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Hiroshima University faculty of Dentistry, Hiroshima university
Hospital, Graduate school of Biomedical Science

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Program for Biomedical Research Division of Molecular Science (Department of Biomaterials Science)

(1) Staffs and Students

Professor: Masayuki Okazaki

Associate Professor: Kunio Wakasa

Research Associate: Yuji Nomura, Isao Hirata

Graduate Student: Takeo Suzuki, Ryo Nishikiori, Kohei Masuki

(2) Main Research Activities

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

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Genotoxicity of dental resin polymerization initiators in vitro : Nomura Y, Teshima W, Kawahara T, Tanaka T, Ishibashi T, Okazaki M, Arizono K : J Mater Sci Mater in Medicine 17, 29-32, 2006.
- 2: Role of acidic amino acid for regulating hydroxyapatite crystal growth : Matsumoto T, Okazaki M, Inoue M, Sasaki J, Hamada Y, Takahashi J : Dent Mater J 25, 360-364, 2006.
- 3: Estrogenic activity of phthalate esters by in vitro VTG assay using primary-cultured Xenopus hepatocytes : Nomura Y, Mitsui N, Bhawal U K, Sawajiri M, Tooi O, Takahashi T, Okazaki M : Dent Mater J 25, 533-537, 2006.
- 4: Detailed consideration of physicochemical properties of CO₃apatites as biomaterials in relation to carbonate content using ICP, X-ray diffraction, FT-IR, SEM and HR-TEM : Yokota R, Hayashi H, Hirata I, Miake Y, Yanagisawa T, Okazaki M : Dent Mater J 25, 597-603, 2006.
- 5: Different effects of carbon ion and irradiation on expression of receptor activator of NF- κ B ligand in MC3T3-E1 osteoblast cells : Sawajiri M, Nomura Y, Bhawal U K, Nishikiori R, Okazaki M,

- Mizoe J, Tanimoto K : Bull Exper Bio and Med 142, 618-624, 2006.
- 6: Different behavior of implanted hydroxyapatite depending on morphology, size and crystallinity : Matsumoto T, Tamine K, Kagawa R, Hamada Y, Okazaki M, Takahashi J : J Ceramic Soc J 114, 760-762, 2006.
 - 7: Analysis of chemical interaction of 4-MET with hydroxyapatite using XPS : Nagakane K, Yoshida Y, Hirata I, Fukuda R, Nakayama Y, Shirai K, Ogawa T, Suzuki K, Van Meerbeek B, Okazaki M : Dent Mater J 25, 645-649, 2006.
 - 8: Development of surface plasmon resonance imaging apparatus for high-throughput study of protein-surface interactions : Arima Y, Ishii R, Hirata , Iwata H : e-Journal of Surface Science and Nanotechnology 4, 201-207, 2006.
 - 9: The development of the new generation “adhesion theory” —Definition of hybrid interface— : Wakasa K : J Hiroshima Univ Dent Soc 38(1), 38-46, 2006 (in Japanese).
 - 10: The development of the new generation “adhesion theory” —Morphology of microcracks—: K.: J Hiroshima Univ Dent Soc 38(2) : 113-119, 2006 (in Japanese).

B) Review

- 1: Latest dental technology of the 21st century —Progress and development of materials and techniques in dental treatment— keynote lecture “Application of new materials and techniques for dental” —Cooperation between biomaterial science and tissue engineering— : Okazaki M : Journal of the Japanese Association for Dental Science 25: 105-108, 2006 (in Japanese).
- 2: Biomaterial and Cyborg : Okazaki M : Journal of Japanese Society for Biomaterial 24(4): 233-234, 2006 (in Japanese).
- 3: Specific physicochemical properties of apatites and their application to biomaterials : Okazaki M : Phosphorus Res Bull 20: 25-32, 2006.

C) Publications

- 1: Osteoblast behavior at the surface of CO₃Ap-collagen sponges : Okazaki M, Tieliewuhan Y, Hirata I : Key Engineering Materials Vols. 309-311, Trans Tech Publications, Switzerland, pp. 989-992, 2006.
- 2: Chapter 11. The property of dental biomaterials : Okazaki M : Clinical dental material (Miyazaki T, Nakajima Y, Kawai T, Oda M, eds) Ishiyaku Publishers, Tokyo, Japan, pp. 325, 328-337, 2006.
- 3: Chapter 5. Ceramics for Biomaterials : Okazaki M : Biomaterial for tissue engineering (Tabata Y, ed) Corona Publishing, Tokyo, Japan, pp. 75-89, 2006.

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Ti-surface modification using polyphosphoric-acid enhanced osteoblast proliferation and bFGF adsorption : Maekawa K, Mine A, Hirata I, Yoshida Y, Okazaki M, Suzuki K, Kuboki T : 35th AADR, Orlando, USA, March 11, 2006.
- 2: Influence of bone metabolism for heavy particle irradiation : Sawajiri M, Nomuru Y, Takinami S, Tanimoto K : Research announcement meeting of shared use heavy particle cancer treatment device, Chiba, Japan, April 17, 2006 (in Japanese).
- 3: New adhesion theory —decrease of strength in adhesive resin layer— : Wakasa K, Uno S, Hirata I, Okazaki M : The 47th General Session of the Japanese Society for Dental Materials and Devices, Tokyo, Japan, April 23, 2006 (in Japanese).
- 4: Nano-scale Interaction Analysis at Titanium-Phospho-amino Acid Derivative Interfaces : Hirata I, Hiasa K, Abe Y, Yoshida Y, Suzuki K, Akagawa Y, Okazaki M : The 47th General Session of the Japanese Society for Dental Materials and Devices, Tokyo, Japan, April 23, 2006 (in Japanese).
- 5: Fabrication of bone-like carboxyapatite-collagen scaffold : Yokota R, Hayashi H, Hirata I, Okazaki M : Hiroshima university dentistry society, Hiroshima, Japan, June 10, 2006 (in Japanese).
- 6: Influence of cell function by outermost surface functional groups of self-assembled monolayer : Fuse Y, Hirata I, Kurihara H, Okazaki M : Hiroshima university dentistry society, Hiroshima, Japan, June 10, 2006 (in Japanese).
- 7: Detection of chemical bonding at the adhesive biomaterial-hydroxyapatite interface : Van Meerbeek B, Yoshida Y, Nakayama Y, Hirata H, Endo K, Okazaki M, Suzuki K : 84th IADR Brisbane, Australia, June 30, 2006.
- 8: Nano-evaluation of interface strength in bonding biomaterials : Wakasa K (Invited Distinguished Lecture) : ICCE/14, Boulder, USA, July 2-8, 2006.
- 9: A crystallographic property of carboxyapatite for aiming at application of biomaterials : Hayashi H, Yokota R, Hirata I, Okazaki M : Summer seminar of Kinki and Chu-Shikoku branch of Japanese society of dental material and device, Shijo-Nawate, Japan, August 26, 2006 (in Japanese).
- 10: Influence of bone metabolism for heavy particle irradiation : Sawajiri M, Nomuru Y, Takinami S, Tanimoto K : The 49th Annual Meeting of The Japan Radiation Research Society, Sapporo, Japan, September 6, 2006 (in Japanese).
- 11: Cell adhesion property and bone formation ability of Mg contained carboxyapatite composite: Okazaki M, Hirata I: The 9th Annual Meeting of the Japan Society for Tissue Engineering, Kyoto, Japan, September 7, 2006 (in Japanese).
- 12: Current situation and future perspective of biomaterial for hard tissue: Okazaki M. (Invited Lecture): SCEJ 38th Autumn Meeting, Fukuoka, Japan, September 16, 2006 (in Japanese).
- 13: Cooperation between dental and engineering. Present and Future —II : Okazaki M : 30th Nippon Academy of Dental Technology, Hiroshima, Japan, September 18, 2006 (in Japanese).
- 14: Biocompatibility of Mg-containing CO₃Ap-collagen Composite as a Hard Tissue Biomaterial : Okazaki M. (Invited lecture) : The 11th IMGS2006, Kashikojima, Japan, October 25, 2006.
- 15: Estrogenic Activity of Phthalate Esters by in vitro VTG assay using primary-cultured Xenopus hepatocytes : Mitsui N, Nomura Y, Bhawal U K, Sawajiri M, Takahashi T, Okazaki M : The 48th General Session of the Japanese Society for Dental Materials and Devices, Nagoya, Japan, October

- 28, 2006 (in Japanese).
- 16: Induction of cytotoxicity and apoptosis by polymerization initiator : Masuki K, Nomura Y, Nishikiori R, Sawajiri M, Hirata I, Okazaki M : The 48th General Session of the Japanese Society for Dental Materials and Devices, Nagoya, Japan, October 28, 2006 (in Japanese).
 - 17: New development of adhesion theory —New micro tensile test— : Wakasa K, Uno S, Okazaki M : The 48th General Session of the Japanese Society for Dental Materials and Devices, Nagoya, Japan, October 28, 2006 (in Japanese).
 - 18: Cell differentiation on mixed SAMs : Fuse Y, Hirata I, Nomura Y, Okazaki M : The 48th General Session of the Japanese Society for Dental Materials and Devices, Nagoya, Japan, October 28, 2006 (in Japanese).
 - 19: Bone regeneration ability of frame-reinforced carboxyapatite-collagen scaffold : Okazaki M : The 44th Annual Meeting of the Japanese Society for Artificial Organs, Yokohama, Japan, November 1, 2006 (in Japanese).
 - 20: Roles of Trace Elements in Hydroxyapatite Crystals as Biomaterials: Okazaki M, Hirata I: Asian Bioceramics Symposium 2006, Bangkok, Thailand, November 8, 2006.
 - 21: Evaluation of spectrum like pattern between surface composition and cell proliferation using self-assembled monolayers : Hirata I, Fuse Y, Okazaki M : The 28th Annual Meeting of Japanese Society for Biomaterials, Tokyo, Japan, November 28, 2006 (in Japanese).

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

- 1: Research Project, Grant-in-Aid for Scientific Research (B) (New) : Okazaki M : Affinity chemical treatment and function control of carboxyapatite-collagen composite scaffold: (No.18390515), 7,100,000 yen.
- 2: Research Project, Grant-in-Aid for Young Scientists (B) (New) : Hirata I : Development of rapid analysis system of biointerface using surface factor array chip (No.18700428), 2,000,000 yen.
- 3: Donation (Towa Kagaku Co. Ltd.) : Nomura Y : Study about the living body harm-related material 1,000,000 yen.

(5) Academic Awards, etc.

- 1: Fuse Y, Hirata I, Nomura Y, Okazaki M : The Japanese Society for Dental Materials and Devices : Excellent Speech Award for General Session of the Japanese Society for Dental Materials and Devices: April 22, 2006.
- 2: Okazaki M.: Japanese Society for Artificial Organs : 2006 Yoshimi Memorial T.M.P. Grant Award : November 1, 2006.

(6) Patents

- 1: Hamada Y, Matsuura N, Egusa H, Kaneda Y, Okazaki M : Growth Acceleration Agent for

Mesenchymal Stem Cells and Skeletal Biomaterials contained it (patent application number 2006-236970), August 31, 2006.

Program for Biomedical Research Division of Molecular Science (Department of Dental and Medical Biochemistry)

(1) Staffs and Students

Professor : Yukio Kato
Associate Professor : Mitsuhide Noshiro
Assistant Professor : Takeshi Kawamoto
Research Associate : Katsumi Fujimoto
Graduate Student : Kiyomasa K. Honda, Taichi Ueshima
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 : Effects of overexpression of basic helix-loop-helix transcription factor Dec1 on osteogenic and adipogenic differentiation of mesenchymal stem cells. : Iwata T, Kawamoto T, Sasabe E, Miyazaki K, Fujimoto K, Noshiro M, Kurihara H, Kato Y : European Journal of Cell Biology 85,423-431,2006.
- 2: Transplantation of autologous rabbit bone marrow-derived mesenchymal stem cells expanded in Vitro with FGF into joint defect with hyaluronic acid sponge. : Kayakabe M, Tsutsumi S, Watanabe H, Kato Y, Takagishi K : Cytotherapy 8(4),343-53,2006.
- 3 : 57Arg in the bHLH transcription factor DEC2 is essential for the suppression of CLOCK/BMAL2-mediated transactivation. : Kondo J, Sato F, Fujimoto K, Kusumi T, Imanaka T, Kawamoto T, Uk B, Noshiro M, Kato Y, Sato T, Kijima H. : Int J Mol Med. 17(6),1053-6, 2006.
- 4: Autologous bone marrow mononuclear cell implantation induces angiogenesis and bone regeneration in a patient with compartment syndrome. : Umemura T, Nishioka K, Igarashi A, Kato Y, Ochi M, Chayama K, Yoshizumi M, Higashi Y : Circulation Journal 70, 1362-1364, 2006.
- 5 : Behavior of transplanted bone marrow-derived mesenchymal stem cells in periodontal defects. : Hasegawa N, Kawaguchi

- H, Hirachi A, Takeda K, Mizuno N, Nishimura M, Koike C, Tsuji K, Iba H, Kato Y, Kurihara H : J Periodontol. 77(6), 1003-7.
- 6 : Beneficial actions of hyaluronan (HA) on arthritic joints: effects of molecular weight of HA on elasticity of cartilage matrix. : Kato Y, Nakamura S, Nishimura M : Biorheology. 43(3-4), 347-54.
- 7 : Effects of fasting and re-feeding on the expression of Dec1, Per1, and other clock-related genes. : Kawamoto T, Noshiro M, Furukawa M, Honda K K, Nakashima A, Ueshima T, Usui E, Katsura Y, Fujimoto K, Honma S, Honma K, Hamada T, Kato Y : Journal of Biochemistry 140(3), 401-8.2006.
- 8 : Collocational Analysis of Life Science English (3) - Lists of common collocates of common collocates of addition, analysis, hypothesis, identification, level, production, risk -. : Ohtake H, T Kawamoto, N Fujita, B Morren, and S Kaneko. : Studia Humana et Naturalia 40,23-59, 2006.

B) Review

- 1: Application of Mesenchymal Stem Cells (MSC) to Regenerative Dentistry and Identification of Molecular Markers for MSC : Y Kato, M Shimizu, A Igarashi, M Ishii, H Kawaguchi, N Kamata, M Sugiyama, H Kurihara, K Tsuji, and T Kawamoto. : Hiroshima Conference on Education and Science in Dentistry, January 9, 2006.
- 2 : Basic and Clinical Studies of Periodontal Tissue Regeneration by Transplantation of Own Bone Marrow Mesenchymal Stem Cells. : H Kawaguchi, H Hayashi, T Mizuno, T Iwata, T Fujita, N Hasegawa, H Shiba, S Nakamura, T Hino, H Yoshino, H Tanaka, A Kimura, K Tsuji, Y Kato, and H Kurihara. : Hiroshima Conference on Education and Science in Dentistry, January 9, 2006.
- 3: Life Science Dictionary: Statistical and Collocational Analyses of Life Science English : T Kawamoto, H Ohtake, N Fujita, M Takekoshi, Y Ugawa, H Takeuchi, S Kaneko : the 20th IUBMB International Congress of Biochemistry and Molecular Biology and the 11th FAOBMB Congress, in Kyoto, Japan, from June 18 to 23, 2006.
- 4 : Molecular mechanisms involved in circadian rhythms in cartilage : K.Honda, T Kawamoto, R Yamada, H R Ueda, M Noshiro, K Fujimoto, A Nakashima, T Ueshima, T Ogawa, S Hashimoto, Y Kato : the 20th IUBMB International Congress of Biochemistry and Molecular Biology and the 11th FAOBMB Congress, in Kyoto, Japan, from June 18 to 23, 2006.
- 5: Mutation analysis of the bHLH transcription factor DEC1 and DEC2 in circadian regulation : F Sato, T Kawamoto, U K Bhawal, K Fujimoto, J Kondo, T Imanaka, M Noshiro, T Kutsumi, T Sato, S Honma, K Honma, Y Kato, H Kijima : the 20th IUBMB International Congress of Biochemistry and Molecular Biology and the 11th FAOBMB Congress, in Kyoto, Japan, from June 18 to 23, 2006.

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

(5) Academic Awards, etc.

(6) Patents

Program for Biomedical Research Division of Molecular Science

Department of Oral Biology

(1) Staffs and Students

Professor : Takashi Uchida
Assistant : Shinji Hiyama, Emiko Yamanishi
Graduate Student : Sarker Shishir Kumar

(2) Main Research Activities

- 1 : Morphological and molecular biological studies of the amelogenesis
- 2 : Molecular biological and morphological studies of the mechanism of bone metabolism
- 3 : Molecular biology of the stem cell in the dental pulp

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Solid diet mastication reduces c-Fos expression in the rat trigeminal subnucleus caudalis following orofacial inflammation induced by CFA.: Nishi M, Iwabe T, Tanaka E, Hattori-Myoishi Y, Kawai N, Suekawa Y, Takahashi K, Watanabe M, Uchida T, Tanne K : Biomed Res 17(1),33-38, 2006.

B) Review

C) Publications

- 1 : Developmernt of periodontal tissue regeneration therapy with new bioactive agents. : Takeda k, Kitagawa S, Shiba H, Kawaguchi H, Miyauchi M, Tsuji K, Uchida T, Kurihara H, Takata T : Proceedings of Hiroshima Conference on Education and Science in Dentistry, 2006 (ed. by Hiroshima University Faculty of Dentistry), 113-119, 2006.

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Differentiation of bone marrow cells into osteoclasts during medullary bone formation. : Hiyama S, Yamanishi E, Uchida T : The 111th Annual Meeting of Japanese Association of

Anatomists (Sagamihara), 2006.

- 2 : Immunohistochemistry of amelogenin in collar enamel of *Lepisosteus oculatus*, a bony fish : Sasagawa I, Ishiyama M, Yokosuka H, Uchida T : The 111th Annual Meeting of Japanese Association of Anatomists (Sagamihara), 2006.
- 3 : Tooth abnormalities in the process of odontogenesis of mutant rat molars with amelogenesis imperfecta : Osawa M, Kenmotsu S, Saito C, Uchida T, Ohshima H : The 48th Annual Meeting of Japanese Association for Oral Biology, (Yokohama), 2006.
- 4 : Collar enamel in *Polypterus senegarus*, Polyptetridae, a bony fish : Sasagawa I, Yokosuka H, Ishiyama M, Uchida T : The 48th Annual Meeting of Japanese Association for Oral Biology, (Yokohama), 2006.

F) Special lectures in academic meetings

- 1 : Expression and putative functions of enamel proteins in the dental hard tissue formation : Uchida T : The 48th Annual Meeting of Japanese Association for Oral Biology, Satellite Symposium, Enamel proteins and their periodontal ligament regeneration activity. (Yokohama), 2006.

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

- 1 : Grant-in-aid for Scientific Research from the Japanese Society for the Promotion of Science (C) : Molecular biological study of the role of matrix proteins in the tooth development with special reference to the cytodifferentiation and initial calcification. (No.18592002) . 1,800,000yen
- 2 : Grant-in-Aid for Young Scientists (B) from the Japanese Society for the Promotion of Science :Molecular biological and morphological studies of the role of sex hormone and its target factors in bone metabolism and stem cell niche. (No.18791351) . 2,000,000yen

(5) Academic Awards, etc.

(6) Patents

Program for Biomedical Research Division of Integrated Medical Science (Department of Oral Physiology)

(1) Staffs and Students

Professor : Yoshiki Shiba
Associate Professor : Chikara Hirono
Research Associate : Makoto Sugita, Yoshiko Iwasa
Graduate Student : Hiroe Ohishi, Takahide Shintani, Hiroyasu Kongo, Kumiko Hara,
Takane Maruyama

(2) Main Research Activities

- 1 : Study on function and regulation of taste organs and salivary glands
- 2 : Molecular physiological study on function of ion channels and ion transporters
- 3 : Study on the mechanism of taste perception
- 4 : Study on the role of cell communication in proliferation and differentiation of oral mucosa.
- 5 : Study on mastication and swallowing

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Regulation of IL-8 by Irsogladine maleate is involved in abolishment of Actinobacillus actinomycetemcomitans-induced reduction of gap-junctional intercellular communication : Fujita T, Ashikaga A, Shiba H, Uchida Y, Hirono C, Iwata T, Takeda K, Kishimoto A, Hirata R, Kawaguchi H, Shiba Y, Kurihara, H : Cytokine. 34, 271-277, 2006.

B) Review

- 1: Electrolyte transport by salivary glands : Hirono C : Folia Pharmacol. Jpn. 127, 256-260, 2006.
- 2: Taste perception and coding in the periphery : Sugita M : Cell Mol Life Sci. 63, 2000-2015, 2006.

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Electrolyte transport and evaluation of secretory function in salivary glands. : Hirono C : The 79th Annual Meeting

- of The Japanese Pharmacological Society Symposium “Device function of salivary glands utilized for systemic diagnosis and therapy”, (Yokohama), 2006.
- 2: Effect of stress on salivary peroxidase secretion.: Maruyama T, Hara K, Iwasa Y, Sugita M, Hirono C, Shiba Y : The 48th Annual Meeting of Japanese Association for Oral Biology (Yokohama), 2006.
 - 3: Suppression of Cl^- secretory current by isoproterenol and forskolin in carbachol-stimulated rat parotid acinar cells. : Hirono C, Shintani T, Sugita M, Iwasa Y, Shiba Y : The 48th Annual Meeting of Japanese Association for Oral Biology (Yokohama), 2006.
 - 4: Effect of gland massage on salivary secretion.: Hara K, Maruyama T, Hirono C, Amano H, Shiba Y : The 48th Annual Meeting of Japanese Association for Oral Biology (Yokohama), 2006.
 - 5: Genetic tracing of taste neuronal circuitries. : Sugita M, Shiba Y : The 48th Annual Meeting of Japanese Association for Oral Biology (Yokohama), 2006
 - 6: Visualization of the taste neuronal circuitries for bitter and sweet : Sugita M, Shiba Y : The 40th Annual Meeting of the Japanese Association for the Study of Taste and Smell (Fukuoka), 2006.
 - 7: Regulation of Cl^- secretion by muscarinic cholinergic and adrenergic stimulation in acinar cells of rat salivary glands. : Hirono C, Shintani T, Sugita M, Iwasa Y, Shiba Y : The 3rd international Symposium on Salivary Glands in Honor of Niels Stensen (Okazaki), 2006.
 - 8: Spatial distribution of the transsynaptic tracer originating from specific taste receptor cells during mouse development : Sugita M, Shiba Y : The 4th International Symposium on Molecular and Neural Mechanisms of Taste and Olfactory Perception (Fukuoka), 2006.

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

- 1: Grant-in-Aid for Scientific Research (B) : Shiba Y: Regulation with secretory signals and neurotrophic factors of salivary secretion-related protein expression, ¥9,200,000.
- 2: Grant-in-Aid for Scientific Research (C) : Hirono C: Regulatory mechanism of $Na^+K^+-2Cl^-$ cotransporter activity in fluid secretion, ¥1,000,000.
- 3: Grant-in-Aid for Scientific Research (C) : Sugita M: Genetic approach to trace construction of taste neuronal circuitries, ¥1,500,000.
- 4: Grant-in-Aid for Scientific Research on Priority Area of “Transportsome” : Sugita M: The molecular machinery regulating the biogenesis, degradation, and trafficking of CFTR, ¥2,600,000.
- 5: JST (PRESTO) : Sugita M: The neuronal mechanisms underlying the taste-evoked behavioral and emotional responses, ¥14,800,000.

(5) Academic Awards, etc.

- 1: Hirono C : The 3rd International Symposium on Salivary Glands in Honor of Niels Stensen (Okazaki) Poster Award.

(6) Patents

Program for Biomedical Research Division of Integrated Medical Science (Department of Dental Pharmacology)

(1) Staffs and Students

Professor:	Toshihiro Dohi
Associate Professor:	Katsuya Morita
Research Associate:	Norimitsu Morioka, Tomoya Kitayama
Graduate student:	Md. Joynal Abdin, Atsue Matsumoto, Naoyo Motoyama, Liqiu Song, Koki Kifune

(2) Main Research Activities

- 1: Regulation by cyclic ADP-ribose of intracellular Ca^{2+} dynamics and cellular functions.
- 2: Physiological and pathophysiological roles of neurotransmitter transporters and nucleoside transporters.
- 3: Studies on the mechanisms for neuropathic pain and the development of novel medicaments.
- 4: Application of neural progenitor cells for therapy of oral dysfunctions.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Down-regulation of norepinephrine transporter function induced by chronic administration of desipramine linked to the alteration of sensitivity of local anesthetics-induced convulsion and the counteraction by co-administration with local anesthetics : Kitayama T, Song L, Morita K, Morioka N and Dohi T : Brain Res. 1096, 97-103, 2006.
- 2 : Cyclic ADP-ribose requires FK506-binding protein to regulate intracellular Ca^{2+} dynamics and catecholamine release in acetylcholine-stimulated bovine adrenal chromaffin cells.: Morita K, Kitayama T, Kitayama S and Dohi T : J. Pharmacol. Sci 101, 40-51, 2006.
- 3 : Analgesic action of nicotine on tibial nerve transection (TNT)-induced mechanical allodynia through enhancement of glycinergic inhibitory system in spinal cord.: Abdin M J, Morioka N, Morita K, Kitayama T, Nakashima T and Dohi T : Life Sci. 80, 9-16, 2006.
- 4 : Effects of norepinephrine uptake inhibitors and α_1 adrenergic agents on the action of local anesthetics : Hamamoto M, Morita K and Dohi T : J. Hiroshima Univ. Dent. Soc. 38, 25-29, 2006.
- 5 : Reduction of local circulation and the mechanisms of blood vessel contraction by local anesthetics. : Hamamoto M, Morita K and Dohi T : J. Hiroshima Univ. Dent. Soc.38, 30-37, 2006.

B) Review

- 1 : The role of glutamatergic neurons in neuropathic pain. : Aoyama-Watanabe M, Abe T, Okada N, Onitsuka Y, Nagao M, Hatano H, Fujishiro Y, Morioka N and Dohi T : J. Hiroshima Univ. Dent. Soc. 38, 113-123, 2006.
- 2 : Role of platelet-activating factor on spinal pain transduction.: Dohi T, Morita K, Morioka N, Abdin M J, Kitayama T, Kitayama S and Nakata Y : Folia Pharmacologica Japonica. 127, 18-24, 2006.
- 3: Role of $\alpha 7$ nicotinic acetylcholine receptor in spinal nociceptive transduction cascade. : Dohi T, Morioka N, Morita K, Kitayama T, Kitayama S and Nakashima T : Smoking research foundation annual research report, 558-563, 2006

C) Publications

- 1: NEW Pharmacology 5th revision : Tanaka C and Kato R edit, Dohi T : Naneido(Tokyo), 280-284, 2006.

D) Other Publications

- 1: Mechanisms of pain sensitization and the treatment. : Dohi T, Morita K, Morioka N, Abdin M J, Kitayama T, Motoyama N and Song L : Proceeding of Hiroshima Conference on Education and Science in Dentistry 2006, 87-94, 2006.

E) Presentation at Scientific Meeting

International Meeting

- 1: Down-regulation of noradrenaline transporter induced by chronic desipramine and the counteraction by coadministration with local anesthetics.: Song L, Kitayam T, Morita K and Dohi T : 15th World Congress of Pharmacology (Beijin, China), 2006.
- 2: Intrathecal nicotine has the analgesic effect on the tibial nerve transectiopr (TNT)-induced neuropathic pain. : Morioka N, Abdin M J, Morita K, Kitayama T, Kitayama S, Nakashima T and Dohi T : 15th World Congress of Pharmacology (Beijin, China), 2006.
- 3: Cyclic ADP-ribose mediates calciumu signaling for chemoattractants in human neutrophils.: Morita K, Saida S, Morioka N, Kitayama T, Akagawa Y and Dohi T : 15th World Congress of Pharmacology (Beijin, China), 2006
- 4: Role for CD38 in cyclic ADP-ribose-mediated calciumu signaling in human neutrophils.: Dohi T, Morita K, Saida S, Morioka N, Kitayama T and Akagawa Y : 15th World Congress of Pharmacology (Beijin, China), 2006.

