Student : Hiroshi Oue, Yohei Okazaki, Hirokazu Tsuchioka, Kazuhisa Ookura,  
Maretaningtias Dwi Ariani, Shinsuke Okada, Shiho Kajihara, Yusuke Makihara,  
Takahiro Mori

(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. Manometric evaluation of oral function with a hand-held balloon probe.: Tsuga K, Maruyama M,

- Yoshikawa M, Yoshida M, Akagawa Y : J Oral Rehabil. , 38, 680-685, 2011.
2. Comparative evaluation of bone regeneration using spherical and irregularly shaped granules of interconnected porous hydroxylapatite. A beagle dog study.: Kubo T, Doi K, Hayashi K, Morita K, Matsuura A, Teixeira ER, Akagawa Y : J Prosthodont Res, 55, 104-109, 2011.
  3. Detection of synthetic RGDS(PO<sub>3</sub>H<sub>2</sub>)PA peptide adsorption using a titanium surface plasmon resonance (SPR) biosensor.: Abe Y, Hiasa K, Hirata I, Okazaki Y, Nogami K, Mizumachi W, Yoshida Y, Suzuki K, Okazaki M and Akagawa Y : Journal of Materials Science, 22, 657-661, 2011.
  4. Preoperative computed tomography-derived bone densities in hounsfield units at implant sites acquired primary stability. : Hiasa K, Abe Y, Okazaki Y, Nogami K, Mizumachi W and Akagawa Y : ISRN Dent. 2011.
  5. Comparison of three types of tongue pressure measurement devices.: Yoshikawa M, Yoshida M, Tsuga K, Akagawa Y, Groher ME : Dysphagia., 26, 232-237, 2011.
  6. Correlation between dental and nutritional status in community-dwelling elderly Japanese.: Yoshida M, Kikutani T, Yoshikawa M, Tsuga K, Kimura M, Akagawa Y : Geriatr Gerontol Int., 11, 315-319, 2011.
  7. Real time assessment of surface interactions with a titanium passivation layer by surface plasmon resonance.: Hirata I, Yoshida Y, Nagaoka N, Hiasa K, Abe Y, Maekawa K, Kuboki T, Akagawa Y, Suzuki K, Meerbeek BV, Messersmith PB and Okazaki M : Acta Biomater., 8, 1260-1266, 2011.
  8. Application of New Occlusal Support Index to Selection of Abutment Teeth of Fixed Partial Dentures. : Mizumachi W, Abe Y, Nogami K, Taji T, Hiasa K, Okazaki Y, Ishida H, Tsuga K and Akagawa Y : Hiroshima Univ. Dental Society Journal, 42, 151-154, 2011.
  9. Four Aspect Mirror System for Profile Photography of Prostheses : Taji T, Tsuga K, Okazaki Y, Hiasa K, Abe Y, Tsunoda T, Ishida E, Satomi K, Nikawa H and Akagawa Y : Hiroshima Univ. Dental Society Journal, 43, 27-30, 2011.

## B) Review

- 1: Healing of Ungrafted and Grafted Extraction Sockets After 12 Weeks: A Prospective Clinical Study. : Oue H, Koretake K and Akagawa Y : Quintessens Dental Implantology, 18, 742-750, 2011.
- 2: Initial ultra-hydrophilic polyvinyl siloxane impression material: Panasil initial contact: Abe Y.: The Nippon Dental Review, 810, 87-91, 2010.

## C) Publications

#### D) Other Publications

- 1: My favorite dental instruments: JMS Tongue Pressure Measurement System: A new quantitative evaluation of tongue function: Tsuga K, Yoshikawa M: *the Quintessence*, 30, 2377, 2011.
- 2: Tongue pressure: A new standard of oral function - New prospects in the dental services: Tsuga K, Yoshikawa M, Kubo T, Akagawa Y, Yoshida M : *GC CIRCLE*, 139, 28-34, 2011.

#### E) Presentation at Scientific Meeting

- 1: Preoperative Computed Tomography-Derived Bone Densities in Hounsfield Units at Implant Sites Acquired Primary Stability : Hiasa K, Abe Y, Okazaki Y, Nogami K, Mizumachi W and Akagawa Y : The 59<sup>th</sup> Annual Meeting of Japanese Association of Dental Research (Hiroshima), 2011.
- 2: Development of Implant/Interconnected Porous Calcium Hydroxyapatite Complex : Oue H, Doi K, Kubo T, Koretake K, Hayashi K, Kajihara S, Imura K and Akagawa Y : 14th Meeting of the International College of Prosthodontists (Hawaii) , 2011.
- 3: Bone formation ability of carbonate apatite-collagen sponge with some cytokines : Maretaningtias AD, Matsuura A, Hirata I, Kubo T, Okazaki M and Akagawa Y : 2nd Joint Scientific Meeting in Dentistry (Surabaya), 2011.
- 4: Development of Implant/Interconnected Porous Calcium Hydroxyapatite Complex : Oue H, Doi K, Kubo T, Koretake K, Hayashi K, Kajihara S, Imura K and Akagawa Y : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima) , 2011.
- 5: The Aspects of Osseointegration of The Implants Placed in The Reconstructed Bone by Using Interconnected Porous Calcium Hydroxyapatite : Kajihara S, Doi K, Oue H, Matsuura A, Morita K, Takeshita R, Asamori C and Akagawa Y : International College of Prosthodontists (Hawaii), 2011.
- 6: Reconstructed Bone by Using Interconnected Porous Calcium Hydroxyapatite : Kajihara S, Doi K, Kubo T, Oue H, Matsuura A, Morita K, Takeshita R, Asamori C and Akagawa Y : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima) , 2011.
- 7: Application of newly developed interconnected porous hydroxyapatite for implant GBR : Doi K, Kubo T, Hiasa K, Hayashi K, Morita K and Akagawa Y : The 59<sup>th</sup> Annual Meeting of Japanese Association of Dental Research (Hiroshima), 2011.
- 8: Evaluation at trial use of handy dust prevention device prototype for home visit dental treatment : Tsuga K, Maeda Y, Komasa Y, Kumagai T, Taji T, Ikebe K, Takahashi K, Shibuya T, Akagawa Y: The 22nd annual scientific meeting of Japanese Society of Gerodontology (Tokyo), 2011.
- 9: Role of tongue pressure measurement: a new evaluation for oral function : Tsuga K: 11th scientific meeting of the Japanese Society of Anti-Aging Medicine (Kyoto), 2011.

- 10: Relationship between tongue pressure and bite force in elderly people requiring long-term care : Tsuga K, Maruyama M, Yoshikawa M, Akagawa Y: 22nd annual scientific meeting of Japanese Society for Mastication Science and Health Promotion (Nagoya), 2011.
- 11: Newest digital devices useful for diagnoses and explanations of occlusal and chewing state : Tsuga K: The 54th Autumn Meeting of the Japanese Society of Periodontology (Shimonoseki), 2011.
- 12: Utilizing tongue pressure in periodontal treatment: New evaluation of oral function : Tsuga K: The 54th Autumn Meeting of the Japanese Society of Periodontology (Shimonoseki), 2011.
- 13: Case report of application of newly developed interconnected porous hydroxyapatite for implant GBR : Doi K, Kubo T, Takeshita R, Hiasa K and Akagawa Y : Annual scientific of Japan prosthodontic society Tohoku, Hokkaido, Kanetsu and Higashi-Kantoh branches (Niigata), 2011.
- 14: Fabrication of newly developed carbonate apatite chitosan composites : Matsuura A, Maretaningtias D A, Kubo T, Akagawa Y : The 41st Annual Meeting of the Japanese Society of Oral Implantology(Nagoya), 2011.
- 15: Mechanism of association between Alzheimer's disease and tooth loss, occlusion.: Oue H, Miyamoto Y, Okada S, Koretake K and Akagawa Y : The conference meeting for young dementia researchers (Chita), 2011.
- 16: The cell viability on newly developed carbonate apatite-chitosan sponges : Ariani MD, Matsuura A, Hirata I, Kubo T, Okazaki M and Akagawa Y : Summer Seminar of the Japanese Society for Dental Materials and Devices (minamiawaji), 2011.
- 17: The aspects of osseointegration of the implants placed in the reconstructed bone with using interconnected calcium hydroxyapatite : Kajihara S, Doi K, Kubo T, Morita K and Akagawa Y : The 41st Annual Meeting of the Japanese Society of Oral Implantology (Nagoya), 2011.
- 18: The aspects of osseointegration of the implants placed in the reconstructed bone with using interconnected calcium hydroxyapatite : Kajihara S, Doi K, Kubo T, Morita K and Akagawa Y : The Joint Meeting of the 50th Annual meeting of Japanese Association of Dental Science Hiroshima prefectural and The 95th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 19: A case report of application of newly developed interconnected porous hydroxyapatite for implant GBR : Doi K, Kubo T, Hiasa K, Hayashi K and Akagawa Y : The 41st Annual Meeting of the Japanese Society of Oral Implantology(Nagoya), 2011.
- 20: Search for clinical parameter to evaluate the occlusal support ability of individual tooth type: Nogami K, Abe Y, Mizumachi W, Taji T, Hiasa K, Okazaki Y, Tsuga K, Akagawa Y: The Joint Meeting of the 50th Annual meeting of Japanese Association of Dental Science Hiroshima prefectural and The 95th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2011.

## (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) : Kubo T: Invention of a newly artificial bone used by molecular pharmacology processed with the NF- $\kappa$ B decoy. (Grant No. 23390443). ¥10,620,000
- 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. 23592850). ¥1,500,000
- 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) : Hiasa K: Development of diagnosis system of dental implant immediate load indicated with bone strength. (Grant No. 23502887). ¥4,100,000
- 5: MEXT Grants-in-Aid for Scientific Research (C) : yoshikawa M: Assessment of the oral and pharyngeal functions for decision making of the ideal thickness of liquid. (Grant No. 23592849). ¥2,000,000
- 6: MEXT Grants-in-Aid for Young Scientists (B) : Koretake K: Establish standards of remove implant with bone resorption. (Grant No. 22791887). ¥1,100,000
- 7: MEXT Grants-in-Aid for Young Scientists (B) : Hayashi K.: Development of New Implant Augmentation Drug Delivery System Using a rh-BMP-2 - Gelatin Hydrogel Complex. (Grant No. 2279188600). ¥1,900,000
- 8: MEXT Grants-in-Aid for Young Scientists (B) : Morita K: Bone regeneration ability of inorganic hydroxyapatite adsorbed long chain polyphosphate. (Grant No. 23792228). ¥1,950,000
- 9: MEXT Grants-in-Aid for Young Scientists (Start-up) : Harada K: Therapeutic application of polyphosphates in peri-implantitis. (Grant No. 23890134). ¥1,690,000
- 10: MEXT Grants-in-Aid for Encouragement of Scientists : Maruyama M: Development of a new rehabilitation method for oral function using candy. (Grant No. 23932011). ¥600,000
- 11: Grant-in-Aid for Scientific Research from the Ministry of Health, Labor and Welfare: Akagawa Y.: Research on review of provision of information on dental service (Grant No.kose-227901): ¥2,200,000

## (5) Academic Awards, etc.

- 1: Poster Presentation Award on International Seminar of the 2nd Joint scientific Meeting in Dentistry : Maretaningtias AD
- 2: Poster Award on 4th Hiroshima Conference on Education Science in Dentistry : Maretaningtias AD

## (6) Patents

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

(1) Staff and Students

Professor	: Yasumasa Akagawa
Associate Professor	: Shinsuke Sadamori, Hitoshi Abekura
Research Associate	: Shunji Inoue (Until March), Kazuko Kagawa (Until March), Koh-ichi Kuremoto (Since October), Kazuya Doi, Kouji Morita
Secretary	: Michiko Miyagawa
Resident	: Kazuko Kagawa (Since April), Isao Fujihara, Takeshi Maeda (Until September), Wataru Mizumachi
Intern	: Kouichi Kamada, Hiroki Tsuka, Masahiro Tsuboi
Graduate Student	: Isao Fujihara, Tomoharu Hori, Tomohisa Okura, Keisuke Nogami
Research Student	: Toru Akutsu

(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 : Durability of peel bond of resilient denture liners to acrylic denture base resin: Maeda T., Hong G., Sadamori S., Hamada T., Akagawa Y.: J Prosthodont Res, in press, 2011.

- 2 : Nutritional status and oral status of the elderly with dementia: a 2-year study: Sadamori S., Hayashi S., Fujihara I., Abekura H., Hamada T., Akagawa Y.: *Gerodontology*, in press, 2011.
- 3 : Association between sleep bruxism and stress sensitivity in an experimental psychological stress task: Abekura H., Tsuboi M., Okura T., Kagawa K., Sadamori S., Akagawa Y.: *Biomedical Research*, 32(6), 395-399, 2011.
- 4 : Core binding factor beta functions in the maintenance of stem cells and orchestrates continuous proliferation and differentiation in mouse incisors: Kurosaka H., Islam M.N., Kuremoto K., Hayano S., Nakamura M., Kawanabe N., Yanagita T., Rice D.P., Harada H., Taniuchi I., Yamashiro T.: *Stem Cells*, 29(11), 1792-1803, 2011.
- 5 : The initial viscosity and adhesive strength of denture adhesives and oral moisturizers: Hong G., Tsuka H., Dilinuer MS., Wang WQ., Sasaki K.: *Asian Pac J Dent*, 11, 45-50, 2011.
- 6 : Comparative evaluation of bone regeneration using spherical and irregularly shaped granules of interconnected porous hydroxylapatite. A beagle dog study: Kubo T., Doi K., Hayashi K., Morita K., Matsuura A., Teixeira ER., Akagawa Y.: *J Prosthodont Res*, 55, 104-109, 2011.
- 7 : A case report of prothodontic reconstruction using dental implants for the edentulous patient with severe gagging reflex: Ono S., Takechi M., Harada K., Ohta K., Okumura T., Kagawa K., Abekura H., Okui G., Ninomiya Y., Takamoto M., Akagawa Y., Kamata N.: *Journal of Hiroshima University Dental Society*, 43(1), 57-60, 2011.
- 8 : A case report of ISOD using palatal torus: Ninomiya Y., Takechi M., Ohta K., Ono S., Okui G., Takamoto M., Abekura H., Akagawa Y., Kamata N.: *Journal of Hiroshima University Dental Society*, 43(1), 61-65, 2011.

## B) Review

## C) Publications

- 1 : Denture Care - a side reader for dental hygienists- : Hamada T., Minakuchi S., Akiba T., Sadamori S., Suzuki T., Hosoi N., Murata H., Yoneyama K., Oda N., Hong G., Ichikawa T., Okazaki J., Kawai Y., Kimoto K.: *Dental Diamond (Tokyo)*, 1-43, 2011.

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1 : The antimicrobial efficacy of chlorine dioxide as a component of denture cleanser: Hori T, Maeda T., Nomura Y, Sadamori S, Akagawa Y.: *The 3rd Japan Denture Care Society (Morioka)*, 2011.

- 2 : Analysis of osteoblast-precursor cells from oral tissues using cell surface antigen: Kamada K, Fujimoto K, Nishimura M, Sadamori S, Akagawa Y, Kato Y.: The 51th Annual Meeting of the Japanese Biochemical Society, Chugoku-Shikoku Branch (Hiroshima), 2011.
- 3 : Separation of osteoblast-precursor cells from oral tissues using ALCAM: Kamada K, Nishimura M, Sadamori S, Akagawa Y.: The 120th Commemorative Scientific Meeting of Japan Prosthodontic Society (Hiroshima), 2011.
- 4 : Laboratory study on the mechanical properties of trial tissue conditioners: Tsuka H, Hong G, Mizumachi W, Maeda T, Sadamori S, Nikawa H, Akagawa Y.: The 120th Commemorative Scientific Meeting of Japan Prosthodontic Society (Hiroshima), 2011.
- 5 : Measurement of jaw muscle activities by extremely small portable electromyographic recorder with monopolar electrode: Okura T, Abekura H, Tsuboi M, Sadamori S, Akagawa Y.: The 24th Annual Meeting of Japanese Society for the Temporomandibular Joint (Hiroshima), 2011.
- 6 : The Antimicrobial Efficacy of Chlorine Dioxide in *Candida albicans*: Hori T, Maeda T, Nomura Y, Sadamori S, Akagawa Y.: Annual scientific meeting of Japan prosthodontic society Chugoku and Shikoku branches (Okayama), 2011.
- 7 : Behavioral and psychological symptoms (BPSD) and oral status in the elderly with vascular dementia: Fujihara I, Sadamori S, Abekura H, Sasaki M, Hamada T, Akagawa Y.: Annual scientific meeting of Japan prosthodontic society Chugoku and Shikoku branches (Okayama), 2011.
- 8 : Development of implant/interconnected porous calcium hydroxyapatite: Oue H., Doi K., Kubo T., Koretake K., Hayashi K., Kajihara S., Imura K., Akagawa Y.: 14th Meeting of the International College of Prosthodontists (Hawaii), 2011.
- 9 : The aspects of osseointegration of the implants placed in the reconstructed bone: Kajihara S., Doi K., Oue H., Matsuura A., Morita K., Takeshita R., Asamori C., Akagawa Y.: 14th Meeting of the International College of Prosthodontists (Hawaii), 2011.
- 1 0 : A case report of application of newly developed interconnected porous hydroxyapatite for implant GBR: Doi K., Kubo T., Hiasa K., Hayashi K., Akagawa Y.: The 41th Annual Meeting of Japanese Society of Oral Implantology (Nagoya), 2011.
- 1 1 : Separation of osteoblast-precursor cells from gingival fibroblasts using membrane antigen: Kamada K, Nishimura M, Sadamori S, Kubo T, Akagawa Y.: The 41th Annual Meeting of Japanese Society of Oral Implantology (Nagoya), 2011.
- 1 2 : The aspects of osseointegration of the implants placed in the reconstructed bone with using interconnected calcium hydroxyapatite: Kajihara S., Doi k., Kubo T., Morita K., Akagawa Y.: The 41th Annual Meeting of Japanese Society of Oral Implantology (Nagoya), 2011.
- 1 3 : Case report of application of newly developed interconnected porous hydroxyapatite for implant GBR: Doi K., Kubo T., Takeshita R., Hiasa K., Akagawa Y.: Annual scientific meeting of Japan prosthodontic society Tohoku, Hokkaido, Kanetsu and Higashi-Kantoh branches (Niigata), 2011.

- 1 4 : Development of implant/interconnected porous calcium hydroxyapatite: Oue H., Doi K., Kubo T., Koretake K., Hayashi K., Kajihara S., Imura K., Akagawa Y.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
- 1 5 : The aspects of osseointegration of the implants placed in the reconstructed bone by using interconnected porous calcium hydroxyapatite Kajihara S., Doi K., Oue H., Matsuura A., Morita K., Takeshita R., Asamori C., Akagawa Y.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
- 1 6 : The necessity for the metal allergy test before the operation of dental implant: Kitagawa M, Ohbayashi M, Ando T, Shintani T, Ogawa I, Kawaguchi H, Kagawa K, Nakagawa T, Takechi M, Kurihara H.: The 44 Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 1 7 : Relationship between behavioral and psychological symptoms (BPSD) and oral status in the elderly with vascular dementia: Fujihara I, Sadamori S, Hayashi S, Furuebisu M.: The Japanese society for dementia care, Chugoku regional forum (Hiroshima), 2011.

#### F) Special lectures in academic meetings

- 1 : Oral Status and Dementia: Sadamori S.: The Japanese Society for Dementia Care - Chugoku Area Conference (Hiroshima), 2011.