- 5: Nicotinic modulation of the transcriptional expression of the human dopamine transporter gene.: Kitayama S, Sogawa C, Sogawa N, Mitsuhashi C, Kozai K, Morita K and Dohi T : 36th Annual Meeting of Society for Neuroscience (Atlanta, GA, U.S.A.), 2006.
- 6: Glycinergic mediation of allodynia induced by platelet-activating factor in spinal cord in mice. : Dohi T, Morita K, Morioka N, Motoyama N, Kifune K and Kitayama T : 36th Annual Meeting of Society for Neuroscience (Atlanta, GA, U.S.A.), 2006.
- 7: Antinociceptive effect of nicotine on tibial nerve transection-induced neuropathic pain.: Morioka N, Abdin M J, Morita K, Kitayama T, Kitayama S, Nakashima T and Dohi T : 36th Annual Meeting of Society for Neuroscience (Atlanta, GA, U.S.A.), 2006.

Domestic meeting

- 1: Chronic desipramine induced down-regulation of NET protein localization on hippocampus cell surface and reversal by lidocaine.: Song L, Kitayama T, Morita K and Dohi T : The 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry, 2006 (Hiroshima), 2006
- 2: Analgesic effect of intrathecal nicotine on the tibial nerve transection (TNT)-induced neuropathic pain. : Abdin M J, Morioka N, Morita K and Dohi T : The 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry, 2006 (Hiroshima), 2006.
- 3: Role of cyclic ADP-ribose in calcium signaling in human neutrophils.: Morita K, Saida M, Morioka N, Kitayama K, Akagawa Y and Dohi T : The 79th Annual Meeting of The Japanese Pharmacological Society (Yokohama), 2006.
- 4: Analgesic action of intrathecal nicotine on the tibial nerve transection (TNT)-induced mechanical allodynia in rats.: Morioka N, Abdin M J, Kitayama T, Morita K, Kitayama S, Nakashima T and Dohi T : The 79th Annual Meeting of The Japanese Pharmacological Society (Yokohama), 2006.
- 5: Human dopamine transporter isoform produced by alternative splicing. : Kitayama S, Mitsuhashi C, Sogawa C, Sogawa N, Kousai K, Morita K and Dohi T : The 79th Annual Meeting of The Japanese Pharmacological Society (Yokohama), 2006.
- 6: Carboxy terminal region differently regulates the functional expression of human norepinephrine transporter splice variants.: Sogawa C, Sogawa N, Kumagai K, Morita K, Dohi T, Onodera N and Kitayama S : The 79th Annual Meeting of The Japanese Pharmacological Society (Yokohama), 2006.
- 7: Anti-allodynic effect of inhibitors of glycine transporters in neuropathic pain models and inflammatory pain models in mice.: Morita K, Motoyama N, Kifune K, Morioka N, Kitayama T And Dohi T : The 109th Kinki Branch Meeting of Japanese Pharmacological Society (Kurashiki), 2006.
- 8: Effects of transplantation of neural progenitor cells on eating disorder in parkinson model rats. : Onitsuka Y, Kitayama T and Dohi T : The 39th Ordinary Meeting of Hiroshima University Dental society (Hiroshima), 2006.
- 9 : The role of $\alpha 7$ Nicotinic Acetylcholine Receptor in the Spinal Nociceptive Transduction Cascades :

- Dohi T, Morioka N, Morita K, Kitayama T, Kitayama S and Nakashima T : The meeting of Smoking Research Foundation (Tokyo), 2006.
- 10: An antinociceptive effect of Nicotine on tibial nerve transection-induced mechanical allodynia.: Morioka N, Abdin M J, Kitayama T, Morita K, Kitayama S, Nakashima T and Dohi T : The 40th Annual Meeting of the Japan Society of pain Clinicians; The 28th Annual Meeting of Japanese Association for the Study of Pain (Kobe), 2006.
- 11: Anti-allodynic and analgesic effect of inhibitors of glycine transporters in neuropathic pain models and inflammatory pain models in mice.: Morita K, Motoyama N, Kifune K, Morioka N, Kitayama T and Dohi T : The 40th Annual Meeting of the Japan Society of pain Clinicians; The 28th Annual Meeting of Japanese Association for the Study of Pain (Kobe), 2006.
- 12: Effects of transplantation of neural progenitor cells on eating disorder induced by 6-OHDA in rat. : Kitayama T, Onitsuka Y, Morita K and Dohi T : The 29th Annual Meeting of the Japan Neuroscience Society (Kyoto), 2006.
- 13: Nicotine has an antinociceptive effect on tibial nerve transection-induced mechanical allodynia. : Abdin M J, Morioka N, Morita K, Kitayama T, Kitayama S, Nakashima T and Dohi T : The 28th Annual Meeting of the Japan Society of Biological Psychiatry; The 36th Annual Meeting of the Japan Society of Neuropsychopharmacology; The 49th Annual Meeting of the Japan Society for Neurochemistry (Nagoya), 2006.
- 14: Characterization of the human dopamine transporter splice variant.: Sogawa C, Mitsuhashi C, Sogawa N, Kozai K, Morita K, Dohi T and Kitayama S : The 28th Annual Meeting of the Japan Society of Biological Psychiatry; The 36th Annual Meeting of the Japan Society of Neuropsychopharmacology; The 49th Annual Meeting of the Japan Society for Neurochemistry (Nagoya), 2006.
- 15: Analysis of recovery from 6-OHDA-induced eating disorders by neural progenitor cell transplantation.: Kitayama T, Onitsuka Y, Song L, Morioka N, Morita K and Dohi T : The 28th Annual Meeting of the Japan Society of Biological Psychiatry; The 36th Annual Meeting of the Japan Society of Neuropsychopharmacology; The 49th Annual Meeting of the Japan Society for Neurochemistry (Nagoya), 2006.
- 16: Effect of ATP via P2X receptor on the regulation of glutamate transport in cultured spinal microglia.: Morioka N, Abdin M J, Kitayama T, Morita K and Dohi T : National Institute for Physiological Sciences Workshop (Okazaki), 2006.
- 17: Intrathecal injection of cyclic ADP-ribose induces hyperalgesia and allodynia.: Motoyama N, Morita K, Kifune K, Morioka N, Kitayama T and Dohi T : The 48th Annual Meeting of Japanese Association for Oral Biology (Tsurumi), 2006.
- 18: Analgesic effects of glycine transporter inhibitors.: Morita K, Motoyama N, Kifune K, Morioka N, Kitayama T and Dohi T : The 48th Annual Meeting of Japanese Association for Oral Biology (Tsurumi), 2006.

- 19: Effect of ATP on the regulation of glutamate transport in cultured spinal microglia.: Morioka N, Abdin M J, Kitayama T, Morita K and Dohi T : The 48th Annual Meeting of Japanese Association for Oral Biology (Tsurumi), 2006.
- 20: Anti-allodynic effect of inhibitors of glycine transporters in neuropathic pain models in mice.: Motoyama N, Morita K, Kifune K, Kitayama T, Morioka N and Dohi T : The 45th Scientific Meeting of Hiroshima Prefecture Dental Association; The 90th Ordinary Meeting of Hiroshima University Dental society (Hiroshima), 2006.
- 21: Effects of progressive muscle relaxation of the mouth on salivary secretion rate and immunoglobulin A concentration.: Matsumoto A, Niitani Y, Takemoto T, Hara K, Amano H, Fujimoto H, Sugiyama M, Sadamori S, Hamada T, Kitayama T and Dohi T : The 45th Scientific Meeting of Hiroshima Prefecture Dental Association; The 90th Ordinary Meeting of Hiroshima University Dental society (Hiroshima), 2006.
- 22: Effect of ATP on the regulation of glutamate transport in spinal microglia. : Morioka N, Abdin M J, Kitayama T, Morita K and Dohi T : The 110th Kinki Branch Meeting of Japanese Pharmacological Society (Kyoto), 2006.
- 23: Inhibition of glycine transporters ameliorated mechanical allodynia in neuropathic pain models. : Motoyama N, Morita K, Kitayama T, Morioka N and Dohi T : The 1st Annual Meeting of the Japan transporter research association (Tokyo), 2006.

F) Special lectures in academic meetings

- 1 : Specific inhibitor of glycine transporters ameliorated mechanical allodynia developed in neuropathic pain models. : Morita K, Motoyama N, Kifune K, Morioka N, Kitayama T and Dohi T : The 34th Symposium of Drug Activity (Takasaki), 2006.
- 2 : Mechanisms of pain sensitization and the treatments : Dohi T, Morita K, Morioka N, Abdin M J, Kitayama T, Motoyama N and Song L : The 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Sciences in Dentistry (Hiroshima), 2006.
- 3 : Effects of local anesthetics on down-regulation of noradrenaline transporter function induced by antidepressants.: Kitayama T, Song L, Morita K and Dohi T : The 15th Meeting of young scientist of neurobehavioral pharmacology (Chiba), 2006.
- 4: Role of cyclic ADP-ribose in calcium signaling and migration in human neutrophils.: Morita K, Kitayama T, Morioka N and Dohi T : The 26th Annual Meeting of Japanese Society of Oral Therapeutics and Pharmacology (Takamatsu), 2006.

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

- 1: Grant-in Aid for Scientific Research (B)(2) : Dohi T : The molecular mechanism of development of

- allodynia and new drug development. (Project number 18390491). ¥ 9,800,000.
- 2: Grant-in Aid for Scientific Research (C) : Morita K : The role of new calcium signaling messenger cyclic ADP ribose on the mechanisms of pain and its regulation. (Project number 18592036) , ¥ 2,500,000.
- 3 : Grants-in Aid for Young Scientists (B) continuance : Morioka N : The nociceptive transduction mechanisms through the network between neuron and glia in spinal cord. –the role of ATP purinoceptor P2X7–. (Project number 17791322) . ¥ 1,800,000.
- 4: Grants-in Aid for Young Scientists (B) continuance : Kitayama T : Development of neuroregeneration therapy on disease of oral area. (Project number 17791323) . ¥ 1,500,000
- 5 : Grant-in-Aid for Exploratory Research continuance : Dohi T : Study on the oral health promoted by cellular response to mechanical stimuli. (Project number 16659512). ¥ 800,000.
- 6: Smoking Research Foundation continuance : Dohi T : Role of $\alpha 7$ nicotinic acetylcholine receptor in spinal nociceptive transduction cascade. ¥ 3,000,000.

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor	: Takashi Takata
Associate Professor	: Mutsumi Miyauchi
Assistant Professor	: Yasusei Kudo
Assistant	: Sunao Sato, Masae Kitagawa (until March)
Graduate Student	: Hiroko Oka, Shojiro Kitajima, Shinji Izuka, Kiyako Sakamoto, B.S.M.Samadarani Siriwardena, Yusuke Kawazoe, Mohammad Reza Keikhaee, Guangying Qi
Research Student	: Elsayed Deraz
Guest Research Student	: Ashraf Gaafar, Mohammed Armed

(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 (including Case Reports)

- 1 : Characteristics of periodontal ligament subpopulations obtained by sequential enzymatic digestion of rat molar periodontal ligament.: Kaneda T, Miyauchi M, Takekoshi T, Kitagawa S, Kitagawa M, Shiba H, Kurihara H, Takata T: *Bone*. 38(3), 420-6, 2006.
- 2 : Characterization of established human cementoblast-like cell lines from human cementum lining cells in vitro and in vivo.: Kitagawa M, Kitagawa S, Kudo Y, Ogawa I, Miyauchi M, Tahara H, Ide T, Takata T: *Bone*. 39(5), 1035-42, 2006.
- 3 : Platelet-derived growth factor enhances proliferation and matrix synthesis of temporomandibular joint disc-derived cells.: Hanaoka K, Tanaka E, Takata T, Miyauchi M, Aoyama J, Kawai N, Dalla-Bona D A, Yamano E, Tanne K: *Angle Orthod*. 76(3), 486-92, 2006.
- 4 : Establishment and characterization of a spindle cell squamous carcinoma cell line.: Kudo Y, Ogawa I, Kitagawa M, Kitajima S, Siriwardena S, Aobara N, Matsuda C, Miyauchi M, Takata T: *J Oral Pathol Med*. 35(8), 479-83, 2006.
- 5 : Effects of ultrasound on cementoblast metabolism in vitro.: Dalla-Bona D A, Tanaka E, Oka H, Yamano E, Kawai N, Miyauchi M, Takata T, Tanne K: *Ultrasound Med Biol*. 32(6), 943-8, 2006.
- 6 : The effect of removal of the disc on the friction in the temporomandibular joint : Tanaka E, Dalla-Bona D A, Iwabe

- T, Kawai N, Yamano E, van Eijden T, Tanaka M, Miyauchi M, Takata T, Tanne K: *J Oral Maxillofac Surg* 64(8), 1221-4, 2006.
- 7 : Periostin promotes invasion and anchorage-independent growth in the metastatic process of head and neck cancer. : Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Kawai H, Gaffney P M, Miyauchi M, Takata T: *Cancer Res* 66(14), 6928-35, 2006.
- 8 : Effect of F-spondin on cementoblastic differentiation of human periodontal ligament cells. : Kitagawa M, Kudo Y, Izuka S, Ogawa I, Abiko Y, Miyauchi M, Takata T: *Biochem Biophys Res Commun* 349(3), 1050-6, 2006.
- 9 : Periostin is frequently overexpressed and enhances invasion and angiogenesis in oral cancer. : Siriwardena B S M S, Kudo Y, Ogawa I, Kitagawa M, Kitajima S, Hatano H, Tilakaratne W M, Miyauchi M, Takata T: *Br J Cancer* 95(10), 1396-403, 2006.
- 1 0 : Effects of endogenous and exogenous prostaglandin E2 on the proliferation and differentiation of a mouse cementoblast cell line (OCCM-30). : Mada Y, Miyauchi M, Oka H, Kitagawa M, Sakamoto K, Izuka S, Sato S, Noguchi K, Somerman M J, Takata T: *J Periodontol* 77(12), 2051-8, 2006.
- 1 1 : Clinico-statistical study on odontogenic tumor according to New Classification (WHO:2005) : Nishi H, Higashikawa K, Shimasue H, Hiraoka M, Miyauchi M, Inoue S, Takata T, Kamata N: *J Jpn Soc Oral Tumors* 18, 39-47, Japanese, 2006.
- 1 2 : A case of metastatic renal cell carcinoma of the anterior region of upper gingival. : Nishi H, Miyauchi M, Inoue S, Ninomiya Y, Kitagawa M, Yoshida M, Ogawa I, Takata T, Akagawa Y, Kamata N: *J Hiroshima Univ Dent Soc* 38(2), 162-6, Japanese, 2006.
- 1 3 : A case of aberrant tooth root in the maxillary sinus unidentified for a long time. : Shigeish H, Miyauchi M, Higashikawa K, Hiraoka M, Mitani Y, Ogawa I, Takata T, Kamata N: *J Hiroshima Univ Dent Soc* 38(2), 167-9, Japanese, 2006.

B) Review

- 1 : Degradation of cyclin-dependent kinase inhibitor p27 in oral cancer. : Kudo Y, Keikhaee M R, Kitajima S, Ogawa I, Miyauchi M, Takata T: *Oral Med Pathol* 11, 19-26, 2006.
- 2 : Revised histopathological classification of odontogenic tumors by WHO and its allied epithelial cysts. : Takeda Y, Takata T: *Japanese Journal of Oral and Maxillofacial Surgery* 52(2), 54-61, Japanese, 2006.

C) Publications

- 1 : Salivary gland tumors; Atlas of Oral Pathology (Editors: Takagi M, Yamamoto H, Sakai H, Takata T) : Takata T, Ogawa I, Kuyama K, Bunkodo, Tokyo, 291-313, Japanese, 2006.
- 2 : Disease of periodontal tissue: Atlas of Oral Pathology : (Editors: Takagi M, Yamamoto H, Sakai H, Takata T): Kameyama Y, Tanaka A, Miyauchi M: Bunkodo, Tokyo, 73-89, Japanese, 2006.
- 3 : Development of periodontal tissue regeneration therapy with new bioactive agents. -Studies on Brain-derived neurotrophic factor and ameloblastin peptide. : Takeda K, Kitagawa S, Kitagawa M, Shiba H, Kawaguchi H, Miyauchi M, Tsuji K, Uchida T, Kurihara H, Takata T: *Proceedings of Hiroshima Conference on Education and Science in Dentistry*, 113-119, 2006.

4 : Odontogenic tumor ; tumor of oral cavity ; Oral Surgery (Miyazaki T. ed.) : Takata T, Mori M : Ishiyakushuppan, Tokyo, Japanese.

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Effects of ultrasound stimulation on the proliferation and metabolism of cementoblasts in vitro. : Dalla-Bona D A, Tanaka E, Inubushi T, Oka H, Yamano E, Kawai N, Miyauchi M, Takata T, Tanne K : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima) , 2006.
- 2 : Periostin overexpression is involved in the invasion and metastasis of oral squamous cell carcinoma. : Siriwardena B S M S, Kudo Y, Kitagawa M, Ogawa I, Miyauchi M, Takata T : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima) , 2006.
- 3 : Invasion and metastasis of oral cancer cells require methylation of E-cadherin and/or degradation of membranous β -catenin. : Keikhaee M R, Kudo Y, Kitajima S, Ogawa I, Miyauchi M, Takata T : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima) , 2006.
- 4 : Development of periodontal tissue regeneration therapy with new bioactive agents. -Studies on Brain-derived neurotrophic factor and ameloblastin peptide. : Takata T, Takeda K, Kitagawa S, Kitagawa M, Shiba H, Kawaguchi H, Miyauchi M, Tsuji K, Uchida T, Kurihara H : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima) , 2006.
- 5 : Aurora-A degradation by APC^{Cdh1}. : Kitajima S, Kudo Y, Ogawa I, Kawai H, Tatsuka M, Miyauchi M, Takata T : The 2006 meeting on The Cell Cycle, Cold Spring Harbor Laboratory (New York, USA) , 2006.
- 6 : Periostin promotes invasion and anchorage-independent growth in the metastatic process of head and neck cancer. : Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Miyauchi M, Takata T : 13th International Congress on Oral Pathology and Medicine (Brisbane, Australia) , 2006.
- 7 : Cultured cementoblast stimulation by low- and high- intensity pulsed ultrasound. : Dalla-Bona D A, Tanaka E, Inubushi T, Oka H, Ohta A, Okada H, Miyauchi M, Takata T, Tanne K : 84th IADR (Brisbane, Australia) , 2006.
- 8 : Effects of low-intensity ultrasound on the biometabolism of PDL cells. : Inubushi T, Tanaka E, Dalla-Bona D A, Oka H, Ohta A, Okada H, Miyauchi M, Takata T, Tanne K : 84th IADR (Brisbane, Australia) , 2006.
- 9 : Liver injury in the rat periodontitis model. : Tomofuji T, Ekuni D, Yamanaka R, Kusano H, Azuma T, Sanbe T, Tamaki N, Yamamoto T, Watanabe T, Miyauchi M, Takata T : 84th IADR (Brisbane, Australia) , 2006.
- 10 : Lymphatic density is essential for nodal metastasis in oral cancer. : Tilakaratne W M, Siriwardena B S M S, Udagama M N G P K, Kudo Y, Ogawa I, Takata T : IADR.PFF Scientific programme Symposium (Dublin, Ireland) , 2006.
- 11 : Oral administration of liposomal lactoferrin inhibits bone resorption in rat LPS-induced periodontitis. : Yamano E, Miyauchi M, Oka H, Sakamoto K, Tanaka E, Ishikado A, Imanaka H, Suido H, Makino T, Tanne K, Takata T : 49th Annual Meeting in Spring of the Japanese Society of Periodontology (Ichikawa), 2006.
- 12 : Periostin is involved in metastasis of oral cancer through promoting the invasiveness and anchorage independent growth. : Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Miyauchi M, Takata T : The 95th Annual Meeting of the Japanese Society of Pathology (Tokyo), 2006.

- 1 3 : Periostin is involved in the invasion and metastasis in oral cancer. : Siriwardena S, Kudo Y, Ogawa I, Kitagawa M, Miyauchi M, Takata T: 95th Annual Meeting of the Japanese Society of Pathology (Tokyo), 2006.
- 1 4 : Histopathologic diversity in epithelial-myoepithelial carcinoma.: Ogawa I, Nishida T, Shimamoto F, Saito A, Oka H, Miyauchi M, Takata T: 95th Meeting of The Japanese Society of Pathology (Tokyo), 2006.
- 1 5 : Roles of PGE receptors on osteoclastogenesis by osteoblasts and cementoblasts. : Oka H, Miyauchi M, Sakamoto K, Iizuka S, Kawazoe Y, Kitagawa M, Ogawa I, Takata T: 39th general meeting of Hiroshima University Dental Society (Hiroshima), 2006.
- 1 6 : Clinico-pathological study on the expression of Survivin and Aurora-B in colon cancer. : Shimamoto F, Qi G, Tanaka S, Nishida T, Takata T, Tatsuka M: 95th Annual Meeting of the Japanese Society of Pathology (Tokyo), 2006.
- 1 7 : Biological effects of the ultrasound exposure on PDL cells. : Inubushi T, Tanaka E, Dalla-Bona D A, Tanne K, Miyauchi M, Takata T: 2nd Shika Butsurishigeki Kenkyukai (Tokyo), 2006.
- 1 8 : Effects of ultrasound on cementoblast metabolism in vitro. : Dalla-Bona D A, Tanaka E, Inubushi T, Oka H, Miyauchi M, Takata T, Tanne K: 2nd Shika Butsurishigeki Kenkyukai (Tokyo), 2006.
- 1 9 : Roles of PGE2 and PGE receptors on proliferation, differentiation and functional expression of mouse cementoblast cell line (OCCM-30). : Oka H, Miyauchi M, Moriwaki S, Niida S, Takata T: 25th Annual Meeting of the Japanese Society for Bone and Mineral Research (Osaka), 2006.
- 2 0 : Dynamic compressive properties of the mandibular condylar cartilage.: Dalla-Bona D A, Tanaka E, Yamano E, Takata T, Tanne K. : 1st International and 19th Annual Meeting of the Japanese Society for the Temporomandibular Joint (Nagoya), 2006.
- 2 1 : Study on bone tissue regeneration using heparin and its derivatives. : Iizuka S, Saito A, Yoshida M, Oka H, Kitagawa M, Ogawa I, Miyauchi M, Takata T: 9th Annual meeting of the Japanese Society of Tissue Engineering (Kyoto), 2006.
- 2 2 : Influence of ultrasound stimulation on the expression of OPG and RANKL in mouse cementoblasts. : Dalla-Bona D A, Tanaka E, Inubushi T, Ohta A, Okada H, Kawai N, Watanabe M, Yamano E, Tanne K. : 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 2 3 : Effect of phosphoric acid on expression of mineralization-related genes in dental follicular cells. : Sato S, Kitagawa M, Iizuka S, Sakamoto K, Oka H, Miyauchi M, Foster B, Somerman M J, Takata T: 15th Meeting of the Society for Hard Tissue Regenerative Biology (Kyoto), 2006.
- 2 4 : Effects of gamma-Glutamyltranspeptidase (GGT) on expression of bone resorbing related gene in cementoblasts. : Sato S, Kawazoe Y, Oka H, Sakamoto K, Miyauchi M, Niida S, Takata T: 48th Japanese association for Oral Biology (Tsurumi), 2006.
- 2 5 : Identification of novel factors for oral cancer invasion.: Kudo Y, Kitajima S, Takata T: 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 2 6 : Abnormal degradation and overexpression of Aurora-A in oral cancer. : Kitajima S, Kudo Y, Kawai H, Tatsuka M, Takata T: 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 2 7 : Gene amplification and protein overexpression of Saki, substrate of Aurora-B, in oral squamous cell carcinoma. : Sato S, Ogawa I, Shimamoto F, Kanda A, Tatsuka M, Takata T: 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 2 8 : Comprised clinico-pathological study on Aurora-B substrate, SAKI in human cancer tissues. : Shimamoto F,

- Sato S, Ogawa I, Takata T, Tatsuka M: 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 2 9 : The role of Aurora-B (AIM-1) for cancer metastasis: Kanda A, Kawai H, Suzuki F, Sato S, Ogawa I, Takata T, Shimamoto F, Ota T, Tatsuka M: 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 3 0 : The regulation of RNA methylation by Aurora-B.: Kawai H, Kanda A, Suzuki F, Sato S, Takata T: 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 3 1 : A case of orthokeratinized odontogenic cyst: Maeda K, Sakamoto K, Ogawa I: 51st Annual Meeting of Japanese Society of Oral & Maxillofacial Surgery (Kitakyushu), 2006.
- 3 2 : A case of chondrosarcoma arising in the mandibular condyle.: Nishi H, Nobumori T, Tohmori H, Higashikawa K, Sato S, Ogawa I, Kamata N: 51st Annual Meeting Japanese Society of Oral and Maxillofacial Surgery (Kitakyusu), 2006.
- 3 3 : Roles of prostaglandin E2 and PGE receptors on osteoclastogenesis by osteoblasts and cementoblasts.: Miyauchi M, Oka H, Kitagawa M, Sakamoto K, Iizuka S, Kawazoe Y, Sato S, Takata T: 49th Annual Meeting in Autumn of the Japanese Society of Periodontology (Osaka), 2006.
- 3 4 : Study on the mechanism of human cementoblast specific gene in human cementoblast.: Kitagawa M, Iizuka S, Oka H, Ogawa I, Miyauchi M, Abiko Y, Takata T: 49th Annual Meeting in Fall of the Japanese Society of Periodontology (Osaka), 2006.
- 3 5 : Brain-derived neurotrophic factor regulates expressions of bone cementum-related proteins in human cementoblast cells through a p44/42 signalling pathway.: Kajiya M, Shiba H, Fujita T, Ohara K, Takeda K, Mizuno T, Kawaguchi H, Kitagawa M, Takata T, Tsuji K, Kurihara H: 49th Annual Meeting in Fall of the Japanese Society of Periodontology (Osaka), 2006.
- 3 6 : Nonalcoholic steatohepatitis in a rat periodontitis model.: Ekuni D, Tomofuji T, Yamanaka R, Kusano H, Azuma S, Sanbe T, Tamaki N, Yamamoto T, Watanabe T, Miyauchi M, Takata T: 49th Annual Meeting in Fall of the Japanese Society of Periodontology (Osaka), 2006.
- 3 7 : Biological effects of ultrasound exposure on the PDL cells.: Inubushi T, Tanaka E, Dalla-Bona D A, Tanne K, Miyauchi M, Takata T: 90th meeting of Hiroshima University Dental Society (Hiroshima), 2006.
- 3 8 : Histopathological study on boundary area between Lugol-stained and unstained of oral dysplastic lesions.: Ohta K, Ono S, Mizuta K, Taki M, Miyauchi M, Ogawa I, Takata T, Kamata N: 54th Annual Meeting, The Japanese Stomatological Society, Chugoku-Shikoku Division (Tokushima), 2006.
- 3 9 : A case of glandular odontogenic cyst in mandibular molar region.: Nihkawa S, Koizumi K, Takatani S, Ogawa I, Takata T, Okamoto T: 54th Annual Meeting, The Japanese Stomatological Society, Chugoku-Shikoku Division (Hiroshima), 2006.
- 4 0 : A case of florid osseous dysplasia showing multiple cystic lesion.: Ono S, Fukuda T, Nishi H, Miyauchi M, Ueyama Y, Kamata N: 54th Annual Meeting, The Japanese Stomatological Society, Chugoku-Shikoku Division (Hiroshima), 2006.
- 4 1 : Anti-inflammatory effect of liposomal lactoferrin II: Inhibitory effects of liposomal lactoferrin on LPS-induced periodontal tissue destruction model.: Yamano E, Miyauchi M, Tanaka E, Ishikado A, Imanaka H, Suido H, Makino T, Tanne K, Takata T: 2nd Lactoferrin Forum (Tokyo), 2006.
- 4 2 : Parotid gland tumor (pleomorphic adenoma with oncocytic metaplasia): Sakamoto K, Ogawa I, Shimamoto F, Okada A, Takata T: 89th Slide Conference, Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Ube), 2006.

- 4 3 :Mandibular cystic lesion (Orthokeratinized odontogenic cyst). : Kitajima S, Ogawa I, Oka H, Miyauchi M, Suei Y, Miyauchi M, Takata T : 90th Slide Conference, Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Takamatsu), 2006.
- 4 4 : Palatal tumor (polymorphous low-grade adenocarcinoma) : Ogawa I, Siriwardena B S M S, Miyauchi M, Takata T : 91st Slide Conference, Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Kure), 2006.
- 4 5 : Sclerosing polycystic adenosis or pleomorphic adenoma with sclerotic changes ? The resemblance of histopathological features. : Ogawa I, Takada S, Miyauchi M, Matsuura H, Takata T : 51st Annual Meeting of the Japanese Salivary Gland Society (Tokyo), 2006.
- 4 6 : Periodontal tissue and liver diseases. : Miyauchi M : 153rd Clinical Study Group of Hiroshima University (Hiroshima), 2006.

F) Special lectures in academic meetings

- 1 : Invasion mechanisms of cancer cells. Invited Lecture.: Takata T, Kudo Y, Sato S, Miyauchi M, Ogawa I, Kitagawa M, Kitajima S : 13th International Congress on Oral Pathology and Medicine (Brisbane, Australia) , 2006.
- 2 : New WHO Classification of Odontogenic Tumours; Highlights of the Revision and Their Background.: Workshop “Issues for formulating the Guideline of Odontogenic Tumo”. : Takata T : 24th General Meeting of Japan Society for Oral Tumors (Kita-Kyusyu), 2006.
- 3 : Panel Discussion of Salivary Gland Tumors with Diagnostic Problem. : Morinaga S, Takata T, Nagao T, Hirokawa M : 95th General Meeting of Japanese Society of Pathology (Tokyo), 2006.
- 4 : Differential Diagnosis of Adenoid Cystic Carcinoma and Other Salivary Gland Tumors with “Cribri-form pattern” .: Takata T, Ogawa I, Kudo Y, Miyauchi M : 95th General Meeting of Japanese Society of Pathology (Tokyo), 2006.
- 5 : Biological Responses of the PDL and Cementoblastic Cells to Ultrasonic exposure. : Tanaka E, Dalla-Bona D A, Inubushi T, Tanne K, Ohta A, Okada H, Miyauchi M, Takata T : 24th Annual meeting of the academy of gnathology and occlusion (Tokyo), 2006.
- 6 : “Salivary gland tumors”(Slide seminar). : Ogawa I, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata), 2006.
- 7 : Differential diagnosis of clear cell carcinoma, NOS of salivary gland (Symposium “Salivary Gland Tumors”). : Ogawa I, Miyauchi M, Kudo Y, Sato S, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata), 2006.
- 8 : Histological diagnostic standard for oral borderline malignancies -Preliminary report of activity of working committee on new histopathological criteria for borderline malignancies of oral mucosa -Histological diagnostic criteria of epithelial dysplasia and carcinoma in-situ proposed by WHO and their problems : Ogawa I, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata) , 2006.
- 9 : Tissue Engineering and the roles of Oral Engineering. : Takata T. : 28th General Meeting of Nippon Academy of Dental Technology (Hiroshima), 2006.
- 1 0 : Studies on cellular mechanism of enhancement of periodontal tissue regeneration by enamel proteins and application of synthetic ameloblastin peptide for periodontal regeneration. : Takata T, Sato S, Kitagawa M, Iizuka S, Kudo Y, Miyauchi M : COE symposium of Osaka University (Osaka), 2006.

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

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor	: Hidemi Kurihara
Associate Professor	: Hiroyuki Kawaguchi
Assistant Professor	: Hiroshi Yoshino, Hideki Shiba
Research Associate	: Takamune Hino, Shigeo Nakamura, Noriyoshi Mizuno, Naohiko Hasegawa, Hideaki Hayashi, Tsuyoshi Fujita, Yuushi Uchida, Daisuke Fujioka, Tomoyuki Iwata, Koichi Hayashida
Secretary	: Mako Akagi
Resident	: Seiji Kudo, Katsuhiro Takeda, Arata Ashikaga, Miyuki Niitani, Mayumi Morimoto, Eri Tamagawa
Intern	: Ogawa Fumino, Masato Kawamura, Sachi Yamakita
Graduate Student	: Tomohiko Akasaki, Yoshitaka Ozeki, Mari Kiyota, Hidehiro Tsuda, Noriko Tsunekuni, Kiyotaka Hanaki, Yoshihiko Fuse, Takuma Yanagihara, Shinichiro Yoshimatsu, Takafumi Inui, Tomoko Higashiyama, Reika Hirata, Yasuko Kitamoto, Yoriko Iwasaki, Mikihiro Kajiya, Akiyoshi Kishimoto, Nobuyuki Sakai, Takayoshi Nagahara, Yoshie Niitani

(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)

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Periodontal regenerative therapy by transplantation of mesenchymal stem cells : Kawaguchi H, Hayashi H, Mizuno N, Fujita T, Iwata T, Hasegawa N, Nakamura S, Hino T, Shiba H, Yoshino H, Tanaka H, Kimura A, Tsuji K, Igarashi A, Kato Y, Kurihara H : 5th Meeting of the Regenerative Medicine (Okayama), 2006
- 2: Histological Study of Periodontal Tissue Regeneration by Brain-derived neurotrophic factor. : Kiyota M, Hasegawa N, Kawaguchi H, Takeda K, Yoshimatsu S, Mizuno N, Inui T, Shiba H, Tsuji K, Kurihara H : 5th Meeting of the Regenerative Medicine (Okayama), 2006
- 3: Immunohistochemical Study of Periodontal Tissue Regeneration by Brain-derived neurotrophic factor. : Kiyota M, Hasegawa N, Takeda K, Yoshimatsu S, Mizuno N, Inui T, Shiba H, Kawaguchi H, Igarashi A, Tsuji K, Kurihara H : 49th the spring meeting of the Japanese society of Periodontology (Ichikawa), 2006
- 4: Effect of humoral factors from human periodontal ligament cells to the differentiation of human bone marrow derived mesenchymal stem cells : Y Ozeki, N Mizuno, T Fujita, H Shiba, H Kawaguchi, K Tsuji, Y Abiko, H Kurihara : 49th the spring meeting of the Japanese society of Periodontology (Ichikawa), 2006
- 5: The effect of Irsogladine maleate on CXC-chemokine expressions in human gingival epithelial cells : Fujita T, Takeda K, Shiba H, Ashikaga A, Mizuno N, Kishimoto A, Hirata R, Kawaguchi H, Abiko Y, Kurihara K : 49th the spring meeting of the Japanese society of Periodontology (Ichikawa), 2006
- 6: Study of periodontal tissue regeneration by transplantation of bone marrow mesenchymal stem cells : Yoshimatsu S, Hasegawa N, Kawaguchi H, Mizuno N, Kiyota M, Takeda K, Kurihara H : 124th spring meeting of Japanese society of conservative dentistry (Yokohama), 2006
- 7: Effect of Brain-derived Neurotrophic Factor on Periodontal Tissue Regeneration : Kiyota M, Hasegawa N, Kawaguchi H, Takeda K, Inui T, Mizuno N, Shiba H, Tsuji K, Kurihara H : 84th General session and Exhibition of the international association for dental research (Brisbane), 2006.
- 8: Immunohistochemical Study of Periodontal Tissue Regeneration with Mesenchymal Stem Cell.: Hasegawa N, Kawaguchi H, Mizuno N, Takeda K, Tsuji K, Kato Y, Kurihara H : 84th General session and Exhibition of the international association for dental research (Brisbane), 2006.
- 9: Autoimmune disease aspects in patients with aggressive periodontitis. : T Yanagihara, T Hino, K Hayashida, M Niitani, K Hanaki, N Mizuno, H Shiba, H Kawaguchi, H Kurihara : 84th General session and Exhibition of the international association for dental research (Brisbane), 2006.
- 10: Distribution of periodontal pathogens in saliva from human subjects. : T Hino, H Shiba, H

- Yoshino, H Kawaguchi, T Takemoto and H Kurihara : 84th General session and Exhibition of the international association for dental research (Brisbane), 2006.
- 11: Immunohistochemical Study of Periodontal Tissue Regeneration by Brain-derived neurotrophic factor. : Kiyota M, Hasegawa N, Kawaguchi H, Takeda K, Inui T, Mizuno N, Shiba H, Tsuji K, Kurihara H : Annual meeting of American academy of Periodontology (San Diego), 2006.
 - 12: Brain-derived neurotrophic factor regulates expressions of bone cementum related proteins through ap44/42 signaling pathway in human cementoblast cells. : Kajiya M, Shiba H, Fujita T, Ouhara K, Takeda K, Kawaguchi H, Kitagawa M, Takata T, Kurihara H : 49th the autumn meeting of the Japanese society of Periodontology (Osaka), 2006
 - 13: Effects of human bone marrow mesenchymal stem cells on cells proliferation and adhesion of human gingival epithelial cells : Hirata R, Fujita T, Iwata T, Kishimoto A, Kajiya M, Takeda K, Mizuno M, Shiba H, Kawaguchi H, Tsuji K, Kurihara H : 49th the autumn meeting of the Japanese society of Periodontology (Osaka), 2006
 - 14: Identification of marker genes distinguishing human periodontal ligament cells from human mesenchymal stem cells and human gingival fibroblasts : Fujita T, Iwata T, Shiba H, Igarashi A, Hirata R, Takeda K, Mizuno N, Kawaguchi N, Kato Y, Kurihara H : 49th the autumn meeting of the Japanese society of Periodontology (Osaka), 2006
 - 15: Effects of leptin on differentiation in human periodontal ligament cells : T Inui, N Mizuno, K Hanaki, K Ouhara, M Kajiya, N Hasegawa, Y Ozeki, T Fujita, H Shiba, H Kawaguchi, H Kurihara : 49th the autumn meeting of the Japanese society of Periodontology (Osaka), 2006
 - 16: Change of periodontal pathogen number in subgingival pocket by sonic toothbrushing : Hatakeyama T, Hino T, Shimada M, Yamashita S, Kawaguchi H, Tamura H, Kurihara H : First the meeting of the Japanese society of dental hygienist (Tokyo), 2006
 - 17: Quantitative change of bacteria in periodontal pocket by a using sonic toothbrush : Hatakeyama T, Hino T, Shimada M, Yamashita S, Kawaguchi H, Kurihara H : 49th the autumn meeting of the Japanese society of Periodontology (Osaka), 2006
 - 18: Autoantibodies in sera from patients with periodontitis reacted to self antigens from human gingival fibroblasts. : T Yanagihara, T Hino, and H Kurihara. : Hiroshima Conference on Education and Science in Dentistry. Jan. 2006

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

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor: Ichiro Takahashi

Associate Professor: Kei Tobiume

Instructor: Atsushi Shimazu, Kazuko Kawahara, Keiko Tsuruda

Graduate Student: Satoshi Mitoh

(2) Main Research Activities

1. Analysis of mucosal immune system
2. Molecular analysis of cell-death

(3) Research Achievements

A) Original Papers (including Case Reports)

1. Life style factors affecting prevalence of dental caries in infants in Onomichi-city: Mitoh S.: Journal of Dental Health. 56, 688-708, 2006.
2. The yin and yang of the mucosal immune system. : Takahashi I: Journal of Japanese Society for Helicobacter Research. 7, 62-69, 2006.
3. Current opinions in the mucosal vaccine development. : Takahashi I: Clinical Immunology. 45, 112-116, 2006.

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

1. Immunological development in oral health science. : Takahashi I: The 55th annual meeting of Japanese society for dental health. (Toyonaka-Osaka), 2006.
2. Application of high throughput flow-cytometry in immunology. : Takahashi I: The 36th annual meeting of Japanese society for immunology. (Osaka), 2006.

3. Molecular and cellular mechanism of mucosal immunological homeostasis by IL-15 and MICA intranet : Koh M, K Tsuruda, N Ohta, K Tanne, T Hiroi, H Kiyono, and I Takahashi. : Keystone Symposia. Innate Immunity (B6). (Fairmont Banff Springs, Canada), 2006.
4. Ameliorative roles of MICA for IL-15 supported pathogenic T cell fates in T cell receptor alpha chain-deficient mice with inflammatory bowel disease. : Tobiume K, K Tsuruda, N Ohta, H Iijima, M Koh, T Hiroi, H Kiyono, and I Takahashi. : The 6th Awaji International Forum on Infection and Immunity. (Awaji Yume-Butai, Hyogo), 2006.
5. Constitutive MICA expression enhances humoral immune surveillance in the gastrointestinal tissue. : Shimazu A, E Park, M Koh, H Kiyono, and I Takahashi. : The 36th annual meeting of Japanese society for immunology. (Osaka), 2006.
6. Pathological role of the mucosal immune system for the development of periodontal disease. : Takahashi I : Tokushima University Graduate School Seminar. (Tokushima), 2006.
7. The mucosal immune system. : Takahashi I : Hiroshima University Kasumi Festival Lecture. (Hiroshima), 2006.

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

1. Grant for the Basic Science (C) from the Ministry of Education, Science, Sports, and Culture. : A. Shimazu : The protective role of osteoclast differentiation factor for the periodontal disease. (No.17592181), ¥2,300,000
2. Grant for the Basic Science (C) from the Ministry of Education, Science, Sports, and Culture. : K. Tsuruda. : The development of HVJ-liposome-based mucosal vaccine for the periodontal disease. (No.16592089) , ¥600,000
3. Grant for the Basic Science (C) from the Ministry of Education, Science, Sports, and Culture. : K. Kawahara : Analysis of stress-inducible MICA expression in the periodontal tissue derived cells. (No.18592280) , ¥2,800,000
4. Grant for the Young Investigator (B) from the Ministry of Education, Science, Sports, and Culture. : K Tobiume: The novel anti-cancer chemotherapy by using mutant suicide Bax gene. (No.17791333), ¥1,900,000

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor : Keiji Tanimoto

Associate Professor : Minoru Fujita

Assistant Professor : Akira Taguchi, Yoshikazu Suei

Research Associate : Toshikazu Nagasaki, Masahiko Ohtsuka, Kaoru Lee,
Masahiko Sawajiri, Takashi Nakamoto

Graduate Student : Yuri Fujiwara, Kohdo Ishii, Takeo Nakashima, Mika Samura, Samir Banik

(2) Main Research Activities

- 1: Clinical research on radiotherapy for oral cancer
- 2: Clinical research on radiologic diagnosis of oral tumors
- 3: Measurement of bone mineral density of the jaws by quantitative computed tomography
- 4: Early detection of postmenopausal women with osteoporosis by panoramic radiographs
- 5: Influence of osteoporosis on oral health
- 6: Effect of vitamin D and estrogen receptor gene polymorphisms on the jaw bones
- 7: Influence of oral health on cardiovascular diseases
- 8: Early detection of elderly with atherosclerosis by dental radiographs
- 9: Effects of medication for osteoporosis on oral health
- 10: Radiographic findings of simple bone cyst
- 11: MRI Study on the dynamic image of swallowing
- 12: Magnetoencephalography Study on the higher brain function of swallowing

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Radiographic evaluation of the fate of developing tooth buds on the fracture line of mandibular fractures : Suei Y, Mallick PC, Nagasaki T, Taguchi A, Fujita M, Tanimoto K : J Oral Maxillofac Surg, 64, 94-99, 2006.
- 2: Estrogenic activity of phthalate esters by in vitro VTG assay using primary-cultured Xenopus hepatocytes : Nomura Y, Mitsui N, Bhawal U K, Sawajiri M, Tooi O, Takahashi T, Okazaki

- M : Dent Mater J 25, 533-537, 2006.
- 3: Different effects of carbon ion and gamma-irradiation on expression of receptor activator of NF- κ B ligand in MC3T3-E1 osteoblast cells : Sawajiri M, Nomura Y, Bhawal U K, Nishikiori R, Okazaki M, Mizoe J, Tanimoto K : Bull Exper Bio and Med 142, 618-624, 2006.
 - 4: Use of dental panoramic radiographs in identifying younger postmenopausal women with osteoporosis. : Taguchi A, Tsuda M, Ohtsuka M, Kodama I, Sanada M, Nakamoto T, Inagaki K, Noguchi T, Kudo Y, Suei Y, Tanimoto K, Bollen A-M : Osteoporos Int 17, 387-94, 2006.
 - 5: Can the presence of carotid artery calcification on panoramic radiographs predict the risk of vascular diseases among 80-year-olds? : Tanaka T, Morimoto Y, Ansai T, Okabe S, Yamada K, Taguchi A, Awano S, Kito S, Takata Y, Takehara ., Ohba T : Oral Surg Oral Med Oral Pathol Oral Radiol Endod 101, 777-83, 2006.
 - 6: Diagnostic performance of general dental practitioners after lecture in identifying postmenopausal women with low bone mineral density by panoramic radiographs : Sutthiprapaporn P, Taguchi A, Nakamoto T, Ohtsuka M, Mallick P C, Tsuda M, Kodama I, Kudo Y, Suei Y, Tanimoto K : Dentomaxillofac Radiol 35, 249-52, 2006.
 - 7: Computer-aided system for measuring the mandibular cortical width on dental panoramic radiographs in identifying postmenopausal women with low bone mineral density : Arifin A Z, Asano A, Taguchi A, Nakamoto T, Ohtsuka M, Tsuda M, Kudo Y, Tanimoto K : Osteoporos Int 17, 753-9, 2006.
 - 8: Neuroscience of swallowing function : Biomagnetic analysis of swallowing movement: Toshikazu N, Akira H, Keiji T : Cell 38, 84-87, Japanese, 2006.
 - 9: Influence of aging and denture use on liquid swallowing in healthy dentulous and edentulous elderly : Yoshikawa M, Yoshida M, Nagasaki T, Tanimoto K, Tsuga K, Akagawa Y : J. Am. Geriatr. Soc. 54, 444-449, 2006.

B) Review

C) Publications

- 1 : Oral radiography; Illustrated practical guide for radiological technology 2nd ed. (Takahashi M. and Takahashi T., editor) : Ohtsuka M : Bunkodo (Tokyo), 247-258, 2006.
- 2 : Quality Assurance Program of Radiation Diagnosis in Dental Practice. (Sasaki T., editor) : Fujita M.: ISHIYAKU PUBLICATIONS, INC. (Tokyo), 32-38, 56-57, 2006.

D) Other Publications

- 1: Extraction of trabecular structures of mandible excluding tooth roots on dental panoramic radiographs using mathematical morphology : Asano A, Tambe T, Taguchi A, Muraki-Asano C, Nakamoto T, Tanimoto K, Muneyasu M, Hinamoto T : Proc. 18th International Conference on Pattern Recognition (ICPR2006), 3, 988-991, 2006.

- 2: Morphological analysis of periapical radiographs in the mandible may identify women with low skeletal bone mineral density : Taguchi A.: J Evid Based Dent Pract 6, 234-5, 2006.
- 3: Primary hyperparathyroidism and mandible : Taguchi A : J Clin Endocrinol Metab, electronic letter publication (September 20, 2006).

E) Presentation at Scientific Meeting

- 1: Observer performance in identifying postmenopausal women with osteoporosis by dental panoramic radiographs : Results from the Osteoporosis Screening Project in Dentistry (OSPD): Taguchi A, Asano A, Ohtsuka M, Nakamoto T, Suei Y, Tsuda M, Kudo Y, Inagaki K, Noguchi T, Tanimoto K, Klemetti E, White S C, Horner K : World Health Organization (WHO) and International Osteoporosis Foundation (IOF) : Sixth European Congress on Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ECCEO 6) : (Vienna, Austria), 2006.
- 2: Observer performance in diagnosing osteoporosis by panoramic radiographs : Taguchi A, Asano A, Ohtsuka M, Nakamoto T, Suei Y, Tsuda M, Kudo Y, Inagaki K, Noguchi T, Ohtani K, Ohtaki M, Tanimoto K, Klemetti E, White S C, Horner K : IADR 84th General Session: (Brisbane, Australia), 2006.
- 3: The development of the quarter-field pattern reversal task, using 'Direct X' 1 : Hashizume A, Kurisu K, agasaki T, Tanimoto K : The 7th annual meeting of brain magnetic nuro-imaging society (Okazaki), 2006.
- 4: Event-related biomagnetic filed, in left-handed human command swallow cue by light and self-paced voluntary swallow : Nagasaki T, Hashizume A, Kurisu K, Tanimoto K : The 30th annual meeting of the Society of Swallowing and Dysphagia of Japan (Tokyo), 2006.
- 5: Event-related biomagnetic filed, in left-handed human command swallow cue by light and self-paced voluntary swallow: Nagasaki T, Hashizume A, Kurisu K, Tanimoto K : The 30th annual meeting of the Society of Swallowing and Dysphagia of Japan (Tokyo), 2006.
- 6: Swallowing sound study for dysphagic patients : Yoshikawa M, agasaki T, Yoshida M, Tanimoto K, Tanaka K, Sasamura K, Akagawa Y : The 12th annual meeting of the Japanese society of Dysphgia Rehabilitation (Kurashiki), 2006.
- 7: Temporal dynamics of biomagnetic cortical rhythms in human command and voluntary swallowing : A magnetoencephalography study : T Nagasaki1, A Hashizume, Y Suei, Y Fujiwaral, K Kurisu, K Tanimoto : 14th annual meeting of Dysphagia Society Meeting (Scottsdale, Arizona) 2006.
- 8 : Radiology of swallowing and oral diagnosis : Tanimoto K : The 10th Annual Meeting of Thai Society of Oral Diagnostic Science (Bangkok), 2006.
- 9 : Treatment results of Interstitial brachytherapy for early tongue cancer using Iridium hairpin : M. Fujita, Y. Hashimoto, Y. Murakami, K. Matsuura, M. Kenjyo, Y. Kaneyasu, K. Wadasaki, Y. Hirokawa, K.Ito : 30th annual meeting of Japanese Society for Head and Neck Cancer (Osaka) 2006.
- 10 : Regional failure pattern following interstitial brachytherapy for Stage I/II tongue cancer : K.

Wadasaki , M. Fujita, Y. Murakami, K. Matsuura, M. Kenjyo, Y. Kaneyasu, K. Wadasaki, Y K.Ito : 80th meeting of Brachytherapy Conference of Japanese Society for Therapeutic radiology and Oncology (Kurashiki) 2006.

(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 : Taguchi A : Effect of osteoporosis on jaw bones and periodontal tissue, (no. 16390616), ¥ 600,000
- 2: 8020 Research Foudation : Taguchi A : Development of internet-based educational system in screening of osteoporosis by panoramic radiographs, ¥ 300,000
- 3: Fund from Furuno Corporation : Taguchi A : Development of new system to measure jaw bone mineral density, ¥ 300,000
- 4: Grant-in-aid for scientific research from the Japan Society for the Promotion of Science : Fujita M : Improvement of local control and QOL of oral cancer patients with use of hyperfractionated radiotherapy combined with chemotherapy,(no. 17591962), ¥1,000,000

(5) Academic Awards, etc.

(6) Patents

Programs for Applied Biomedicine Division of Critical Medical Science

(Department of Oral Growth and Developmental Biology)

(1) Staffs and Students

Professor: Maeda Norihiko
Associate Professor: Yoshiko Yuji
Assistant Professor: Suemune Setsuko, Hua Wang
Researcher: Minamizaki Tomoko, Suzuki Sayaka

(2) Main Research Activities

- 1: Study on the development and aging in the masticatory system
- 2: Study on the neurogenesis in the brain
- 3: Studies on cell fate choice and plasticity in osteoblast-lineage cells
- 4: Studies on the molecular mechanisms of bone formation and mineralization

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Stanniocalcin 1 acts as a paracrine regulator of growth plate chondrogenesis. : Wu S, Yoshiko Y, De Luca F. : J Biol Chem 281, 5120-5127, 2006.

B) Review

C) Publications

D) Other Publications

- 1: regulation of mesenchymal lineage transcription factors during osteoblast development in rat calvaria.. : Hasegawa T, Yoshiko Y, Minamizaki T, Wang H, Yamamoto R, Kozai K, Tanne K, Maeda N. : Dynamic IOF & ANZBMS combined Meeting Book 149, 2006.

E) Presentation at Scientific Meeting

- 1: The prostaglandin receptors, EP2 and EP4, play different roles in osteoblast-adipocyte fate choices in the rat calvaria cell model. : Minamizaki T, Yoshiko Y, Kozai T, Aubin JE, Maeda N. : The 16th Annual Meeting of the American Society for Bone and Mineral Research (Philadelphia), September,

2006.

- 2: FGF23 acts as a negative autocrine/paracrine regulator of osteoblast development and matrix mineralization in fetal rat calvaria cell cultures. : Wang H, Yamamoto R, Minamizaki T, Tanne K, Aubin JE, Maeda N, Yoshiko Y. : The 16th Annual Meeting of the American Society for Bone and Mineral Research (Philadelphia), September, 2006.
- 3: Dynamic regulation of mesenchymal lineage transcription factors during osteoblast development in rat calvaria cell cultures. : Hasegawa T, Yoshiko Y, Minamizaki T, Wang H, Yamamoto R, Kozai K, Tanne K, Maeda N. : Combined Meeting of the 3rd IOF Asia-Pacific Regional Conference on Osteoporosis and the 16th Annual Meeting of the ANZ Bone and Mineral Society (Port Douglas), October, 2006.

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

- 1: Grant-in-Aid for Scientific Research : N. Maeda : (No. 175919132) ¥ 1,300,000, 2006
- 2: Grant from Raffinee International Corporation : Y. Yoshiko : ¥ 2,600,000, 2006
- 3: Grant-in-Aid for Scientific Research : Y. Yoshiko : (No. 18592001)¥ 3,950,000, 2006~2007
- 4: Research for Promoting Technological Seeds from Japanese Science and Technology Agency (10-068) : Y. Yoshiko: ¥3,950,000, 2006~2007

(5) Academic Awards, etc.

(6) Patents

Introduction of the Department of Growth and Developmental Biology

[Education]

Our educational program consists of lectures and the practical exercise on histology of the human body, and oral anatomy mainly focusing the mastication.

[Research]

We mainly focus on the following research subjects.

- 1: Study on the development and aging in the masticatory system
- 2: Study on the neurogenesis in the brain
- 3: Study on cell the fate choice and plasticity in osteoblast-lineage cells
- 4: Study on the molecular mechanisms of bone formation and mineralization

The final goal of our research is to contribute to the high quality of the human life in the world. So, we collaborate on the research not only with some research groups of other universities and research institutes in Japan but also with the research group of the University of Toronto in Canada.

[Recent highlight]

1: We applied the patent to the Japan Patent Office: Analysis of the factors that regulate the bone formation and mineralization, and the screening method (No. 2006-194078)..

2: We won following academic awards: 1) President Poster Award : Combined Meeting of the 3rd IOF Asia-Pacific Regional Conference on Osteoporosis and the 16th Annual Meeting of the ANZ Bone and Mineral Society, T. Hasegawa, 2006, 2) Travel award: 24rd Japan International Bone and Mineral Society, T. Hasegawa, 2006, 3) Plenary Poster Award .and Travel Award: The 17th Scientific Meeting of International Bone and Mineral Society. Y. Yoshiko, 2007, 4) Plenary Poster award and Travel Award: The 29th Annual Meeting of the American Society for Bone and Mineral Research. T.. Minamizaki. 2007

Programs for Applied Biomedicine Division of Critical Medical Science (Department of Dental Anesthesiology)

(1) Staffs and Students

Professor:	Kawahara Michio, M.D.,Ph.D.
Associate Professor:	Irihune Masahiro, D.D.S.,Ph.D.
Assistant Professor:	Takarada Thoru, D.D.S.,Ph.D. , Endo Chie, D.D.S., Shimizu Yoshitaka, D.D.S., Ph.D.
Resident:	Nagata Masateru,D.D.S., Miura Kanna,D.D.S., Hanzawa Yasunori,D.D.S.
Graduate Student:	Saida Takuya, D.D.S., Kikuchi Nobuhito, D.D.S., Onizuka Chiori, D.D.S.
Research Student:	Kawamoto Hisao,D.D.S.
Registered Intern:	Katayama Sotaro, D.D.S., Takahashi Kenichiro, D.D.S.