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

- 1 : Grant-in-Aid for Scientific Research (C) (2): Sadamori S., The relation between breathing and denture wearing and not wearing during sleep. No. 23592848. 3,380 thousand yen
- 2 : Grant-in-Aid for Scientific Research (C): Abekura H., Participation of lifestyle in relationship between oral habits and psychological stress. No. 22592152. 1,170 thousand yen.
- 3 : Grant-in-Aid for Scientific Research (C): Kuremoto K., Acquirement of amelogenic stem/progenitor cells for tissue-engineered tooth. No. 23592875. 1,900 thousand yen.
- 4 : Grant-in-Aid for Scientific Research (C): Mizumachi W., Development of occlusal support ability system in residual teeth based on clinical data processing. No. 23592847. 1,900 thousand yen.
- 5 : Grant-in-Aid for Young Scientists (B): Doi K., Mandibular bone regeneration by using bio intelligent artificial bone. No. 22791889. 2,080 thousand yen.
- 6 : Grant-in-Aid for Young Scientists (B): Morita K., Bone regeneration ability of inorganic hydroxyapatite adsorbed long chain polyphosphate. No. 3792228.1,950 thousand yen.
- 7 : Grant-in-Aid for Young Scientists (B): Maeda T., Study on the evaluation of prototype tissue conditioners formulated stable chlorine dioxide No. 22791888. 2,730 thousand yen.

(5) Academic Awards, etc.

- 1 : Kamada K.: The 120th Annual Meeting of Japan Prosthodontic Society Subject Oral Presentation Award
- 2 : Morita K.: The 14th Hiroshima University school of Dentistry the alumni association Encouragement Award

(6) Patents

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**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,
Research Associate	: Masato Kaku, Tadashi Fujita, Junji Ohtani, Masahide Motokawa, Myongsun Koh, Yuki Tanne
Special appointed	
assistant professor	: Maya Shirakura
Intern	: Yasunori Iwabuchi, Ryo Kunimatsu, Genki Watanabe, Goshi Ito, Noritsugu Ozaki, Aki Kawazoe, Hiroyuki Koseki, Hiroko Sunagawa, Tomoko Sasamoto, Naoto Hirose, Atsushi Horihata, Masahiko Michida, Motoko Yoshioka,
Graduate Student	: Hidetaka Hayashi, Yayoi Matsuda, Tomomi Mitsuyoshi, Sara Abedini, Syunichi Kojima, Keisuke Sumi, Noriko Tsubamoto, Akiko Terao, Yuki Yoshimi, Emi Ishikawa, Kyoko Murasaki, Yuji Tsuka, Su Shao Ching, Hiromi Sumi, Kaori Takahashi, Tetsuya Awada, Nanae Oki, Hanaka Shikata, Eri Fujii, Fang Zhao, Yuki Okamoto, Tahsin Raquib Abonti, Morio Masunaga (adult graduate student)
Resident	: Kayo Horie
Professor (part-time)	: Kazuhiro Ueki, Toshitsugu Kojima, Hiroharu Tsuka, Hiroshi Hanaoka, Junichiro Iida
Registered Intern	: Kuniaki Tanaka, Kazunori Itatani, Hiroko Kamada, Youhei Suekawa, Ryoko Yamamoto, Natsumi Tsuka, Satoru Ohkuma, Kouji Takahashi
Dental Hygienist	: Kouchi Ayumi

(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
- 14: Development of biomineralization therapy for damaged tooth enamel using enamel matrix proteins
- 15: Utility of amelogenin peptides for bone regeneration

### (3) Research achievement

#### A) Original article

1. Immune function in Japanese schoolchildren with sleep-disordered breathing.: A preliminary study with analyses of salivary markers.: Ueda H, Horihata A, Matsumoto E, Watanabe G, Koh M, Tanimoto K, Tanne K.: *Open Journal of Stomatology*, 1, 150-157, 2011.
2. A simplified two-piece mandibular advancement appliance for obstructive sleep apnea.: Ueda H, Ueno M, Watanabe G, Horihata A, Seo T, Tanne K.: *Open Journal of Stomatology*, 1, 165-167, 2011.
3. Changes in masticatory muscle activity during mealtime and sleep after surgical correction of mandibular prognathism.: a case report.: Ueda H, Tabe H, Kato M, Watanabe G, Horihata A, Koh M, Tanne K.: *International Journal of Stomatology and Occlusion Medicine*, 4, 157-161, 2011.
4. Mesenchymal stem cell-induced cranial suture-like gap in rats.: Kaku M, Tai M, Kawata T, Fujita T, Motokawa M, Ohtani J, Sakai Y, Kato Y, Tanne K.: *Plast Reconstr Surg*, 127, 69-77, 2011.
5. 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*, 15, 467.e1-467.e14, 2011.

6. In-vitro and in-vivo study of periodontal ligament cryopreserved with a magnetic field.: Kamada H, Kaku M, Kawata T, Koseki H, Abedini S, Kojima S, Sumi A, Motokawa M, Fujita T, Ohtani J, Ohwada N, Tanne K.: *Am J Orthod Dentofacial Orthop*, 140, 799-805, 2011.
7. Effect of PGE<sub>2</sub> induced by compressive and tensile stresses on cementoblast differentiation in vitro.: Rego EB, Inubushi T, Kawazoe A, Miyauchi M, Tanaka E, Takata T, Tanne K.: *Arch Oral Biol*, 56, 1238-46, 2011.
8. Interleukin-1 beta affects cyclooxygenase-2 expression and cartilage metabolism in mandibular condyle.: Tanimoto K, Iwabuchi Y, Tanne Y, Kamiya T, Inubushi T, Kunimatsu R, Mitsuyoshi T, Tanne K.: *Arch Oral Biol*, 56, 1412-8, 2011.
9. Treatment of a case of skeletal class II malocclusion with temporomandibular joint disorder using miniscrew anchorage.: Kaku M, Koseki H, Kawazoe A, Abedini S, Kojima S, Motokawa M, Ohtani J, Fujita T, Kawata T, Tanne K.: *Cranio*, 29, 155-63, 2011.
10. Ultrasound stimulation attenuates root resorption of rat replanted molars and impairs tumor necrosis factor- $\alpha$  signaling in vitro.: Rego EB, Inubushi T, Miyauchi M, Kawazoe A, Tanaka E, Takata T, Tanne K.: *J Periodontal Res*, 46, 648-54, 2011.
11. 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*, 82, 1632-8, 2011.
12. Superficial zone protein affects boundary lubrication on the surface of mandibular condylar cartilage.: Tanimoto K, Kamiya T, Tanne Y, Kunimatsu R, Mitsuyoshi T, Tanaka E, Tanne K.: *Cell Tissue Res*, 344, 333-40, 2011.
13. Mandibular and femoral growth alteration after sex hormone disruption in growing mice.: Márquez Hernández RA, Ohtani J, Fujita T, Sunagawa H, Ishikawa E, Tsubamoto N, Kawata T, Kaku M, Motokawa M, Tanne K.: *Orthod Craniofac Res*, 14, 63-9, 2011.
14. Changes in cortical bone mineralization in the mouse mandible with regenerated condyle.: Fujita T, Ohtani J, Shirakura M, Hayashi H, Kawata T, Kaku M, Motokawa M, Tanne K.: *Eur J Oral Sci*, 119, 136-40, 2011.
15. Effects of cryopreservation with a newly-developed magnetic field programmed freezer on periodontal ligament cells and pulp tissues.: Abedini S, Kaku M, Kawata T, Koseki H, Kojima S, Sumi H, Motokawa M, Fujita T, Ohtani J, Ohwada N, Tanne K.: *Cryobiology*, 62, 181-7, 2011.
16. Sex hormones receptors play a crucial role in the control of femoral and mandibular growth in newborn mice.: Márquez Hernández RA, Ohtani J, Fujita T, Sunagawa H, Kawata T, Kaku M, Motokawa M, Tanne K.: *Eur J Orthod*, 33, 564-9, 2011.
17. Fluoride incorporation into apatite crystals delays amelogenin hydrolysis.: DenBesten PK, Zhu L, Li W, Tanimoto K, Liu H, Witkowska HE.: *Eur J Oral Sci*, 119, 3-7, 2011.



18. Clinical survey of the association between root resorption incident to orthodontic treatment and host factors.: Matsuda Y., Motokawa M., Kaku M., Kawata T., Yamamoto R., Tsuka N., Inubushi T., Sasamoto T., Ozaki N., Koseki H., Kawazoe A., Abedini S., Tanne K.: *Orthodontic Waves-Japanese Edition*, 70, 21-31, 2011.
19. 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 H., Tanne K.: *J Hiroshima Dent Asso*, 38, 31-36, 2011.
20. Clinical survey of nasopharyngeal condition in Japanese elementary school children.: Koh M., Ueda H., Watanabe G., Horihata A., Murasaki K., Ishitoku Y., Ohmatsu Y., Akiyama T., Tanne K.: *The Annals of Educational Research in Hiroshima University*, 39, 359-362, 2011.
21. A case of maxillary protrusion with trauma to the upper central incisor.: Tanoue J., Koh M., Fujita T., Watanabe G., Horihata A., Ito G., Murasaki K., Ueda H., Tanne K.: *The Journal of Hiroshima University Dental Society*, 43, 45-50, 2011.
22. Changes of oro-pharyngeal airway in a patient with open bite with macroglossia caused by lymphangioma.: Watanabe G., Koh M., Horihata A., Ito G., Murasaki K., Ueda H., Tanne K.: *Jpn. J. Jaw Deform*, 21, 205-214, 2011.
23. Treatment of a case of adolescent hemifacial microsomia with a functional appliance.: Sano R., Ohtani J., Sunagawa H., Tsubamoto N., Ishikawa E., Fujita T., Ueda H., Tanne K.: *Jpn. J. Jaw Deform*, 21, 195-204, 2011.
24. Changes in upper and lower lip vermilion areas and the relevant factors in mandibular prognathism patients treated with orthognathic surgery.: Tsubamoto N., Ohtani J., Sano R., Sunagawa H., Ishikawa E., Fujita T., Ueda H., Tanne K.: *Jpn. J. Jaw Deform*, 21, 171-178, 2011.
25. An orthodontic retreatment case with skeletal anchorage system (SAS) applied to an adult patient with maxillary protrusion and periodontal disease.: Kunimatsu R., Tanimoto K., Ida Y., Tanne Y., Kamiya T., Ozaki N., Tanne K.: *The journal of Chu-Shikoku orthodontic society*, 23, 41-51, 2011.
26. A study on key factors for good facial profiles in cases of skeletal Class III malocclusion treated by two-jaw surgery.: Tamura A., Kaku M., Sugiyama M., Motokawa M., Shimazu A., Amano H., Kawata T., Tanne K.: *The journal of Chu-Shikoku orthodontic society*, 23, 27-32, 2011.
27. A clinical survey for the risk factors of root resorption incident to orthodontic treatment.: Sasamoto T., Motokawa M., Mtsuda Y., Kaku M., Kawata T., Ozaki N., Terao A., Tanne K.: *The Journal of Hiroshima University Dental Society*, 43, 113-123, 2011.

## B) General remarks

1. The functional assessment of casein phosphopeptide in osteoporosis model mice.: Ohtani J., Tanne

K.: Functional Food, 4, 266-273, 2011.

### C) Books

1. Understanding the association between orthodontics and TMD: Tanne K.: Quintessence TMD YEAR BOOK 2011 Treatment for jaw pain (Koyano K. et al. eds.), Quintessence Publishing Co., Tokyo, pp. 38-39.
2. The efficacy of casein phosphopeptide: Ohtani J.: The application of functional food to bone and cartilage. 171-178, 2011, CMC Publishing
3. A case of maxillary protrusion with the gummy smile treated using the mini screw: Kaku M.: Quintessence YEAR BOOK 2011 Orthodontics for clinicians (Ito G et al. eds.), Quintessence Publishing Co., Tokyo, pp. 118-126.
4. An Angle Class II openbite case with temporomandibular joint osteoarthritis: Tanimoto K.: Quintessence YEAR BOOK 2011 Orthodontics for clinicians (Ito G et al. eds.), Quintessence Publishing Co., Tokyo, pp. 127-135.

### D) Other publications

### E) Presentation at Scientific Meeting

1. Bone regeneration in the treatment of bone defect in the cleft lip and palate patients with mesenchymal stem cells: Tanne K., Yoshioka M., Sumi K., Tanne Y., Tanimoto K.: 87<sup>th</sup> Congress of the European Orthodontic Society (Istanbul), 2011.
2. Cryopreservation technique for tooth banks available for future tooth transplantation: Tanne K., Kaku M., Koseki H., Kojima S., Kawata T.: 87<sup>th</sup> Congress of the European Orthodontic Society (Istanbul), 2011.
3. Variation in the direction of mandibular relapse after sagittal split ramus osteotomy: Koh M., Fujita T., Ito G., Ueda H., Tanne K.: 87<sup>th</sup> Congress of the European Orthodontic Society (Istanbul), 2011.
4. Regeneration of the condyle needs the articular disk: Fujita T., Hayashi H., Shirakura M., Tsuka Y., Tanne K.: 87<sup>th</sup> Congress of the European Orthodontic Society (Istanbul), 2011.
5. Changes in lip-line in asymmetric cases treated with one-jaw surgery: Shirakura M., Fujita T., Koh M., Tanne K.: 87<sup>th</sup> Congress of the European Orthodontic Society (Istanbul), 2011.
6. An innovation in the treatment of open bite with micro-implant: a new strategy based on the etiologic consideration. : Tanne K.: 2011 Annual Session of Taiwan Orthodontic Society (Taipei), 2011.
7. A safety and reliable implantation established by using a torque controllable hand driver.: Ohtani

- J., Sunagawa H., Fujita T., Kawata T., Kaku M., Motokawa M., Koseki H., Tsubamoto N., Ishikawa E., Tanne K.: The 3rd World Implant Orthodontics Conference. (Verona), 2011.
8. Stability of self-drilling screw examined by histomorphometric study.: Sunagawa H., Ohtani J., Fujita T., Kawata T., Kaku M., Motokawa M., Koseki H., Tsubamoto N., Ishikawa E., Tanne K.: 3rd world implant orthodontic conference.(Verona), 2011.
  9. Assessment of primary stability of mini-screw by use of a periotest.: Tsubamoto N., Ohtani J., Sunagawa H., Fujita T., Kawata T., Kaku M., Motokawa M., Koseki H., Ishikawa E., Tanne K.: 3rd World implant orthodontic conference.(Verona), 2011.
  10. Amelogenin without N-terminal domain affects the metabolism of cementoblasts: Yoshimi Y., Tanimoto K., Kunimatsu R., Tanne Y., Kamiya T., Inubushi T., Yu-Ching Huang, Mitsuyoshi T., Miyauchi M., Takata T., Tanne K. :3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2011.
  11. Modulation of PRG4 expression by hyaluronan through CD44 receptor: Mitsuyoshi T., Kamiya T., Tanimoto K., Tanne Y.,Kunimatsu R., Yoshioka M., Yu-Ching H., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  12. Effects of cryopreservation with magnetic field programmed freezer on PDL and pulp cells: Abedini S., Kaku M., Kawata T., Koseki H., Kojima S., Sumi H., Motokawa M., Ohtani J., Fujita T., Matsuda Y., Sunagawa H., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  13. Bone regeneration in artificial jaw cleft by use of mesenchymal stem cells.: Yoshioka M., Tanimoto K., Sumi K., Huang Y.C., Kunimatsu R., Kamiya T., Okuma S., Tanne Y., Sugiyama M., Kato Y., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  14. Effects of human full-length amelogenin on the proliferation and osteogenic differentiation of human mesenchymal stem cells derived from bone marrow.: Huang Y.C., Tanimoto K., Tanne Y., Kamiya T., Kunimatsu R., Yoshioka M., Michida M., Kato Y., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  15. Ameloblastin plays crucial roles in root formation: Hirose N., Shimazu A., Ito G., Murasaki K., Watanabe M., Tanimoto K., Uchida T., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  16. Anti-inflammatory effects of soybean lectin liposomalized lactoferrin during orthodontic tooth movement: Kawazoe A., Inubushi T., Miyauchi M., Ishikado A., Takata T., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate

- School Of Biomedical Sciences (Hiroshima), 2011.
17. Expression profiles of nuclear receptors and their functions in rat growth plate Chondrocytes: Ozaki N., Noshiro M., Honda K., Hayashibara K., Kawamoto T., Fujimoto K., Tanne K., Kato Y.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  18. Histochemical analysis of root resorption in rat by jiggling forces: Matsuda Y., Motokawa M., Kaku M., Kawata T., Fujita T., Ohtani J., Sunagawa H., Koseki H., Abedini S., Hayashi H., Terao A., Kojima S., Ishikawa E., Tsubamoto N., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  19. A study of key factors for good facial profiles in cases of skeletal class III malocclusion treated by two-jaw surgery: Tamura A., Kaku M., Sugiyama M., Motokawa M., Shimazu A., Noso M., Amano H., Kawata T., Tanne K.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  20. Long-term cryopreservation of mouse osteoblasts by use of a program freezer with magnetic field: Koseki H.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  21. Stability of self-drilling screw under various conditions examined by histomorphometric study and clinical survey: Sunagawa H.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  22. Questionnaire survey on school children about sleep-disordered breathing and effect of pharyngeal airway morphology induced mandibular advancement devices: Horihata A.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  23. The role of microglia in neuropathic pain of maxillofacial region: Ito G.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  24. The role of transcription factor GATA6 in proliferation, differentiation, and integrin expression in mesenchymal stem cells (MSC): Michida M.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  25. The role of Dec2 in osteogenic, adipogenic, chondrogenic differentiation of bone marrow derived mesenchymal stem cells: Sasamoto T.: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
  26. Three-dimensional imaging in regeneration of condyle.: Hayashi H., Fujita T., Shirakura M., Tsuka Y., Arai Y., Tanne K.: 18th International Congress of Dento-Maxillo-Facial Radiology accompanied with the 52nd Annual Congress of Japanese Society for Oral and Maxillofacial Radiology

- (Hiroshima), 2011.
27. Amelogenin-guided biomineralization of hydroxyapatite crystal on tooth enamel.: Tanimoto K., Kunimatsu R., Yoshimi Y., Yoshioka M., Tanne Y., Tanne K.: 4th Hiroshima Conference on Education and Science in Dentistry. (Hiroshima), 2011.
  28. Evaluation of the course work education employing cognitive behavior therapy.: Shirakura M., Oka H., Kamiya T., Suehiro F., Sugai M., Kobayashi M.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
  29. An establishment of jaw cleft treatment with bone regeneration by use of mesenchymal stem cells derived from bone marrow: Sumi K., Tanimoto K., Tanne Y., Yoshioka M., Sugiyama M., Tanne K.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
  30. Mechanisms of hypoxia-inducible factor-1 $\alpha$  in cartilage degradation by mechanical stress.: Shirakura M., Tanimoto K., Takata T., Tanne K.: The 59th Japanese Association for Dental Research(Hiroshima), 2011.
  31. Differential effects of amelogenin on mineralization of periodontal cells: Yoshimi Y., Tanimoto K., Kunimatsu R., Takata T., Tanne K.: The 59th annual meeting of Japanese association for dental research ( Hiroshima), 2011.
  32. Immunohistochemical analysis of root resorption by repetitive orthodontic force: Matsuda Y., Motokawa M., Kaku M., Kawata T., Fujita T., Ohtani J., Terao A., Tanimoto K., Tanne K.: The 59th Annual Meeting of Japanese Association for Dental Research (Hiroshima),2011.
  33. Association between jiggling force and root resorption during experimental tooth movement.: Motokawa M., Matsuda Y., Kaku M., Kawata T., Fujita T., Ohtani J., Terao A., Ersan K., Carmen G., Ali D., Tanne K.: The 4th International Congress • The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.
  34. Effects of cryopreservation with a newly-developed magnetic field programmed freezer on pulp tissues.: Abedini S., Kaku M., Kawata T., Hiroyuki., Koseki H., Kojima S., Sumi H., Fujita T., Motokawa M., Ohtani J., Hayashi H., Matsuda Y., Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society. (Nagoya), 2011.
  35. An establishment jaw cleft treatment with bone regeneration by Use of Mesenchymal Stem Cells Derived from Bone Marrow; Sumi K,Tanimoto K, Tanne Y, Yoshioka M, Sugiyama M, Tanne K:The 35th Annual Meeting of Japanese Cleft Palate Association (Niigata),2011.
  36. The long-term change of stomatognathic function in open bite patient with cheilognathoschisis.: Watanabe G.,Shirakura M., Horihata A., Koh M., Ohtani J., Isikawa E., Ueda H., Tanne K.: The 35th Annual Meeting of Japanese Cleft Palate Association (Niigata), 2011
  37. Orthodontic treatment of lip and cleft combined autologous in teeth with bone graft.: Michida M., Tanimoto K., Suekawa T., Tanne Y., Yoshioka M., Sumi K., Tanne K.: The 35th Annual Meeting of Japanese Cleft Palate Association (Niigata), 2011.