(2) Main Research Activities

1. Mechanism of General Anesthetics
2. Effects of Vasoconstrictor Added in Local Anesthetics on Circulation
3. Control of Respiration and Circulation during General Anesthesia
4. Pain Control for Malignant Tumor
5. Pain Clinic for Nerve Palsy
6. Dental treatment for Medically Compromised Patient
7. Acute Medicine for Emergency during Dental Treatment

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 :Approach to the Monitoring of Respiration by Dynamic Air-pressure Sensor : T Takarada, M Irihune, C Endo, Y Shimizu, K Kobayashi, K Sakata, S Kikuchi, T Saida, C Onizuka and M Kawahara : The Journal of Hiroshima University Dental Society 37,142-144,2006.
- 2 :Statistical Survey of the Dental Treatment in "STRESS FREE DENTAL CLINIC" of Hiroshima University Hospital : C Endo, M Irihune, T Takarada, Y Shimizu, K Kobayashi, K Sakata, C Onizuka and M Kawahara : The Journal of Hiroshima University Dental Society 38,52-57,2006.
- 3 :An Educational Effect by Introductory Seminar for First-Year Students "Complexion": T Takarada, T Ohnuki, T Matumoto, M Kohshi, Y Suwa, K Okumoto, Y Nakamura, A Furusawa, R Umenaga, E Ohkura, D Tomomari and M Kawahara : The Journal of Hiroshima University Dental Society 38,131-142,2006.
- 4 : MPTP treatment of common marmosets impairs proteasomal enzyme activity and decreases

expression of structural and regulatory elements of the 26S proteasome : Zeng B Y, Iravani M M, Lin S T, Irifune M, Kuoppamäki M, Al-Barghouthy G, Smith L, Jackson M J, Rose S, Medhurst A D, Jenner P : Eur J Neurosci. : 23,1766-1774,2006

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 :The study of sedation on the occasion of the implant operation in Hiroshima University Hospital : K Miura, T Takarada, M Irifune, C Endo, Y Shimizu, M Nagata and M Kawahara : The 3rd Scientific Meeting of Japanese Dental Society of Anesthesiology Chugoku and Shikoku branch (Okayama), 2006.
- 2 :The convenience of the Stress-Free Dental Clinic in Hiroshima University Hospital : M Nagata, T Takarada, M Irifune, C Endo, Y Shimizu, K Miura and M Kawahara : The 3rd Scientific Meeting of Japanese Dental Society of Anesthesiology Chugoku and Shikoku branch (Okayama), 2006.
- 3 :Evaluation of the learning environment in the clinical training of dental anesthesia - The questionnaire survey used DREEM(Dundee Ready Education Environmental Measure)- : T Takarada, M Irifune, C Endo, Y Shimizu, M Nagata, K Miura, T Saida, C Onizuka and M Kawahara : The 3rd Scientific Meeting of Japanese Dental Society of Anesthesiology Chugoku and Shikoku branch (Okayama), 2006.
- 4 :CPR training for dentistry students : Y Shimizu, T Saida, C Onizuka, C Endo, T Takarada, M Irifune, M Kawahara : The 3rd Scientific Meeting of Japanese Dental Society of Anesthesiology Chugoku and Shikoku branch (Okayama), 2006.
- 5 :The study of the selective N-methyl-D-aspartate(NMDA) receptor channel blocker, MK-801, on the general anesthetic action : M Irifune, S Kikuchi, T Saida, C Onizuka, T Takarada, C Endo, Y Shimizu, M Nagata, K Miura and M Kawahara : The 35th Annual Meeting of Japanese Dental Society of Anesthesiology (Yokohama), 2006.
- 6 :The effect exerted on the stomach ulcer that the medication of sedative drugs are formed with the water immersion restraint stress in mice : T Saida, M Irifune, M Kawahara : The 35th Annual Meeting of Japanese Dental Society of Anesthesiology (Yokohama), 2006.
- 7 :The Examination of the effectiveness of the ChromograninA out of the saliva and the peripheral blood flow quantity in preoperative uneasiness : C Endo, M Irifune, T Takarada, Y Shimizu, M Nagata, K Miura, T Saida, C Onizuka, M Kawahara : The 35th Annual Meeting of Japanese Dental Society of Anesthesiology (Yokohama), 2006.
- 8 :Treatment with carbamazepine for the referred pain of the odontitis: A Case report : M Doi and S Taniguchi : The 40th Annual Meeting of Japan Society of Pain Clinicians (Kobe), 2006.

- 9: The Level of recognition of the primary headache in dentists : M Doi, S Tominaga, K Mise, Y Tsuru and S Taniguchi : The 11th International Federation of Dental Anesthesiology Societies (Yokohama), 2006.
- 10: A New Method of transnasal airway management in oral surgery with the combined use of cobra and a tracheal tube : S Tominaga, K Mise, Y Turu, M Doi, Y Manabe and S Taniguchi : The 11th International Federation of Dental Anesthesiology Societies (Yokohama), 2006.
- 11: The pain control of the patient of Cluster-tic syndrome : M Doi, S Tominaga, M Nunomaki, K Nogami, Y Manabe : The 7th Scientific Meeting of the Society of Orofacial Pain (Yokohama), 2006.
- 12: The Level of recognition of the primary headache in dentists : M Doi, S Tominaga, K Mise, Y Tsuru and S Taniguchi : The 7th Scientific Meeting of the Society of Orofacial Pain (Yokohama), 2006.
- 13: The Pain Control of the three patients of The Primary Headache presented as Odontalgia : M Doi, K Nogami, S Tominaga, Y Manabe, S Taniguchi : The 33rd Annual Meeting of Fukuoka Dental College (Fukuoka), 2006.

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

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor:	Fusanori Nishimura
Associate Professor:	Morioki Fujitani
Assistant Professor:	Nobuyuki Tanaka
Research Associate:	Masashi Fujii, Ryo Oda, Kenichi Shirai, Takahiro Harima, Makoto Arakawa, Satoki Shibata
Intern:	Hirokazu Iwaizumi, Takuji Kohno
Graduate Student:	Naoyo Motoyama

(2) Main Research Activities

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

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Interleukin 6, adiponectin, leptin, and insulin resistance in nonobese Japanese type 2 diabetic patients :
Taniguchi A, Fukushima M, Ohya M, Nakai Y, Yoshii S, Nagasaka S, Matsumoto K, Taki Y, Kuroe A,
Nishimura F, Seino Y : *Metabolism* 55, 258-262, 2006.
- 2 : Periodontal infection and dyslipidemia in type 2 diabetes. -Association with increased HMG-CoA
reductase expression- : Nishimura F, Taniguchi A, Yamaguchi-Morimoto M, Soga Y, Iwamoto Y,
Kokeguchi S, Kuroe A, Fukushima M, Nakai Y, Seino Y : *Horm Metab Res* 38, 530-535, 2006.
- 3 : Implementation and evaluation of the debate-style tutorial study in a third-year dental curriculum in
Japan : Shingaki R, Kamioka H, Irie M, Nishimura F: *International Education Journal* 7, 305-313,

2006.

- 4 : Soluble TNF receptor and periodontal disease in non-obese Japanese type 2 diabetic patients : Nomura Y, Taniguchi A, Fukushima M, Nakai Y, Nishimura Y, Kuroe A, Ohgushi M, Ohya M, Murayama Y, Seino Y: *Horm Metab Res* 38, 638-639, 2006.
- 5 : Regression of pustulosis palmaris et plantaris by periodontal treatment in subject with severe periodontitis : Akazawa H, Nishimura F, Maeda H, Takashiba S, Mine A, Maekawa K, Kuboki T : *Int J Dermatol* 45, 1420-1422, 2006.
- 6 : Study on Chemical Interaction between 4-MET and Hydroxyapatite Using XPS : Nagakane K, Yoshida Y, Hirata I, Fukuda R, Nakayama Y, Shirai K, Ogawa T, Suzuki K, Van Meerbeek B : *Dent. Mater. J.* 25(4), 645-649, 2006.
- 7 : Effect of water storage on the bonding effectiveness of 6 adhesives to Class I cavity dentin : De Munck J, Shirai K, Yoshida Y, Inoue S, Van Landuyt K L, Lambrechts P, Suzuki K, Shintani H, Van Meerbeek B : *Operative Dentistry* 31, 456-465, 2006.

B) Review

- 1 : Nishimura F : Japanese Society of Periodontology Academic Award- Basic and Clinical Research on the Associations between periodontal disease and diabetes, and diabetic complication; *Journal of the Japanese Society of Periodontology* 48, 101-105, 2006.
- 2 : Fujitani M : Adhesive properties of resin bonding system to Er : YAG or CO2 lased dentin—Does the resin bonding system exhibit its full adhesive performance to lased dentin? : *Journal of Japanese Society for Laser Dentistry.* 17(2), 74-80, 2006.

C) Publications

- 1 : Iwamoto Y, Nishimura F : 4-1-2 How would you explain the risk of periodontitis and its association with diabetes to about 10% of Japanese subjects with diabetes?; Noguchi T ed."This is it! Transferring information to patients *Periodontal disease and systemic diseases*", Hyoron Special Issue, p43-52, 2006, HYORON, Tokyo, 2006
- 2 : Tagami J, Senda A, Nara Y, Momoi Y, Fujitani M : 3rd edition *Operative Dentistry* 21, Nagasue Publishers, 2006.
- 3 : Fujinani M, Miyazaki T, Nakajima H, Kawai T, Oda Y : *Dental pulp protection & Dental materials*; Ishiyaku Publishers, Tokyo, 2006.

D) Other Publications

- 1 : Nishimura F : Life style instructions for the subjects with life style related diseases-Diseases other than metabolic syndrome; *Periodontal disease, Clinical Practice* 25 , 649-651, 2006.
- 2 : Fujitani M : Clinical dental materials Stainbuster - Stain removal in the fast and easy way; *THE NIPPON Dental Review* 66(7), 115 – 118, 2006.

- 3 : Fujitani M : Simple and easy incremental placement technique in Class IV or III cavities without lingual enamel support - Simple "Layering technique" using no more than two shades; THE NIPPON Dental Review 66(10), 163-168, 2006.
- 4 : Fujitani M : Effects of adhesion and safety of dental pulp; All of adhesive restorations of great use to clinical practice; Miyazaki S. ed. Shikaitennbou(suppl.), 56-61, Ishiyaku Publishers, Tokyo, 2006.
- 5 : Fujitani M.: Adhesively direct pulp capping - Criteria and the points for pulp management ; Suda H., Okiji T, Nakamura H, Yoshiyama M ed. For successful dental pulp management, 132-139, Quintessence Publishers, Tokyo, 2006.
- 6 : Fujitani M : BioXtra - Efficacious oral-caring tool in promoting patients' QOL; Hanada N., Toyoshima Y. ed., Evidence-based preventive dentistry Year Book 2006-2007, 26-27, Quintessence Publishers, 2006.
- 7 : Fujitani M : Tooth-colored adhesive(indirect) restorations involving proximal surfaces : Consensus & Treatment of indirect restorations ; Current Treatment Guideline Conservative, Esthetic & Cariology, and Other Area, p44-45, Quintessence Year Book (suppl.) 2006-2007.

E) Presentation at Scientific Meeting

- 1 : Surface characteristics of S-PRG filler and long-term durability of resin composites containing S-PRG filler : Shibata S, Shirai K, Arakawa M, Fujitani M: The Japanese Society of Conservative Dentistry (Spring Issue), 2006.
- 2 : Harima T, Fujitani M : The 18th Annual Meeting of the Japanese Society for Laser Dentistry, 2006.
- 3 : Caries inhibition using dental adhesive materials : Arakawa M, Shibata S, Iwaizumi H, Kohno T, Shirai K, Fujitani M: The Japanese Society of Conservative Dentistry (Autumn Issue), 2006.

F) Special lectures in academic meetings

- 1 : Nishimura F : Periodontal Disease and Diabetes; Symposium 'Diabetes and Infectious disease, host immunity', 21st Annual Meeting of Japanese Societu of Diabetic Complication, October 6 2006, Hirosaki
- 2 : Nishimura F : Periodontal Disease and Systemic Disease; Periodontal Disease and Metabolic Syndrome (Open Forum for Public "Is oral health associated with systemic health?", 20th Annual meeting of mandubular function society, September 23 2006, Okayama.
- 3 : Nishimura F : Special lecture 'Basic and Clinical Research on the Associations between periodontal disease and diabetes, and diabetic complication', April 28, 2006, Ichikawa; Journal of the Japanese Society of Periodontology, 48 (Spring Special Issue): pp23.

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

- 1 : Grant-in-Aid for Scientific Research (B) Continued : F. Nishimura : Mechanisms on Periodontal Medicine— particularly on liver response against periodontal infection ¥15,500,000

- 2 : Grant-in-Aid for Exploratory Research : Nishimura F : Development of new treatment for gingival overgrowth targeted against drug responsive element in cathepsin-L-promoter region. ¥3,300,000
- 3 : Grant-in-Aid for Scientific Research (C) : Fujitani M : Surface analysis of lased dentin and development of new resin bonding system; (Project Number 17591992). ¥1,500,000
- 4 : Grant-in-Aid for Scientific Research (A) (1) : Fujitani M : Rationalization and Improving Efficiency of Dental Clinical Education Using Simulation Systems. (Project Number 16209055). ¥850,000
- 5 : Grant-in-Aid for Scientific Research (C) : K. Shirai : Development of high performance of silane coupling agents by nano-technology; (Project Number 18592090). ¥2,300,000
- 6 : Grant-in-Aid for Young Scientists (C) : M. Fujii : Various approaches to regeneration of dental hard tissues using dental pulp (Project Number 18592091). ¥2,300,000
- 7 : Entrusted Accounting (Kuraray Medical Co., Ltd.) : Fujitani M, ¥400,000
- 8 : Entrusted Accounting (Shofu Co., Ltd) : Fujitani M, ¥300,000
- 9 : Entrusted Accounting (Sun Medical Co., Ltd) : Fujitani M, ¥500,000

(5) Academic Awards, etc.

(6) Patents

**Programs for Applied Biomedicine Division of Cervico-Gnathostomatology
(Department of Oral and Maxillofacial Surgery)
Department of Oral & Maxillofacial Surgery and Oral Medicine
(Oral and Maxillofacial Reconstructive Surgery)**

(1) Staffs and Students

Professor	: Nobuyuki Kamata
Assistant Professor	: Takechi Masaaki, Miyauchi Miwa
Research Associate	: Higashikawa Koichiro, Ohta Kouji, Ninomiya Yoshiaki, Shimasue Hiroshi, Ono Shigehiro, Nobumori Takeshi, Shigeishi Hideo
Resident	: Nishi Hiromi, Taki Masayuki, Mitani Yoshitugu, Mizuta Kuniko
Intern	: Minami Masahiko
Graduate Student	: Yoneda Shingo, Hiraoka Misato, Fuzimoto Shinichi
Registered Intern	: Kiyomihara Masaki, Inoue Yoshihisa, Sakata Keiko, Ozaki Kennryu

(2) Main Research Activities

- 1 : Technical improvement and evaluation of oral and maxillofacial reconstruction
- 2 : Genomic studies of oral disease
- 3 : Studies on biological characteristics and therapy of oral tumors
- 4 : Molecular biology of invasion and metastasis of oral cancer
- 5 : Studies on causative genes of cemento-osseous lesions in jawbones
- 6 : Cellular biological studies on regenerative therapy of human dental and periodontal tissues
- 7 : Novel Biomaterial, Research on regeneration of oral tissue

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1) Involvement of Ets-1 transcription factor in inducing matrix metalloproteinase-2 expression by epithelial-mesenchymal transition in human squamous carcinoma cells. : Taki M, Verschueren K, Yokoyama K, Nagayama M, Kamata N.: Int J Oncology 28(2), 487-496, 2006.
- 2) Accumulation of DNA methylation is associated with tumor stage in gastric cancer. : Oue N, Mitani Y, Motoshita J, Matsumura S, Yoshida K, Kuniyasu H, Nakayama H, Yasui W. : Cancer. 106(6), 1250-9, 2006.
- 3) Down-regulation of the claudin-18 gene, identified through serial analysis of gene expression data analysis, in gastric cancer with an intestinal phenotype.: Sanada Y, Oue N, Mitani Y, Yoshida K, Nakayama H, Yasui W.: J Pathol. 208(5), 633-42, 2006.

- 4) Systematic search for gastric cancer-specific genes based on SAGE data : melanoma inhibitory activity and matrix metalloproteinase-10 are novel prognostic factors in patients with gastric cancer.: Aung PP, Oue N, Mitani Y, Nakayama H, Yoshida K, Noguchi T, Bosserhoff AK, Yasui W.: *Oncogene*. 25(17), 2546-57, 2006.
- 5) Differential expression of claudin-2 in normal human tissues and gastrointestinal carcinomas. : Aung PP, Mitani Y, Sanada Y, Nakayama H, Matsusaki K, Yasui W.: *Virchows Arch*. 448(4), 428-34, 2006.
- 6) Correlation of Bub1 expression with tumor-proliferating activity in human salivary gland tumors. : Shigeishi H, Ono S, Taki M, Yoneda S, Nobumori T, Higashikawa K, Yasui W, Kamata N.: *Oncology Report* 15 (4), 933-8, 2006.
- 7) Genetic analyses in patients with familial isolated hyperparathyroidism and hyper-parathyroidism-jaw tumour syndrome.: Mizusawa N, Uchino S, Iwata T, Tsuyuguchi M, Suzuki Y, Mizukoshi T, Yamashita Y, Sakurai A, Suzuki S, Beniko M, Tahara H, Fujisawa M, Kamata N, Fujisawa K, Tohru Yashiro T, Nagao D, Golam MG, Sano T, Noguchi S, Yoshimoto K.: *Clinical Endocrinology* 65 (1), 9-16 2006.
- 8) Increased expression of CENP-H gene in human oral squamous cell carcinomas with tumor-proliferating activity.: Shigeishi H, Ono S, Taki M, Yoneda S, Higashikawa K, Kamata N.: *Oncology Report* 16(5), 1071-5, 2006.
- 9) Application of dental implant in our clinic- A progress of five years treatment.: Nishimura M, Makihira S, Sugiyama M, Kamata N, Sadamori S, Hamada T : *J.Hiroshima Dent. Asso.* 33(1), 1071-1075, 2006.
- 10) Resection of tongue fibroma in a patient with serum butyrylcholinesterase deficiency.: Nishi H, Higashikawa K, Ono S, Taki M, Inoue S, Kamata N.: *Jpn.J.Oral maxillofac.Surg.:* 52(5), 303-306, 2006.
- 11) Clinical statistical examination of odontogenic tumors according to the new WHO classification in 2005.: Nishi H, Higashikawa K, Shimasue H, Hiraoka M, Miyauchi M, Inoue S, Takata T, Kamata N : *Journal of Japan Society for Oral Tumors*, 18(2), 39-47,2006.
- 12) Two case of chronic disseminated intravascular coagulation (DIC) with aortic aneurysm diagnosed by post-extraction hemorrhage : Miyauchi M, Ninomiya Y, Ohta K, Higashikawa K, Nobumori T, Inoue S, Kamata N : *J. Hiroshima Univ.Dent. Soc*, 38(1), 76-79, 2006.
- 13) Autologous blood injection for the treatment of recurrent temporomandibular joint dislocation in a demented patient.: Nishi H, Tohmori H, Nobumori T, Ohta K, Ono S, Higashikawa K, Kamata N.: *J. Hiroshima Univ.Dent. Soc*, 38(1), 80-83,2006.
- 14) Gene's expression profiling analysis via epithelial-mesenchymal transition by Snail in squamous cell carcinoma cells.: Taki M, Higashikawa K, Yoneda S, Kamata N.: *The Jpn. J. Tissue Cult. Dent. Res*, 15 (2), 1-10, 2006.
- 15) Treatment of immediate reconstructive surgery with pedicle and free musculocutaneous flaps after oral cancer extirpation.: Miyauchi M, Higashikawa K, Ohta K, Ninomiya Y, Shimasue H, Nobumori T, Ono S, Shigeishi , Takechi M, Yokota K, Kamata N.: *J. Hiroshima Univ.Dent. Soc*, 38(2), 157-161, 2006.
- 16) A Case Report: Superselective Intraarterial Concomitant Chemoradiation for Advanced Tongue Carcinoma by Seldinger Technique.: Ono S, Ohta K, Miyauchi M, Taki M, Mizuta K, Fujimoto S, Minami M, Toyota N, Wadasaki K, Kamata N.: *J. Hiroshima Univ. Dent. Soc*, 38(2), 157-161, 2006.

- 17) A case of aberrant tooth root in the Maxillary sinus unidentified for a long time.: Shigeishi H, Miyauchi M, Higashikawa K, Hiraoka M, Mitani Y, Ogawa Y, Takata T, Kamata N. : J.Hiroshima Univ.Dent. Soc, 38(2), 167-169, 2006.
- 18) A case of metastatic renal cell carcinoma of the anterior region of upper gingiva.: Nishi H, Miyauchi M, Ninomiya Y, Inoue S, Kitagawa M, Yoshida M, Ogawa I, Akagawa Y, Takata T, Kamata N. : J. Hiroshima Univ.Dent. Soc, 38(2), 162-166, 2006.
- 19) Application of Contra-angle Screwdriver System in the treatment of mandibular fractures : Ohta K, Miyauchi M, Higashikawa K, Shimasue H, Ninomiya Y, Ono S, Nobumori T, Shigeishi H, Tohmori H, Kamata N : J. Jpn. Soc. O.M.F. Trauma 5(2) ,83-88, 2006.

B) Review

C) Publications

- 1 : Oral Surgery for Healthcare Professional.
Chapter 2-6 Benign Tumor
Chapter 3-7 Bone expansion, 3-11 Epulis,
Chapter 4-18 Submandibular gland and Parotid gland ectomy

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Characterization of GDD1 gene. : Mizuta K, Inoue H, Kamata N, Itakura M : Hiroshima Conference on Education and Science in Dentistry,2006
- 2 : Application of Mesenchymal Stem Cells (MSC) to Regenerative Dentistry and Identification of Molecular Markers for MSC. : Kato Y, Shimizu M, Igarashi A, Ishii M, Kawaguchi H, Kamata N, Sugiyama M, Kurihara H, Tsuji, K Kawamoto T. : Hiroshima Conference on Education and Science in Dentistry,2006
- 3 : Loss of p63 in human squamous cell carcinoma via epithelial-to-mesenchymal transition.: Higashikawa K, Yoneda S, Taki M, Shigeishi H, Ono S, Kamata N : 24th Annual Meeting of Japan Society for Oral Tumors (Kitakyusyu), 2006.
- 4 : Clinical statistical examination of odontogenic tumors. : Nishi H, Higashikawa K, Shimasue H, Hiraoka M, Miyauchi M, Inoue S, Kamata N : The 24th Annual Meeting of the Japan Society for Oral Tumors. (kitakyusyu), 2006.
- 5 : Detection of altered DNA methylation patterns in oral cancer. : Nakagawa T, Yokoi S, Inoue J, Pimkhaokham A, Suzuki E, Kamata N, Omura K, Imoto I, Inazawa J : AACR (Yokohama), 2006.
- 6 : Expression analysis of GDD1 gene and subcellular localization of GDD1 gene product : Mizuta K, Inoue H, Itakura M, Nobuyuki K : The 57th Annual Meeting of The Japanese Stomatological

- Society (Nagoya), 2006.
- 7 : A case of tongue fibroma in a patient with serum butyrylcholinesterase deficiency. : Nishi H, Higashikawa K, Ono S, Taki M, Inoue S, Kamata N : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 8 : The Effect of many nucleus giant cells on PLGA composite containing low crystalline carbonate apatite. : Minamiguchi S, Takechi M, Yuasa T, Momota Y, Tatehara S, Takano H, Ishikawa K, Nagayama M : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 9 : Basic study on application of low crystalline carbonate apatite in jaw reconstruction. The second report : effect of proliferation of human bone marrow and differentiation of osteoblast. : Nagai H, Nakata A, Onuki T, Iwanami Y, Yuasa T, Takechi M, Fukuda M, Miyamoto Y : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 10 : Basic study on application of low crystalline carbonate apatite in jaw reconstruction. The third report:long-term result in animal experiment. : Nagai H, Nakata A, Onuki T, Iwanami Y, Yuasa T, Takechi M, Fukuda M, Miyamoto Y : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 11 : Clinical and experimental study on useful of self drilling type of intermaxillary fixation using alveolar bone screws. : Tokuyama R, Satomura K, Takechi M, Yuasa T, Kudoh K, Tatehara S, Takano H, Maeda E, Nagayama M : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 12 : Effect of platelet condensation and secretion of platelet-derived growth factor (PDGF) on HAP putty.: Momota Y, Miyamoto Y, Ishikawa K, Takechi M, Yuasa T, Tatehara S, Takano H, Minamiguchi S, Nagayama M : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 13 : Two case of chronic disseminated intravascular coagulation (DIC) with aortic aneurysm diagnosed by post-extraction hemorrhage. : Miyauchi M, Ninomiya Y, Ohta K, Higashikawa K, Nobumori T, Inoe S, Kamata N : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 14 : Loss of p63 in human squamous cell carcinoma with epithelial-to-mesenchymal transition.: Higashikawa K, Yoneda S, Taki M, Ono S, Shigeishi H, Kamata N : The 57th Annual Meeting of the Japanese Stomatological Society (Nagoya), 2006.
 - 15 : Expression analysis of Bub1, BubR1 and Bub3 in human salivary gland carcinomas.: Shigeishi H, Taki M, Yoneda S, Higashikawa K, Kamata N. : 57th Annual Meeting of the Japanese Stomatological Society, in Nagoya, 2006.
 - 16 : The role of $\Delta Np63\alpha$ in the enhanced malignancy of squamous cell carcinoma through epithelial-mesenchymal transition. : Yoneda S, Higashikawa K, Taki M, Nishi H, Kamata N : The 79th Annual Meeting of the Japanese Tissue Culture Association(Tokyo),2006.
 - 17 : Problem-Based Learning dealing with Japanese mandatory postgraduate dental training course. : Takarada A, Tsuga K, Miyauchi M, Taguchi A, Okada M, Yoshino H, Hirono C, Takemoto T, Taguchi N, Ogawa T, Uchida T : 6th Asian-Pacific Conference on PBL (Tokyo), 2006.
 - 18 : A case of squamous cell carcinoma of tongue intermixed pyogenic granuloma. : Kudo K, Satomura K, Yamazaki Y, Takechi M, Ishimaru N, Hayashi Y, Nagayama M : The 35th Tyusikoku Meeting of the Japanese Society of Oral and Maxillofacial Surgeon (Okayama), 2006.

- 19: A case of pericoronitis with mediastinum abscess.; Momota Y, Satomura K, Takechi M, Kudoh K, Tokuyama R, Yamazaki Y, Koshiba K, Kondo K, Nagayama M : The 35th Tyusikoku Meeting of the Japanese Society of Oral and Maxillofacial Surgeon (Okayama), 2006.
- 20 : A case of metastatic renal cell carcinoma of the anterior region of upper gingiva.: Nishi H, Inoue S, Ninomiya Y, Miyauchi M, Ogawa I, Kamata N : The 35th Tyusikoku Meeting of the Japanese Society of Oral and Maxillofacial Surgeon (Okayama), 2006.
- 21 : The role of $\Delta Np63\alpha$ in the enhanced malignancy of squamous cell carcinoma through epithelial-mesenchymal transition. :Yoneda S, Higashikawa K, Taki M, Kamata N : The 39th Annual Meeting of the Hiroshima University Dental Society(Hiroshima),2006.
- 22 : Autologous blood injection for the treatment of recurrent temporomandibular joint dislocation in a demented patient.: Nishi H, Tohmori H, Nobumori T, Ohta K, Ono S, Higashikawa K, Kamata N : The 39th Annual Meeting of the Hiroshima University Dental Society (Hiroshima), 2006.
- 23 : Usefulness of self - drilling type alveolar bone screws for mandibular fractures: R Tokuyama, K Satomura, M Takechi, T Yuasa , K Kudoh, S Tatehara, H Takano, H Nakanishi, E Maeda, M Nagayama.: 84th IADR (Brisbane) 2006.
- 24 : Chemokine expression in human oral keratinocytes and gingival fibroblasts.: Ohta K, Shigeishi H, Taki M, Nishi H, Kamata N : The 16th Annual Meeting of the Japanese Society for Oral Mucous Membrane (Niigata), 2006.
- 25 : Culture of human oral gingival fibroblast in a chemically-defined medium.: Nishi H, Ohta K, Taki M, Hiraoka M, Yoneda S, Kamata N : The 16th Annual Meeting of the Japanese Society for Oral Mucous Membrane (Nigata), 2006
- 26 : Development and characterization of specific polyclonal antibodies to GDD1; the Gnathodiaphyseal Dysplasia protein : Sakamoto Y, Inoue H, Miyawaki K, Mizuta K, Nobuyuki K, Itakura M : The 24th Annual Meeting of the Japanese Society for Bone and Mineral Research (Tokyo), 2006.
- 27 : Application of Contra-angle Screwdriver System in the treatment of mandibular fractures,: Ohta K, Tohmori H, Ono S, Nobumori T, Ninomiya Y, Higashikawa K, Miyauchi M, Kamata N : The 7th Annual Meeting of the Japanese Society of Oral and Maxillofacial Traumatology (Kagoshima), 2006.
- 28 : A Case of Traumatic Intrusion of Permanent Teeth Treated by Orthodontic Traction in Childhood.; Tokuyama R, Satomura K, Takechi M, Yuasa T, Kudoh K, Tatehara S, Takano H, Nagayama M
- 29: Evaluation of the Dental Implant Stability Using Resonance Frequency Analyser. 2. Longitudinal Change of Implant Stability Quotient of Immediate Loading Implants.; Fujisawa K, Takechi M, Yamauchi E, Abe S, Ooshio T, Miyamoto Y, Kawano F, Nagayama M : 36th Annual Meeting of Japanese Society of Oral Implantology (Niigata), 2006.
- 30 : Characterization of GDD1 Gene Product: Mizuta K, Inoue H, Tsutsumi S, Itakura M, Kamata NASBMR (Philadelphia),2006.
- 31: Expression analysis of CENP-H in oral squamous cell carcinomas. Shigeishi H, Higashikawa K, Ono S, Taki M, Kamata N. 64th Annual Meeting of the Japanese Cancer Association, in Yokohama, 2006.
- 32 : Acquisition of high-invasiveness of human squamous cell carcinoma by loss of p63 : Higashikawa K, Yoneda S, Taki M, Shigeishi H, Ono S, Kamata N : 65th Annual Meeting of the Japanese Cancer

- Association (Yokohama), 2006.
- 33 : Detection of altered DNA and histone methylation patterns in oral cancer : Nakagawa T, Yokoi S, Inoue J, Suzuki E, Pimkhaokham A, Kamata N, Omura K, Imoto I, Inazawa J. Sixty-fifth annual meeting of the Japanese Cancer Association
- 34 : Overexpression of h-prune promotes cancer metastasis in oral squamous cell carcinomas. : Mitani Y, Shigaishi H, Ono S, Yoneda S, Taki M, Higashikawa K, Kamata N.: 65th Annual Meeting of the Japanese Cancer Association (Yokohama), 2006.
- 35 : Clinicopathological Findings of the EMT target gene VEGF-C Expression in Oral Squamous Cell Carcinomas. : Ono S, Shigeishi H, Yoneda S, Taki M, Higashikawa K, Kamata N. : The 66th Annual Meeting of the Japanese Cancer Association (Yokohama), 2006.
- 36 : Serial analysis of gene expression in oral and esophageal squamous cell carcinoma.: Sugiyama S, Oue N, Mitani Y, Noguchi T, Kamata N, Yasui W.: 65th Annual Meeting of the Japanese Cancer Association (Yokohama), 2006.
- 37 : RegIV overexpression inhibits apoptosis: RegIV is a marker for prediction of response to 5-fluorouracil-based chemotherapy.: Oue N, Mitani Y, Noguchi T, Kuniyasu H, Kamata N, Yasui W.: 65th Annual Meeting of the Japanese Cancer Association (Yokohama), 2006.
- 38 : The role of DNP63a in the enhanced invasive activity of squamous cell carcinoma through epithelial-mesenchymal transition.: Yoneda S., Higashikawa K., Taki M., Shigeishi H., Ono S., Kamata N.: The 51th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (Osaka), 2006.
- 39 : Expressions of the EMT target gene VEGF-C and disease progression in Oral Squamous Cell Carcinomas.: Ono S, Shigeishi H, Yoneda S, Taki M, Higashikawa K, Kamata N.: The 55th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (Kitakyusyu), 2006.
- 40 : Establishment, characterization and comprehensive gene expression analysis of a cell line derived from osseous dysplasia in patient with gnatho-diaphyseal dysplasia (GDD). : Shigeishi H, Yamaguchi S, Mizuta K, Nakakuki K, Fuzimoto S, Amagasa T, Kamata N. : 51th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeon, in Kita-Kyusyu, 2006.
- 41 : Clinical trial of Novel Interconnective Porous Hydroxyapatite Ceramics (NEOBONE[®]) for oral and maxillofacial lesions.: Miyauchi M, Yoshioka Y, Higashikawa K, Koizumi K, Ohta K, Tani R, Toumori H, Hayashidou Y, Inoue S, Toratani S, Sugiyama M, Akagawa Y, Kamata N, Okamoto T.: 51th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeon, in Kita-Kyusyu, 2006.
- 42 : A familial cherubism identified by genetic examination : Sawaki Y, Hatanaka T, Mizuta K, Ono S, Higashikawa K, Kamata N : The 51th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (Kitakyushu), 2006.
- 43 : A case of chondrosarcoma arising in the mandibular condyle. : Nishi H, Nobumori T, Tohmori H, Higashikawa K, Ogawa I, Kamata N.: The 51th Annual Meeting of the Japanese Society of Oral and Maxillofacial Surgeons (Kitakyusyu), 2006.
- 44 : Superselective Intraarterial Concomitant Chemoradiation for Advanced Tongue Carcinoma by Seldinger Technique.: Ono S, Ohta K, Miyauchi M, Taki M, Mizuta K, Fujimoto S, Minami M,

- Toyota N, Wadasaki K, Kamata N.: The 90th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2006.
- 45 : A case of aberrant tooth root in the Maxillary sinus unidentified for a long time. : Shigeishi H, Miyauchi M, Higashikawa K, Hiraoka M, Mitani Y, Ogawa Y, Takata T, Kamata N.: The 90th Annual Meeting of the Hiroshima University Dental Society (Hiroshima), 2006.
- 46 : Treatment of immediate reconstructive surgery with pedicle and free musculocutaneous flaps after oral cancer extirpation. : Miyauchi M, Higashikawa K, Ohta K, Ninomiya Y, Shimasue H, Nobumori T, Ono S, Shigeishi H, Takechi M, Yokota K, Kamata N.: The 90th Annual Meeting of the Hiroshima University Dental Society (Hiroshima), 2006.
- 47 : A case of osseous dysplasia appearing to be a multiple cystic lesion of the mandible.: Ono S, Fukuda T, Nishi H, Miyauchi M, Ueyama Y, Kamata N.: The 54th Chugoku-Shikoku Meeting of The Japanese Stomatological Society (Hiroshima), 2006.
- 48 : Histopathological study on boundary area between Lugol-stained and unstained of oral dysplastic lesions, Ohta K, Ono S, Mizuta K, Taki M, Miyauch M, Ogawa I, Takata T, Kamata N.: The 54th Annual Meeting of The Japanese Stomatological Society, Chugoku-Shikoku Division (Hiroshima), 2006.
- 49 : Basic study on application of low crystalline carbonate apatite in jaw reconstruction: in vivo behavior in subcutaneous tissue.; Fukuda M, Miyamoto Y, Kashiwagi R, Nakata A, Takano H, Nagai H, Takechi M, Matsuya S, Ishikawa K. : The 28 th Annual Meeting of Japanese Society for Biomaterials (Tokyo), 2006.
- 50 : A basic research on hydroxyapatite containing atelocollagen-PLGA composite scaffolds for bone tissue regeneration.; Minamiguchi S, Takechi M, Yuasa T, Momota Y, Tatehara S, Takano H, Miyamoto Y, Nagayama M : The 28 th Annual Meeting of Japanese Society for Biomaterials (Tokyo), 2006.

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

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor	: Yasumasa Akagawa
Associate Professor	: Kazuhiro Tsuga
Assistant Professor	: Takayasu Kubo, Yasuhiko Abe, Mitsuyoshi Yoshida
Research Associate	: Tsuyoshi Taji, Kyo Hiasa, Takenori Yamanaka, Katsunori Koretake, Ryo Hayashi
Secretary	: Satoko Sota, Akiko Shindo
Resident	: Maho Takeuchi, Mineka Yoshikawa, Kazuya Doi, Kazuhiko Hayashi
Intern	: Yuki Izumi, Makiko Udagawa, Sayaka Tanaka, Masayoshi Egawa
Graduate Student	: Yuri Utanohara, Tomohisa Komoto, Makoto Hirata, Yasunari Miyamoto, Hidehiko Morikawa, Gentaro Okada, Takahisa Kawamura, Ayumu Matsuura, Koji Morita, Yayoi Kanehisa, Mariko Maruyama

(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 oral implants, prostheses and their surrounding bone.
- 5 : Elucidation of the effect of prosthodontic treatments on the quality of life of elderly people.
- 6 : Elucidation of the effect of prostheses on 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: Decreased tongue pressure reflects symptom of dysphagia : Yoshida M, Kikutani T, Tsuga K, Utanohara Y, Hayashi R and Akagawa Y : Dysphagia. 21(1), 61-65, 2006.
- 2: Influence of aging and denture use on liquid swallowing in healthy dentulous and edentulous older people : Yoshikawa M, Yoshida M, Nagasaki T, Tanimoto K, Tsuga K and Akagawa Y : J Am

- Geriatr Soc. 54(3), 444-449, 2006.
- 3: Relationship between falls and occlusion in demented elderly : Yoshida M, Morikawa H, Kanehisa Y, Akagawa Y : Osteoporosis Japan. 14(1), 48-49, 2006.
 - 4: Relationship between falls and occlusion in demented elderly : M, Morikawa H, Akagawa Y : Geriatr Med. 44(2), 203-205, 2006.
 - 5: Classification System for the Completely Dentate, Partial and Complete Edentulism : Ichikawa T, Sato H, Kuboki T, Sato Y, Hideshima M, Wake H, Yasuda N, Hattori M, Sadamori S, Ozeki M, Tomotake Y, Nagao K, Ohyama T, Akagawa Y : Journal of the Japanese Association for Dental Science. 25, 63-75, 2006.
 - 6: Epidemiological Survey of Temporomandibular Disorders in Adolescents by Dental PrescaleR : Sasahara H, Sadamori S, Tsuga K, Kawamura M : Journal of dental health 56, 148-155, 2006.
 - 7: Dental status and mortality in institutionalized elderly people : Ohru T, Matsui T, Yoshida M, Yoneyama T, Adachi M, Akagawa Y, He M, Yamaya M, Arai H and Sasaki H : Geriatr Gerontol Int. 6, 101-108, 2006.
 - 8: Relationship between dental occlusion and falls among the elderly with dementia : Yoshida M, Morikawa H, Kanehisa Y, Yan Z, Taji T and Akagawa Y : Prosthodont Res Pract. 5(1), 52-56, 2006.
 - 9: A preliminary study of a newly developed cell-hybridized artificial bone in beagle dog : bone marrow stromal cells with an interconnected porous hydroxyapatite scaffold : Doi K, Kubo T, Hayashi K and Akagawa Y : Prosthodont Reserch Practice. 5, 219-223, 2006.

B) Review

- 1: Implant occlusion - What we know and what we do not know - : Akagawa Y : Journal of Japanese Academy of Occlusion and Health 12(1), 21-25, 2006.

C) Publications

- 1: Partial Denture Technique 4th Edition (coauthor) : Akagawa Y : Ishiyaku Publishing Co., Ltd, Tokyo, 2006.
- 2: Okeson TMD 5th Edition (Yatani H, Wajima K translation supervised) Chapter 3 Dentition and occlusion : Tsuga K, Ishiyaku Publishing Co., Ltd., Tokyo, 48-65, 2006.

D) Other Publications

- 1: Analysis of the possible impact of inflammation severity and early and delayed loading on nitric oxide metabolism around dental implants(Japanese translation) : Matsuura A, Koretake K, Akagawa Y : Quintessence Dental Implantology 13(1): 86-96, 2006.
- 2: Think about the goal of oral care "Think about the whole living" : Wakao ., Yoshida M : The Journal of Dental Hygiene 26(1), 76-81, 2006.
- 3: Observation from West Coast Implant treatment in USC : Yamanaka T : Dental Outlook 107(1),

- 209-211, 2006.
- 4: Correlation between placement torque and survival of single-tooth implants(Japanese translation): Okada G, Koretake K, Akagawa Y : Quintessence Dental Implantology 13(2), 101-109, 2006.
 - 5: Relationship between falls and occlusion in demented elderly : Yoshida M, Morikawa H, Kanehisa Y, Akagawa Y : Dental Tribune. 2(2), 22, 2006.
 - 6: Think about the goal of oral care "Think about the eating from the mouth with denture" : Kajihara M, Yoshida M : The Journal of Dental Hygiene. 26(2), 176-179, 2006.
 - 7: Think about the goal of oral care "A case showed the importance of nutritional improvement for improving mouth dryness" : Okabayashi S, Yoshida M : The Journal of Dental Hygiene. 26(3), 269-272, 2006.
 - 8: Role of dental hygienists for dysphagia : Kanehisa Y : Long Term Care 50, 35-41, 2006.
 - 9: Think about the goal of oral care "Think about the maintenance and recovery of oral function" : Sakamoto M, Yoshida M : The Journal of Dental Hygiene. 26(4), 388-391, 2006.
 - 10: Abstract of symposium; Expectations and Recommendations for the Japanese Society of Conservative Dentistry - from the contact with the Japan Prosthodontic Society : Akagawa Y : 50th Anniversary Book of the Japanese Society of Conservative Dentistry 86-90, 2006.
 - 11: Disposable dust chamber for home-visit prosthodontic treatments : Tsuga, K, Maruyama, M, Hayashi R, Taji T and Akagawa Y : Prosthodontic Research & Practice. 5(2), 113-116, 2006.
 - 12: Think about the goal of oral care "Continuing oral care" : Yamane T, Yoshida M : The Journal of Dental Hygiene 26(5), 498-501, 2006.
 - 13: Think about the goal of oral care "Healthy life with the healthier mouth" : Imagawa N, Yoshida M : The Journal of Dental Hygiene. 26(6), 608-611, 2006.
 - 14: Development of bio-hybrid artificial bone : Akagawa Y, Kubo T, Doi K : Japan Dental Review. 66(6), 53-54, 2006.
 - 15: Mouth preparation for successful eating : Kanehisa Y : GPnet 53(7), 59-65, 2006.
 - 16: Think about the goal of oral care "Recuparate usable mouth" : Sawada M, Yoshida M : The Journal of Dental Hygiene. 26(7), 724-727, 2006.
 - 17: Think about the goal of oral care "Collaboration with other staffs in oral care at home" : Maruyama T, Yoshida M : The Journal of Dental Hygiene. 26(8), 827-830, 2006.
 - 18: Think about the goal of oral care "While there's life there's possibility for improvement" : Saito M, Yoshida M : The Journal of Dental Hygiene. 26(9), 940-943, 2006.
 - 19: Handy dust chamber made with PET bottle "DF sleeve"—A proposal for dust-free prosthodontic treatment : Tsuga K, Okane H, Akagawa Y : Japan Dental Review 66(9), 149-153, 2006.
 - 20: Introducing departments/ elites for research projects : For creating new value of Prosthodontics; Department of Advanced Prosthodontics, Hiroshima University Graduate School of Biomedical Sciences: Yamanaka T : The Quintessence. 25(11), 123-124, 2006.
 - 21: Think about the goal of oral care "For thinking about oral care by dental hygienists" : Kanehisa Y, Yoshida M : The Journal of Dental Hygiene. 26(10), 1038-1041, 2006.
 - 22: Resin jig to prevent aspiration or ingestion of restorations : Tsuga K, Hayashi R, Taji T, Kubo T and Akagawa Y : Prosthodontic Research & Practice. 5(4), 238-241, 2006.

E) Presentation at Scientific Meeting

- 1: Maximum voluntary tongue pressure in healthy Japanese dentate adults : Tsuga K, Utanohara Y, Hayashi R, Yoshikawa M, Yoshida M and Akagawa Y : 35th American Association for Dental Research(Orlando), 2006
- 2: Effect of occlusal contact on pharyngeal swallowing : Yoshikawa M, Harris M, Yoshida M, Pauloski B A, Logemann J A, Tsuga K and Akagawa Y : 35th American Association for Dental Research(Orlando), 2006
- 3: Influence of osteogenic differentiation period on bone formation by a tissue-engineered hybrid artificial bone : Doi K, Kubo T, Hayashi K, Matsuura A, Morita K, Imura K and Akagawa Y : 3rd Congress of Korean Academy of Prosthodontics (Seoul), 2006
- 4: Nano-biochemical surface modification of titanium implant with phospho-amino acid : Hiasa K, Abe Y, Hirata I, Yoshida Y, Okazaki M and Akagawa Y : 3rd International Joint meeting of KAP and JPS(Seoul), 2006
- 5: Handy dust chamber for in-home denture treatment of elderly patients : Tsuga K, Maruyama M, Hayashi R, Taji T, Okane H, Akagawa Y : 17th Japanese Society of Gerodontology(Naha), 2006
- 6: Oral Diadochokinesis of healthy Japanese speaking adults : Nishiwaki K, Kikutani T, Tamura F, Kodama M, Okayama H, Kayanaka H, Enomoto R, Fukui T, Yoshida M, Akagawa Y : 17th Japanese Society of Gerodontology(Naha), 2006
- 7: Swallowing function and tongue pressure in healthy edentulous elderly : Yoshikawa M, Hayashi R, Tsuga K, Yoshida M and Akagawa Y : 84th International Association for Dental Research(Brisbane), 2006
- 8: Maximum voluntary tongue pressure in adults related with occlusal support : Tsuga K, Utanohara Y, Morikawa H, Hayashi R, Yoshikawa M, Yoshida M and Akagawa Y : 84th International Association for Dental Research(Brisbane), 2006
- 9: Tongue pressure and swallowing function in healthy Japanese 8020 elderly: Hayashi R., Yoshikawa M., Tsuga K., Yoshida M. and Akagawa Y.: 84th International Association for Dental Research(Brisbane), 2006
- 10: Denture treatment for the elderly in nursing home : Yoshida M : 84th International Association for Dental Research(Brisbane), 2006
- 11: New assessment of insertion torques of implant by intra – oral radiograph : Hirata M, Koretake K, Taguchi A, Kubo T, Tanimoto K and Akagawa Y : 84th International Association for Dental Research(Brisbane), 2006
- 12: Tongue exercise stimulates saliva secretion : Okada G, Tsuga K, Kawamura T, Hayashi R, Yoshikawa M and Akagawa Y : 84th International Association for Dental Research(Brisbane), 2006
- 13: Simplification of Compound Carrier System for muscle trimming : Taji T, Hayashi R, Izumi Y, Udagawa M, Tanaka S, Takeuchi M, Koretake K, Yamanaka T, Kubo T, Wadamoto M, Tsuga K, Akagawa Y : 115th Japan Prosthodontic Society (Sapporo), 2006
- 14: A method of oral rehabilitation by using handy tongue pressure measurement device : Utanohara Y,

- Hayashi R, Utanohara Y, Hayashi R, Maruyama M, Kanehisa Y, Okada G, Kawamura T, Morikawa H, Doi K, Hayashi K, Yoshikawa M, Yoshida M, Tsuga K, Akagawa Y : 115th Japan Prosthodontic Society (Sapporo), 2006
- 15: The effect of tongue pressure training on resting salivary flow : Okada G, Kawamura T, Matsuura A, Morita K, Koumoto T, Hirata M, Miyamoto Y, Morikawa H, Utanohara Y, Yoshikawa M, Hayashi K, Tsuga K, Akagawa Y : 115th Japan Prosthodontic Society (Sapporo), 2006
 - 16: Nano-scale interreaction analysis for surface modification of Titanium implant with Phospho-RGD peptide : Hiasa K, Abe Y, Hirata I, Yoshida Y, Suzuki K, Okazaki M, Akagawa Y : 115th Japan Prosthodontic Society (Sapporo), 2006
 - 17: Application of radiation thermometer for fabricating mouthguards made of Hybrar® : Tsuga K, Ikuma M, Maruyama M, Hayashi R, Akagawa Y : 17th Japanese Academy of Sports Dentistry(Morioka), 2006
 - 18: Development of hybrid artificial bone made of hydroxyapatite with interconnected pores : Doi K, Kubo T, Hayashi K, Matsuura A, Morita K, Imura K, Asamori C, Akagawa Y : 36th Japanese Society of Oral Implantology(Niigata), 2006
 - 19: Radiation thermometer application of mouthguard production : Tsuga K, Maruyama M, Ikuma M, Hayashi R, Dowaki I, Satomi K, Akagawa Y : 2006 Chugoku-Shikoku branch meeting of the Japan Prosthodontic Society (Matsuyama), 2006
 - 20: Simplification of Compound Carrier System - effect on trimming time- : Taji T, Hayashi R, Yoshikawa M, Yamanaka T, Yoshida M, Morimoto S, Moriya N, Tsuga K, Akagawa Y : 2006 Chugoku-Shikoku branch meeting of the Japan Prosthodontic Society (Matsuyama), 2006
 - 21: An case report of implant treatment with superstructure designed based on a novel biomechanical analysis : Koretake K : 2006 Chugoku-Shikoku branch meeting of the Japan Prosthodontic Society (Matsuyama), 2006
 - 22: Application of bFGF drug delivery system for bone regeneration : Hayashi K, Kubo T, Doi K, Matsuura A, Morita K, Tabata Y, Akagawa Y : 9th Japanese Society for Tissue Engineering (Kyoto), 2006
 - 23: Evaluation of swallowing function by a handy tongue pressure measuring device : Kawamura T, Okada G, Hayashi R, Tsuga K, Akagawa Y : 12th Japanese Society of Dysphagia Rehabilitation (Kurashiki), 2006
 - 24: Analysis of swallowing sound of dysphagia patients : Yoshikawa M, Nagasaki T, Yoshida M, Tanaka K, Sasamura K, Akagawa Y : 12th Japanese Society of Dysphagia Rehabilitation (Kurashiki), 2006
 - 25: Development of bone regeneration treatment with bFGF drug delivery system for peri-implant bone loss : Hayashi K, Kubo T, Doi K, Matsuura A, Morita K, Tabata Y, Akagawa Y : 36th Japanese Society of Oral Implantology (Niigata), 2006
 - 26: Handy dust chamber made of PET bottle for health preservation of medical environment : Tsuga K, Okura N, Maruyama M, Hayashi R, Taji T, Okane H, Akagawa Y : 28th Japanese Society of Dental Laboratory Technology (Hiroshima), 2006
 - 27: Evaluation of bone regeneration in rabbits with a novel carbonate apatite collagen sponge: Matsuura A, Kubo T, Doi K, Hayashi K, Morita K, Hirata I, Yokota R, Hayashi H, Okazaki M and Akagawa

- Y : 2nd Asian Academy of Osseointegration(Osaka), 2006
- 28: New assessment of insertion torques of implant by intraoral radiograph : Koretake K, Hirata M, Miyamoto Y, Kubo T and Akagawa Y : 2nd Asian Academy of Osseointegration(Osaka), 2006
- 29: Weight change in elderly people requiring nursing care caused by denture treatment : Yoshida M, Kanehisa Y, Taji T, Tsuga K, Akagawa Y : 17th Japanese Society of Mastication Science and Health Promotion (Yokohama), 2006
- 30: Development of a novel oral power rehabilitation; in terms of rehabilitation time and short-term effectiveness : Hayashi R, Okada G, Kawamura T, Maruyama M, Utanohara Y, Yoshikawa M, Tsuga K, Akagawa Y : 45th Hiroshima Prefectural Dental Society and 90th Hiroshima University Dental Society, 2006

F) Special lectures in academic meetings

- 1: Chairperson's lecture; Challenge for the future of implant technology : Akagawa Y : GC International Symposium for Dentistry (Tokyo), 2006
- 2: International session special lecture; The future value of prosthodontics : Akagawa Y : 3rd Congress of Korean Academy of Prosthodontics(Seoul), 2006
- 3: Symposium; Long life and number of remaining teeth; Do people in 8020 really live long life?: Yoshida M : 17th Japanese Society of Gerodontology (Naha), 2006
- 4: Symposium; How does Prosthodontics have relations with dysphagia?: Yoshida M : 115th Japan Prosthodontic Society (Sapporo), 2006
- 5: Symposium; Body and mind of elderly people: occlusion and fall in elderly people : Yoshida M : 2006 Chugoku-Shikoku branch meeting of the Japan Prosthodontic Society (Matsuyama), 2006
- 6: Special lecture; Prosthodontic specialist system and certified staff system : Akagawa Y : 28th Japanese Society of Dental Laboratory Technology (Hiroshima), 2006
- 7: Special lecture; Innovative concepts and technologies of more predictable implants—biomechanics and bone regeneration— : Akagawa Y : 94th FDI(Shenzhen), 2006
- 8: Public symposium; General health starts from the health of mouth; Does occlusion effects the falling incidence? For nursing care prevention : Yoshida M : 20th Japan Association of Cranio-Mandibular Orthopedicus (Okayama), 2006
- 9: Panel discussion; When and by whom is the oral health care applied? The role of dental hygienists : Kanehisa Y : 9th Workshop on Oral Health Care of the Inpatient (Okayama), 2006

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

(5) Academic Awards, etc.