38. In silico construction of orthodontic setup model, Kihara T., Katayama A., Katabuchi Y., Taji T., Tanimoto K., Tanne K., Nikawa H. The 44<sup>th</sup> Dental meeting of Hiroshima University(Hiroshima), 2011.
39. Long-term cryopreservation of periodontal ligament cells and pulp tissues with a newly-developed magnetic field programmed freezer.: Abedini S., Kaku M., Kawata T., Koseki H., Kojima S., Sumi H., Motokawa M., Fujita T., Ohtani J., Tanne K.: The 44<sup>th</sup> Dental meeting of Hiroshima University(Hiroshima), 2011.
40. Association between severity of crowding and teeth sizes in elementary school children: Ito G., Koh M., Ueda H., Watanabe G., Horihata A., Murasaki K., Tanne K.: The 44<sup>th</sup> Dental meeting of Hiroshima University(Hiroshima), 2011.
41. Orthodontic facilitation of mandibular growth using functional appliances in a growing patient with a unilateral condylar fracture: Tsuka Y., Fujita T., Shirakura M., Hayashi H., Tanne K.: 54<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Matsuyama), 2011.
42. A consideration for up righting severely mesially inclined impacted mandibular second molars: Shirakura M., Fujita T., Hayashi H., Tsuka Y., Tanne K.: 54<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Matsuyama), 2011.
43. Occlusal assessment with GOSLON Yardstick unilateral lip and palate patients: Ishikawa E., Ohtani J., Ueda H., Sano R., Fujita T., Sunagawa H., Tsubamoto N., Kawata T., Kaku M., Motokawa M., Tanne K.: 54<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Matsuyama), 2011.
44. A treatment case of deep bite with severe scissors bite: Sumi H., Kaku M., Kawata T., Koseki H., Kawazoe A., Sara A., Kojima S., Tanne K.: 5<sup>4th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Matsuyama), 2011.
45. Orthodontic approach to avoid the prosthodontic treatment in the non-extraction cases with three mandibular incisors: Takahashi K., Myoishi-Hattori Y., Ito K., Tanne K.: 54<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Matsuyama), 2011.
46. A study on key factors for good facial profiles in cases of skeletal class III malocclusion treated by two-jaw surgery: Tamura A., Kaku M., Sugiyama M., Motokawa M., Shimazu A., Amano H., Kawata T., Tanne K.: 54<sup>th</sup> Annual Meeting of Chu-Shikoku Orthodontic Society (Matsuyama), 2011.
47. Orthodontic treatment for two open bite cases due to inappropriate splint therapy: Sumi K., Tanimoto K., Tanne Y., Kunimatsu R., Mitsuyoshi T., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
48. Association between mandibular anterior guidance and the amount of condylar displacement Horihata A., Watanabe G., Koh M., Ueda H., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese

- Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
49. The direct effect of high magnitude cyclic tensile stress on COX-2 and MMPs expressions in chondrocytes derived from mandibular condyle.: Su S.C., Tanimoto K., Tanne Y., Iwabuchi Y., Kamiya T., Mitsuyoshi T., Sumi K., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  50. Regeneration of the mandibular condyle with the use of a functional appliance after condylectomy.: Hayashi H., Fujita T., Shirakura M., Tsuka Y., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  51. Effects of hyaluronan and superficial zone protein on joint lubrication.: Mitsuyoshi T., Kamiya T., Tanne Y., Tanimoto K., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  52. The role of DEC2 in chondrogenic differentiation of bone marrow derived mesenchymal stem cells: Sasamoto T., Michida M., Ozaki N., Yoshioka T., Tanne Y., Tanimoto K., Kato Y., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  53. Gene expression analysis and pathohistological observation in rat osteoarthritis model induced by iodine acetic acid : A modeling approach.: Ozaki N., Sasamoto T., Tanne Y., Tanimoto K., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  54. A statistical survey for the prevalence of TMD symptoms in patients in Orthodontic Clinic, Hiroshima University Dental Hospital: Iwabuchi Y., Tanimoto K., Tanne Y., Kamiya T., Mitsuyoshi T., Sumi K., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  55. Prevalence of TMJ Disease in patients in Orthodontic Clinic, Hiroshima University Dental Hospital: Ozawa S., Tanimoto K., Iwabuchi Y., Tanne Y., Kamiya T., Mitsuyoshi T., Sumi K., Sano R., Tanne K.: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint.
  56. Bone regeneration with mesenchymal stem cells and orthodontic tooth movement into the regenerated bone area : Yoshioka M., Tanimoto K., Tanne Y., Kunimatsu R., Iwabuchi Y., Ozaki N., Sasamoto T., Hirose N., Michida M., Mitsuyoshi T., Sumi K., Yoshimi Y., Su S., Sugiyama M., Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.

57. Enamel regeneration using biomineralization technology: A new strategy for the prevention of dental caries progression.: Kunimatsu R., Tanimoto K., Tanne Y., Kamiya T., Iwabuchi Y., Yoshioka M., Ozaki N., Hirose N., Sasamoto T., Michida M., Mitsuyoshi T., Yoshimi Y., Sumi K., Su. Sauo-Ching, Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.
58. Bioactivities of ameloblastin for differentiation and proliferation of ameloblasts: Hirose N, Shimazu A, Tanimoto K, Tanne Y, Kunimatsu R, Ozaki N, Yoshimi Y, Uchida T, Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.
59. Regulation of the transcription factors Dec1 and Dec2 by RORa and SREBP1c and their roles: Ozaki N., Sasamoto T., Michida M., Hirose N., Kunimatsu R., Tanne Y., Tanimoto K., Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.
60. 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., Sara A., Sumi H., Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.
61. The Correlation between the nasal breathing disorder, the force of lip closure, and craniofacial morphology: Watanabe G, Koh M, Horihata A, Ito G, Murasaki K, Ueda H, Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society (Nagoya), 2011.
62. Three-dimensional assessments of impacted teeth movement by CBCT and 3D scanner: Yoshimi Y., Tanimoto K., Michida M., Kihara T., Nagasaki N., Nikawa H., Tanne K. : The 4th international congress & The 70th annual meeting of the japanese othodontic society (Nagoya), 2011.
63. Histochemical analysis of root resorption in rats by repetitive orthodontic forces: Matsuda Y., Motokawa M., Kaku M., Kawata T., Fujita T., Ohtani J., Koseki H., Hiroko S., Abedini S., Terao A., Tanimoto K., Tanne K.: The 4th international congress & The 70th annual meeting of the Japanese orthodontic society (Nagoya), 2011.
64. Influence of occlusal hypofunction and it recovery on the structures of periodontal tissues: Terao A., Motokawa M., Kaku M., Kawata T., Fujita T., Ohtani J., Koseki H., Sunagawa H., Matsuda Y., Hayashi H., Sara A., Tanimoto K., Tanne K.: The 4th international congress & The 70th annual meeting of the Japanese orthodontic society (Nagoya), 2011.
65. Influences of nasal respiratory disorders on memory and learning ability: Tsubamoto N., Ohtani J., Sunagawa H., Ishikawa E., Ueda H., Fujita T., Kawata T., Kaku M., Motokawa M., Koseki H., Abedini S., Hayashi H., Matsuda Y., Tanne K.: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society. (Nagoya), 2011.



66. Create electronic modeling jaw of CBCT • 3D scanned image synthesis and application of orthodontic treatment: Michida M., Kihara T., Tanimoto K., Yoshimi Y., Nikawa H., Tanne K.: The 50<sup>th</sup> Hiroshima Prefecture Dental Association & The 95th Hiroshima University Dental Society. (Hiroshima), 2011.
67. A case of autotransplantation of a cryopreserved tooth with a magnetic field programmed freezer: Shikata H., Kaku M., Kawata T., Ohtani J., Fujita T., Motokawa M., Koseki H., Sara A., Kojima S., Sumi H., Shimasue H., Kamata N., Tanne K.: The 50th Hiroshima Prefecture Dental Association & The 95th Hiroshima University Dental Society.(Hiroshima),2011.

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

1. Tanne K.: Tissue regeneration therapy for the defects of teeth and alveolar bones integrated with orthodontic treatment.: International Scientific Seminar on Contemporary Dentistry (Dhaka), 2011.
2. Tanne K.: Recent innovation in edgewise technique for the correction of vertical discrepancy cases: multiloop edgewise archwire (MEAW) or micro implant anchorage (MIA). : International Scientific Seminar on Contemporary Dentistry (Dhaka), 2011.
3. Tanne K.: Current status of temporomandibular joint disorder (TMD) and the problem-oriented therapeutic system.: International Scientific Seminar on Contemporary Dentistry (Dhaka), 2011.
4. Tanimoto K.: Orthodontic treatment for patients with temporomandibular disorders: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint (Hiroshima), 2011.
5. Tanne K.: Current status of temporomandibular joint disorders and the therapeutic system integrated with orthodontic approach. : The 10<sup>th</sup> Annual Session of Chinese Orthodontic Society (ChongQing), 2011.
6. Tanimoto K.: Background of our recent PhD studies regarding mesenchymal stem cells- bone regeneration of cleft palate and functions of enamel matrix proteins as a signaling molecule -: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences (Hiroshima), 2011.
7. A new technology for treatment of dental caries - regeneration of tooth enamel with amelogenin -:Tanimoto K, Japan Science and Technology Agency New technology Presentation meeting (Osaka), 2011

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

1. Grant-in-aid for Scientific Research (B): Tanne K.: Effectiveness of improvement of lubrication and condylar cartilage regeneration in temporomandibular joints with osteoarthritis. No. 23390474. 4,900,000 yen
2. Grant-in-aid for Scientific Research (C): Tanimoto K.: Optimization of bone regeneration by transplantation of mesenchymal stem cells and application to the closure of jaw cleft. No. 23593029. 1,820,000 yen
3. Grant-in-aid for Scientific Research (C): Fujita T.: Mechanism of the condylar regeneration with orthopedic force.: No. 23593030. 1,300,000yen.
4. Grant-in-Aid for Scientific Research: Tanaka N.: Availability of low-pulse ultrasound stimulation for temporomandibular joint dysfunction.: No. 22592285. 1,700,000yen
5. 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.: 1,800,000Yen.
6. Grant-in-Aid for Scientific Research: Shirakura M.: Molecular mechanisms of condroclastgenesis in temporomandibular joint – osteoarthritis; clarification of the hypoxia-inducible factor-1 activity. : No. 22792053. 1800,000yen.
7. Grant-in-Aid for Scientific Research: Ohtani J.: Influences of sex hormones and growth factors on craniofacial growth.: No. 23792430. 1,600,000yen.
8. Grant-in-Aid for Scientific Research: Tanne Y.: Elucidation of the mechanism of cartilage destruction induced by COX-2 and the establishment of anti-inflammatory drugs treatment in TMJ osteoarthritis. : No. 23792429. 2,000,000yen.
9. 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.: No. 22890122. 730,000yen.
10. Grant-in-Aid for Scientific Research: Kunimatsu R.: Effects of enamel matrix protein on the metabolism of periodontal tissue and application of enamel matrix protein for orthodontic treatment. No. 23792428. 1,600,000yen.
11. Grant-in-Aid for Scientific Research: Kawazoe A.: Effect of soy lecithin liposomal lactoferrin in osteoporosis.: No 23890135. 1,300,000yen.
12. Grant-in-Aid for Scientific Research: Yoshioka M.: Analysis of bone induction ability of bone marrow-derived mesenchymal stem cells from jaw and application for jaw cleft.: No. 23890136. 1,300,000yen.
13. Ishikawa Corp.: Verification of commoditizing and efficacy of disinfect in calcium iron water.: 1,000,000yen.
14. New Energy and Industrial Technology Development Organization (NEDO), P10027, Kawata T., Kaku M.: A development of safety culture and preservation technology of human stem cells.: 3,360,000yen.

15. Tanimoto K.: Japan Science and Technology Agency Adaptable and Seamless Technology transfer Program through target-driven R&D, Quest type: A new technology for treatment of dental caries - regeneration of tooth enamel with amelogenin, No. AS231Z01878F, 1,700,000yen.
16. Tanimoto K.: Grant-in-Aid for Clinical Research Hiroshima University Hospital, 2011, Establishment of bone regeneration of cleft palate using mesenchymal stem cells derived from bone marrow, 500,000yen

#### (5) Commendation

1. Sumi K.: An Establishment Jaw Cleft Treatment with Bone Regeneration by Use of Mesechymal Stem Cells Derived from Bone Marrow.: 35<sup>th</sup> Annual Meeting of Japanese Cleft Palate Association: Best presentation award.
2. Abedini S.: Long-term cryopreservation of periodontal ligament cells and pulp tissues with a newly-developed magnetic field programmed freezer.: The 44<sup>th</sup> Dental meeting of Hiroshima University: Best presentation award.
3. Sumi K.: Orthodontic treatment for two open bite cases due to inappropriate splint therapy: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint: Best presentation award.
4. Su S.C.: The direct effect of high magnitude cyclic tensile stress on COX-2 and MMPs expressions in chondrocytes derived from mandibular condyle: The 24<sup>th</sup> Annual Meeting of the Japanese Society for the Temporomandibular Joint: The 2<sup>nd</sup> Asian Academic Congress for the Temporomandibular Joint: Best presentation award.
5. Sumi K : An Establishment of Jaw Cleft Treatment with Bone Regeneration by Use of Mesechymal Stem Cells Derived from Bone Marrow: 4th Hiroshima Conference on Education and Science in Dentistry: Best presentation award.
6. Yoshioka M: Bone regeneration with mesenchymal stem cells and orthodontic tooth movement into the regenerated bone area : The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society: Best presentation award.
7. Terao A: Influence of occlusal hypofunction and it recovery on the structures of periodontal tissues: The 4th International Congress & The 70th Annual Meeting of the Japanese Orthodontic Society: Best presentation award.
8. Sunagawa H.: Stability of self-drilling screw examined by histomorphometric study: 3rd world implant orthodontic conference: Best presentation award.
9. Shirakura M: The Hatton Award 2012 Finalist of Japanese Association for Dental Research (JADR)
10. Y.C. Huang.: Effects of human full-length amelogenin on the proliferation and osteogenic differentiation of human mesenchymal stem cells derived from bone marrow: 3rd International

Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Sciences. Oral presentation award

11. Ito G.: The role of microglia in neuropathic pain of maxillofacial region: 3rd International Workshop on BioDental Education & Research Hiroshima University Graduate School Of Biomedical Sciences. Oral presentation award

(6) Patent

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**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	: Fumiko Hayashi (~March) , Chieko Mitsuhata (April~)
Research Associate	: Yasutaka Kaihara, Chieko Mitsuhata, Goh Yoshimura Meiko Tachikake (April~), Noriko Kadomoto (~October), Aya Tsuboi
Physician	: Mihaya Arika, Ryoko Hirata, Satoko Otani, Nami Miyake Masafumi Kitamoto(April~)
Graduate Student	: Yukari Ohara, Hu Yiqun Yukiko Konishi, Ayumi Shimada Aomin, Yuko Iwamoto, Noriko Kodama, Nobuyuki Tatsukawa (April~)
Research Student	: Mie Hirakawa(~March) , Akira Yamane , Masafumi Kitamoto(~March)
Registered Intern	: Ayako Banshoudani(~March), Mie Hirakawa , Noriko Kashiwa (~March) : Kazunori Matsuura (April~),

(2) Main Research Activities

- 1 : Automutanolysin in oral streptococci
- 2 : Research in oral bacteria especially *Staphylococcus aureus* in children
- 3 : Bacteriological and epidemiological research in periodontal diseases in children
- 4 : Behavior evaluation of psychological stress in dental treatment in children
- 5 : Transmission of mutans streptococci
- 6 : Seeking for anti-cariogenic substance from natural foods
- 7 : Denaturalization of tooth by low pH beverage
- 8 : Research in maltreated children's oral health and study for construction of health improvement system
- 9 : 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 : Factors Causing Melanin Pigmentation in Children's Gingiva: Miura K., Otani S., Suzuki J., Kaihara Y., Mitsuhata C., Konishi Y., Kawamura M., Kozai K.: Jpn J Ped Dent, 49(1), 11-19, 2011.
- 2 : Dental Service Activity Report in Cambodia Elementary School: Matsumoto A., Iwamoto A., Omae Y., Shimazu A., Amano H., Fujiwara N., Tsuka T., Ashikaga N., Kawano S., Moriyama Y., Matsuzoe K., Ouchi A., Miyasako., Okita S., Muroi N., Muroi M., Nin E., Ando T., Yoshimoto T., Otani S., Iwamoto Y., Kodama N., Kadomoto N., Kozai K. Nishimura F, Takata T: The Journal of Hiroshima University Dental Society, 43(1), 51-56, 2011.
- 3 : The Regulatory Mechanism for Exfoliative Toxin Production in *Staphylococcus aureus*: Kato F., Kadomoto N., Iwamoto Y., Bunai K., Komatsuzawa H., Sugai M.: Infection and immunity, 79(4), 1660-1670, 2011.
- 4 : Management of Intruded Primary Teeth after Traumatic Injuries: Hirata R., Kaihara Y., Suzuki J, Kozai K.: Pediatric Dental Journal, 21(2), 94-100, 2011
- 5 : Status of periodontal disease in Junior high school students: Hayashi F., Yasuda R., Nakata K., Kadomoto N., Tsuboi A., Kawamura M., Kozai K.: The annals of educational research, 39, 315-318, 2011.
- 6 : Investigation on dental health behavior of elementary school children: The annals of educational research, 39, 191-196, 2011.
- 7 : Inhibitory effect of strained wine lees extract on *Streptococcus mutans*: Ohara Y., Yoshimura G., Konishi T., Mitsuhata C., Kozai K.: Jpn J Ped Dent, 49(3), 251-258, 2011.

## B) Review

- 1 : Specialty of dentistry required by children, Kozai K.: Journal of West Japan Association of Clinical Pediatric Oral and Maxillofacial Surgery, 2(1), 13-18, 2010. (前回未収録)

## C) Publications

- 1 : Pediatric Dentistry (The 4<sup>th</sup> Edition): Chapter 12: Caries, 127-137, Chapter 13: Periodontal disease, 225-230, Chapter 15: Oral soft tissue disease and temporary mandibular disorder, 231-243, Chapter 18: Community oral health for children, 280-281,; Kozai K. (Joint author) , Takagi Y., Tamura Y., Inoue M., Shirakawa T. (editor): Ishiyaku Publishers, Inc., 351-355, 2011.

## D) Other Publications

- 1 : SPECIAL EDITION “Awareness”—Suggestion by pediatric dentists— (1) Awareness on melanin pigmentation in the gingiva—Scientific factor analysis.— Kozai K., Mitsuata C.: Japanese Journal of Clinical Dentistry for Children, 16(10) , 18-23, 2011.
- 2 : Screening of anti-cariogenic substance from natural foods: Kozai K.: *aromatopia*, 107, 20(4), 53-56, 2011.
- 3 : Feature articles: Special issue: Pediatric dentistry for pediatrician 7. Periodontal disease: Kozai K. : Japanese Journal of Pediatric Medicine, 43(8), 1332-1336, 2011.
- 4 : Ask the Doctor: Health care for Children’s disease: Cavity Prevention Effect of Fluoride: Kozai K.: The Chugoku Shimbun, 2011.
- 5 : Ask the Doctor: Health care for Children’s disease: Aversion to teeth-brushing, Kozai K.: The Chugoku Shimbun, 2011.
- 6 : Ask the Doctor: Health care for Children’s disease: When do children's baby teeth fall out? : Kozai K, The Chugoku Shimbun, 2011.