(6) Patents

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

(1) Staffs and Students

Professor	: Taizo Hamada
Associate Professor	: Shinsuke Sadamori
Assistant Professor	: Hitoshi Abekura, Masahiro Nishimura
Research Associate	: Syunji Inoue, Guang Hong, Haruki Nishimura, Kazuko Kagawa
Secretary	: Michiko Miyagawa
Resident	: Kae Harada, Syouji Hayashi
Intern	: Kaori Okubo, Akitosi Kawagoe, Taketo Fukuda
Graduate Student	: Kensuke Sekiya, Yingai Li, Fumio Suehiro, Kentarou Hayashida, Takeshi Maeda, Wataru Mizumachi, Syouji Hayashi
Registered Intern	: Yutaka Fukanogi, Seiji Hirashio
Others	: Kenji Yamada, Masami Furuebisu, Yasufumi Narasaki, Yu Otani, Takanori Akatuka

(2) Main Research Activities

- 1 : Development of bone regenerative medicine using mesenchymal stem cells
- 2 : Magnetic Attachment in Clinical Dentistry
- 3 : Geriatric Dentistry
- 4 : Psychiatric Disorders in Dental Practice
- 5 : Development of Denture Adhesive
- 6 : Development of Denture Cleanser
- 7 : Rheology and Development of Resilient Denture Liners
- 8 : Round Robin test of Resilient Denture Liners
- 9 : Studies of conservative treatments for Temporomandiblar Disfunction
- 10 : Studies on adhesive technique for short span bridge prosthesis and mobilized tooth splint

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Survey of insurance against medical malpractice and accident insurance carried by dentists in the postgraduate clinical training course and graduate students at the dental section on

- Hiroshima University Hospital : Sasahara H, Kawamura M, Sadamori S, Taguchi N, Ogawa T : JJDEA (The Journal of Japanese Dental Education Association), 20, 390-395, 2005.
- 2 : Application of dental implant in our clinic - a progress of five years treatment- : Nishimura M, Makihira S, Sugiyama M, Kamata N, Sadamori S, Hamada T : J Hiroshima Dent Asso, 33, 27-31, 2005.
- 3 : Availability of the Data on Patch Test and Metal Analysis of Suspected Patients of Metal Allergy : Makihira S, Nikawa H, Uchiyama H, Abekura H, Sadamori S, Ogawa I, Tanaka T, Kozai K, Hamada T : J Hiroshima Dent Asso 33, 32-36, 2005.
- 4 : 2004 sponsored research theme Suggestion of symptom type classification for tooth decay, teeth defect, and edentulous: Ichikawa T, Sato H, Kuboki T, Sato Y, Hideshima M, Wake H, Yasuda N, Hattutori M, Sadamori S, Ozeki M, Tomotake Y, Nagao H, Ooyaka T, Akagawa Y : Journal of the Japanese Association for Dental Science 25, 63-75, 2006.
- 5 : Epidemiological survey of temporomandibular disorders in adolescents by Dental prescale : Sasahara H, Sadamori S, Tsuga K, Kawamura M : J Dent Hlth 56, 148-155, 2006.
- 6 : The interrelationship among denture wearing, N-ADL, NM scale, and oral status of the elderly with dementia in a group homne: Sadamori S, Furuebisu M, Hamada T, Sasahara H: JJSDH 27, 128-133, 2006.
- 7 : Report of High Technology Modern Medicine for Ten Years in Hiroshima University Dental Hospital –Prosthesis for missing teeth and splint of mobile teeth with adhesion bridge– : Abekrua H, Hamada T, Sadamori S, Murata H, Nishimura M, Makihira S, Kagawa K, Nishimura H : J Hiroshima Univ Dent Soc 38, 47-51, 2006.
- 8 : A Clinical Report of Patients visiting Psychosomatic Dentistry (Prosthodontics) for Five Years : Sadamroi S, Hamada T, Abekura H, Inoue S : J Hiroshima Univ Dent Soc 38, 72-75, 2006.
- 9 : Comparison of the recognition of denture adhesive between Japanese and Indonesian dentists: A pilot study : Sadamori S, Hamada T, Hong G, Nakai N, Kawamura M, Razak A : Dent J 38, 189-193, 2005.
- 10 : Immobilization of Octadecyl Ammonium Chloride on the Surface of Titan and Its Effects on Microbial Biofilm Formation In Vitro : H Nikawa, K Ishida, T Hamada, T Satoda, T Murayama, T Takemoto, M Tamamoto, H Tajima, S Shimoe, H Fujimoto and S Makihira : Dental Mater J 24, 570-582, 2005.
- 11 : Intercellular adhesion molecule 1-dependent activation of interleukin 8 expression in Candida albicans-infected human gingival epithelial cells : Egusa H, Nikawa H, Makihira S, Ishigaki S, Yatani H, Hamada T : Int Congr Ser 1284, 213-214, 2005.
- 12 : Attaching a magnetic root coping to a fiber-reinforced post. : Makihira S, Sadamori S : J Prosthet Dent 96, 381-382, 2006.
- 13 : Clinical application of the activity index to parameter for evaluation of electromyographic activity of the masticatory muscles : Tanaka T : Dent J (Maj Ked Gigi) 39, 139-142, 2006.

- 14 : Is it possible to distinguish the understanding of denture adhesive between Japanese dental students and Indonesian peers by a questionnaire? : Sadamori S, Hamada T, Hong G, Kawamura M, Nakai N, Razak A : *Dent J* 39, 89-92, 2006.
- 15 : Application of magnetic attachment for connecting a fixed partial denture and a detachable gingival: A clinical report : Sadamori S, Makihira S, Nakai N, Hamada T : *Int Chin J Dent* 6, 89-92, 2006.
- 16 : An alcohol-free tissue conditioner – A laboratory evaluation : Murata H, Narasaki Y, Hamada T, McCabe JF. : *Journal of Dentistry* 34, 307-315, 2006.
- 17 : Influence of thermal and mechanical stresses on the strength of intact and relined denture bases : Murata H, Hong G, Vergani CE, Hamada T : *J Prosthet Dent* 96, 59-67, 2006.
- 18 : Behavior of transplanted bone marrow-derived mesenchymal stem cells in periodontal defects : Hasegawa N, Kawaguchi H, Hirachi A, Takeda K, Mizuno N, Nishimura M, Koike C, Tsuji K, Iba H, Kato Y, Kurihara H : *J Periodontol* 77, 1003-1007, 2006.
- 19: Beneficial actions of hyaluronan (HA) on arthritic joints : Effects of molecular weight of HA on elasticity of cartilage matrix: Kato Y, Nakamura S, Nishimura M : *Biorheology* 43, 347-354, 2006.
- 20 : The effect of saliva or serum on bacterial and *Candida albicans* colonization on type I collagen : Nikawa H, Egusa H, Yamashiro H, Nishimura M, Makihira S, Jin C, Fukushima H, Hamada T : *J Oral Rehabil* 33, 767-774, 2006.
- 21 : Influence of silicone remover on tensile bond strength of resilient denture liners to an acrylic denture base resin : Hong G, Murata H, Li Y A, Sadamori S, Maeda T, Hamada T : *Int Chin J Dent* 6, 39-44, 2006.
- 22 : Fluidity and hardening time of solidifying hard lining materials at constant temperature : Lian Y M, Murata H, Hong G, Hamada T : *J Mod Stomatol* 20(3), 327-328, 2006..

B) Review

- 1 : Adhesion of oral *Candida* and biofilm formation : Nikawa H, Makihira S, Egusa H, Fukushima H, Kawabata R, Hamada T, Yatani H : *Jap J Med Fung* 46, 233-242, 2005.

C) Publications

- 1 : Authorization qualification by Japanese Oral Care Association Standard Text Questions and Commentaries The first book-the third grade, forth grade, and fifth grade : Sadamori S. : Nittusouken Publisher(Nagoya, Japan), 97,99,101,103,110, 2006.
- 2 : Expression of hyaluronan synthase and hyaluronidase genes in bone marrow mesenchymal stem cells : effects of hyaluronan on mesenchymal stem cells : Nishimura M, Ozaki Y, Sekiya K, Aoki M, Nishimura H, Hamada T, Kato Y : *Medicalview*(Tokyo), 16-21, 2006.
- 3 : Semi-permeable membrane formation by high molecular weight hyaluronan : HA-proteoglycan-fibronectin network is a natural bandage for injured tissues- conservation

throughout evolution: Kato Y, Nishimura M, Nakamura S : Medicalview(Tokyo), 26-30, 2006.

D) Other Publications

- 1 : A Report of Annual Conference of FDI : T Hamada : Dental Diamond 31 (15) , 160-161, 2006.
- 2 : 2004 sponsored research theme Suggestion of symptom type classification for tooth decay, teeth defect, and edentulous : Ichikawa T, Sato H, Kuboki T, Sato Y, Hideshima M, Wake H, Yasuda N, Hattutori M, Sadamori S, Ozeki M, Tomotake Y, Nagao H, Ooyaka T, Akagawa Y : Journal of the Japanese Association for Dental Science 25, 63-75, 2006..

E) Presentation at Scientific Meeting

- 1 : Analysis of circadian rhythm in cartilage in vitro and in vivo : Honda K, Kawamoto K, Yamada M, Ueda Y, Noshiro M, Fujimoto K, Nakashima A, Ueshima T, Nishimura M, Oda R, Nakamura S, Kojima T, Hashimoto S, Kato Y : The 19th Annual Meeting of the Japanese Society of Cartilage Metabolism (Yokoyama, Japan), 2006. 3.3
- 2 : Gene profile of growth plate and hyaline cartilage : Ueshima T, Kawamoto K, Ueda Y, Honda K, Shimizu M, Noshiro M, Fujimoto K, Nakashima A, Nishimura M, Oda R, Nakamura S, Kojima T, Hashimoto S, Kato Y : The 19th Annual Meeting of the Japanese Society of Cartilage Metabolism (Yokoyama, Japan), 2006. 3.3
- 3 : Basic design of mesenchymal stem cell systems : Shimizu M, Kawamoto S, Saka E, Igarashi A, Kanawa M, Yamanaka K, Nishimura M, Tsuji K, Kato Y : The 19th Annual Meeting of the Japanese Society of Cartilage Metabolism (Yokoyama, Japan), 2006. 3.3
- 4 : High efficiency acquisitions of mesenchymal stem cells by alveolar bone marrow aspiration : Sakai Y, Segoshi K, Sakai M, Yamanaka K, Sekiya K, Kato Y, Tsuji K : The 6th Japanese Society for Regenerative Medicine (Okayama, Japan), 2006. 3.8
- 5 : Influence of Loss of Component on Viscoelasticity of Tissue Conditioners : Maeda T, Hong G, Murata H, Sadamori S, Hamada T : The 47th general session of the Japanese society for dental materials and devices (Tokyo, Japan), 2006. 4.22
- 6 : Influence of storage method on the weight change and dimensional change of tissue conditioner : Hong G, Murata H, Maeda T, Hamada T : The 47th general session of the Japanese society for dental materials and devices (Tokyo, Japan), 2006. 4.22
- 7 : The viscosity and adhesive strength of cream type denture adhesives : Hayashida K, Hong G, Maeda T, Murata H, Li Y A, Hamada T : 8th resilient denture liner society (Tokyo, Japan), 2006. 5.12
- 8 : Influence of different immersion solution on viscoelasticity of tissue conditioner : Maeda T, Hong G, Li Y A, Mizumachi W, Hamada T, Murata H : 8th resilient denture liner society (Tokyo, Japan), 2006. 5.12

- 9 : Influence of UV on dynamic viscoelasticity of silicone maxillofacial : Mizumachi W, Murata H, Hong G, Maeda T, Hamada T : 8th resilient denture liner society (Tokyo, Japan), 2006. 5.12
- 10 : The Relationship between Occlusal Support, N-ADL and NM scale of the Elderly with Dementia in a Group Home : Furuebisu M, Sadamori S, Hamada T, Sasahara H : 17th Scientific Meeting of the Japanese Society of Gerodontology(Okinawa, Japan), 2006. 6.1
- 11 : Development of new method to promote MSC calcification for transplantation : Sekiya K, Nishimura M, Suehiro F, Hamada T, Kato Y : The 39th General Session of the Hiroshima University Dental Society (Hiroshima, Japan), 2006. 6.11
- 12 : Advanced OSCE as an evaluation of postgraduate hospital education : Ogawa T, Taguchi N, Tanaka Y, Sasahara H, Shirai K, Shimasue H, Abe Y, Nishimura M, Watanabe Y, Taguchi A, Okada M, Ogawa K : The 25th Annual Meeting of Japanese Dental Education Association(Sendai, Japan), 2006. 6.17
- 13 : Control of chondrogenesis by circadian rhythm : Honda K, Kawamoto K, Nakashima A, Ueshima T, Fujimoto K, Nishimura M, Nakamura S, Noshiro M, Kato Y : The 24th Annual Meeting of the Japanese Society for Bone and Mineral Research (Tokyo, Japan), 2006. 7.6
- 14 : Basic design of mesenchymal stem cell systems : Shimizu M, Kawamoto K, Igarashi A, Kanawa M, Yamanaka K, Nishimura M, Tsuji K, Kato Y : The 24th Annual Meeting of the Japanese Society for Bone and Mineral Research (Tokyo, Japan), 2006. 7.6
- 15 : Influence of different immersion solution on mechanical properties of new tissue conditioner HBTC-3 : Hong G, Maeda T, Li Y A, Sadamori S, Hamada T, Hashiguchi M : 2006 Japan Prosthodontic Society Chugoku Shikoku branch (Matsuyama, Japan), 2006. 9.2
- 16 : Low invasive alveolar ridge augmentation technique by mesenchymal stem cells : Nishimura M, Sekiya K, Suehiro F, Ozaki Y, Nishimura H, Hamada T : 2006 Japan Prosthodontic Society Chugoku Shikoku branch (Matsuyama, Japan), 2006. 9.3
- 17 : Occlusal support, and physical and mental status of care-required elderly : Hayashi S, Sadamori S, Inoue S, Hamada T, Nakao K, Abekura H : 2006 Japan Prosthodontic Society Chugoku Shikoku branch (Matsuyama, Japan), 2006. 9.3
- 18 : Relationship between general condition and oral status -observation for some years- : Inoue S, Sadamori S, Hamada T, Kagawa K, Harada K, Sekiya K, Suehiro F, Maeda T : 2006 Japan Prosthodontic Society Chugoku Shikoku branch (Matsuyama, Japan), 2006. 9.3
- 19 : Induction of calcification on mesenchymal stem cells for transplantation: Sekiya K, Nishimura M, Suehiro F, Nishimura H, Hamada T, Kato Y: The 9th Annual Meeting of the Japanese Society for Tissue Engineering(Kyoto, Japan), 2006. 9.7
- 20 : Survey of survival rate of transplanted cells : Suehiro F, Nishimura M, Sekiya K, Hamada T, Kato Y : The 9th Annual Meeting of the Japanese Society for Tissue Engineering(Kyoto, Japan), 2006. 9.8
- 21 : Oral status and oral care of the elderly with dementia in a group home : Furuebisu M, Sadamori S, Hamada T, Sasahara H : 23rd Scientific Meeting of the Japanese Society for Disability and Oral Health(Sendai, Japan), 2006. 10.2

- 22 : Development of new technique : bone augmentation using alveolar bone marrow derived mesenchymal stem cells : Suehiro F, Nishimura M, Sekiya K, Sakai M, Segoshi K, Sakai Y, Nakamura D, Nishimura H, Hamada T, Kato Y, Tsuji K : 45th Hiroshima Prefecture Dental Association 90th Hiroshima University Dental Society (Hiroshima, Japan), 2006. 11.12
- 23 : Medical sheet investigation into the actual conditions of oral habits in patients with TMD : Abekrua H, Hamada T, Sadamori S, Kagawa K, Inoue S : The 45th Hiroshima prefecture dental association and 90th hiroshima university dental society joint meeting (Hirsohima, Japan), 2006. 11.12
- 24 : The change of viscosity and adhesive force of denture adhesives : Hayashida K, Hong G, Mizumachi W, Murata H, Hamada T : The 45th Hiroshima prefecture dental association and 90th hiroshima university dental society joint meeting (Hirsohima, Japan), 2006. 11.12
- 25 : Influence of enzyme on mechanical properties of resilient denture liners : Li Y A, Hong G, Maeda T, Murata H, Hamada . : The 45th Hiroshima prefecture dental association and 90th hiroshima university dental society joint meeting (Hirsohima, Japan), 2006. 11.12
- 26 : Relation among oral status, physical and mental status in care-required elderly : Hayashi S, Sadamori S, Inoue S, Hamada T, Nakao K, Abekura H : The 45th Hiroshima prefecture dental association and 90th hiroshima university dental society joint meeting (Hirsohima, Japan), 2006. 11.12
- 27 : Succesive observation the relationship between general health and oral status of elderly with dementia : Inoue S, Sadamori S, Hamada T, Kagawa K, Harada K, Sekiya K, Suehiro F, Maeda T : The 45th Hiroshima prefecture dental association and 90th hiroshima university dental society joint meeting (Hirsohima, Japan), 2006. 11.12
- 28 : Comprehensive analysis of factors to induce mesenchymal stem cells migration : Ozaki Y, Nishiimura M, Sekiya K, Suehiro F, Hamada T, Kato Y : Hiroshima Conference on Education and Science in Dentisitry 2006 (Hiroshima, Japan), 2006. 1.8-9
- 29 : The Influence of Sericin Solution on Wettability of Resin and Antifungal Effect : Hamada T, Yuda S, Yamada H, Tsujimoto K, Maeda T, Hong G, Li Y A, Sadamori S, Nishimura M : Hiroshima Conference on Education and Science in Dentisitry 2006 (Hiroshima, Japan), 2006. 1.8-9
- 30 : Dynamic mechanical properties of visible light-polymerized, hard direct reline resins : Murata H, Seo R S, Hamada T, Polyzois G L, Frangou M J : European Prosthodontic Association (EPA) 30th Annual Conference, London, UK, 2006, 2006.

F) Special lectures in academic meetings

- 1 : Oral health -Adequate brushing method?- : Furuebisu M : 2007 9th Health class, 2006. 2.23
- 2 : Standard Recipe of 21 Century in Edentulous Elderly Persons : T Hamada : The 25 anniversary memorial lecture (hiroshima, Japan), 2006. 3.5
- 3 : Practical and clinical treatment at the general dental clinic for Temporomandibular Disorders : Abekura H.: Scientific lecture Meeting of alumni asociation of Hiroshima

- university faculty of dentistry of Ehime prefecture branch (Matuyama, Japan) , 2006. 5.27
- 4 : Oral care -improvement of the life of elderly- : Sadamori Shinsuke : 31st Workshop to protect the teeth of citizens in Fukuoka city , 2006. 6.4
 - 5 : Mental Health of Elderly : Sadamori S : 2007 Science Meeting of Japan Prosthodontic Society Tyuugoku-Shikoku Branch(Matsuyama, Japan), 2006. 9.3
 - 6 : Bone augmentation by alveolar bone marrow derived cells : Nishimura M.: The 49th Stem Cell Meeting(Hiroshima, Japan), 2006. 9.5
 - 7 : Acceleration of mesenchymal stem cells calcification by lectins : Sekiya K.: The 49th Stem Cell Meeting(Hiroshima, Japan), 2006. 9.5
 - 8 : Standard Recipe of 21 Century in Edentulous Elderly Persons : Taizo Hamada : MDI Mini Implant Study Society(Tokyo, Japan), 2006. 11.19
 - 9 : Standard Recipe of 21 Century in Edentulous Elderly Persons : Hamada Taizo : HeBei Medical University (ShiJiaZhuang), 2006. 9

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

- 1 : Grant-in-Aid for Scientific Research (B) (2) general; continue : S Shinsuke : Evaluation of the affect of denture wearing to dementia symptom, general health, QOL in elderly with dementia.(assignment number 16390617). ¥1,700,000
- 2 : Grant-in-Aid for Young Scientists (B); continue : Nishimura M.: Development of non-cellular method for alveolar ridge augmentation on elderly patients . (assignment number 17791390) . ¥ 1,300,000
- 3 : Grant-in-Aid for Scientific Research (C) (2) general; new : Inoue S.: Exploration of stem cells in oral tissues for alveolar ridge augmentation.(assignment number 18592128). ¥1,400,000
- 4 : JST Seeds Mining Projects : Nishimura M.: Capsulation of cell/scaffold for tissue regeneration. (assignment number 10-071.) ¥ 2,000,000
- 5 : Hiroshima University research support grant (for young Scientists) : Hong Guang : The development of an antifungal tissue conditioner to use for the dry mouse patient. (assignment number 18900). ¥ 500,000
- 6 : Grant-in-Aid for Young Scientists (B) : new : Nishimura H.: Parturition of ultimate bone prosthetic material using autologous stem cells. (assignment number 18799007). ¥2,100,000

(5) Academic Awards, etc.

(6) Patents

- 1 : Kato Y, Tsutsumi S, Oda R, Shintani H, Nishimura M: Agent imparting resistance to external stimuli (US patenet No. 6,992,178) (applicant: Kato Y, TWO CELLS, Co.,Ltd, Tsuji K.)

- 2 : Kato Y, Nishimura M, Nishimura H, Tsuji K, Sekiya K: Agent and methods for inducing mesenchymal stem cells to bone and/or cartilage differentiation (patent pending 2006-20420)
(applicant: Kato Y, TWO CELLS, Co.,Ltd)
- 3 : Kato Y, Nishimura M, Ozaki Y, Tsuji K: Therapeutic agent and therapeutic methods for treating injured tissue (PCT/JP2005/6320) (applicant: Kato Y, TWO CELLS, Co.,Ltd)
- 4 : Nikawa H, Nishimura M, Tsuji K, Kawabata R, Hiromoto K: Serum free medium designed for stem cells containing new antimicrobial peptide (Patent pending 2006-142505)
(applicant: JST,Hiroshima Univ,TWO CELLS, Co.,Ltd)
- 5 : Hamada T : 顆粒状骨補填材 (Patent pending 2006-202884)

**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	:Eiji Tanaka
Assistant Professor	:Toshitsugu Kawata, Hiroshi Ueda
Research Associate (Faculty of Dentistry)	:Koutarou Tanimoto, Tadashi Fujita, Kobun Honda, Nobuaki Tanaka, Shinya Kohno
Research Associate (Hospital)	:Masato Kaku, Mineo Watanabe, Hideki Tabe
Resident	:Hideki Tabe, Mie Harada, Yuiko Tohma, Masashi Ueki, Nobuhiko Kawai, Yuki Nakatani, Mao Nakano
Resident (Intern)	:Jungi Ohtani, Mika Nishi, Kouichi Hanaoka, Masahide Motokawa, Kiyoshi Yoneno
Graduate Student	:Diego Araújo Dalla-Bona, Hiroko Kamata, Reiko Kitamura, Myongsun Koh, Takuro Hasegawa, Tamami Yanagida, Yu-Yu Lin, Youhei Suekawa, Masako Tai, Yuki Tanne, Eizo Yamano, Ryoko Yamamoto, Toshihiro Inubushi, Akira Ohkuma, Takashi Kamiya, Ryota Sano, Maya Shirakura, Koji Takahashi, Natsumi Tsuka, Yasunori Iwabuchi, Ryo Kunitatsu, Genki Watanabe, Emanuel Braga Rego, Rene Arturo Marquez Hernandez
Foreign Guest	:Clarice Nishio
Graduate Student	
International Research Student	:Eka Matsumoto
International Student	:Yu-Chin Fan
Professor (part-time)	:Kazuhiro Ueki, Toshitsugu Kojima, Hiroharu Tsuka, Hiroshi Hanaoka, Kunimichi Souma, Keiji Moriyama
Registered Intern	:Kuniaki Tanaka, Kouichi Ohno, Kazuo Hashimoto, Keisuke Tsutsui
Dental Hygienist	:Miho Hidaka

(2) Main Research Activities

- 1: Viscoelastic property of temporomandibular joint discs.
- 2: Effects of growth factors on the proliferation and differentiation of condylar cartilage and the

disc 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.

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Fibroblast growth factor-2 augments recombinant human bone morphogenetic protein-2-induced osteoinductive activity : Tanaka E., Ishino Y, Sasaki A, Hasegawa T, Watanabe M, Dalla-Bona D A, Yamano E, van Eijden T, Tanne K : *Annals of Biomedical Engineering* 34(5), 717-725, 2006.
- 2: Comparison of dynamic shear properties of the porcine molar and incisor periodontal ligament : Tanaka E, Inubushi T, Koolstra J H, van Eijden T, Sano R, Takahashi K, Kawai N, Rego E B, Tanne K : *Annals of Biomedical Engineering* 34(12), 1917-1923, 2006.
- 3: Serotonergic neurons in the dorsal raphe nucleus are not activated by MK-801 during tooth movement : Shibazaki T, Hattori Y, Tanaka E, Watanabe M, Nishi M, Tanne K : *Biomedical Research India* 17(2), 99-103, 2006.
- 4: Solid diet mastication reduces c-Fos expression in the rat trigeminal subnucleus caudalis following orofacial inflammation induced by CFA : Nishi M, Iwabe T, Tanaka E, Hattori-Myoishi Y, Kawai N, Suekawa Y, Takahashi K, Watanabe M, Uchida T, Tanne K : *Biomedical Research India* 17, 33-38, 2006.
- 5: Influences of reduced masticatory function on learning and memory ability : Kaku M, Tsutsui K, Kamata H, Tai M, Kohno S, Motokawa M, Thoma Y, Kawata T, Fujita T, Ohtani J, Tanne K : *Dentistry in Japan* 42, 82-85, 2006.
- 6: Influence of sex hormone disturbances on the internal structure of the mandible in newborn mice : Fujita T, Ohtani J, Shigekawa M, Kawata T, Kaku M, Kohno S, Motokawa M, Tohma Y, Tanne K : *Eur J Orthod* 28(2),190-194, 2006.
- 7: Three-dimensional finite-element model of the human temporomandibular joint disc during prolonged clenching : Hirose M, Tanaka E, Tanaka M, Fujita R, Kuroda Y, Yamano E, van

- Eijden T, Tanne K : European Journal of Oral Sciences 114(5),441-448, 2006.
- 8: Age-associated changes in viscoelastic properties of the bovine temporomandibular joint disc under compressive stress-relaxation : Tanaka E, Hirose M, Yamano E, Dalla-Bona D A, Fujita R, Tanaka M, van Eijden T, Tanne K : European Journal of Oral Sciences 114, 70-73, 2006.
 - 9: Hyaluronan oligosaccharides induce matrix metalloproteinase 13 via transcriptional activation of NFkappaB and p38 MAP kinase in icular chondrocytes : Ohno S, Im H J, Knudson C B, Knudson W : J Biol Chem 281(26), 17952-17960, 2006.
 - 10: The actin binding activity of subunit B of vacuolar H⁺-ATPase is involved in its targeting to ruffled membranes of osteoclasts : Zuo J, Jiang J, Chen S H, Vergara S, Gong Y, Xue J, Huang H, Kaku M, Holliday L : J. Bone and Miner Res21(5), 714-721, 2006.
 - 11: Dynamic compressive properties of the mandibular condylar cartilage : Tanaka E, Yamano E, Dalla-Bona D A, Watanabe M, Inubushi T, Shirakura M, Sano R, Takahashi K, van Eijden T, Tanne K : Journal of Dental Research 85(6),571-575, 2006.
 - 12: The effect of removal of the temporomandibular joint disc on the joint friction : Tanaka E, Dalla-Bona D A, Iwabe T, Kawai N, Yamano E, van Eijden T, Tanaka M, Miyauchi M, Takata T, Tanne K : Journal of Oral and Maxillofacial Surgery 64(8), 1221-1224, 2006.
 - 13: Expression of superficial zone protein in mandibular condyle cartilage : Ohno S, Schmid T, Tanne Y, Kamiya T, Honda K, Ohno-Nakahara M, Swentko N, Desai T, Tanne K, Knudson C, Knudson W : Osteoarthritis Cartilage 14 ,807-813, 2006.
 - 14: Treatmento ortognatico de um paciente com assimetria mandibular severa e disfuncao dos musculos mastigatorios - Relato de um caso clinico(An orthognathic treatment of patient with severe mandibular asymmetry and masticatory muscle dysfunction-A case report) : Dalla-Bona D A, Matsumoto E, Tanaka E, Tanne K : Revista da Faculdade de Odnologia (Journal of School of Dentistry of UFRGS), 46(1), 80-89, 2006.
 - 15: Nasal pressure recordings to detect obstructive sleep apnea : de Almeida F R, Ayas N T, Otsuka R, Ueda H, Hamilton P, Ryan F C, Lowe A A : Sleep and Breath 10(2), 62-69, 2006.
 - 16: Platelet-derived growth factor enhances the proliferation and matrix biosynthesis of the temporomandibular joint disc-derived cells : Hanaoka K, Tanaka E, Takata T, Miyauchi M, Aoyama J, Kawai N, Dalla-Bona D A, Yamano E, Tanne K : The Angle Orthodontist 76, 486-492, 2006.
 - 17: Sévere crowding and a dilacerated maxillary central incisor in an adolescent : Tanaka E, Hasegawa T, Hanaoka K, Yoneno K, Matsumoto E, Dalla-Bona D A, Yamano E, Suekawa Y, Watanabe M, Tanne K : The Angle Orthodontist 76, 510-518, 2006.
 - 18: Effects of ultrasound on cementoblast metabolism in vitro : Dalla-Bona D A, Tanaka E, Oka H, Yamano E, Kawai N, Miyauchi M, Takata T, Tanne K : Ultrasound in Medicine and Biology 32(6), 943-948, 2006.
 - 19: Changes in hard and soft tissue profiles of mandibular prognathic patients treated with two-jaw surgery : Lin Y Y, Tanaka N, Ueki M, Honda K, Harada M, Tanne Y, Ohkuma S, Tanaka E, Tanne K : 124-130, The Journal of Hiroshima University Dental Society 38(1),

124-130, 2006.