#### E) Presentation at Scientific Meeting

- 1 : Effects of oral environmental factors on cariogenic genes of *Streptococcus mutans*: Ohara Y., Yoshimura G, Kozai K.: The 44<sup>th</sup> Congress of The Hiroshima University Dental Society (Hiroshima), 2011.
- 2 : The oral condition of abused children admitted to the shelters: Kodama N., Kadomoto N., Banshoudani A., Otani S., Yamasaki K., Yamane Y., Iwamoto Y., Kozai K.: The 44<sup>th</sup> Congress of The Hiroshima University Dental Society (Hiroshima), 2011.
- 3 : Experimental study on effects of periodontitis on systemic diseases – Dental infection of *P. gingivalis* on liver tissue –: Furusho H., Miyauchi M., Aomin., Inubushi T., Ouhara K., Kozai K., Kurihara H., Sugai M., Takata T.: The 44<sup>th</sup> Congress of the Hiroshima University Dental Society (Hiroshima), 2011.
- 4 : Inhibitory effect on the plaque formation and influence of cariogenic bacteria of extracts by red (wine) grape pomace Konishi T., Yoshimura G, Aida K., Ochiai K., Kozai K.: The 58<sup>th</sup> Congress of the Japanese society for food science and technology (Sendai), 2011.
- 5 : Surveys on dental health in Cambodia: Kadomoto N., Iwamoto Y., Iwamoto A., Kozai K: The 18<sup>th</sup> General Session and Exhibition of Japanese society of Dental Welfare, 2011.
- 6 : Dental service activity in Cambodia ~Developing the cooperative relationships and oral health promotion: Iwamoto Y., Kadomoto N., Kodama N., Otani S., Iwamoto A., Amano H., Kozai K.: The 22<sup>nd</sup> Annual Meeting of Japan Association of International Cooperation for Oral Health (Nagoya), 2011.
- 7 : Experimental study on relationship between periodontitis and systemic diseases —Systemic

- influence of continuous application of LPS to periodontal tissues: Furusho H., Miyauchi M., Aomin, Inubushi T., Kitagawa M., Takata T.: The 3<sup>rd</sup> International Workshop on BioDental Education & Research Hiroshima University Graduate School of Biomedical Science (Hiroshima), 2011.
- 8: MEPE-derived phosphorylated ASARM is involved in FGF23/soluble Klotho-dependent hypomineralization: Konishi Y., Yoshiko Y., Minamizaki T., Yoshioka H., Kozai K., Aubin J. E., Maeda N. : The 29<sup>th</sup> Annual Meeting of the Japanese Society for Bone and Mineral Research, 2011.
- 9: Isolation and identification of lactic acid bacteria from Japanese pre-school children: Shimada A., Noda M., Matoba Y., Kumagai T., Kozai K., Sugiyama M.: Japan society for lactic acid bacteria 2011's meeting (Osaka), 2011.
- 10: Correlation of oral lactic acid bacteria isolated from pre-children with dental caries: Shimada A., Noda M., Matoba Y., Kumagai T., Kozai K., Sugiyama M.: The 6<sup>th</sup> Asian conference on lactic acid bacteria (Sapporo), 2011.
- 11: Contribution of enolase in fluoride-resistant *Streptococcus mutans*: Mitsuhashi C., Ohara Y., Yoshimura G., Kozai K.: The 23<sup>rd</sup> Congress of the International Association of Paediatric Dentistry in Athens (Athens), 2011.
- 12 : MEPE-derived phosphorylated ASARM is involved in FGF23/soluble Klotho-dependent hypomineralization: Y. Konishi, Y. Yoshiko, Minamizaki T., Yoshioka H., Kozai K., Aubin J. E., Maeda N.: ASBMR 2011 Annual Meeting (San Diego), 2011.
- 13: A case of improvement in dysphasia using functional appliance after removal of dermoid cyst: Kaihara Y., Miyake N., Hirata R., Kadomoto N., Kozai K.: The 30<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Kitakyusyu), 2011.
- 14: Outpatient surgical procedures performed at department of pediatric dentistry Hiroshima University Hospital: Tachikake M., Otani S., Yoshimura G., Mitsuhashi C., Kozai K.: The 30<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry Chushikoku Branch (Kitakyusyu), 2011.
- 15: Three-dimensional evaluation of dental arch changes in infancy: a serial observation from birth to one year and six months.: Iwamae S., Kuwahara M., Kanbe C., Kaihara Y., Nikawa H., Amano H., Kozai K.: The 49<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Morioka), 2011.
- 16: Correlation of oral lactic acid bacteria isolated from pre-children with dental caries: Shimada A., Ohara Y., Yoshimura G., Kozai K. : The 49<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Morioka), 2011.
- 17: Oral condition of children in a rural area of Cambodia: Iwamoto Y., Kadomoto N., Kodama N., Otani S., Iwamoto A., Amano H., Kozai K.: The 49<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Morioka), 2011.
- 18: Oral complications caused by bone marrow transplantation and effectiveness of dental drug delivery system: Tsuboi A., Suzuki J., Yoshimura G., Kadomoto N., Kaihara Y., Otani S., Nakaoka M.,



- Matsuura K., Kozai K.: The 49<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Morioka), 2011.
- 19: A potential link between mouse cranial bone formation and renal function: the roles of the senescence-related protein Klotho and FGF23: Konishi Y., Kozai K.: The 49<sup>th</sup> Congress of Japanese Society of Pediatric Dentistry (Morioka), 2011.
- 20: Stress of dental treatment in children with developmental disorders: Nakaoka M., Mitsuhashi C., Irie Y., Kozai K.: The 28<sup>th</sup> Annual Meeting of the Japanese Society for Disability and Oral Health (Fukuoka), 2011.
- 21: Practical study for teacher training program of oral health in Cambodian Primary Schools: Iwamoto A., Matsumoto A., Shimazu A., Iwamoto Y., Kozai K., Amano H., Takata T.: The 30<sup>th</sup> Meeting of Japanese Dental Education Association (Tokyo), 2011

#### F) Special lectures in academic meetings

- 1 : The Lecture organized by Mihara Nursery League: Oral development and eating habits of babies and infants: Kozai K.: Mihara Region Plaza (Mihara), 2011.
- 2 : The Lecture organized by Hiroshima Pediatric Association.: Pediatric dental disease and its treatment: Kozai K.: Hiroshima prefectural medical association hall (Hiroshima), 2011.
- 3 : The Meeting of the Alumni Association of the Department of Pediatric Dentistry of Hiroshima University: Ten years history and future perspective: Kozai K.: Hotel Granvia Hiroshima (Hiroshima), 2011.
- 4 : 2011 Recurrent seminar for dental hygienist: Reliable clinical pediatric dentistry: Kozai K.: Faculty of Dentistry Hiroshima University (Hiroshima), 2011.
- 5 : The 19<sup>th</sup> Annual Meeting of Oral Health Promotion for School Children in Hiroshima Prefecture School dental health activity for creating "Zest for Living": Kozai K.: Center of Hiroshima Prefecture Dental Association (Hiroshima), 2011.
- 6 : The 58<sup>th</sup> Annual Meeting of the Japanese Society of Child Health: Symposium: Children's health and dental health: The point of growth changes in the oral area: Kozai K.: Nagoya Congress Center (Nagoya), 2011.
- 7 : The 5<sup>th</sup> Conference of Asian International Association of Dental Traumatology: Reeruption of intruded primary teeth: Kozai K. Aichi Gakuin University Kusumoto campus (Nagoya), 2011.
- 8 : The 33<sup>rd</sup> Hiroshima-ken Shouni Hoken Kenkyu-kai: Recent topics of pediatric dentistry: Kozai K.: Hiroshima City Hospital (Hiroshima), 2011.
- 9 : Special Lecture: Clinical view of mutans streptococci transmission in children.: Kozai K.: Airlangga University (Surabaya), 2011.

10 : The 22<sup>nd</sup> Annual Meeting of West-Japan Association of Clinical Pediatric Oral and Maxillofacial Surgery: Symposium: Perioperative management for children undergoing maxillofacial surgery 1. The way of communication with the children: Kozai K.: Fukuoka Dental Association Hall (Fukuoka), 2011.

#### (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) . 2010: ¥1,100,000, 2011: ¥1,1700,000.
- 2 : Grant-in-Aid for Scientific Research (B): Kozai K.: Effects of plaque-eco system on gene of cariogenic bacteria. (No. 2239039) : 2010: direct expenses: ¥7,500,000, indirect expenses: ¥2,250,000, 2011: direct expenses: ¥3,800,000, indirect expenses: ¥1,140,000.
- 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). 2011: direct expenses: ¥1,400,000, indirect expenses: ¥420,000.
- 4 : Grant-in-Aid for Scientific Research (B): Tachikake M.: Elucidation of the mechanism of the inhibition of the differentiation of osteoblasts by LPS from *A.a.* (No. 21792074). ¥1,000,000.
- 5 : Grant-in-Aid for Encouragement of Scientists: Otani S.: Association of melanin pigmentation in the gingiva of children with passive smoking (No. 22932007). ¥ 400,000.
- 6 : Grant-in-Aid for Scientific Research (C): Mitsuata C.: Effects of endocrine disorders on developing dopaminergic system in Brain (No.19592354). ¥ 1,050,000.
- 7 : Hiroshima University Educational Research 2010: Hayashi F.: Status of periodontal diseases in Junior high school students. ¥ 74,000.
- 8 : Hiroshima University Educational Research 2010: Kaihara Y.: Investigation on dental health behavior of elementary school children. ¥ 62,000.
- 9 : Grant-in-aid Scientific Research (C): Yoshimura G.: Oral health intervention for pediatric patients with hematopoietic stem cell transplantation. (No.22592286). ¥910,000.
- 10 : Grant-in-Aid of Futoku-kai: 2010: Ao min. ¥ 300,000.
- 11 : Grant-in-Aid of Futoku-kai: 2010: Tsuboi A. ¥ 300,000.

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

- 1 : Ayumi Shimada: 2011 JSPD Distinguished Scientists Awards at the 49<sup>th</sup> Annual Meeting of JSPD, 2011.
- 2 : Yukiko Konishi: ASBMR 2011 Young Investigator Travel Grant at the American Society for Bone

and Mineral Research (ASBMR) 2011 Annual Meeting, 2011.

- 3 : Yukiko Konishi: ASBMR 2011 Annual Meeting plenary poster presentation at the American Society for Bone and Mineral Research (ASBMR) 2011 Annual Meeting, 2011.

**(6) Patents**

- 1 : Patent application: The preventive agent for dental caries and composition for oral health, No. 2011-144421, Kozai K., Yoshimura G.

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**Programs for Applied Biomedicine,  
Division of Cervico-Gnathostomatology  
(Department of International Collaboration Development  
for Dentistry)**

(1) Staffs and Students

Director: Takashi Takata (Dean, Professor; April-)

Associate Professor: Udijanto Tedjosasongko (Specially appointed; April- )

Research Associate: Hiroko Oka (Specially appointed; April- )

(2) Main Research Activities

- 1 : Development and evaluation of dental education program cooperated with Asian countries
- 2 : Development and evaluation of Japanese-English dual linguistic education system
- 3 : Study on international exchange program
- 4 : Study on contribution to international community through dentistry
- 5 : Research on the specific mechanisms of destruction in periodontal tissue

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Oral Administration of EP4 Antagonist Inhibits LPS-Induced Osteoclastogenesis in Rat Periodontal Tissue. : Oka H, Miyauchi M, Furusho H, Nishihara T, Takata T.: Journal of Periodontology; in press; 2011.
- 2 : F-spondin inhibits migration and differentiation of osteoclastic precursors.: Oka H, Mori M, Kihara H.: Journal of Periodontology 82(12); 1776-1783; 2011.

B) Review

C) Publications

D) Other Publications

- 1 : The report for BioDental GP program in fiscal 2011 : Graduate School of Biomedical Sciences,

Hiroshima University; 2011.

- 2 : The terminal report for BioDental GP program : Graduate School of Biomedical Sciences, Hiroshima University; 2011.
- 3 : The road to start International Dental Course : Guide book 2011, Hiroshima University, Faculty of Dentistry; 2011.

#### **E) Presentation at Scientific Meeting**

- 1 : Evaluation of the course work education employing Cognitive Behavior Therapy : M. Shirakura, H.Oka, T. Kamiya, F. Suehiro, M. Sugai and M. Kobayashi : The 4<sup>th</sup> Hiroshima Conference (Hiroshima), 2011.
- 2 : Current status of Dental English education in Hiroshima University : Oka H : The 1<sup>st</sup> Discussion Forum to Develop a Core Curriculum for Dental English Education (Okayama), 2011.

#### **F) Special lectures in academic meetings and extension lectures**

- 1 : The Debrief Meeting of Dental Identification Assistance Team of Hiroshima for the Tohoku Earthquake : The report for dental identification support in Sendai : Santanda T, Watanabe F, Katayama A, Kawaguchi H, Fujita T, Oka H. : Hiroshima-ken Shikaishi Kaikan (Hiroshima), 2011.
- 2 : Hiroshima University Campus/ Course/ Classroom Exhibition : Life in Hiroshima (International Collaboration Development for Dentistry) : Udjanto Tedjosongko : Hiroshima University Faculty of Dentistry (Hiroshima), 2011.
- 3 : Hiroshima University Campus/ Course/ Classroom Exhibition : Study as foreign students in Hiroshima University (International Collaboration Development for Dentistry) : Udjanto Tedjosongko : Hiroshima University Faculty of Dentistry (Hiroshima), 2011.
- 4 : Hiroshima University Campus/ Course/ Classroom Exhibition : Facing Globalization Era (International Collaboration Development for Dentistry) : Udjanto Tedjosongko : Hiroshima University Faculty of Dentistry (Hiroshima), 2011.
- 5 : Hiroshima University Campus/ Course/ Classroom Exhibition : Leadership (International Collaboration Development for Dentistry) : Udjanto Tedjosongko : Hiroshima University Faculty of Dentistry (Hiroshima), 2011.
- 6 : Hiroshima University Campus/ Course/ Classroom Exhibition : Networking & Collaboration (International Collaboration Development for Dentistry) : Udjanto Tedjosongko : Hiroshima University Faculty of Dentistry (Hiroshima), 2011.
- 7 : The report of BioDental GP program and assessment for the next step: The 3<sup>rd</sup> Meeting of Faculty Development : Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2011.

8 : Hiroshima University Campus/ Course/ Classroom Exhibition : Poster Presentation : Udiyanto Tedjosasongko : Hiroshima University Graduate School of Biomedical Sciences (Hiroshima), 2011.

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

1 : Grant-in-Aid for Young Scientists (B) : Hiroko Oka : Mechanism of hard tissue destruction controlled by F-spondin via LDL receptor family. (No. 23792103). ¥1,300,000.

(5) Academic Awards, etc.

(6) Patents

(7) Others

A) The number of the foreign students for the international exchange program

- 1 : The 1<sup>st</sup> international short exchange program : 17 students (Taipei Medical University, 4<sup>th</sup>-year, Taiwan) : 5 days, 2011.
- 2 : The 2<sup>nd</sup> international short exchange program : 4 students (Faculty of Dentistry, Airlangga University, 5<sup>th</sup>-year, Indonesia), 2 students (Khon Kaen University, 5<sup>th</sup>-year, Thailand) : 14 days, 2011.
- 3 : International exchange program : 2 students (Taipei Medical University, 3<sup>rd</sup>-year and 4<sup>th</sup>-year, Taiwan) : 1 year, 2011.
- 4 : International Dental Course: 3 students (2 students : Faculty of Dentistry, Airlangga University; 1 student : Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at HoChiMinh City), 2011.

B) Grateful letter

- 1 : For dental identification support in Sendai (the Tohoku Earthquake) : Oka H : Japan Dental Association : 2011.
- 2 : For dental identification support in Sendai (the Tohoku Earthquake) : Oka H : Hiroshima Prefecture Dental Association : 2011.

C) Homepage of International Program

- 1 : <http://icdd.hiroshima-u.ac.jp/>

D) Conclusion of Memorandum of Agreement of International Exchange Programs  
(Support)

- 1 : Faculty of Dentistry, Airlangga University-Indonesia
- 2 : Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at HoChiMinh City,  
Socialist Republic of Vietnam

E) Supporting the International Research Exchange Program

- 1 : Preparing the documents for sending the research equipment grant from Hiroshima University  
Faculty of Dentistry to Airlangga University Faculty of Dentistry

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**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, Aya Tamura

(2) Main Research Activities

- 1 : Study on oral care
- 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 : A study on affairs and required faculties of full-time dental hygienist at administrative organs in Hiroshima Prefecture: Kitamura M, Sasahara H, Shimazu A, Hara K, Nosou M, Amano H, Sugiyama M : J Hiroshima Dent Soc: 43(1), 1-8, 2011.
- 2 : A study on key factors for good facial profiles in cases of skeletal Class III malocclusion treated by two-jaw surgery: Tamura A, Kaku M, Sugiyama M, Motokawa M, Shimazu A, Amano H, Kawata T, Tanne K : The journal of cho-shikoku orthodontic society, 23(1), 27-32, 2011.
- 3 : Analysis of the surface properties of lost dental implant fixture : Mine Y, Makihira S, Sugiyama M, Kamata N, Okazaki S, Nikawa H : J Hiroshima Dent Soc: 43(2), 106-112, 2011.
- 4 : Increased telomerase activity and hTERT expression in human salivary gland carcinomas: Shigeishi H, Sugiyama M, Tahara H, Ono S, Bhawal UK, Okura M, Kogo M, Shinohara M, Shindoh M, Shintani S, Hamakawa H, Takata T, Kamata N: Oncology Letters, 2, 845-850, 2011.

B) Review



### C) Publications

- 1 : Chapter 2 2-9. Diseases of the salivary glands : Sugiyama M, in "Oral Surgery for Dental Hygienist" (ed. By Komori T), Nagasue Publishing, Kyoto, p161-174, 2011.
- 2 : Chapter 3 3-16. Removal of salivary duct calculi : Sugiyama M, in "Oral Surgery for Dental Hygienist" (ed. By Komori T), Nagasue Publishing, Kyoto, p251-254, 2011.

### D) Other Publications

- 1 : Understanding for temporomandibular disorders : Sugiyama M : Journal of the Japanese Society for the Temporomandibular Joint 23 Suppl, 78, 2011.
- 2 : Health promotion starting from oral health : Sugiyama M : Health Sciences 27(3), 188, 2011.

### E) Presentation at Scientific Meeting

- 1 : Survey of attitudes toward teeth and toothbrushes in the current middle school students. : Shimazu A, Sasahara H, Kawamura M, Ogawa T. : The 60th Japanese Society for Dental Health (Chiba), 2011.
- 2 : Developing an intra- and inter-judge calibration system in terms of the periodontal assessment (G, GO scale) using a computer aided testing tool for school dentists. : Kawamura M, Okada M, Sasahara H, Shimazu A, Taguchi N, Ogawa T. : The 60th Japanese Society for Dental Health (Chiba), 2011.
- 3 : Conscious survey of gingivitis in female high-school students. –Focus on Hiroshima University-Dental Behavioral Inventory and self-esteem. - : Noso M, Ueda E, Shimazu A, Kawamura M, Takemoto T, Sugiyama M. : The 60th Japanese Society for Dental Health (Chiba), 2011.
- 4 : A study on oral microorganisms in patients with oral cancer and matched controls.: Yamashita K, Nishimura R, Ohara M, Hara K, Takemoto T, Sugiyama M.:The 6th Annual Meeting of the Japan Dental Hygienists' Association. (Nigata), 2011.
- 5 : A program for improvement of oral function to prevent nursing-care.: Fukada E, Nishimura R, Yamashita K, Iwamoto A, Tamura A, Matsumoto A, Hara K, Nikawa H, Amano H.:The 6th Annual Meeting of the Japan Dental Hygienists' Association. (Nigata),2011.
- 6 : Age-related changes of sensory thresholds in the oro-facial region and the relationship of sensory thresholds with dysphagia.: Nishimura R, Yamashita K, Hara K, Amano H, Sugiyama M.:The 4th Hiroshima Conference on Education and Science in Dentistry. (Hiroshima),2011.
- 7 : A study on key factors for good facial profiles in cases of skeletal Class III malocclusion treated by two-jaw surgery : Tamura A, Kaku M, Sugiyama M, Motokawa M, Sshimazu A, Amano H, Kawata T, Tanne K : 54<sup>th</sup> Cho-shikoku orthodontic society (Ehime),2011.
- 8 : A study on key factors for good facial profiles in cases of skeletal class III malocclusion treated by two-jaw surgery : Tamura A, Kaku M, Sugiyama M, Motokawa M, Shimazu A, Amano H, Kawata

- T, Tanne K : 3rd International Workshop on BioDental Education&Research (Hiroshima), 2011.
- 9 : Changes of oral sensation and its relationships with dysphagia and application of dentures in the elderly: Sugiyama M: The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgeon, Osaka, 2011.
- 10 : Study on oral opportunistic pathogens after treatment of oral cancers : Sugiyama M : The 20th Annual Meeting of the Japanese Association for Oral Infectious Diseases, Yokohama, 2011.