- 20: Food education and sound growth and development of children : Tanne K : The Journal of Hiroshima University Dental Society 38(1), 84-85, 2006.
- 21: An orthodontic clinical report of skeletal asymmetry with surgical treatment-Introduce of diagnosis system- : Tenjou K, Nagata K, Nishikawa Y, Tanne K : The Journal of Hiroshima University Dental Society 38(1), 58-71, 2006.
- 22: An orthodontic treatment case with implant-applied to an adult patient with malocclusion and severe periodontal disease. : Yamano E, Tanaka E, Kawai N, Hanaoka K, Watanabe M, Tanne K : The Journal of Chu-Shikoku Orthodontic Society 18(1), 37-44, 2006.
- 23: Influences of activators with different construction bite height on masticatory muscle activity. : Tabe H, Ueda H, Nakata Y, Matsumoto E, Koh M, Tanaka E, Tanne K : The Journal of Chu-Shikoku Orthodontic Society 18(1), 21-27, 2006.
- 24: Occlusion, craniofacial morphology and mandibular kinetic function in a juvenile patient with left facial palsy : Tanne Y, Honda K, Nakata Y, Nakatani Y, Yanagida T, Tanimoto K, Tanne K : The Journal of Chu-Shikoku Orthodontic Society 18(1), 29-36, 2006.
- 25: Medical engineering- rearrangement of medicine with engineering-cooperation of medicine and engineering in dental medicine : Tanne K : The Journal of the Japan Society of Mechanical Engineers 109 ,108-109, 2006.

B) Review

C) Publications

- 1: Mechanisms of osteoclastic bone resorption induced by VEGF during experimental tooth movement : Tanne K, Kaku M, Kohno S, Motokawa M, Tohma Y, Tsuka N, Kawata T : Harvard Society for the Advancement of Orthodontics(Boston), 267-281, 2006.
- 2: Biological and Biomechanical Consideration for Optimal Force; Clinical Biomechanics for Tooth Movement : Tanne K.: Ishiyaku Publishers Inc.(Tokyo): 217-226, 2006.
- 3: Explanation of diseases and the treatment method, abnormality in the teeth occlusion (Malocclusion) : Tanne K.: Kinbara Publishing Co.(Tokyo): 504-508, 2006.

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Dynamic compressive properties of the mandibular condylar cartilage : Dalla-Bona D A, Tanaka E, Yamano E, Takata T, Tanne K : The 1st International and the 19th Annual Meeting of the Japanese Society for the TMJ (Nagoya), 2006.
- 2: Altered binding and degradation of amelogenin may cause amelogenesis imperfecta : Zhu L, Tanimoto K, Le T Q, Zhang Y, Wang S W, Chen J, DenBesten P K, Li W : The 35th Annual

- Meeting and Exhibition of the AADR (Orlando), 2006.
- 3: Dynamic regulation of mesenchymal lineage transcription factors during osteoblast development in rat calvaria cell cultures : Hasegawa T, Yoshiko Y, Minamizaki T, Wang H, Yamamoto R, Kozai K, Tanne K, Maeda N : The 3rd IOF Asia-Pacific Regional Conference on Osteoporosis and the 16th Annual Meeting of the Australian and New Zealand Bone & Mineral Society Sheraton Mirage (Port Douglas), 2006.
 - 4: Human amelogenin degradation by MMP-20 in tooth enamel development studied by SDS PAGE, MALDI TOF MS and LC MS/MS : Robinson S, Li W, Habelitz S, Le T Q, Zhu L, Wang S W, Tanimoto K, Varanasi V, Niles R, Hardt M, Hall S, DenBesten P K, Witkowska H E : The 54th ASMS Conference on Mass Spectrometry (Seattle), 2006.
 - 5: Effect of ultrasound on the biometabolism of periodontal ligament cells : Inubushi T, Tanaka E, Dalla-Bona D A, Oka H, Okada H, Yamano E, Miyauchi M, Takata T, Tanne K : The 84th General Session & Exhibition of the IADR (Brisbane), 2006.
 - 6: The role of Pro41 in tyrosine rich amelogenin peptide formation : Li W, Wang S W, Tanimoto K, Le T Q, Zhu L, DenBesten P K : The 84th General Session & Exhibition of the IADR (Brisbane), 2006.
 - 7: Dynamic shear properties of the porcine molar periodontal ligament : Tanaka E, Inubushi T, Sano R, Takahashi K, Shirakura M, Dalla-Bona D A, Nakajima A, van Eijden T M G J, Tanne K : 84th General Session & Exhibition of the IADR (Brisbane), 2006.
 - 8: Cultured cementoblast stimulation by low- and high- intensity pulsed ultrasound : Dalla-Bona D A, Tanaka E, Inubushi T, Oka H, Ohta A, Okada H, Miyauchi M, Takata T, Tanne K : 84th General Session & Exhibition of the IADR (Brisbane), 2006.
 - 9: Effects of fluoride on the affinity of amelogenin to apatites : Tanimoto K, Le T Q, Zhu L, Chen J, Li W, DenBesten P K : 84th General Session & Exhibition of the IADR (Brisbane), 2006.
 - 10: Runx2 activation by hyaluronan during chondrocyte differentiation : Tanne Y, Ohno S, Honda K, Tanimoto K, Tanaka N, Ohno-Nakahara M, Yoneno K, Ueki M, Nakatani Y, Kiramura R, Yanagida T, Lin Y Y, Ohkuma S, Kamiya T, Tanne K : 84th General Session & Exhibition of the IADR (Brisbane), 2006.
 - 11: The C-terminus of leucine-rich amelogenin peptide binds carbonated hydroxyapatite : Le T Q, Tanimoto K, Li W, Featherstone J D B, DenBesten PK : 84th General Session and Exhibition of the IADR(Brisbane), 2006.
 - 12: Molecular and cellular mechanism of mucosal immunological homeostasis by IL-15 and MICA intranet : Koh M, Tsuruda K, Tanne K, Kiyono H, Takahashi I : The Keystone symposia (Banff), 2006.
 - 13: Effect of two jaw exercises on occlusal function in obstructive sleep apnea patients during oral appliance therapy –a randomized controlled trial : Ueda H, Almeida F R, Lowe A A, Chen H : The 15th Annual Meeting of the Academy of Dental Sleep Medicine (Salt Lake City), 2006.
 - 14: Change in occlusal contact area during oral appliance therapy assessed on study models :

- Ueda H, Almeida F R, Lowe A A, Ruse D : The 15th Annual Meeting of the Academy of Dental Sleep Medicine (Salt Lake City), 2006.
- 15: Tooth transplantation; the current status and the future development with a cryopreservation technique for teeth banking : Tanne K : The Medical Equipment Seminar between Japan and Switzerland sponsored by JETRO (Zurich), 2006.
 - 16: Carboxyl terminus of leucine-rich amelogenin peptide binds carbonated hydroxyapatite : Le T Q, Li W, Zhu L, Tanimoto K, Featherstone J D B, Hall S C, Witkowska H E, DenBesten P K : The UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 17: JNK/c-Jun signaling pathway mediates the fluoride-induced down-regulation of MMP-20 in vitro : Zhang Y, Li W, Chi H S, Chen J, Zhu L, Le T Q, Tanimoto K, DenBesten P K : The UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 18: Establishment of growth enhanced human ameloblast lineage cell line : Chen J, Zhang Y, Zhu L, Le T Q, Tanimoto K, Li W, DenBesten P K : The UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 19: The role of prolines in carboxy-terminal processing of amelogenin by MMP-20: Hyun J, Zhu L, Tanimoto K, Witkowska H E, Chen J, Hall S C, Robinson S, DenBesten P K, Li W : The UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 20: Human amelogenin degradation by MMP-20 in tooth enamel development studied by SDS-PAGE, MALDI TOF MS and LC MS/MS : Robinson S, Li W, Habelitz S, Le T Q, Zhu L, Wang S W, Tanimoto K, Varanasi V, Hardt M, Niles R, Hall S C, DenBesten P K, Witkowska H E : The UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 21: Affinity of amelogenin to apatites and its hydrolysis by MMP-20 are affected by fluoride : Tanimoto K, Le T Q, Zhu L, Chen J, Zhang Y, Robinson S, Hall S C, Witkowska H E, Featherstone J D B, Li W, The DenBesten PK : UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 22: Cloning, purification and characterization of human MMP-20 : Zhu L, Tanimoto K, Witkowska H E, Chen J, Hall S C, Robinson S, Le T, Zhang Y, DenBesten P K, Li W : The UCSF School of Dentistry Research Day (San Francisco), 2006.
 - 23: Effects of fluid flow stress and hyaluronic acid on SZP expression in cultured TMJ chondrocytes : Kamiya T, Honda K, Lin Y Y, Tanne K : The 19th Taiwan Association of Orthodontics (Taipei), 2006.
 - 24: Treatment of maxillary protrusion with temporomandibular (TMJ)-osteoarthritis (OA) from juvenile to adult -a case report : Lin Y Y, Tanaka N, Honda K, Tanimoto K, Tsai C Y, Tanne K : The 19th Taiwan Association of Orthodontics (Taipei), 2006.
 - 25: FGF23 acts as a local factor to negatively regulate osteoblast differentiation and matrix mineralization in calvaria cell cultures : Yamamoto R, Yoshiko Y, Wang H, Minamizaki T, Suemune S, Kouzai K, Tanne K, Maeda N : The 48th annual meeting of Japanese association for oral biology (Yokohama), 2006.
 - 26: Effects of growth potential of the condyle on mandibular growth : Nakano M, Fujita T, Ohtani J, Tanne K : The 16th Annual Meeting of Japanese Society for Jaw Deformities

(Chiba), 2006.

- 27: Case of maxillary protrusion with unilateral mandibular condylar fracture during the growth period : Fujita T, Nakano M, Ohtani J, Tanne K : The 16th Annual Meeting of Japanese Society for Jaw Deformities (Chiba), 2006.
- 28: Intracellular distributions of mesenchymal lineage-specific transcription factors during osteoblast development in fetal rat calvaria cell cultures : Hasegawa T, Yosiko Y, Minamizaki T, Wang H, Tanne K, Maeda N : The 24th Annual Meeting of the Japanese Society for Bone and Mineral research (Tokyo), 2006.
- 29: Effects of ultrasound on periodontal ligament cells : Inubushi T, Tanaka E, Dalla-Bona D A, Tanne K, Miyauchi M, Takata T : The 2nd Meeting of Dental Physical Stimulation Association (Tokyo), 2006.
- 30: Effects of ultrasound on cementoblast metabolism in vitro : Dalla-Bona D A, Tanaka E, Inubushi T, Oka H, Miyauchi M, Takata T, Tanne K : The 2nd Meeting of Dental Physical Stimulation Association (Tokyo), 2006.
- 31: Liposomal lactoferrin enhanced it's anti-inflammatory effects II. Inhibitory effect of liposomal lactoferrin on LPS-induced periodontal tissue destruction: Yamano E, Miyauchi M, Tanaka E, Ishikado A, Imanaka H, Suido H, Makino T, Tanne K, Takata T : The 2nd Lactoferrin Forum in Tokyo (Tokyo), 2006.
- 32: Swallowing muscle in activity in CLP patients and the influences of nasal respiratory disturbances : Nagaoka K, Wakisaka N, Ueda H, Tohma Y, Tanne K : The 30th Annual Meeting of Japanese Cleft Palate Association (Hakuba), 2006.
- 33: Bisphosphonate (alendronate) soaked in bone graft maintains transplanted bone volume in a patient with cleft lip and palate : Kawata T, Honda K, Kaku M, Fujita T, Tohma Y, Miyamoto Y, Tanne K : The 30th Annual Meeting of Japanese Cleft Palate Association (Hakuba), 2006.
- 34: A case of skeletal bite treatment with two-jaw surgery: Harada M, Honda K, Tanaka N, Ueki M, Kitamura R, Kamiya T, Tanaka E, Tanne K : The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.
- 35: Association of masticatory function with memory and learning ability of elementary school children: Koh M, Tanaka E, Honda K, Harada M, Yamano E, Tabe H, Tanne K : The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.
- 36: Three cases of mandibular protrusion treated with maxillary protrusion appliance: Ueki M, Honda K, Kitamura R, Tanaka N, Harada M, Yanagida T, Tanne Y, Kamiya T, Tanaka E, Tanne K : The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.
- 37: Oral administration of liposomal lactoferrin inhibits inflammation and bone resorption in rat LPS-induced periodontitis : Yamano E, Miyauchi M, Tanaka E, Ishikado A, Imanaka H, Suido H, Makino T, Tanne K, Takata T : The 49th Annual Meeting of Japanese Periodontal Research in Spring (Ichikawa), 2006.
- 38: A case report of orthodontic treatment in a patient with mental retardation : Inubushi T, Tanaka E, Hanaoka K, Kawai N, Yamano E, Watanabe M, Okada M, Tanne K : The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.

- 39: A case of maxillary protrusion with three missing mandibular incisors : Kamiya T, Honda K, Harada M, Tanne Y, Ueki M, Kitamura R, Tanaka N, Tanaka E, Tanne K : The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.
- 40: Dento-maxillofacial morphology in dizygotic twins with cleidocranial dysostosis : Shirakura M, Yamano E, Hanaoka K, Kozai K, Tanimoto K, Tanaka E, Tanne K : The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.
- 41: Histological study on tooth movement using a mini-screw : Ohtani J, Fujita T, Kawata T, Ogushi K, Heyamoto K, Tanne K: The 49th Annual Meeting of Chu-Shikoku Orthodontic Society (Kochi), 2006.
- 42: Influence of ultrasound stimulation on the expression of OPG and RANKL in mouse cementoblasts : Dalla-Bona D A, Tanaka E, Inubushi T, Ohta A, Okada H, Kawai N, Watanabe M, Yamano E, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 43: Influences of excessive TMJ loading on masticatory muscle activity : Kawai N, Tanaka E, Sano R, Yamano E, Dalla-Bona D A, Hanaoka K, Watanabe M, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 44: Non-linear finite element analysis using model constructed by cone beam CT image for tooth movement : Murata M, Nakajima A, Tanaka E, Shimizu N : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 45: An experimental model of spared nerve injury in the orofacial region : Takahashi K, Watanabe M, Suekawa Y, Myoishi Y, Nishi M, Tanaka E, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 46: Effects of mechanical stimuli on the proliferation and differentiation of growth plate chondrocytes from different-aged hosts : Ueki M, Tanaka N, Honda K, Lin Y Y, Nakatani Y, Kitamura R, Yanagida T, Tanne Y, Ohkuma S, Kamiya T, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 47: Histological study on tooth movement using a mini-screw : Ohtani J, Fujita T, Kawata T, Ogushi K, Heyamoto K, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 48: Influences of hyaluronan on the activation of Runx2 during chondrocyte differentiation : Ueki M, Tanaka N, Honda K, Lin Y Y, Nakatani Y, Kitamura R, Yanagida T, Tanne Y, Ohkuma S, Kamiya T, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 49: Intracellular distributions of mesenchymal lineage-specific transcription factors during osteoblast development in fetal rat calvaria cell cultures : Hasegawa T, Yoshiko Y, Yamamoto R, Tanne K, Maeda N : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 50: IL-1 beta in the trigeminal nucleus is associated with allodynia/hyperalgesia following chronic constriction infraorbital nerve injury : Suekawa Y, Watanabe M, Takahashi K, Myoishi Y, Nishi M, Tanaka E, Tanne K : The 65th Annual Meeting of the Japanese

Orthodontic Society (Sapporo), 2006.

- 51: Influences of chemical mediators and mechanical stress in synovial joint on lubricant metabolism : Yanagida Y, Honda K, Tanimoto K, Tanaka N, Yoneno K, Ueki M, Nakatani Y, Kitamura R, Tanne Y, Ohkuma S, Kamiya T, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 52: Longitudinal changes in the serum concentration of VEGF in osteopetrotic (op/op) mice : Tsuka N, Kohno S, Kaku M, Kawata T, Fujita T, Motokawa M, Tohma Y, Ohtani J, Nakano M, Kamada H, Tai M, Tanne K : The 65th Annual Meeting of the Japanese Orthodontic Society (Sapporo), 2006.
- 53: Application of low intensity ultrasound in dental field : Inubushi T, Tanaka E, Diego D A, Shimizu K, Okada H, Ohta A, Tanne K : Hiroshima University Liaison Fair 2006(Hiroshima), 2006.
- 54: Effects of ultrasound on periodontal ligament cells : Inubushi T, Tanaka E, Dalla-Bona D A, Tanne K, Miyauchi M, Takata T : The 60th Annual Meeting of Hiroshima University Dental Society (Hiroshima), 2006.

F) Special lectures in academic meetings

- 1: Biomechanical and clinical assessment for jaw movement and the related TMJ loading in patients with TMDs : Tanaka E : The TMJ Bioengineering Conference (Boulder), 2006.
- 2: Tooth transplantation; the current status and the future development with a cryopreservation technique for teeth banking : Tanne K.: The Medical Equipment Seminar between Japan and Switzerland sponsored by JETRO (Zurich), 2006.
- 3: Application of multi-loop edgewise archwire (MEAW) technique : Tanne K.: The 3rd Sao Paulo and the 2nd International Orthodontic Congress (Campinas), 2006.
- 4: Mechanisms of temporomandibular joint-osteoarthritis (TMJ-OA) and the therapeutic cues : Tanne K.: The 3rd Sao Paulo and the 2nd International Orthodontic Congress (Campinas), 2006.
- 5: Recent research topics for establishing a new paradigm in dentistry and/or orthodontics : Tanne K.: The 3rd San Paulo and the 2nd International Orthodontic Congress (Campinas), 2006.
- 6: Regeneration of the PDL and cryopreservation established as a tooth bank : Tanne K.: The 3rd San Paulo and the 2nd International Orthodontic Congress (Campinas), 2006.
- 7: Current status of tooth auto-transplantation and the future development with highly advanced cryopreservation technique for teeth banking : Tanne K.: The 6th Congress for Western China Oral Medicine Society (Chengdu), 2006.
- 8: Mechanisms of temporomandibular joint-osteoarthritis (TMJ-OA) : Biomechanical, histological and biochemical evidences : Tanne K, Honda K, Sugiyama H, Ohno S, Tanaka E: International Conference on TMJ Replacement and Tissue Engineering in Hiroshima (Hiroshima), 2006.

- 9: Biomechanical response of the temporomandibular joint disc complex to mechanical loads : Tanaka E, van Eijden T, Kawai N, Hanaoka K, Watanabe M, Tanne K : International Conference on TMJ Replacement and Tissue Engineering in Hiroshima (Hiroshima), 2006.
- 10: Biomechanical and clinical assessment for jaw movement and the related TMJ loading in patients with temporomandibular joint disorders : Tanaka E, Hirose M, Yamano E, Tanne K : 40th Anniversary Conference in Hiroshima University Faculty of Dentistry (Hiroshima), 2006.
- 11: Multi-differentiation potential of mesenchymal stem cells in three-dimensional collagen gel cultures : Ohno S, Yoneno K, Honda K, Tanimoto K, Okuma S, Tanaka E, Tanne K : International Conference on TMJ replacement and tissue engineering in Hiroshima(Hiroshima), 2006.
- 12: Biomechanics of soft tissues in the temporomandibular joint. (Symposium: Input of the bone and the tooth imaging, processing, and its outputting -Appreciate the computing technology of dental morphology-) : Tanaka E.: The 48th Annual meeting of the Japanese Association of Oral Biology (Yokohama), 2006.
- 13: Current status of tooth transplantation in clinical orthodontics and the future development: Establishment of teeth bank and the availability : Tanne K.: The 6th Annual Meeting of Japanese Traumatic Tooth Society (Hiroshima), 2006.
- 14: Biological responses of periodontal ligament and cementoblast cells to ultrasound exposure : Tanaka E, Dalla-Bona D A, Inubushi T, Tanne K, Ohta A, Okada H, Miyauchi M, Takata T : 24th Annual Meeting of the Academy of Gnathology and Occlusion (Tokyo), 2006.

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

- 1: Grant-in-Aid for Scientific Research : Tanne K : Establishment of therapeutic system to aim the inhibition of condylar cartilage resorption in TMJ-osteoarthritis, (No.18390554). ¥6,900,000
- 2: Grant-in-Aid for Scientific Research : Tanaka E : Identification of inducing mechanism of naturopathic pain in craniofacial region and its relationship to inflammatory cytokine. (No.18592235). ¥2,100,000
- 3: Grant-in-Aid for Scientific Research : Tanaka N : The research for mechanism and control of mandibular growth by mechanical stimulation (No.17791525). ¥ 800,000
- 4: Grant-in-Aid for Scientific Research : Honda K: Molecular rhythm of tissues loaded orthodontic force. (No.17791526). ¥1, 000,000
- 5: Grant-in-Aid for Scientific Research: Watanabe M : Study of descending pain modulation system following oral inflammation in rats. (No.17791527). ¥1,700,000
- 6: Grant-in-Aid for Scientific Research : Kaku M: Effects of Cyclic Tensile Forces on the Expression of Vascular Endothelial Growth Factor (VEGF) in Murine Osteoblastic MC3T3-E1 Cells. (No.17791528). ¥2,000,000
- 7: Grant-in-Aid for Scientific Research : Kohno S : Bone regeneration on craniofacial defect

using MSC. (No.18890126). ￥740,000

- 8: Research Grant (ITO Co.) : Tanaka E : The effect of ultrasound exposure on biometabolism of living cell and tissue. ￥1,000,000
- 9: 広島大学学部・附属学校共同研究機構 : Tanne K : Effects of masticatory function on the memory and learning ability for children in elementary school. ￥46,000

(5) Academic Awards, etc.

- 1: Hasegawa T.: Dynamic regulation of mesenchymal lineage transcription factors during osteoblast development in rat calvaria cell cultures: The IOF & ANZBMS 2006 Combined Meeting, President's Poster, 2006.
- 2: Ueda H.: Change in occlusal contact area during oral appliance therapy assessed on study models: The Academy of Dental Sleep Medicine the 15th Annual Meeting, The Best Poster Award, 2006.
- 3: Tai M.: The development of the device oxidation potential water creating, washing, simplified neutralization : The 4th Campus venture Grand-Prix CHUGOKU: The Chugoku Bureau of Economy, Trade, 2006.
- 4: Hasegawa T.: Intracellular distributions of mesenchymal lineage-specific transcription factors during osteoblast development in fetal rat calvaria cell cultures : The 24th Annual Meeting of the Japanese Society for Bone and Mineral research: IOF-ANZBMS 2006 Travel Award, 2006.
- 5: Tanne Y.: Citation for students: Entrance Ceremony Hiroshima University in 2006, Department of Research, 2006.
- 6: Tai M.: Citation for students: Entrance Ceremony of Hiroshima University in 2006, Department of Research, 2006.

(6) Patents

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

(1) Staffs and Students

Professor	: Katsuyuki Kozai
Associate Professor	: Junji Suzuki
Assistant	: Yasutaka Kaihara, Fumiko Hayashi, Chieko Mitsuhata(April~) Ryujiro Mizuno , Kaori Saiga(~March), Goh Yoshimura
Physician	: Hisami Nakae, Noriko Kadomoto(April~), Kumiko Takeda(~March), Mari Kodama(~March), Kozue Miura, Mihaya Arika(April~)
Intern	: Mihaya Arika(~March), Ryoko Hirata(~March), Ayako Banshoudani(~March) Kozue Aoki, Satoko Otani, Mariko Okamoto, Nami Miyake, Akane Mineoka(~March)
Graduate Student	: Noriko Kadomoto(~March), Tomoko Minamizaki, Meiko Kuramoto, Aya Tsuboi
Research Student	: Yoko Hayashi(~March), Kaori Saiga(April~), Mika Makihira(~March) Ryoko Hirata(April~), Ayako Banshoudani(April~), Mie Hirakawa(April~)
Registered Intern	: Hiroki Shintani(~March), Yoko Hayashi(April~), Mika Makihira(April~) Mami Yamashiro
Others	: Chieko Mitsuhata(Uniformed Services University of the Health Sciences(~March))

(2) Main Research Activities

- 1 : Automutanolysin in oral streptococci
- 2 : Resarch in oral bacteria especially stapholococcus aureus in children
- 3 : Effect of PG agonist differentiation of osteoblast
- 4 : Molecular analysis of cell-cell communication in differentiation of osteoblast
- 5 : Bacteriological and epidemiological research in periodontal diseases in children
- 6 : Development of oral ultra-small sized scanner for recording of oral condition
- 7 : Behavior evaluation of psychological stress in dental treatment in children
- 8 : Transmission of mutans streptococci, seeking for anti-cariogenic substance from natural foods and denaturalization of tooth by low pH beverage

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Subgingival distribution of *Campylobacter rectus* and *Tannerella forsythensis* in healthy children with primary dentition : Hayashi F, Okada M, Soda Y, Miura K, Kozai K : Archives Oral Biology 51, 117-121, 2006.
- 2 : Identification and molecular characterization of an N-acetylmuraminidase, Aml, involved in *Streptococcus mutans* cell separation : Yoshimura G, Komatsuzawa H, Hayashi I, Fujiwara T, Yamada S, Nakano Y, Tomita Y, Kozai K, Sugai M : Microbiology and Immunology 50(9), 729-742, 2006.
- 3 : OspF and OspC1 are *Shigella flexneri* type III secretion system effectors that are required for postinvasion aspects of virulence. : Zurawski D V, Mitsuhata C, Mumy K L, McCormick B A, Maurelli A T : Infection and Immunity 74(10), 5964-76, 2006.
- 4 : The Status of Treatment for Mentally Disabled Patients Visiting the Department of Pedodontics at Hiroshima in University Hospital : Miura K, Nakae H, Suzuki J, Nakaoka M, Amano H, Kozai K : Jpn.J.Ped.Dent. 44(3), 396-402, Japanese, 2006.
- 5 : Longitudinal Study on the Process of Crowding in Children with Normal Occlusion in Deciduous Dentition : Kaihara Y, Saiga K, Hisami N, Meiko K, Makihira M, Suzuki J, Kozai K : Jpn.J.Ped.Dent. 44(5), 649-656, Japanese, 2006.

B) Review

- 1 : Future directions in dental treatment and oral care for children. : Kozai K.: Pediatric Oral and Maxillofacial Surgery 16(2), 125-130, Japanese, 2006.

C) Publications

- 1 : Shin Usyoku No Kagaku (Dental Caries: Basic and Clinical Aspects) : Dental Caries and Feeding : Editors, Hamada S, Ooshima T, 161-171, Ishiyaku Publishers Inc., Japanese, 2006.
- 2 : Today's Therapy in Pediatrics 14th Edition : Pediatric Dentistry and Oral Surgery, Tooth Development and Eruption : Kozai K : Editors, Oozeki T., et al, 670-671, Igaku Syoin, Japanese, 2006.