#### F) Contribution to Community

- 1 : Shimazu A : Dental Support Activity in Cambodia (Cambodia) , 2011.
- 2 : Shimazu A : Oral health activity in Junior High School Students in Hiroshima (Hiroshima) , 2011.
- 3 : Shimazu A : Dental Examination for Acidity and Alkalinity (Hiroshima) , 2011.
- 4 : Sugiyama M: Understanding of temporomandibular disorders : Public lecture “In the case you get jaw joint disease —Advices from oral surgeons, Prosthodontists and Orthodontists—”, Hiroshima, 2011.7.24.
- 5 : Sugiyama M : Symposium 1 in the 27th Annual Meeting of the Japan Society of Health Sciences “Health promotion starting from oral health : Yokohama, 2011. 8.6.
- 6 : Sugiyama M : Refresher course for dental hygienists (Step up course) “High points to see outpatients —Assessment of general condition—”, Hiroshima, 2011.8.25.
- 7 : Sugiyama M : Special lecture in the annual meeting of the dental department in hospitals of Yamaguchi Prefecture “To develop team approaches to dental care —Trials by School of Oral Health Sciences, Hiroshima University Faculty of Dentistry—”, Hofu, 2011. 9. 10.
- 8 : Sugiyama M : Research on AIDS Control by Ministry of Health, Labour and Welfare in 2011-2012; Research group to set up medical systems for HIV infectious diseases (Chief: Yamamoto M) ; Set up of dental systems (Research Member : Maeda N) ”Seminar for educators of dental hygienist schools —Establishment of the method to teach standard precautions—”, Osaka, 2011. 10. 15-16.

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

- 1 : Grants-in-Aid for Scientific Research (Scientific Research (C)) : Sugiyama M : Optimization of the bone regeneration method in transplantation of mesenchymal stem cells and its application for closure of alveolar cleft. (No. 23593029). ¥200,000.

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

#### (6) Patents

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**Master's Program for Oral Health Sciences,  
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, TETSUMORI Kotomi

(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 the development of oral function
- 7 : Study on education program for graduate dental hygienists
- 8 : Study on the Mechanism of *Aggregatibacter actinomycetemcomitans*-CDT complex formation and secretion

(3) Achievements

- 1 : A Study on Affairs and Required Faculties of Full-time Dental Hygienist at Administrative Organs : M. Kitamura, H.Sasahara, A. Shimazu, K. Hara, M. Noso, H. Amano, M. Sugiyama: 43(1),1-8,2011.
- 2 : 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 Periodont Res, 46, 389-395, 2011.
- 3 : Sporadic isolations of a multi-drug resistant *Pseudomonas aeruginosa* clone during a 14-month epidemic in a general hospital in Hiroshima. : S. Kouda, Y. Fujiue, Y. Watanabe, M. Ohara, S. Kayama, F. Kato, J. Hisatsune, K. Tsuruda, A. Matsubara, M. Doi, M. Kuwabara, M. Sugai. : Infection, 39, 247-253, 2011.
- 4 : A study on key factors for good facial profiles in case of skeletal Class III malocclusion treated by two-jaw surgery : TAMURA Aya, KAKU Masato, SUGIYAMA Masaru, MOTOKAWA Masahide,

SHIMAZU Atsushi, AMANO Hideaki, KAWATA Toshitugu, TANNE Kazuo :J. CHU-SHI Orthod Soc., 23(1), 27-32, 2011.

#### B) Reviews

#### C) Books

- 1 : MANUAL FOR ORAL CARE (The Japanese Society of Oral Care) : *III Gargling* 30. Gargling : Kumiko Hara:Quintessence Publishing Co.,Ltd.(Tokyo),100-102,2011.

#### D) Other Publications

#### E) Presentations

- 1 : A Program for maintenance of better oral functions in a seminar of care prevention : Eri Fukada, Rumi Nishimura, Kaoru Yamashita, Akiko Iwamoto, Hiroki Nikawa, Kumiko Hara, Hideaki AMANO : 18<sup>th</sup> Annual Meeting of the Japanese Society of Dental Welfare (Okayama), 2011.5.15
- 2 : A Study on the introduction of 'dental hygiene process' into dental hygiene education in Japan) : Kumiko Hara, Aiko Fujiwara, Naomi Yoshida, Sizue Oyama, Chie Okabayashi, Yoshie Niitani, Atsue Matsumoto, Keiko Kondo, Keiko Endo : 30th Annual Meeting of the Japanese Dental Education Association (Tokyo), 2011.7.16-17.
- 3 : An analysis of suckling and swallowing functions from measurement of internal pressure of oral cavity – A prototype of clinical measurement system of internal pressure of oral cavity- : Eri Fukada, Hideaki Amano, Shinichi Nagasaki, Kumiko Hara, Masaru Sugiyama, Keiji Tanimoto : 44<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2011.6.11.
- 4 : A Study of age change of sensation in oral-facial area : Rumi Nishimura, Kaoru Yamashita, Kumiko Hara, Hideaki Amano, Masaru Sugiyama : 44<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2011.6.11.
- 5 : CdtC-induced processing of membrane-bound CdtA is a crucial step in complex formation of CDT holotoxin. Keiko Tsuruda, Motoyuki Sugai. International Union of Microbiological Societies 2011 Congress (Sapporo, Japan), 2011. 9. 6-10
- 6 : Age change of sensation in oral-facial area : Rumi Nishimura, Kaoru Yamashita, Kumiko Hara, Hideaki Amano, Masaru Sugiyama : 6<sup>th</sup> Annual Meeting of Japan Dental Hygienist's Association (Niigata), 2011.9.24.
- 7 : A Study of indigenous microorganism on oral mucosa of patients with oral malignancy : Kaoru Yamashita, Rumi Nishimura, Masaru Ohara, Kumiko Hara, Toshinobu Takemoto, Masaru Sugiyama : 6<sup>th</sup> Annual Meeting of Japan Dental Hygienist's Association (Niigata), 2011.9.24.
- 8 : Effectiveness of the seminar of care prevention by assessments of oral functions : Eri Fukada, Rumi

- Nishimura, Kaoru Yamashita, Akiko Iwamoto, Kumiko Hara, Atsue Matsumoto, Hiroki Nikawa, Kumiko Hara, Hideaki Amano: 6<sup>th</sup> Annual Meeting of Japan Dental Hygienist's Association (Niigata), 2011.9.24.
- 9 : Age- related changes of sensory thresholds in the oro-facial region and the relationship of sensory thresholds with dysphagia : Rumi Nishimura, Kaoru Yamashita, Kumiko Hara, Hideaki Amano, Masaru Sugiyama : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.10.9-10.
- 10 : Complex formation mechanism of CDT holotoxin of *Aggregatibacter actinomycetemcomitans*: Mao Tanaka, Keiko Tsuruda, Oranart Matangkasombut, Masaru Ohara, Motoyuki Sugai: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.10.9-10.
- 11 : An Approach of the program for maintenance of better functions of oral functions in the seminar for care prevention 1<sup>st</sup> Report Program and questionnaire research : Rumi Nishimura, Eri Fukada, Kumiko Hara, Akiko Iwamoto, Kaoru Yamashita, Aya Tamura, Atsue Matsumoto, Hideaki Amano, Hiroki Nikawa, Masaru Sugiyama : 95<sup>th</sup> Annual Meeting of Hiroshima University Dental Society and 50<sup>th</sup> Hiroshima Prefecture Dental Association(Hiroshima), 2011.11.13.
- 12 : An Approach of the program for maintenance of better functions of oral functions in the seminar for care prevention 2<sup>nd</sup> Report Effectiveness of the seminar of care prevention by assessments of oral functions : Eri Fukada, Rumi Nishimura, Kumiko Hara, Akiko Iwamoto, Kaoru Yamashita, Aya Tamura, Atsue Matsumoto, Hideaki Amano, Hiroki Nikawa, Masaru Sugiyama : 95<sup>th</sup> Annual Meeting of Hiroshima University Dental Society and 50<sup>th</sup> Hiroshima Prefecture Dental Association (Hiroshima), 2011.11.13.
- 13 : A Research of oral conditions of the children of a rural area in Cambodia : Yuko Iwamoto, Noriko Kadomoto, Noriko Kodama, Fusako Otani, Akiko Iwamoto, Hideaki Amano, Katsuyuki Kozai : 49<sup>th</sup> Annual Meeting of Japanese Society of Pediatric Dentistry (Iwate), 2011.11.28.
- 14 : A study of the effect of the active noise control headphone against the noise surround the dental chair : Akiko Iwamoto, Hideaki Amano : 49<sup>th</sup> Annual Meeting of Japanese Society of Pediatric Dentistry (Iwate), 2011.11.29.
- 15 : Preliminary study on the education method of Dental Hygiene Process in Dental Hygiene Education part1 Understandings of the significance between the dental hygiene instructors : Kumiko Hara, Naomi Yoshida, Keiko Endo, Aiko Fujihara, Keiko Kondo, Hisako Wada, Kimiko Watanabe, Chieko Nagano, Kimiko Kobayashi : Japan Society Of Dental Hygiene Education(Tokyo), 2011.12.3-4.
- 16 : Preliminary study on the education method of Dental Hygiene Process in Dental Hygiene Education part2 Current status and placement in the educational curriculum : Tomoko Sanda, Yukiko Murakoshi, Emiko Nakano, Mieko Masuda, Takako Yabe, Yumi Hoshino, Kumiko Hara, Naomi Yoshida, Keiko Endo, Aiko Fujihara : Japan Society Of Dental Hygiene Education (Tokyo), 2011.12.3-4.

F) Lectures

- 1 : Review the Oral Care : Hara K.: Seminar for Study Group of Oral Care (Kagoshima), 2011.2.20.
- 2 : Health Information sent from Mouth 1: Amano H. : Annual meeting of the Japan Society of Health Sciences (Kanagawa) , 2011.8.6.
- 3 : Health Information sent from Mouth 3 : Hara K. : Annual meeting of the Japan Society of Health Sciences (Kanagawa) , 2011.8.6.
- 4 : An Effort to go for better Team Dentistry Medicine of the School of Oral Sciences, Hiroshima University Faculty of Dentistry 2. From a view point of Dental Hygienist. : Hara K. : Yamaguchi Pref. Medical Center (Yamaguchi), 2011.9.10
- 5 : What is the key of longevity biting steadily ? 3. Practice : Hara K. : The University Extension course of Hiroshima University in 2011(Matsue) , 2011.11.19.
- 6 : Change the Dental Hygienist into Oral Health Manager for team medicine : Amano H. : 49<sup>th</sup> Annual Meeting of the Japanese Society of Pediatric Dentistry (Iwate), 2011.11.28.

G) Social Contributions

- 1 : Program for kids from elementary schools, Dental Kids, “Let’s Be a Dentist!”: Hiroshima University Faculty of Dentistry, 2011.
- 2 : Program for high school students, Dental Kids: Hiroshima University Faculty of Dentistry, 2011.
- 3 : Cooperate to the assessment of the Program for improvement of oral function in the ambulatory care facility “Kosei-En”, 2011.

(4) Grant-in-Aid for Scientific Research

- 1 : 2011th 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 : 2011th 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 (until March) , Hinako TSUZUKI (From April)

Graduation thesis student: Chiaki NAKAMORI, Junko YUTOU, Ayana MIYAMOTO, Chiaki SASA,  
Yukina KOUSAKA, Moeko HAYASHI, Mai HINODE, Kaori OZEKI,  
Haruno HAMASUNA, Miho TOYOTA, Yui KOTAKE, Saki OGURA,  
Chisato OHSHITA, Miho KUME

( 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 : Bovine milk fermented with *Lactobacillus rhamnosus* L8020 decreases the oral carriage of mutans streptococci and the burden of periodontal pathogens: Nikawa H., Tomiyama Y., Hiramatsu M., Yushita K., Takamoto Y., Ishi H., Mimura S., Hiyama A., Sasahara H., Kawahara K., Makihira S., Satoda T., Takemoto T., Murata H., Mine Y., Taji T.: Journal of Investigative and Clinical Dentistry,2(3), 187–196, 2011.
- 2 : [Dental Service Activity Report in Cambodia Elementary School][ja]: Matsumoto A., Iwamoto A.,

Omae Y., Shimazu A., Amano H., Fujiwara N., Tsuka T., Ashikaga N., Kawano S., Moriyama Y., Matsuzoe K., Ouchi A., Miyasako S., Okita S., Muroi N., Muroi M., Nin E., Ando T., Yoshimoto T., Otani S., Iwamoto Y., Kodama N., Kadomoto N., Kozai K., Nishimura F., Takata T. : J. Hiroshima Univ. Dent. Soc., 43(1), 2011.

### C) Books

- 1 : [Oral prophylaxis and oral health instruction][ja]: The newest series of textbook for dental hygienists (Matsumoto A.: Contributor): Edited by the Japan Association for Dental Hygienist Education, Ishiyaku Publishers (Tokyo) 2011.

### E) Presentations at Scientific Meeting

- 1 : [Analysis of sound environment in dental clinic and proposal of noise prevention scheme][ja] : Iwamoto A., Sugiyama M., Takemoto T., Amano H: The 44th Annual meeting of the Hiroshima University Dental Association(Hiroshima),
- 2 : [Analysis of peripheral vein width and salivary free radical at the time of ‘oral relaxation’ ][ja]: Matsumoto A., Niitani Y., Nishimura R., Iwamoto A.,Fukada E., Tamura A., Tsuzuki H., Tetsumori K., Shimazu A., Takemoto T.: The 22st annual meeting of the Kinki-Chugoku-Shikoku Branch of the Japanese Society for Dental Health (Tokushima), 2010.
- 3 : [Study of job satisfaction and vocational motives about dental hygienists][ja]: Tsuzuki H., Tai S., Takemoto T.: The 30th Annual Meeting of Japanese Dental Education Association (Tokyo), 2011.
- 4 : [Survey about the use of demonstration movies in basic practice on dental assistant work: Tai S., Tsuzuki H., Takemoto T.: The 30th Annual Meeting of Japanese Dental Education Association (Tokyo), 2011.
- 5 : [A study on the introduction of ‘dental hygiene process’ into dental hygiene education in Japan][ja]: Hara K., Fujiwara A., Yoshida N., Oyama S., Okahash T., Niitani Y., Matsumoto A., Kondou K., Endou K.: The 30th Annual Meeting of Japanese Dental Education Association (Tokyo), 2011.
- 6 : [Oral health educational program for the primary school teachers in Cambodia][ja]: Iwamoto A., Matsumoto A., Shimazu A., Iwamoto Y., Kouzai K., Takata T., Amano H.: The 30th Annual Meeting of Japanese Dental Education Association (Tokyo), 2011.
- 7 : [The relation between job continuity will and job satisfaction or vocational motives about dental hygienists at private dental clinic][ja]: Tsuzuki H., Takemoto T.: The 6th Annual meeting of the Japanese society of dental health (Niigata), 2011
- 8 : [Study about the efficacy of ‘oral relaxation method’ – The change in finger vein width and salivary



- free radical][ja]: Matsumoto A., Niitani Y., Shima M., Tsuzuki H., Iwamoto A., Nishimura R., Shimazu A., Takemoto T.: The 6<sup>th</sup> Annual meeting of the Japanese society of dental health (Niigata), 2011
- 9 : [Study about indigenous bacteria at oral mucosa in oral malignant tumor patients][ja]: Yamashita K., Nishimura R., Ohara M., Hara K., Takemoto T., Sugiyama M.: The 6<sup>th</sup> Annual meeting of the Japanese society of dental health (Niigata), 2011
- 10 : [The contents of improvement support service of oral function at care prevention class and its efficacy][ja]: Fukada E., Nishimura R., Yamashita K., Iwamoto A., Tamura A., Matsumoto A., Hara K., Amano H., Nikawa H.: The 6<sup>th</sup> Annual meeting of the Japanese society of dental health (Niigata), 2011
- 11 : [The improvement support service of oral function at a certain care prevention class in Hiroshima Prefecture. 1. The contents of the service and the result of questionnaire paper research][ja]: Nishimura R., Fukada E., Hara K., Iwamoto A., Yamashita K., Tamura A., Matsumoto A., Amano H., Nikawa H., Sugiyama M.: The 50<sup>th</sup> Meeting of Hiroshima Prefecture Dental Association, The 95<sup>th</sup> Regular Meeting of Hiroshima University Dental Society: (Hiroshima), 2011.
- 12 : [The improvement support service of oral function at a certain care prevention class in Hiroshima Prefecture. 2. The efficacy of the improvement support program analyzed by oral function evaluation][ja]: Fukada E., Nishimura R., Hara K., Iwamoto A., Yamashita K., Tamura A., Matsumoto A., Sugiyama M., Nikawa H., Amano H.: The 50<sup>th</sup> Meeting of Hiroshima Prefecture Dental Association, The 95<sup>th</sup> Regular Meeting of Hiroshima University Dental Society: (Hiroshima), 2011.

## F) Lectures

- 1 : [The education and research at Oral Health Science Course –about Dental Hygienists Education Program][ja]: Takemoto T., Annual meeting of Hiroshima Association of Dental Hygienist Education (Hiroshima), 2011.
- 2 : [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) : 2011.
- 3 : [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) : 2011.
- 4 : [Oral care for pregnant woman and new born infant][ja]: Matsumoto A.: School for pregnant women in Gynecology department of Hiroshima University Hospital (Hiroshima) , 2011.
- 5 : [Outpatient Preventive Care Project for Specified elderly person at Hatsukaichi city][ja] : Matsumoto A.: Held at Tsuda, Miyazono, Ajina-dai, Ohno, Asahara,(Hiroshima), 2011.
- 6 : [Dental Hygiene 3][ja]: Niitani Y.; JADHE program I for teachers in dental hygienists schools (Gifu)

2011.

G) Social Contributions

- 1 : Program for kids from elementary schools, Dental Kids, “Let’s Be a Dentist!”: Hiroshima University Faculty of Dentistry, 2011.
- 2 : Renewal seminar for teacher’s license: Takemoto T, Hiroshima University (Hiroshima), 2011.
- 3 : Member of Dental Hygienists’ Examination committee: Matsumoto A., Niitani Y.: Foundation of Promoting Dental Care and Training, 2011.
- 4 : Secretary of the regional association of Kinki , Chugoku and Shikoku area for Japanese Society for Dental Health: Matsumoto A, 2011.
- 5 : Member of dental hygienists authorization committee: Matsumoto A., Japan Dental Hygienists’ Association, 2011.
- 6 : Editorial committee of The Journal of Japan Society for Dental Hygiene.: Matsumoto A, Japan Society for Dental Hygiene (Tokyo), 2011.
- 7 : Editorial board of The Journal of Japan Society for Dental Hygiene.: Matsumoto A, Japan Society for Dental Hygiene (Tokyo), 2011.
- 8 : Educational committee of Japanese Association for Dental Hygienists Education, Niitani Y, JADHE (Tokyo), 2011.
- 9 : Member of dental working group in committee of National University Hospital infection control association: Niitani Y., Training seminar at Chugoku-Shikoku Block in 2011(Okayama), 2011

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

- 1 : Grant-in-Aid for Scientific Research (C): Takemoto T.: The analysis of factors indicating the quit of dental hygienist and settling a plan for the prevention. (No.23593090). ¥1,400,000
- 2 : Grant-in-Aid for Scientific Research (C): Matsumoto A.: Study about the efficacy of ‘oral relaxation method’ in the prevention of mental stress. (No.21592649). ¥500,000

( 5 ) Academic Awards

- 1 : Ishikawa Y.: The 6th award for scientific article (Encouragement award) of the Japanese society of dental health  
Prize winning article (Graduation research of Hiroshima Univ. in 2008):

[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.

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**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 : Shougo Iwaguro, Yuji Chiba, Syouji Matsushita, Hiroki Nishida,  
Kumiko Hirose

(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 : Objective evaluation of tooth carving using the three-dimensional images—Comparison with subjective evaluation—: Takuya Kihara, Saiji Shimoe, Takeshi Murayama, Tsuyoshi Taji, Kazuko Kawahara, Hisako Sasahara, Masakazu Sasaki, Hiroki Nikawa : The Journal of the Japanese Society for Dental Masterials and Devices, Vol.30, No.3, 202-206, 2011.
- 2 : Bovine milk fermented with *Lactobacillus rhamnosus* L8020 decreases the oral carriage of mutans streptococci and the burden of periodontal pathogens: Hiroki Nikawa, Yu Tomiyama, Minako Hiramatsu, Kaori Yushita, Yuko Takamoto, Hitomi Ishi, Sumiyo Mimura, Aya Hiyama, Hisako Sasahara, Kazuko Kawahara, Seicho Makihira, Takahiro Satoda, Toshinobu Takemoto, Hiroshi Murata, Yuichi Mine and Tsuyoshi Taji: Journal of Investigative and Clinical Dentistry, 2, 187–196, 2011.

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 Suprahyoid and Infrahyoid muscles : Takahiro Satoda, Hiroki Nishida, Kumiko Hirose, Ranka Kyoda, Yosuke Arima, Saiji Shimoe : The joint meeting of the 88<sup>th</sup> Annual Meeting of the Physiological Society of Japan & The 116<sup>th</sup> Annual Meeting of Japanese Association of Anatomists (Yokohama), (This meeting was canceled due to HigashiNihon Daishinsai) 2011.3.
- 2 : A hand-made model of the forearm : Takahiro Satoda, Jun-ichi Mitsugi, Yosuke Arima, Kumiko Hirose, Saiji Shimoe : The 10<sup>th</sup> Annual Meeting of Co-Medical Function and Structure Association (Kasugai) , 2011.9.
- 3 : A hand-made model of the forearm : Jun-ichi Mitsugi, Kibou Tumura, Haruna Nishiura, Kanako Touma, Keishi Hiradani, Saiji Shimoe, Takahiro Satoda : The 33<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Tokyo), 2011.10.
- 4 : Assessment of reproducibility on dental impression materials using three - dimensional images: Haruna Nishiura, Saiji Shimoe, Takuya Kihara, Tsuyoshi Taji, Hisako Sasahara, Takeshi Murayama, Takahiro Satoda : The 33<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Tokyo), 2011.10.
- 5 : Effect of alumina-blasting on the surface treatment of Ce-TZP/Al<sub>2</sub>O<sub>3</sub> nanocomposite (P-NANOZR) : Nozomi Tsumura, Saiji Shimoe, Tuji Chiba, Syougo Iwaguro, Mitsuhiro Tamamoto, Takahiro Satoda : The 33<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Tokyo), 2011.10.
- 6 : Objective evaluation of posterior tooth carving using the three-dimensional image : Kanako Touma, Saiji Shimoe, Takuya Kihara, Kazuko Kawahara, Mitsuhiro Tamamoto, Hiroki Nikawa, Takahiro Satoda : The 33<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Tokyo), 2011.10.
- 7 : The changes caused by shift to four-year college in Department of Oral Engineering Institute of Oral Health Science Hiroshima University Faculty of Dentistry—Data of new students, education and getting employment—: Saiji Shimoe, Takahiro Satoda, Mitsuhiro Tamamoto, Takeshi Murayama, Tuoyoshi Taji, Kazuko Kawahara, Hisako Sasahara, Hiroki Nikawa : Annual Meeting of Nippon Academy of Dental

Technology, The 6<sup>th</sup> Cyugoku-Shikoku regional meeting (Tokushima), 2011.11.

8 : Influence of surface burning conditions on bonding between zirconia ceramic material and veneering porcelain. : Syougo Iwagura, Saiji Shimoe, Takahiro Satoda, Nozomi Tsumura, Yuji Chiba : Annual Meeting of Nippon Academy of Dental Technology, The 6<sup>th</sup> Cyugoku-Shikoku regional meeting (Tokushima) , 2011.11.

9 : A hand-made model of the forearm : Jun-ichi Mitsugi, Yosuke Arima, Kumiko Hirose, Saiji Shimoe, Takahiro Satoda : The 66<sup>th</sup> Annual Meeting of Japanese Association of Anatomist, Cyugoku-Shikoku regional meeting (Tokushima), 2011.11.

10: Analysis of the significance of the dissection methods in the students' dissection practices : Yosuke Arima, Saiji Shimoe, Takahiro Satoda : The 65<sup>th</sup> Annual Meeting of Japanese Association of Anatomist, Cyugoku-Shikoku regional meeting (Tokushima), 2011.11.

#### (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). ¥800,000

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

1: Jun-ichi Mitsugi : Excellent poster presentation award in The 33<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Tokyo), 2011.10.

#### (6) Patents

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**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 : Daigo Tomonari, Mana Kawakami, Keita Yauchi, Tsuyoshi Hidaka,  
Shinya Chiba, Kouki Ishizu  
Graduation Research Students : Yuta Takumi, Kousei Ohno, Setsuri Shimazaki, Keisuke Hayashida,  
Asumi Yamaguchi, Asumi Nagata, Mayumi Nakanodo, Megumi  
Nishikawa, Noriko Fujimoto, Yuko Fuchimoto, Haruka Houchi,  
Shuich Masu

(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 a motion-capture system
- 8: Simulation-based analysis of work processes in dental technology
- 9: Study on sports dentistry ( mouthguard )
- 10: Study on musical dentistry (**music splint**)

(3) Research Achievements

A) Original Papers (including Case Reports)

Takahiro SATODA

- 1: Objective evaluation of tooth carving using three-dimensional images- Comparison with subjective evaluation: Takuya KIHARA, Saiji SHIMOE, Takeshi MURAYAMA, Tsuyoshi TAJI, Kazuko KAWAHARA, Hisako SASAHARA, Masakazu SASAKI, Hiroki NIKAWA: The journal of the Japanese Society for Dental Materials and Devices, 30(3), 202-206, 2011.

- 2: Development of a system that evaluates abutment teeth for dental CAD/CAM: Takeshi MURAYAMA, Mana KAWAKAMI, Kozue MIYAMOTO, Toru EGUCHI, Mitsuhiro TAMAMOTO: Proceedings of the 3rd International Symposium on Digital Manufacturing 2011, 341-346, 2011.
- 3: A Method of Constructing Cooperative Work Groups for Concurrent Engineering: Takeshi MURAYAMA, Toru EGUCHI, Akira OGAWA: Proceedings of the 3rd International Symposium on Digital Manufacturing 2011, 410-415, 2011.
- 4: An Approach of Estimation of Distribution Algorithm for Job Shop Scheduling: Toru Eguchi, Masahiro Fujimoto, Takeshi Murayama: Proceedings of the 3rd International Symposium on Digital Manufacturing 2011, 101-106, 2011.

#### B) Review

#### C) Publications

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1: Development of a system that evaluates abutment teeth for dental CAD/CAM: Kawakami M, Miyamoto K, Yanagibashi M, Murayama T, Tamamoto M, Eguchi T: The 23rd Bioengineering Conference: 2011 Annual Meeting of BE D/JSME, No.10-74, 575-576 (Kumamoto), 2011.
- 2: Meeting due-dates and minimizing lead-times in a integrated production planning and scheduling environment: Eguchi T, Hirano S, Murayama T: Manufacturing Systems Divisions Conference 2011 No.11-7, 49-50(Tokyo), 2011.
- 3: Discrete-event simulation of dental technical work: Chiba S, Murayama T, Eguchi T, Tamamoto M: 33rd Meeting of the Nippon Academy of Dental Technology (Tokyo), 2011.
- 4: Fabrication of finger prostheses using finger models created from principal feature database: Ohno K, Murayama T, Tada M, Nagami M, Kihara T, Tamamoto M, Eguchi T: 33rd Meeting of the Nippon Academy of Dental Technology (Tokyo), 2011.
- 5: Development of a system evaluating abutment teeth for CAD/CAM: Mana KAWAKAMI, Takeshi MURAYAMA, Kozue MIYAMOTO, Toru EGUCHI, Mitsuhiro TAMAMOTO: 59th Annual Meeting of Japanese Association for Dental Research (Hiroshima), 2011.
- 6: Analysis of skills in dental technology by using a motion-capture system: Hidaka T, Murayama T, Eguchi T, Shimoe S, Tamamoto M: 2011 Annual Meeting of the Chugoku-shikoku Branch of Japan Society for Precision Engineering(Tokushima), 2011.



- 7: Application of dispatching rules to dental technical work and its evaluation by discrete-event simulation: Chiba S, Murayama T, Eguchi T, Tamamoto M: 2011 Annual Meeting of the Chugoku-shikoku Branch of Japan Society for Precision Engineering(Tokushima), 2011.
- 8: Quantitative evaluations of effects by using various oral music splints: Tomonari D, Tamamoto M, Nagasaki T, Murayama T, Nikawa H, Satoda T, Tanimoto K: 95th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 9: Building three-dimensional models from three-tesla MRI for the simulation of temporomandibular joint: Takumi Y, Kawakami M, Murayama T, Nagasaki T, Ueda K, Ogawa H, Tanaka E, Nikawa H: 95th Regular Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 10: Development of a system that evaluates abutment teeth for dental CAD/CAM: Takeshi MURAYAMA, Mana KAWAKAMI, Kozue MIYAMOTO, Toru EGUCHI, Mitsuhiro TAMAMOTO: The 3rd International Symposium on Digital Manufacturing 2011(Kokura), 2011.
- 11: A Method of Constructing Cooperative Work Groups for Concurrent Engineering: Takeshi MURAYAMA, Toru EGUCHI, Akira OGAWA: The 3rd International Symposium on Digital Manufacturing 2011(Kokura), 2011.
- 12: An Approach of Estimation of Distribution Algorithm for Job Shop Scheduling: Toru Eguchi, Masahiro Fujimoto, Takeshi Murayama: The 3rd International Symposium on Digital Manufacturing 2011(Kokura), 2011.

#### F)Special Lectures in Academic Meetings

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

- 1: Grants-in-Aid for Scientific Research (Challenging Exploratory Research): Takeshi Murayama (Representative), Health monitoring system using wearable sensors involved in dentures. No. 23650352. 1,500,000yen
- 2: Grants-in-Aid for Scientific Research (Scientific Research (C) (General) ): Mitsuhiro Tamamoto (Cooperation), Development of tooth-friendly zirconia crown restorations optimized polymer composite resins. No. 21592453. 50,000yen
- 3: JST A-STEP(Adaptive and Seamless Technology Transfer Program through Target-driven R&D) FS-stage: Takeshi Murayama(Cooperation), Development of high-precision pressing system for dental titanium mesh and band. No.AS232Z02507F. 1,300,000yen

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

#### (6) Patents

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

(1) Staff and Students

Professor : Hiroki Nikawa

Assistant Professor : Hisako Sasahara, Tsuyoshi Taji

Research Associate : Kazuko Kawahara

Research Associate : Yuichi Mine

(Special Appointment)

Secretary : Miki Onji

Research Assistant : Kaori Taguchi

Graduate Student : Takuya Kihara, Yuichi Mine, Sumiyu Mimura, Hitomi Ishii, Satoshi Iwata,  
Emi Okura, Shota Okazaki, Suguru Kawamura, Yuko Takamoto, Yukihiko  
Takayama, Sachie Hogaki, Minako Okamura, Yuko Katabuchi, Minako Shinkawa,  
Tomoya Tamura, Minako Hiramatsu, Rie Fukuda, Eri Morooka, Yu Yamaguchi,  
Kaori Yushita

Undergraduate Student : Hitomi Kajiwara, Asami Katayama, Megumi Kurose, Mao Shiba, Hideki  
Tanaka, Ayane Toda, Yu Tomiyama, Yukari Muraoka, Natsumi Yamamoto,  
Yusuke Yamamoto, Mikiko Kurose, Mari Sakata, Ayumi Sato, Kentaro  
Takagi, Xiaoxu Zhang

(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 : 1 : Bovine milk fermented with *Lactobacillus rhamnosus* L8020 decreases the oral carriage of mutans streptococci and the burden of periodontal pathogens. : Nikawa H, Tomiyama Y, Hiramatsu M, Yushita K, Takamoto Y, Ishi H, Mimura S, Hiyama A, Sasahara H, Kawahara K, Makihira S, Satoda T, Takemoto T, Murata H, Mine Y, Taji T. : Journal of Investigative and Clinical Dentistry 2:1-10. 2011
- 2 : 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 MK. : Int J Dev Biol. 55:181-7. 2011
- 3 : Characteristics of High Molecular Weight Hyaluronic Acid as a BDNF Scaffold in Periodontal Tissue Regeneration. Takeda K, Sakai N, Shiba H, Nagahara T, Fujita T, Kajiya M, Iwata T, Matsuda S, Kawahara K, Kawaguchi H, Kurihara H. : Tissue Eng Part A. 17:955-67. 2011
- 4 : Evaluation of trabecular bone formation in a canine model surrounding a dental implant fixture immobilized with an antimicrobial peptide derived from histatine. : Makihira S, Nikawa H, Shuto T, Nishimura M, Mine Y, Tsuji K, Okamoto K, Sakai Y, Sakai M, Imari N, Iwata S, Takeda M, Suehiro F. : Journal of Materials Science: Materials in Medicine 22:2765-72. 2011
- 5 : Blocking of Sodium and Potassium Ion-dependent Adenosine Triphosphatase- $\alpha$ 1 with Ouabain and Vanadate Suppresses Cell-Cell Fusion during RANKL-mediated Osteoclastogenesis. : Makihira S, Nikawa H, Kajiya M, Kawai T, Mine Y, Kosaka E, Silva MJ, Tobiume K, Terada Y. : European Journal of Pharmacology 670:409-18. 2011
- 6 : *In silico* construction of orthodontic setup model. : Kihara T, Tanimoto K, Michida M, Yoshimi Y, Nagasaki T, Murayama T, Tanne K, Nikawa H. : American Journal of Orthodontics & Dentofacial Orthopedics *in press*

## B) Review

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Enrollment of  $\text{Na}^+/\text{H}^+$  exchanger 10 during RANKL-mediated osteoclastogenesis : Mine Y, Makihira S, Ohara M, Kawahara K, Nikawa H : The International Workshop on BioDental Education & Research 2011 (Hiroshima), 2011
- 2: Chemically Defined Serum-Free Medium for Undifferentiated Human Mesenchymal Stem Cells :

- Mimura S, Kimura N, Hirata M, Tateyama D, Hayashida M, Kohara A, Okamoto T, Nikawa H, Furue M : The 59th Annual Meeting of Japanese Association for Dental Research (Hiroshima), 2011
- 3: Evaluation of physical properties of commercially artificial saliva : Okura E, Nikawa H, Ishii H, Takamoto Y, Takayama Y : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 4: Evaluation of antibacterial activity of commercial artificial saliva : Ishii H, Okura E, Takamoto Y, Takayama Y, Nikawa H : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 5: Effects of biomimetic diamond-like carbon coated titanium on the differentiation of osteoblast and osteoclast cells Iwata S, Makihira S, Nikawa H, Taji T, Mine Y, Takahagi T, Okamoto K : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 6: Bacteriocins of *Lactobacillus rhamnosus* L8020 inhibits *Porphyromonas gingivalis* lipopolysaccharide-induced pro-inflammatory cytokine secretion in murine : Kurose M, Mine Y, Tomiyama Y, Taji T, Kawahara K, Sasahara H, Sasaki M, Nikawa H : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 7: How many tooth-related genes are there in shark genome? : Shinkawa M, Nikawa H, Ohara M, Makihira S, Kawahara K : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 8: Fungicidal effect of novel antimicrobial peptides derived from *Lactobacillus rhamnosus* L8020 : Takamoto Y, Nikawa H, Takayama Y, Okura E, Ishii H, Taji T, Uchida T : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 9: Immobilization of antimicrobial agent Et-QAC on the surface of denture acrylics and its evaluation of anticandidal activity : Takayama Y, Takamoto Y, Okura E, Ishii E, Nikawa H : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 10: The effect of bacteriocins derived from *Lactobacillus rhamnosus* against oral pathogens : Tomiyama Y, Hiyama A, Kurose M, Taji T, Kawahara K, Sasahara H, Sasaki M, Nikawa H : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011
  - 11: Application of immobilizing disinfectant to the hydroxyapatite : Hiramatsu M, Takamoto Y, Okura E, Ishii H, Takayama Y, Nikawa H : 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011

(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 : Proteomic analyses using mass spectrometry
- 2 : Structural analysis of biologically active substances

### (3) Research Achievements

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

- 1: Proteome analysis of proteins related to aggressive periodontitis combined with neutrophil chemotaxis dysfunction : Mizuno N., Niitani M., Shiba H., Iwata T., Hayashi I., Kawaguchi H., Kurihara H.: Journal of Clinical Periodontology, 38, 310-317, 2011.
- 2: Characterization of Lytic Enzyme Open Reading Frame 9 (ORF9) Derived from *Enterococcus faecalis* Bacteriophage  $\phi$  EF24C : Uchiyama J., Takemura I., Hayashi I., Matsuzaki S., Sugai M., Daibata M. : Applied and Environmental Microbiology, 77(2), 580-585, 2011.

#### B) Review

#### C) Publications

#### D) Other Publications

#### E) Presentation at Scientific Meeting

- 1: The green tea polyphenol (-)-epigallocatechin gallate precipitates salivary proteins.-Biochemical study-: Ohara M., Ouyama Y., Hayashi I., Nishi H., Tanaka R., Hino T., Ogawa T.: Research Seminar in General Dental Medicine, (Niigata) 2011.
- 2: The autolysin IspC acts as an N-acetylglucosaminidase in *Listeria monocytogenes* serotype 4b.

Ronholm J., Cao X., Hayashi I., Sugai M., Lin M: CSM Conference 2011

- 3: SKIP, a versatile cell wall protein of *S.aureus* causing severe skin diseases: Sugai M., Hisatsune J., Murakami T., Kojima T., Hayashi I., Kato F: 84<sup>th</sup> Annual Meeting for Japanese Society for Bacteriology, XIII International Congress of Bacteriology and Applied Microbiology (Sapporo) 2011.
- 4: SKIP, a Trojan horse of *staphylococcus aureus* causing severe impetigo/SSSS: Hisatsune J., Murakami T., Hayashi I., Kato F., Sugai M.: 84<sup>th</sup> Annual Meeting for Japanese Society for Bacteriology, XIII International Congress of Bacteriology and Applied Microbiology (Sapporo) 2011.
- 5: Functional analysis of SKIP, a versatile cell wall protein, found in staphylococcus aureus: Hisatsune J., Murakami T., Kojima T., Tatsukawa N., Hayashi I., Kato F., Sugai M.: The 34<sup>th</sup> Annual Meeting of the Molecular Biology Society of Japan (Yokohama) 2011.
- 6: Nucleolar protein nucleolin could function for DNA damage response through chromatin modification: Kobayashi J., Fujimoto H., Hayashi I., Komatsu K.: Gordon Research Conference “*Mammalian DNA Repair*” (Ventura) 2011.

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

- 1: Research project, Grant-in-Aid for Scientific Research (C): Hayashi I: Mechanism of automutanolysin (Aml) for the specific selectivity toward cariogenic bacteria:(No. 23592702), ¥2,860,000

(5) Academic Awards, etc.

(6) Patents

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## Department of Advanced General Dentistry, General Dentistry

### (1) Staff and Students

Professor : Tetsuji Ogawa (※) Vice President of Hospital : Tetsuji Ogawa(until March 2011)  
 Associate Professor : Norihiro Taguchi (until March 2010)  
 Research Associate : Yoshihara Tanaka, Masaru Ohara, Hiromi Nishi  
 Graduate Student : Taiji Obayashi, Kayo Kajitani (from April, 2011), Yukiko Nagatani (from April, 2011)  
 Secretary : Tomoe Sasaki (until February 2011)

### (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. Sporadic isolations of a multi-drug resistant *Pseudomonas aeruginosa* clone during a 14-month epidemic in a general hospital in Hiroshima.: Kouda S, Fujiue Y, Watanabe Y, Ohara M, Kayama S, Kato F, Hisatsune J, Tsuruda K, Matsubara A, Doi M, Kuwabara M, Sugai M.: *Infection*, 39,247–253, 2011.
2. Topical application of *Aggregatibacter actinomycetemcomitans* CDT induces cell cycle arrest in the rat gingival epithelium in vivo.: Ohara M, Miyauchi M, Tsuruda K, Takata T, Sugai M.: *J Periodont Res*, 46, 389-395,2011.
3. 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*, 233,37-45,2011.

4. A case of SAPHO syndrome with diffuse sclerosing osteomyelitis of the mandible treated successfully with prednisolone and bisphosphonate.: Hatano H, Shigeishi H, Higashikawa K, Shimasue H, Nishi H, Oiwa H, Shindo H, Takechi M, Ohge H, Kamata N.: J Oral Maxillofac Surg ,2011.

#### B) Review

#### C) Publications

#### D) Other Publications

#### E) Presentation at Scientific Meeting

1. Change to a Reflective Practitioner from Reflective Learner : ○Tetsuji Ogawa, Yoshiharu Tanaka, Masaru Ohara, Hiromi Nishi, Taiji Obayashi, Tomoe Sasaki, and Norihiro Taguchi : 30<sup>th</sup> Meeting of Japanese Dental Education Association, Tokyo, 2011.
2. Follow-up Session for Instructor Attending the Training Seminar for Medical Communication Facilitator : ○Kazuyoshi Suzuki, Toshiko Yoshida, Mika Oishi, Shinichiro Aoki, Tetsuro Konoo, Itsuo Chiba, Takanori Ito, Tetsuji Ogawa, Shiro Matakai and Kazutaka Kasai : 30<sup>th</sup> Meeting of Japanese Dental Education Association, Tokyo, 2011.
3. Training Seminar for Medical Communication Facilitator (Fundamental Course and Intermediate Course) : ○Toshiko Yoshida, Kazuyoshi Suzuki, Mika Oishi, Tetsuro Konoo, Itsuo Chiba, Takanori Ito, Tetsuji Ogawa, Shiro Matakai and Kazutaka Kasai: 30<sup>th</sup> Meeting of Japanese Dental Education Association, Tokyo, 2011.
4. A qualitative research using with SCAT (Steps for Coding and Theorization) for Dental Clinical : ○Taiji Obayashi, Hiromi Nishi, Masaru Ohara, Yoshiharu Tanaka, Tomoe Sasaki, Kayo Kajitani, Yukiko Nagatani, Norihiro Taguchi, and Tetsuji Ogawa : 30<sup>th</sup> Meeting of Japanese Dental Education Association, Tokyo, 2011.
5. The green tea polyphenol (-)-epigallocatechin gallate precipitates salivary proteins. -Biochemical study- : ○Masaru Ohara, Yoshihiko Ohyama, Ikue Hayashi, Hiromi Nishi, Yoshiharu Tanaka, Takamune Hino, Tetsuji Ogawa: Research Seminar in General Dental Medicine, Niigata, 2011.
6. An attempt of doing oral management and rethinking about medically compromised patients on dental clinical training course in Hiroshima university hospital. ○Hiromi Nishi, Yoshiharu Tanaka, Taiji Obayashi, Masaru Ohara,: Research Seminar in General Dental Medicine, Niigata, 2011.
7. Self-reflection on the past communication education. : ○Tetsuji Ogawa: Communication Association in Japan Chugoku-Shikoku branch, Educational Research Seminar in Health Communication,



Hiroshima, 2011.

8. A qualitative research using questionnaire for Dental clinical training : ○Taiji Obayashi, Hiromi Nishi, Masaru Ohara, Yoshiharu Tanaka, Tomoe Sasaki , Kayo Kajitani, Yukiko Nagatani, Norihiro Taguchi, and Tetsuji Ogawa: Communication Association in Japan Chugoku-Shikoku branch, Educational Research Seminar in Health Communication, Hiroshima, 2011.

#### F) Implementation of Seminars / Workshops

1. Workshop for postgraduate trainees 2011 (Hiroshima)
2. Communication Association in Japan Chugoku-Shikoku branch, Educational Research Seminar in Health Communication, Hiroshima, 2011.

#### G)Lecturer • Symposiast

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

1. The 40<sup>th</sup> seminar and workshop on medical education: Attendant : Tetsuji Ogawa, at Gifu Univ. Medical Education Center. (Gifu), 2011.
2. The 2<sup>nd</sup> MEDC workshop: Attendant : Taiji Obayashi, at Gifu Univ. Medical Education Center. (Gifu), 2011.
3. The 2<sup>nd</sup> follow-up session for medical communication facilitators : Attendant: Taiji Obayashi, Tomoe Sasaki. Coordinator: Japanese Dental Education Association. (Tokyo), 2011.
4. The 6<sup>th</sup> RIAS training workshop: Attendant : Hiromi Nishi, Taiji Obayashi, Kayo Kajitani, Yukiko Hase. Coordinator: RIAS study group (Nagoya), 2011.
5. The 1<sup>st</sup> training seminar for fresh teachers: Attendant : Tetsuji Ogawa: Coordinator: Public Interest Corporation Commission, University Seminar House (Tokyo), 2011.
6. Symposium on “Patient-oriented medicine”: Attendant: Yoshiharu Tanaka. Coordinator: “Patient-oriented medicine” Study Group (Tokyo), 2011.
7. The 5<sup>th</sup> training seminar for medical communication facilitators : Attendant: Hiromi Nishi, Taiji Obayashi, Tomoe Sasaki. Coordinator: Japanese Dental Education Association (Tokyo), 2011.
8. The 1<sup>st</sup> workshop (H23) on dental OSCE on medical communication : Attendant: Hiromi Nishi. Coordinator: OSCE committee (Gifu), 2011.
9. The 37<sup>th</sup> seminar on medical education at Tokyo Univ.: Attendant : Taiji Obayashi. Coordinator: International Research Center for Medical Education Tokyo Univ. (Tokyo), 2011.

#### I) Implementation of OSCE, CSA

1. 2<sup>nd</sup> Advanced OSCE for Postgraduate Trainees 2010-2011
2. 1<sup>st</sup> Advanced OSCE for Postgraduate Trainees 2011-2012

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

1. Grant-in-Aid Scientific Research, Young Scientists (B). Nishi H.: Analysis of Toll-like receptor in oral mucosal disease . Program No. 23792346. 1,600,000yen
2. Grant-in-Aid Scientific Research, Scientific Research (C). Ogawa T.: The theory and measurement methodology of politeness phenomena in the medical interview. Program No. 23520509. 400,000yen (co-researcher)

(5) Academic Awards, etc.

(6) Patents

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## 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: Studies on community dental health

3: Studies on school dental health

4: Studies on computer-aided diagnosis scheme for periodontal disease

(3) Publication

A) Original Papers (including Case Reports)

1: Caries prevalence associated with *Streptococcus mutans* and *Streptococcus sobrinus* in Japanese schoolchildren. Okada, M., Kawamura, M. Oda, Y., Yasuda, R., Kojima, T., Kurihara, H. *International Journal of Paediatric Dentistry* (in press), 2011.

B) Reviews

C) Books/Book Chapters

D) Proceedings/Others

E) Presentations

1. Developing an intra- and inter-judge calibration system in terms of the periodontal assessment (G, GO scale) using a computer aided testing tool for school dentists. Kawamura, M., Okada, M., Sasahara H., Shimazu,, A., Taguchi N., Ogawa, T. The 60<sup>th</sup> Japanese Society for Dental Health (Chiba), 2011.
2. Survey of attitudes toward teeth and toothbrushes in the current middle school students. Shimazu,, A., Sasahara H., Kawamura, M., Ogawa, T. The 60<sup>th</sup> Japanese Society for Dental Health (Chiba), 2011.
3. Conscious survey of gingivitis in female high-school students. –Focus on Hiroshima University-Dental Behavioral Inventory and self-esteem—. Noso M., Ueda, E., Shimazu,, A., Kawamura, M., Takemoto .T , Sugiyama M. The 60<sup>th</sup> Japanese Society for Dental Health (Chiba), 2011.

(4) Grants-in-aid

(5) Awards

(6) Patents

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

### (1) Staffs and Students

Professor : Mitsugi Okada (from June 2011 to present) (※) Head of Dentistry  
Resident : Yuki Oda  
Registered Intern : 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

### (3) Research Achievements

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

- 1 : Caries prevalence associated with *Streptococcus mutans* and *Streptococcus sobrinus* in Japanese schoolchildren: Okada M, Kawamura M, Oda Y, Yasuda R, Kojima T, Kurihara H: Int J Paediatr Dent. 2012 Jan 8. doi: 10.1111/j.1365-263X.2011.01203.x. [Epub ahead of print]
- 2 : Caries prevalence associated with *Streptococcus mutans* and *Streptococcus sobrinus* in outpatients with mental retardation: Okada M, Oda Y, Kojima T, Iwamoto M, Tokikazu T, Wakita A, Nagatani Y: J Jpn Soc Disability Oral Health. (in press)
- 3 : Prevalence of *Porphyromonas gingivalis fimA* genotypes in Japanese children: Hayashi F, Okada M, Oda Y, Kojima T, Kozai K: J Oral Sci. (in press)

#### B) Review

#### C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

1 : Developing an intra- and inter-judge calibration system in terms of the periodontal assessment (G, GO scale) using a computer aided testing tool for school dentists. Kawamura M, Okada M, Sasahara H, Shimazu A, Taguchi N, Ogawa T: The 60th Japanese Society for Dental Health (Chiba), 2011.

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

(5) Academic Awards, etc.

(6) Patents

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## 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)

- 1: Reproducibility and diagnostic accuracy of a computer-aided diagnosis system of osteoporosis for detecting linearly eroded endosteal margin of the mandible lower border on panoramic radiographs: Nakamoto T., Taguchi A., Asano A., Zaman M., Tanimoto K.: *Dental Radiology*, 51, 33-38, 2011.
- 2: Irradiation Effect on Osteoclastogenesis Stimulated by Breast Cancer Cell : Sawajiri M, Nomura Y., Nishikiori R., Banik S., Sonoda Y., Tanimoto K. : *Health Physics*, 101(3), 259-264, 2011.
- 3: Experience of using a filmless system in dental practice at Hiroshima University Hospital, a former University Dental Hospital: Ohtsuka M., Nakamoto T., Konishi M., Yamane Y., Tamura M., Takaba J., Sumida H., Tanimoto K.: *Japanese Journal of Radiological Technology*, 67(6), 673-678, 2011.

#### B) Review

## C) Publications

- 1: Dysphagia Clinical Management in Adults & Children (Groher M. Crary M. eds. Takahashi K.(translation supervisor)): Konishi M. Tanimoto K. (partially contributed), Ishiyaku Pub.Inc. (Tokyo), chapter 10, 189-214, 2011
- 2: Evaluation of Dysphagia (In Japanese): Tanimoto K. (partially contributed), Ishiyaku Pub.Inc. (Tokyo), 62-68, 2011

## D) Other Publications

## E) Presentation at Scientific Meeting

- 1: Irradiation Effect on Osteoclastogenesis Stimulated by Breast Cancer Cell: Sawajiri M., Nomura Y., Takinami S., Maruyama K., Tanimoto K: The 54th Annual Meeting of The Japan Radiation Research Society (Kobe), 2011.
- 2 : Two cases of bisphosphonate-related osteomyelitis of the mandible with solid type periosteal reaction: Zaman M., Nakamoto T., Suei Y., Tanimoto K.: 4th Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
- 3: Important technical parameters are not presented in studies on intra oral radiography in endodontic treatment –Results of a systematic review-: Konishi M. Lindh C. Nilsson M. Tanimoto K. Rohlin M.:18th International Congress of Dento-maxillofacial Radiology (Hiroshima), 2011
- 4: Contrast agents used in the videofluoroscopic swallowing study: Konishi M. Nagasaki T. Yasuhara Y. Tanimoto K.: 18th International Congress of Dento-maxillofacial Radiology (Hiroshima), 2011
- 5: Visualization of Rice Swallowing: Konishi M. Nagasaki T. Yasuhara Y. Tanimoto K.: 2th Joint Scientific meeting in Dentistry (Surabaya), 2011
- 6: Are freeze infusion of root vegetables suitable as a dysphagia diet? : Nagasaki T, Konishi M,



Hirai T, Kimura H, Yasuhara A, Kayashita J, Nakamura S, Sakamoto H, Tanimoto T :

Dysphagia Research Society 19<sup>th</sup> Annual Meeting(San Antonio, USA), 2011.

7: The swallowing dynamic state of the freeze infusion of foods: Tanimoto K., Nagasaki T.,

Konishi M., Hirai T., Yamagata H., Kayashia J., Yasuhara Y., Kimura H., Nakatsu S.,

Sakamoto H. :The 23<sup>th</sup> annual meeting of the Society of Japanese Clinical dysphagia Research.

(Hiroshima), 2011.

8: The analysis of the oral internal pressures during sucking and swallowing movement: a trial

clinical measuring instrument for oral internal pressures: Fukada M., Amano H., Nagasaki T.,

Hara K., Sugiyama M., Tanimoto K. : Hiroshima University Dental Society (Hiroshima),

2011.

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## Central Clinical Sections, Center of Oral Clinical Examination

### (1) Staffs and Students

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

### (2) Main Research Activities

- 1 : Clinical study on endodontal-periodontal therapy.
- 2 : Clinicopathological study on head and neck lesions.
- 3 : Developmental study of treatment to dysgeusia.
- 4 : Study on test and treatment in metal allergy and dry mouth.
- 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 : MMP-10/stromelysin-2 promotes invasion of head and neck cancer.: Deraz E.M., Kudo Y., Yoshida M., Tani H., Tsunematsu T., Siriwardena B.S.M.S., Kiekhoe M.R., Qi G., Iizuka S., Ogawa I., Campisi G., Lo Muzio. L, Abiko Y., Kikuchi A., Takata T.: PLoS ONE, 6, e25438, 2011.
- 2 : N-cadherin expression is involved in malignant behavior of head and neck cancer in relation to epithelial-mesenchymal transition.: Nguyen P.T., Kudo Y., Yoshida M., Kamata N., Ogawa I., Takata T.: Histol Histopathol, 26, 147-156, 2011.
- 3 : Ameloblastin 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, 31, 783-792, 2011.
- 4 : N-cadherin expression is correlated with metastasis of spindle cell carcinoma of head and neck region.: Nguyen P.T., Kudo Y., Yoshida M., Iizuka S., Ogawa I., Takata T.: J Oral Pathol Med, 40, 77-82, 2011.

- 5 : 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, 56(4), 374-9, 2011.
- 6 : A case of multifocal nodular oncocytic hyperplasia.: Sato S., Kishino M., Ogawa Y., Ogawa I., Takata T., Toyosawa S.: Pathol Res Pract, 207, 452-455, 2011.
- 7 : A case of mucoepidermoid carcinoma arising in Warthin tumor of parotid gland.: Ogawa I., Takeshima Y., Inai K., Takata T.: Jpn J Diag Pathol, 28, 94-98, 2011.
- 8 : Clinico-statistical study of the maxillofacial bone fractures at the department of oral and maxillofacial surgery, Hiroshima University Hospital during the past 10 years.: Sakaue T., Fukui Y., Okazaki F., Kimura N., Takesue N., Nabeshima K., Ishida Y., Hamana T., Sumi K., Okamoto K., Kanda T., Shintani T., Yoshioka Y., Tani R., Hayashido Y., Toratani S., Okamoto T.: J Hiroshima Univ Dent Soc, 43(1), 20-6, 2011.
- 9 : Clinico-statistical study of orthognathic surgery in clinic of oral and maxillofacial surgery, Hiroshima University Hospital during the past 14 years.: Toratani S., Tani R., Fukui Y., Yamasaki S., Okazaki F., Takesue N., Nabeshima K., Ishida Y., Sumi K., Kanda T., Shintani T., Koizumi K., Yoshioka Y., Okamoto T.: J Hiroshima Univ Dent Soc, 43(2), 91-7, 2011.

## B) Review

- 1 : Clinicopathological features of tumors and tumor-like lesions of the minor salivary glands: Ogawa I., Yoshida M., Ohbayashi M., Takata T.: Pathol Clin Med, 23, 596-601, 2011.
- 2 : Pathology of salivary gland tumors; Focus on the minor salivary gland tumors-: Ogawa I., Kudo Y., Takata T.: J Jpn Soc Oral Tumors, 23, 50-58, 2011.
- 3 : Histopathological classification of salivary gland tumors –For practical use of WHO classification 2005-: Ogawa I., Takata T.: Jpn J Oral Maxillofac Surg, 57, 486-492, 2011.

## C) Publications

- 1 : Pathology of salivary gland tumors; Focus on the diagnostic aspect.: Hand Manual of Oral & Maxillofacial Surgery'11 (Oral Surgery): Ogawa I., Kitagawa M., Kudo Y., Miyauchi M., Takata T.: Quintessence Publishers (Tokyo), 144-150, 2011.

## D) Other Publications

- 1 : Examination study for DHs: What is the bacterial examination for samples from root canals? Kurihara H., Ogawa I., Kitagawa M.: DHstyle, Dental Diamond Co., 5 (9), 66-70, 2011.

- 2 : Examination study for DHs: Examination of serum IgG antibody titer for periodontopathic bacteria: Kurihara H., Shintani T.: DHstyle, Dental Diamond Co., 5(12), 62-66, 2011.

#### E) Presentation at Scientific Meeting

- 1 : F-spondin promotes the differentiation of human periodontal ligament cells: Kitagawa M., Miyauchi M., Takata T.: The 4<sup>th</sup> Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2011.
- 2 : Trial of selective antibiotics therapy for radicular cystic lesion - Embodiment of the concept called the biological endodontic treatment - : Kurihara H., Uchida Y., Kitamoto Y., Shiba H., Kawaguchi H., Ogawa I., Shintani T., Kitagawa M.: The 44<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 3 : The necessity for the metal allergy test before the operation of dental implant: Kitagawa M., Ohbayashi M., Ando T., Shintani T., Ogawa I., Kawaguchi H., Kagawa K., Nakagawa T., Takechi M., Kurihara H.: The 44<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 4 : Trend of dental metal allergy: Kitagawa M., Ando T., Shintani T., Ogawa I., Kurihara H.: The 4<sup>th</sup> Annual Meeting of Japanese Society for Evidence and the Dental Professional (Chiba), 2011.
- 5 : The reality of dental metal allergy –From the result of patch test in Dental Departments, Hiroshima University Hospital- : Kitagawa M., Ando T., Shintani T., Ogawa I., Kurihara H.: The 50<sup>th</sup> Annual Meeting of Hiroshima Dental Association and the 95<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 6 : The challenge of the regeneration of periodontal tissue -Study on cementum regeneration by a cementoblast specific gene, f-spondin-: Kitagawa M., Miyauchi M., Takata T.: The 50<sup>th</sup> Annual Meeting of Hiroshima Dental Association and the 95<sup>th</sup> Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2011.
- 7 : Tumor of the palate (Myoepithelial carcinoma ex pleomorphic adenoma): Yoshida M., Furusho H., Fukui Y., Toratani S., Miyauchi M., Ogawa I., Takata T.: The 104<sup>th</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Ube), 2011.
- 8 : Tumor of the tongue (Ectomesenchymal chondromyxoid tumor of the anterior tongue): Ogawa I., Tsunematsu T., Kitagawa M., Yoshioka Y., Takata T.: The 105<sup>th</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Kida-gun, Kagawa), 2011.
- 9 : Tumor of the palate (Mucoepidermoid carcinoma, clear cell variant): Ohbayashi M., Ando T., Tani R., Konishi M., Ogawa I., Takata T.: The 106<sup>th</sup> Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Okayama), 2011.
- 10 : Mandibular lesion (Osseous dysplasia). : Ando T., Furusho H., Miyauchi M., Fujita M., Kanda T., Toratani S., Ogawa I., Takata T.: The 56<sup>th</sup> Meeting of Hiroshima Pathological Conference

(Hiroshima), 2011.

- 1 1 : Tumor of the parotid (Myoepithelial carcinoma, invasive, ex pleomorphic adenoma): Ogawa I, Takata T, Mizobuchi K, Morito T: The 57<sup>th</sup> Meeting of Hiroshima Pathological Conference (Hiroshima), 2011.
- 1 2 : Tumor of the palate (Signet-ring cell [Mucin-producing] adenocarcinoma of minor salivary gland): Ogawa I, Kushitani K, Sakamoto T, Miyauchi M, Inai K, Takata T: The 22<sup>nd</sup> Annual Meeting of the Japanese Society of Oral Pathology (Fukuoka), 2011.
- 1 3 : A case of “benign metastasizing myoepithelioma” with multiple pulmonary metastasis nine years after operation of primary parotid lesion.: Ogawa I, Ohbayashi M, Nakano R, Sakaida N, Konobu T, Saito S, Torii Y, Maruyama H, Takata T: The 56<sup>th</sup> Annual Meeting for the Salivary Gland (Tokyo), 2011.
- 1 4 : Clinico-statistical study of bisphosphonate-related osteonecrosis of the jaw at the department of oral and maxillofacial surgery:- Mukasa H, Shintani T, Sakaue T, Taguchi Y, Fujii T, Ito Y, Yamasaki S, Okazaki F, Fujii Y, Kimura N, Takesue N, Nabeshima., Ishida., 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 65<sup>th</sup> Annual Meeting of Japanese Somatological Society (Tokyo), 2011.
- 1 5 : Identification of heparin-binding protein 17 (HBp17)/FGF-binding protein (FGFBP) in saliva:- Okazaki F, Shintani T, Usui E, Okamoto T.: The 65<sup>th</sup> Annual Meeting of Japanese Somatological Society (Tokyo), 2011.
- 1 6 : A case of a calcification of lymph node in the left submandibular region:- Fujii Y, Yoshioka Y, Shintani T, Tsunetatsu T, Ogawa I, Toratani S., Okamoto T.: The 40<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Oral and Maxillofacial Surgery (Matsue), 2011.
- 1 7 : A case of myoepithelioma beneath the upper labial mucosa -: Kimura N, Yoshioka Y, Koizumi K., Ogawa I, Toratani S., Okamoto T.: The 40<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Oral and Maxillofacial Surgery (Matsue), 2011.
- 1 8 : A case of ectomesenchymalchondromyxoid tumor:- Sakaue T, Yoshioka Y, Yamasaki S., Ogawa I, Hayashido Y, Toratani S., Okamoto T.: The 56<sup>th</sup> Annual Meeting of Oral and Maxillofacial Surgery (Osaka), 2011.
- 1 9 : A case of myoepithelial carcinoma ex plemorphic adenoma of the hard palate:- Fukui Y, Toratani S., Fujii T, Miyauchi M., Ogawa I, Okamoto T.: The 56<sup>th</sup> Annual Meeting of Oral and Maxillofacial Surgery (Osaka), 2011.
- 2 0 : A case of cervicofacial gas gangrene associated with BRONJ:- Nabeshina K., Fujii Y, Taguchi Y, Shintani T, Toratani S., Okamoto T.: The 56<sup>th</sup> Annual Meeting of Oral and Maxillofacial Surgery (Osaka), 2011.
- 2 1 : A case of osseous dysplasia arising bilaterally in the mandible that long-term progress observation was performed before extraction:- Hamada M, Kanda T, Ando T, Ogawa I, Toratani S., Okamoto

- T.: The 59<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Japanese Somatological Society (Matsuyama), 2011.
- 2 2 : Clinico-statistical study of bisphosphonate-related osteonecrosis of the jaw at the department of oral and maxillofacial surgery-: Mukasa H., Shintani T., Akagi E., Ishida Y., Hamana T., Fukui Y., Okamoto K., Kanda T., Koizumi K., Yoshioka Y., Tani R., Hayashido Y., Toratani S., Okamoto T.: The 7<sup>th</sup> Hiroshima Breast Care Seminar (Hiroshima), 2011.
- 2 3 : A case of calcifying cystic odontogenic tumor occurring in the mandible of very elderly woman : Kubozono K., Shimasue H., Shigeishi H., Tsunematsu T., Ogawa I., Takechi M., Kamata N.: The 40<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Oral and Maxillofacial Surgery (Matsue), 2011.
- 2 4 : A case of basal cell adenoma arising in the submandibular gland: Fujimoto S., Ono S., Takechi M., Ogawa I., Kamata N.: The 40<sup>th</sup> Chugoku-Shikoku Sectional Meeting of Oral and Maxillofacial Surgery (Matsue), 2011.
- 2 5 : A case of synchronous double cancer of the posterior mandible cystadenocarcinoma and papillary thyroid carcinoma: Mizuta K., Ohta A., Shimasue H., Higashikawa K., Miyauchi M., Ogawa I., Kamata N.: The 56<sup>th</sup> Annual Meeting of Oral and Maxillofacial Surgery (Osaka), 2011.
- 2 6 : A case of bilateral osseous dysplasia in the mandible: Ando T., Kanda T., Furusho H., Ogawa I., Toratani S., Miyauchi M., Takata T.: The 44<sup>th</sup> Meeting of Hiroshima University Dental Society (Hiroshima), 2011.

- 27 : A case of acute sialadenitis in a submandibular gland induced by a penetrated fish bone : Nakagawa T., Shimasue H., Kubozono K., Ono S., Ogawa I., Takechi M., Kamata N.: The 13<sup>th</sup> Annual Meeting of Japan Society of Oral and Maxillofacial Trauma (Miyazaki), 2011.

F) Special lectures in academic meetings

- 1 : Symposium: Diagnosis and Treatment of Salivary Gland Tumors. Pathology of Salivary Gland Tumors; Focus on the Minor Salivary Gland Tumors-: Ogawa I., Takata T.: The 29<sup>th</sup> Annual Meeting of Japan Society for Oral Tumors (Kumamoto), 2011.
- 2 : Symposium: The examination of serum antibody to periodontal bacteria in periodontal disease patients in the first visit-: Shintani T.: The 54<sup>th</sup> Autumn Meeting of Japanese Society of Periodontology (Shimonoseki), 2011.
- 3 : Special Lecture: Topics of Oral Squamous Cell Carcinoma; Recent Concept of Diagnosis of Precancerous Lesions and Research on the New Factors related to Invasion and Metastasis.: Ogawa I.: Histopathological Seminar of Yamaguchi University Graduate School of Medicine (Ube), 2011.

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

- 1 : Grants-in-Aid for Scientific Research (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. No. 22791982. 1,200,000 yen
- 2 : Grants-in-Aid for Scientific Research (Young Scientists (B)) : Kitagawa M.: Functional analysis of cementoblast maker gene, f-spodin. No. 22791767. 2,080,000 yen
- 3 : JST Adaptable and Seamless Technology transfer Program through target-driven R & D: A-STEP (FS): Kitagawa M.: Study for the applying to the diagnosis of periodontal disease by a biomarker. No. AS232Z01987. 1,690,000 yen

(5) Academic Awards, etc.

(6) Patents

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## 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 : Syougo Iwaguro

### (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 the surface treatment of Ce-TZP/Al<sub>2</sub>O<sub>3</sub> nanocomposite (P-NANOZR) : Nozomi Tsumura, Saiji Shimoe, Tuji Chiba, Syougo Iwaguro, Mitsuhiro Tamamoto, Takahiro Satoda : The 33<sup>th</sup> Annual Meeting of Nippon Academy of Dental Technology (Tokyo), 2011.10.
- 2: Influence of surface burning conditions on bonding between zirconia ceramic material and veneering porcelain. : Syougo Iwagura, Saiji Shimoe, Takahiro Satoda, Nozomi Tsumura, Yuji Chiba : Annual Meeting of Nippon Academy of Dental Technology, The 6<sup>th</sup> Cyugoku-Shikoku regional meeting (Tokushima) , 2011.11.

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



(5) Academic Awards, etc.

(6) Patents

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## Central Clinical Sections (Dental Hygiene Section)

### (1) Staff and Students

Director of Dental Hygiene Section : Hidemi Kurihara

Chief Dental Hygienist : Hiroko Tamura

Supervisor Dental Hygienists : Yoriko Iwasaki, Miyuki Nakaoka

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

Megumi Takamoto, Tomoko Tokikazu, Kanako Yano(Till June), Kana Dainobu, Naomi Hara,

Miho Okada, Ayumi Kouchi, Itsuka Kouno, Atsuko Wakita(Till May,From Jury),

Chieko Kawai, Yukiko Nagatani, Yumi Irie, 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)

1 : A case of vertical bone augmentation using interconnective porous hydroxyapatite ceramics and titanium mesh tray: Ninomiya Y, Takechi M, Ohta K, Ono S, Okui G, Ohta A, Takamoto M, Kamata N: Japanese Journal of Maxillo Facial Implants, 10(1):23-29, 2011.

2 : A Case Report of Prothodontic Reconstruction Using Dental Implants for the Edentulous Patient with Severe Gagging Reflex: Ono S, Takechi M, Harada K, Ohta K, Okumura T, Kagawa K, Abekura H, Okui G, Ninomiya Y, Takamoto M, Akagawa Y, Kamata N: The Journal of Hiroshima University Dental Society ,43(1):57-60,2011.

3 : A Case of ISOD Using Palatal Torus: Ninomiya Y, Takechi M, Ohta K, Ono S, Okui G, Takamoto M, Abekura H, Akagawa Y, Kamata N: The Journal of Hiroshima University Dental Society ,43(1):61-65,2011.

4 : A Case of Recovery with Horizontal Bone Augmentation Using Interconnective Porous Hydroxyapatite Ceramics(NEOBONE<sup>®</sup>) and Titanium Mesh Tray: Kubozono K, Takechi M, Ono S, Hujimoto S, Takamoto M, Kamata N: The Journal of Hiroshima University Dental Society ,43(2):130-133,2011.

## B) Review

## C) Publications

## D) Other Publications

## E) Presentation at Scientific Meeting

1 : A Clinical study of maxillary sinus floor elevation using interconnected porous calcium hydroxyapatite: Ninomiya Y, Takechi M, Ohta K, Ono S, Takamoto M, Kamata N: The 65th Annual Meeting of The Japanese Stomatological Society (Tokyo), 2011.4.22

2 : Dental Health Care for HIV-positive Person in the Hiroshima University Hospital: Matsui K, Shiba H, Iwata T, Hasegawa N, Tamura H, Kurihara H: The 54th Spring Meeting of Japanese society of periodontology (Fukuoka), 2011.5.27-28.

3 : Relationship of the level of acid erosion and the tendency to take acid drink and food : Hatakeyama T, Mineoka A, Motoyama N, Fujii S, Yano Y, Arakawa M, Shirai K, Fujii M: The 134th Meeting of Japanese society of conservative Dentistry (Chiba), 2011.6.9.

4 : A qualitative research using with SCAT (Step for Coding and Theorization) for Dental clinical training: Taiji OBAYASHI, Hiromi NISHI, Masaru OHARA, Yoshiharu TANAKA, Tomoe SASAKI, Kayo KAJITANI, Yukiko NAGATANI, Norihiro TAGUTI, Testuji OGAWA : The 30th Meeting of Japanese dental Education Association (Tokyo), 2011.07.17

5 : case example that a mouth ulcer was improved by the cooperation with the dental hygienist, and got ingestion again : Kiyomi Kobayashi, Kayo Kajitani, youko sato: (Hiroshima) 2011.09.13

6 : Questionnaire survey about uneasiness and satisfaction to bone augmentation surgery for oral implant : Takamoto M, Takechi M, Ninomiya Y, Shimasue H, Ono S, Shigeishi H, Nakagawa T, Dainobu K, Tamura H, Kamata N: 6th Japan Society for Dental Hygiene (Niigata), 2011.09.25

7 : A case using interconnected porous calcium hydroxyapatite and absorptive screw for the bone augmentation: Ninomiya Y, Takechi M, Ohta K, Nakagawa T, Takamoto M, Kamata N: 31th Annual Meeting of Japanese Society of Oral Implantology Stomatological Society Chugoku-Shikoku Branch (Ehime), 2011.10.16

8 : Clinical study of bone augmentation using interconnected porous calcium hydroxyapatite mixed with autogenous bone: Ohta K, Takechi M, Ninomiya Y, Ono S, Shigeishi H, Okui G, Takamoto M, Kamata N: The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgeons (Osaka), 2011.10.22

- 9 : A case using interconnected porous calcium hydroxyapatite and absorptive screw for the alveolar ridge atrophy: Ninomiya Y, Takechi M, Takamoto M, Kamata N: The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgeons(Osaka),2011.10.22
- 10 : Basic study of bone augmentation for dental implant treatment by NEOBONE®: Minami M, Takechi M, Ohta K, Hukui A, Ohta A, Takamoto M, Kamata N: The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgeons(Osaka),2011.10.23
- 11 : Comparison of bacterial contamination in the bone extracted using the instruments for the jaw bone augmentation: Takamoto M, Takechi M, Ohta K, Ninomiya Y, Ono S, Nakagawa T, Kamata N: The 56th Congress of the Japanese Society of Oral and Maxillofacial Surgeons(Osaka),2011.10.23
- 12 : Stress of special needs children in dental treatment. :Nakaoka M, Mitsuhata C, Irie Y, Kozai K :The 28th Annual Meeting of the Japanese society for Disability and oral health(Fukuoka), 2011.11.4-6
- 13 : An attempt of doing oral management and rethinking about medically compromised patients on dental clinical training course in Hiroshima university hospital. :Hiromi Nishi, Yoshiharu Tanaka, Kayo Kajitani, Taiji Obayashi, Masaru Ohara,: Research Seminar in General Dental Medicine(Niigata), 2011.11.19-20
- 14 : Development of new bone graft material using carbonate apatite-PLGA composite: Ohta A, Takechi M, Ohta K, Ninomiya Y, Nakagawa T, Tada M, Minami M, Takamoto M, Tsuru K, Ishikawa K, Kamata N: The 33th Annual Meeting of The Japanese Society for Biomaterials(Kyoto),2011.11.22
- 15 : Development of new bone graft material using carbonate apatite-PLGA composite: Ohta A, Takechi M, Ohta K, Ninomiya Y, Minami M, Takamoto M, Tsuru K, Ishikawa K, Kamata N: The 59th Congress of the Japanese Society of Oral and Maxillofacial Surgeons . Chugoku-Shikoku Branch (Ehime),2011.11.26
- 16 : A Clinical study of maxillary sinus floor elevation using interconnected porous calcium hydroxyapatite: Ninomiya Y, Takechi M, Ohta K, Ono S, Takamoto M, Kamata N: The 15th Annual Meeting of the Japanese Academy of Maxillofacial Implants (Urayasu),2011.12.04
- 17 : Two cases using interconnected porous calcium hydroxyapatite, NEOBONE® and absorptive screw for the alveolar ridge: Nakagawa T, Takechi M, Ninomiya Y, Takamoto M, Kamata N: The 15th Annual Meeting of the Japanese Academy of Maxillofacial Implants (Urayasu),2011.12.04
- 18 : A qualitative research using questionnaire for Dental clinical training: Taiji OBAYASHI, Hiromi NISHI, Masaru OHARA, Yoshiharu TANAKA, Tomoe SASAKI, Kayo KAJITANI, Yukiko NAGATANI, Norihiro TAGUTI, Tetsuji OGAWA (Hiroshima), 2011.12

#### F) Special lectures in academic meetings

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

- 1 : Scientific research funds subsidy (encouragement study): Yoriko Iwasaki, Basic study on gene

expression about the gas production of periodontal disease bacteria and relations of the bad breath.  
encouragement study.23932002. 500,000 yen

(5) Academic Awards, etc.

(6)Patent

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## Dental Clinic

### (1) Staff and Students

Director : 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. Kouda S, Fujiue Y, Watanabe Y, Ohara M, et al. Sporadic isolations of a multi-drug resistant *Pseudomonas aeruginosa* clone during a 14-month epidemic in a general hospital in Hiroshima. *Infection*, 39:247–253, 2011
2. Ohara M, Miyauchi M, Tsuruda K, Takata T, Sugai M. Topical application of *Aggregatibacter actinomycetemcomitans* CDT induces cell cycle arrest in the rat gingival epithelium in vivo. *J Periodont Res*, 46: 389-395, 2011
3. Susceptibility test and systemic administration of antibiotics for the treatment of alveolar abscess infected by *Pseudomonas aeruginosa*: A case report: Uchida Y, Kitamoto Y, Hino T, Shiba H, Kawaguchi H, Kurihara H; *Journal of Japan Endodontic Association*, 32(1): 38-46, 2011

#### B) Review

#### C) Publications

#### D) Other Publications

1. [Toothbrushing Great Strategy!] Ya! Admirable, (The information town pages which Hiroshima University students make.) : Takamune Hino ; THE WEEKLY PRESSNET

(Higashihiroshima) , March 2011

2. Special feature [How should have about the tooth?] Good Tooth Week : Takamune Hino ; Cue (Chugoku Newspaper, Higashihiroshima), November 2011

#### E) Presentation at Scientific Meeting

1. The green tea polyphenol (-)-epigallocatechin gallate precipitates salivary proteins. -Biochemical study- : Masaru Ohara, Yoshihiko Ohyama, Ikue Hayashi, Hiromi Nishi, Yoshiharu Tanaka, Takamune Hino, Tetsuji Ogawa : Research Seminar in General Dental Medicine 2010. Niigata, 2011.

#### F) Seminar, Workshop, etc.

1. Class about HIV infection for the dental practice staff : Takamune Hino ; Hiroshima prefecture dental association lecture (Hiroshima) , November 2011

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

1. Grants-in aid for scientific research: Takamune Hino: #21390557

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

#### (6) Patents

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## Dental Medical Information Section

### (1) Staff and Students

Director : Kazuo Tanne (Co.)  
Professor : Hideaki Amano (Co.)  
Research Associate : 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 degradation factors of authenticity in medical record and way to solve the problems on them: Hidehiko TSUKUMA, Kiyomu ISHIKAWA, Takeshi TANAKA and Minoru IKEUCHI: Proceedings of "The Liaison Conference of Information Management Departments in University Hospitals 2011 (Kagawa)" pp. 153-156, 2011.
- 2 : A role of Healthcare Information Technologist for the secondary use of healthcare information: Takeshi TANAKA et al: Japan Journal of Medical Informatics **31** Suppl. pp. 596-599, 2011.
- 3 : Evaluation of Hospital Information Systems from the viewpoint of Patient Safety and Useful Data Accumulation for Secondary Use: Hidehiko TSUKUMA, Takeshi TANAKA, et al., Japan Journal of Medical Informatics **31** Suppl. pp. 315-318, 2011.

#### B) Review

#### C) Publications

- 1 : E-application of Medical Fee: Takeshi TANAKA: "Medical and Hospital Administration Terminological Dictionary", pp. 192, ICHIGAYA Publishing Co., Ltd. 2011.



D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Basic requirements to manage user access control list for sharing electronic health record with medical facilities: Takeshi TANAKA et al.: Japan Association for Medical Informatics Spring Conference 2011 (Chiba), 2011.
- 2 : A role of Healthcare Information Technologist for the secondary use of healthcare information: Takeshi TANAKA et al: The 31<sup>th</sup> Joint Conference of Medical Informatics (Kagoshima) 2011.
- 3 : Evaluation of Hospital Information Systems from the viewpoint of Patient Safety and Useful Data Accumulation for Secondary Use: Hidehiko TSUKUMA, Takeshi TANAKA, et al., The 31<sup>th</sup> Joint Conference of Medical Informatics (Kagoshima) 2011.

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

(5) Academic Awards, etc.

(6) Patents

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