D) Other Publications

- 1 : Annual Event of Oral Health for Children and Parents (an article) : The Chugoku Shinnbun, Japanese, 2006.
- 2 : Introduction of department : Kozai K.: Clin. J. Pediatr. Dent 11(6), 93, Japanese, 2006.
- 3 : The 44th Conference of Japanese Society of Pediatric Dentistry, Research Reports : Kozai K : Japan Educational Medical Newspaper No.261, Japanese, 2006.
- 4 : The 6th Scientific Meeting of Japanese Society of Dental Traumatology : Kozai K.: Japan Educational Medical Newspaper No.264, Japanese, 2006.
- 5 : Dental Caries in the daughter at the age of four. The column in Child Care Together : Kozai K :

E) Presentation at Scientific Meeting

- 1 : Considerable factors for good prognosis of deciduous anterior crossbite : Kaihara Y, Hayashi F, Miura K, Kozai K : The 44th congress of Japanese Society of Pediatric Dentistry (Matsumoto), 2006.
- 2 : Material property of fissure sealant – comparison with condition of polymerization – : Mizuno R, Banshodani A, Kadomoto N, Suzuki J, Kozai K : The 44th congress of Japanese Society of Pediatric Dentistry (Matsumoto), 2006.
- 3 : Investigation about the factor of oleanolic acid concerned with the inhibited effect of oral cavity : Yoshimura G, Saiga K, Tsuboi A, Suzuki J, Kozai K : The 44th congress of Japanese Society of Pediatric Dentistry (Matsumoto), 2006.
- 4 : Virulence of *S.aureus* isolated from Impetigo patients effects on Exfoliative Toxin productivity : Kadomoto N, Kozai K : The 44th congress of Japanese Society of Pediatric Dentistry (Matsumoto), 2006.
- 5 : PGE2 regulates osteoblast-adipocyte fate choice of osteoprogenitor cells cooperating with p38 MAPK/JNK pathways in fetal rat calvaria cell cultures : Minamizaki T, Kozai K : The 44th congress of Japanese Society of Pediatric Dentistry (Matsumoto), 2006.
- 6 : PCR detection of periodontal pathogens in type 1 diabetes mellitus children : Arika M, Hayashi F, Suzuki J, Miura K, Kodama M, Nakaoka M, Kozai K : The 44th congress of Japanese Society of Pediatric Dentistry (Matsumoto), 2006.
- 7 : Treatment of Intruded Primary Tooth : Suzuki J, Hirata R, Mizuno R, Hayashi Y, Kozai K : 5th PDAA (Kaohsiung), 2006.
- 8 : Examination of Odontology Department Support that uses 3DS to Infant who does Bone Marrow Transplantation : Miura K, Yoshimura G, Hyashi F, Nakaoka M, Suzuki J, Kozai K : 13th Japanese Society of Dental Welfare (Sapporo), 2006.
- 9 : The molecular mechanisms of PGE2-induced bone formation in fetal rat calvaria cell cultures : Minamizaki T, Yoshiko Y, Kozai, Maeda N : The 39th congress of The Hiroshima University Dental Society (Hiroshima), 2006.
- 10 : Dynamic regulation of mesenchymal lineage transcription factors during osteoblast development in rat calvaria cell cultures: Hasegawa T, Yoshiko Y, Minamizaki T, Wang H, Tanne K, Maeda N: The 24th Annual Meeting of the Japanese Society for Bone and Mineral Research (Tokyo), 2006.
- 11 : The Prostaglandin Receptors, EP2 and EP4, Play Different Roles in Osteoblast-Adipocyte Fate Choices in the Rat Calvaria Cell Model : Minamizaki T, Yoshiko Y, Kozai K, Aubin J E, Maeda N : The 28th Annual Meeting of the American Society for Bone and Mineral Research (Philadelphia), 2006.
- 12 : FGF23 Acts as a Negative Autocrine/Paracrine Regulator of Osteoblast Development and Bone Matrix Mineralization in Fetal Rat Calvaria Cell Cultures : Wang H, Yamamoto R, Min

- amizaki T, Tanne K, Aubin J E, Maeda N, Yoshiko Y : The 28th Annual Meeting of the American Society for Bone and Mineral Research (Philadelphia), 2006.
- 13 : FGF23 acts as a local factor to negatively regulate osteoblast differentiation and matrix mineralization in calvaria cell cultures : Yamamoto R, Yoshiko Y, Wang H, Minamizaki T, Suemune S, Kozai K, Tanne K, Maeda N : The 48th Japanese Association for Oral Biology (Yokohama), 2006.
- 14 : Real-time PCR Assay for Quantitative Detection of Streptococcus mutans: Okada M, Hayashi F, Kozai K : 84th General Session and Exhibition of the International Association for Dental Research (Brisbane), 2006.
- 15 : Evaluation of education program with sequential clinical items for 5th grade students in pediatric dentistry : Hayashi F, Kaihara Y, Mizuno R, Suzuki J, Kozai K : 25th General Session and Exhibition of Japanese Dental Education Association (Sendai), 2006.
- 16 : Follo-up of 2 cases of root formation after replantation of young permanent tooth showing a n incompletely formed root: Okamoto M, Makihira M, Suzuki J, Kozai K : 6th General Session and Exhibition of Japan Association of Dental Traumatology (Hiroshima), 2006.
- 17 : Study of replantations of deciduous tooth in traumatic injuries : Miyake N, Hayashi F, Suzuki J, Kozai K : 6th General Session and Exhibition of Japan Association of Dental Traumatology (Hiroshima), 2006.
- 18 : Dynamic Regulation of Mesenchymal Linage Transcription Factors during Osteoblast Development in Rat Calvaria Cell Cultures : Hasegawa T, Yoshiko Y, Minamizaki T, Wang H, Yamamoto R, Kozai K, Tanne K, Maeda N : Combined Meeting of the 3rd IOF Asia-Pacific Regional Conference on Osteoporosis and the 16th Annual Meeting of the ANZ Bone and Mineral Society (Port Douglas), 2006.
- 19 : Curriculum of clinical training for interns to develop a specialist of pediatric dentistry : Mizuno R, Hayashi F, Suzuki J, Kozai K : The 90th congress of The Hiroshima University Dental Society (Hiroshima), 2006.
- 20 : Occlusal Guidance using Crimpable Hook and Sectional Wire : Kaihara Y, Aoki K, Miyake N, Kozai K : The 25th congress of Japanese Society Of Pediatric Dentistry Chushikoku Branch(S himonoseki), 2006.
- 21 : For the oral control of the child patient hospitalized in the pediatrics ward – Consciousness of hospital staff and the intervention of dentists— : Otani S, Yoshimura G, Miura K, Suzuki J, Kozai K : The 25th congress of Japanese Society Of Pediatric Dentistry Chushikoku Branch (S himonoseki) , 2006.
- 22 : A study of visual support in dental treatments for development disability children : Hayashi F, Miura K, Nakae H, Kadomoto N, Kuramoto M, Mitsuhata C, Kaihara Y, Suzuki J, Kozai K : The second Hirhoshima Shouni Hoken Kenkyukai (Hiroshima), 2006.

F) Special lectures in academic meetings

- 1 : Dental Caries by Sport Drink (Acid Beverage) and Professional of Pediatric Dentistry : Koz

- ai K. : Lecture in the Seminar for Professional Pediatric Dentist in Japanese Society of Pediatric Dentistry(Yokohama), 2006.
- 2 : Concerning in the Institute of Professional Pediatric Dentist : Kozai K.: Lecture in alumni of the Department of Pediatric Dentistry, Hiroshima Univ.(Hiroshima), 2006.
 - 3 : Symposium of Feeding Education and Tooth : Kozai K.: School Lunch Festival in Hiroshima, Building of the society of medium and small sized companies, 2006.
 - 4 : Modern Conditions and Aspects in Periodontal Diseases in Children : Kozai K.: The 44th Conference of Japanese Society of Pediatric Dentistry, Research Reports(Matsumoto), 2006.
 - 5 : Understanding and Correspondence to Disabled Children. Dental Treatment of children in slight developmental disturbance : Kozai K.: the 10th Institute for primary dentist of Hiroshima Prefecture Dental Association(Hiroshima), 2006.
 - 6 : The effect of Electromagnetic Field on human body : Suzuki J : Industry-academia-governmental collaboration for development of new industry (Hiroshima), 2006.
 - 7 : Healthy and Lively Life Style Promotes Oral Health for Children : Kaihara Y. : Seminar for childcare in Hiroshima(Hiroshima), 2006.

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

- 1 : Grant-in-Aid for Scientific Research (C) : Kozai K.: Research of effectiveness of Aml against clinical streptococcal strains. (No.17592140), ¥2,100,000
- 2 : Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology of Japan (for junior researcher (B) : Hayashi F.: Real-time PCR assay for quantitative detection of periodontal pathogens in children. (No.18791552) . ¥1,800,000
- 3 : Grant-in-aid scientific research(C) : Suzuki J.: Unknown virulence factors produced by periodontal pathogen. (No.18592236) . ¥800,000
- 4 : Grant-in-Aid of Ryokufu-kai : Ariki M.: ¥300,000
- 5 : Grant-in-Aid of Futoku-kai: 2006 : Yoshimura G : ¥300,000
- 6 : Scholarship of Presentation of Foreign Meeting supported by Hiroshima University Graduate School of Biomedical Sciences in 2005 : Minamizaki T: ¥100,000

(5) Academic Awards, etc.

- 1 : Kuramoto M.: Certification of commendation, 2006.

(6) Patents

Division of Oral Health Science (Department of Oral Health Research)

(1) Staffs and Students

Professor: Masaru Sugiyama

Associate Professor: Hitomi Fujimoto

(2) Main Research Activities

- 1 : Study on what school health activities should be like
- 2 : Study on non-attendance at school and the role of yogo teachers in the matter
- 3 : Study on what the duties of yogo teachers should be like
- 4 : Study on what oral health at school should be like
- 5 : Study on the association of oral microorganisms with development of oral lesions and their characteristics.

(3) Research Achievements

A) Original Papers (including Case Reports)

B) Review

C) Publications

- 1 : Lesions of Salivary Glands. Oral Surgery for Dental Students (Komori T. ed.) : Sugiyama M. : Nagasue (Kyoto), pp160-175, 2006.
- 2 : Removal of Sialolith. Oral Surgery for Dental Students (Komori T. ed.) : Sugiyama M.: Nagasue (Kyoto), pp252-255, 2006.

D) Other Publications

- 1 : Report of visits to American educational institutions for dental students (specially dental hygienists and dental technicians) : Sugiyama M : Report of fruits by the Heisei 18 year financial support for practicing overseas advanced education. "Programs for medical students to master advanced medical skills. (The head of program: Professor Inai Y)", pp71-80, 2006.

E) Presentation at Scientific Meeting

- 1 : Detection of human papillomavirus-16 and HPV-18 DNA in normal, dysplastic, and malignant oral epithelium : Sugiyama M, Bhawal UK, Fujimoto H, Takemoto T, Hara H, Matsumoto A, Niitani Y, Nikawa H, Makihira S, Satoda T, Shimoe S, Murayama T, Tamamoto M, Amano H : The 7th Conference of Asian Association of Preventive Dentistry, Okayama, November 2006.
- 2 : Application of mesenchymal stem cells (MSC) to regenerative dentistry and identification of molecular markers for MSC : Kato Y, Shimizu M, Igarashi A, Ishii M, Kawaguchi H, Kamata N, Sugiyama M, Kurihara H, Tsuji, K Kawamoto T : The 1st Hiroshima Conference on Education and Science in Dentistry, Hiroshima, January 2006.
- 3 : Application of new hydroxyapatite ceramics with connecting pores to oral surgery : Miyauchi M, Yoshioka Y, Higashikawa K, Koizumi K, Ohta K, Tani R, Tohmori H, Hayashido Y, Inoue S, Toratani S, Sugiyama M, Akagawa Y, Kamata N : The 51st conference of the Japanese association of oral surgeons (Kita-Kyuushuu), 2006.
- 4 : Family support by school-nurse teachers.—By use of system approach for supporting family- : Tushima H, Fujimoto H, Kajiwara K : The 13th academic meeting of the Japanese association of family nursing (Hiroshima), September 2006.
- 5 : Introduction of family system approach to health consultation by school-nurse teachers : Tushima H, Fujimoto H, Kajiwara K : The 53rd conference of the Japanese school health association (Takamatu), November 2006.

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

- 1 : Grant-in Aid for Scientific Research ((B) (2)) : Sugiyama M, Miyauchi M, Higashikawa K : The association of human papillomavirus with the development of oral squamous cell carcinoma. (Project Number 16390590), ¥ 3,100,000.
- 2 : Joint Research of Faculty and Attached School (Research Project) : Fujimoto H, Yasuda R, Aizawa M, Ohgoto K, Amano H, Niitani Y : Study to promote health education for developing life force. ¥ 22,340.
- 3 : Joint Research of Faculty and Attached School (Research Project) : Satoda T, Shimoe S, Fujimoto H, Shiragami S, Inoue J, Yokoyama M : Introduction of functional anatomical models to education of biology in high schools. ¥ 45,906.
- 4 : Joint Research of Faculty and Attached School (Research Project): Kawasaki H, Fujimoto H, Yasuda R, Miyata A, Koto M, Ochiai S, Aizawa M, Morisada T, Uotani K, Aratani M, Yumiba N, Yabe Y, Yanagida Y : Practicum of school nursing in future. —Problems in mastering techniques.

(5) Academic Awards, etc.

(6) Patents

Division of Oral Health Science (Department of Team Care for Oral Health)

(1) Staffs and Students

Professor : Amano Hideaki (Chief of the School of Oral Health Science)

Assistant Professor : Hara Kumiko

(2) Main Research Activities

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

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : A Program for Oral Health Promotion using Intra Oral Scanner System : Amano H, Hara K, Fujimoto H, Kawamura M, Okada M, Mizoue N, Morinaga S, Ishihara Y, Hashimoto N, Iga, Y : Proceedings of Hiroshima University and High Schools 34, 475-479, 2006. (in Japanese)
- 2 : A Study of an Oral Health Promotion Program for Junior High School Students using an Intra-Oral Scanner System : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Mathumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe S, Tahara K, Kawamura M, Okada M : Proceeding of The 5th Conference Of Pediatric Dentistry Association Of Asia, 111, 2006.
- 3 : An invitro evaluation of the adhesion of Candida species to oral and lung tissue cells : Nikawa H, Egusa H, Makihira S, Okamoto T, Kurihara H, Shiba H, Amano H, Murayama T, Yatani H, Hamada T. : Mycoses 49, 14-7, 2006.
- 4 : The Status of Dental Treatment for mentally Disabled Patients Visiting the Department of Pedodontics at Hiroshima University Hospital : Miura K, Nakae H, Suzuki J, Nakaoka M, Amano H, Kozai K : Jpn. J. Ped. Dent. 44, 396-402, 2006. (in Japanese)

B) Review

C) Publications

- 1 : Case examples and countermeasure manual of medical accidents for dental hygienists – prevent severe accidents - : Hara K. and others: Society of Oral Health Science (Tokyo) : 2006.(in Japanese)
- 2 Schoolbook for dental hygienists –Periodontal disease - : Hara K and others : Ishiyaku Pub., Inc.(Tokyo) , 126-133, 2006. (in Japanese)

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Chewing gum containing citric acid reduces the burden of periodontopathogens : Nikawa H, Igarashi S, Takasu O, Harano F, Shinohara S, Tamamoto M, Takemoto T, Shimoe S, Hara K, Matsumoto A, Niitani Y, Fujimoto H, Murayama T, Satoda T, Sugiyama M, Amano H, Kurihara H, Saaranayake LP : 2006 IADR (Brisbane) , 2006.
- 2 : Detection of human papillomavirus-16 and HPV-18 DNA in normal, dysplastic, and malignant oral epithelium : Sugiyama M, Bhawal U, Fujimoto H, Takemoto T, Hara K, Matsumoto A, Niitani Y, Nikawa H, Makihira S, Satoda T, Shimoe S, Murayama T, Tamamoto M, Amano H : 7th Congress of Asian Academy of Preventive Dentistry (Okayama) , 2006.
- 3 : Problem-based learned task useful to understand needs of patients with mental retardation : Okada M, Hara K, Amano H, Sugiyama M, Takemoto T, Fujimoto H, Matsumoto A, Niitani Y, Ogawa T : 6th Asian Pacific PBL Conference (Tokyo) , 2006.
- 4 : A study of an oral health promotion program for junior high school students using an intra-oral scanner system : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe A, Kawamura M, Okada M. : Pediatric Dentistry Association of Asia (Tokyo) , 2006.
- 5 : Attempt of oral health promotion using intra-oral scanner –In the physical examination in junior high school- : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe A. : 39th annual Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.
- 6 : Analysis of clinical training in dental hygienists school –Evaluation of training curriculum at dental hospital by students.][ja] : Takemoto T, Hara K, Matsumoto A, Niitani Y, Fujimoto H, Amano H, Tamamoto M. : 25th Scientific Meeting of Japanese Association for Dental Education (Sendai) , 2006.
- 7 : A study on effectiveness of making picture cards in PBL tutorial : Hara K, Matsumoto A, Fujimoto H, Niitani Y, Takemoto T, Ogawa T, Okada M, Amano H. : 25th Scientific Meeting of Japanese Association for Dental Education (Sendai) , 2006.

- 8: The effectiveness of “oral relaxation method” in decreasing mental stress : Matsumoto A, Hara K, Niitani Y, Takemoto T, Sugiyama M, Amano H, Kitayama T, Dohi T. : The 21st scientific meeting of the Japanese Society of Psychosomatic Dentistry (Kokiura) , 2006.
- 9 : The change in volume and quality of saliva by “Oral-relaxation method”][ja] : Matsumoto A, Niitani Y, Hara K, Takemoto T, Amano H. : The 1 st scientific meeting of Japan Society for Dental Hygiene (Tokyo) , 2006.
- 10: A case report of a dry-mouth patient –Improvement of dry mouth by the massotherapy on the salivary gland : Hara K, Niitani Y, Matsumoto A, Takemoto T, Amano H. : The 1 st scientific meeting of Japan Society for Dental Hygiene (Tokyo) , 2006.
- 11 : Application of intra-oral scanner to school physical examination][ja] : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe A, Kawamura M, Okada M. : The 2nd scientific meeting of Hiroshima child health study association (Hiroshima) , 2006.
- 12 : To deepen the understanding about patients with mental retardation –A study on effectiveness of making picture cards in PBL tutorial- : Hara K, Niitani Y, Fujimoto H, Matsumoto A, Takemoto T, Amano H, Sugiyama M. : JADA autumn meeting 2006 (Kyoto) , 2006.
- 13 : P-type ATPase inhibitor controls the proliferation to matured osteoclasts][ja] : Kosaka ES, Makihira S, Ozaki K, Shimoe A, Tamamoto M, Satoda T, Murayama T, Sugiyama M, Amano H, Takemoto T, Nikawa H. : 45th Annual Meeting of Hiroshima Prefecture Dental Association and 90th Regular Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.
- 14 : About the saliva flow and IgA secretion at “oral relaxation” state][ja] : Matsumoto A, Niitani Y, Takemoto T, Hara K, Amano H, Fujimoto H, Sugiyama M, Sadamori S, Hamada T, Kitayama T, Dohi T. : 45th Annual Meeting of Hiroshima Prefecture Dental Association and 90th Regular Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.
- 15 : Effect of stress on salivary peroxidase secretion : Maruyama T., Hara K, Iwasa K, Sugita M, Hirono T, Shiba Y : 48th Scientific Meeting of Japanese Association for Oral Biology (Yokohama), 2006.
- 16 : Effect of gland massage on salivary secretion : Hara K, Maruyama T, Hirono T, Amano H, Shiba Y : 48th Scientific Meeting of Japanese Association for Oral Biology (Yokohama), 2006.
- 17: An evaluation approach for the stress of disabilities having dental care using an index marker of salivary peroxidase secretion : Maruyama T, Hara K, Kawamoto H, Shiba Y : 23th Annual Meeting of Japanese Association for Disability and oral health(Sendai) , 2006.
- 18 : A study of effect of gland massage on salivary secretion : Hara K, Maruyama T, Hirono T, Amano H, Shiba Y : 90th annual Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.

F) Special lectures in academic meetings

- 1 : Try to improve health care for the People reside in All Life Stages : Amano H : 28th

Scientific Meeting of Japan Dental Technologists Association (Hiroshima), 2006.

- 2 : Practical Oral Health Care : Hara K. : Workshop for the staff of nursing service department in Healthcare Corporation Kousei-kai Kusatsu Hospital (Hiroshima) : 2006.
- 3 : Basic Methods for Oral Health Care : Hara K. : Meeting of the Society of Practical Oral Care (Hiroshima): 2006.
- 4 : Some Techniques for Mouth Cleaning - application of the skills- : Hara K. : 7th Seminar for Practical Oral Care (Hiroshima) : 2006.
- 5 : Nutritional management, oral care and nursing care at home : Hara K. : Nursing care class of Hiroshima City (Hiroshima):2006.

G) Social Contributions

- 1 : Program for kids from elementary schools, Dental Kids, "Let's Be a Dentist!" : Hiroshima University Faculty of Dentistry, 2006.
- 2 : Program for kids from elementary schools, Dental Kids, "Let's Be a Dentist!": Higashi-Hiroshima city Dental Association, 2006.
- 3 : Program for high school students, Dental Kids : Hiroshima University Faculty of Dentistry, 2006.

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

- 1 : 2006th grant-in-aid for scientific research : Amano H : A noninvasive Method for Diagnosis of Periodontal Tissues with Infra Red Measurement.

(5) Academic Awards, etc.

(6) Patents

School of Oral Health Science, Division of Oral Health Science, Department of Oral Health Management

(1) Staffs and Students

Professor: Toshinobu TAKEMOTO

Assistant Professor: Atsue MATSUMOTO

Research Associate: Yoshie NIITANI

(2) Main Research Activities

- 1 : Dental hygienists education
- 2 : Research about halitosis
- 3 : Periodontal health management
- 4 : Oral relaxation method
- 5 : Relation between saliva flow and emotion
- 6 : Education about counseling
- 7 : Infection control in dentistry

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : [The outline of School of Oral Health Science, Hiroshima University Faculty of Dentistry and its curriculum.][ja]: Tamamoto M, Takemoto T. : J. Jpn Dent Technologists Assoc, 446, 33-40, 2006.

B) Review

C) Publications

- 1 : [Movement of medical and welfare education- Dental hygienists education][ja]: Statement for dental education (2005: Takemoto T. (Contributor) : Edited by Jpn Dental Educ Assoc, 1 60-1 63, 2006.

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Distribution of periodontal pathogens in saliva from human subjects : Hino T, Shiba H, Yoshino H, Kawaguchi H, Takemoto T, Kurihara H. : 2006 IADR (Brisbane) , 2006.
- 2 : Chewing gum containing citric acid reduces the burden of periodontopathogens: Nikawa H, Igarashi S, Takasu O, Harano F, Shinohara S, Tamamoto M, Takemoto T, Shimoe S, Hara K, Matsumoto A, Niitani Y, Fujimoto H, Murayama T, Satoda T, Sugiyama M, Amano H, Kurihara H, Saaranayake LP: 2006 IADR (Brisbane) , 2006.
- 3 : Detection of human papillomavirus-16 and HPV-18 DNA in normal, dysplastic, and malignant oral epithelium: Sugiyama M, Bhawal U, Fujimoto H, Takemoto T, Hara K, Matsumoto A, Niitani Y, Nikawa H, Makihira S, Satoda T, Shimoe S, Murayama T, Tamamoto M, Amano H: 7th Congress of Asian Academy of Preventive Dentistry (Okayama) , 2006.
- 4 : Problem-based learned task useful to understand needs of patients with mental retardation: Okada M, Hara K, Amano H, Sugiyama M, Takemoto T, Fujimoto H, Matsumoto A, Niitani Y, Ogawa T: 6th Asian Pacific PBL Conference (Tokyo) , 2006.
- 5 : Problem-Based Learning dealing with Japanese mandatory postgraduate dental training course: Takarada A, Tsuga K, Miyauchi M, Taguchi A, Okada M, Yoshino H, Hirono C, Takemoto T, Taguchi N, Ogawa T. and Uchida T: 6th Asian Pacific PBL Conference (Tokyo) , 2006.
- 6 : A study of an oral health promotion program for junior high school students using an intra-oral scanner system: Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe A, Kawamura M, Okada M. : Pediatric Dentistry Association of Asia (Tokyo) , 2006.
- 7 : [Attempt of oral health promotion using intra-oral scanner –In the physical examination in junior high school-][ja]: Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe A. : 39th annual Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.
- 8 : [Analysis of clinical training in dental hygienists school –Evaluation of training curriculum at dental hospital by students.][ja] : Takemoto T, Hara K, Matsumoto A, Niitani Y, Fujimoto H, Amano H, Tamamoto M. : 25th Scientific Meeting of Japanese Association for Dental Education (Sendai) , 2006.
- 9 : [Problem-based learning dealing with postgraduate dental training course in undergraduate clinical training][ja]: Takarada M, Tsuga K, Miyauchi M, Taguchi A, Okada M, Yoshino H, Takemoto T, Taguchi N, Ogawa T, Uchida T. : 25th Scientific Meeting of Japanese Association for Dental Education (Sendai) , 2006.
- 10 : [A study on effectiveness of making picture cards in PBL tutorial][ja]: Hara K, Matsumoto A, Fujimoto H, Niitani Y, Takemoto T, Ogawa T, Okada M, Amano H. : 25th Scientific Meeting of Japanese Association for Dental Education (Sendai) , 2006.

- 1 1 : [The effectiveness of “oral relaxation method” in decreasing mental stress][ja]: Matsumoto A, Hara K, Niitani Y, Takemoto T, Sugiyama M, Amano H, Kitayama T, Dohi T. : The 21st scientific meeting of the Japanese Society of Psychosomatic Dentistry (Kokiura) , 2006.
- 1 2 : [The change in volume and quality of saliva by “Oral-relaxation method”][ja]: Matsumoto A, Niitani Y, Hara K, Takemoto T, Amano H. : The 1 st scientific meeting of Japan Society for Dental Hygiene (Tokyo) , 2006.
- 1 3 : [A case report of a dry-mouth patient –Improvement of dry mouth by the massotherapy on the salivary gland][ja]: Hara K, Niitani Y, Matsumoto A, Takemoto T, Amano H. : The 1 st scientific meeting of Japan Society for Dental Hygiene (Tokyo) , 2006.
- 1 4 : [Application of intra-oral scanner to school physical examination][ja] : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe A, Kawamura M, Okada M. : The 2nd scientific meeting of Hiroshima child health study association (Hiroshima) , 2006.
- 1 5 : [To deepen the understanding about patients with mental retardation –A study on effectiveness of making picture cards in PBL tutorial-][ja]: Hara K, Niitani Y, Fujimoto H, Matsumoto A, Takemoto T, Amano H, Sugiyama M. : JADA autumn meeting 2006 (Kyoto) , 2006.
- 1 6 : [P-type ATPase inhibitor controls the proliferation to matured osteoclasts][ja]: Kosaka ES, Makihira S, Ozaki K, Shimoe A, Tamamoto M, Satoda T, Murayama T, Sugiyama M, Amano H, Takemoto T, Nikawa H. : 45th Annual Meeting of Hiroshima Prefecture Dental Association and 90th Regular Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.
- 1 7 : [About the saliva flow and IgA secretion at “oral relaxation” state][ja]: Matsumoto A, Niitani Y, Takemoto T, Hara K, Amano H, Fujimoto H, Sugiyama M, Sadamori S, Hamada T, Kitayama T, Dohi T. : 45th Annual Meeting of Hiroshima Prefecture Dental Association and 90th Regular Meeting of the Hiroshima University Dental Society (Hiroshima) , 2006.

F) Special lectures in academic meetings

- 1 : [Mouth is the source for long-living –Oral and dental health][ja]-: Takemoto T. : Health symposium of “The memorial day for good teeth” (Hiroshima) , 2006.
- 2 : [The practical method for the improvement of oral care –case reports][ja]: Matsumoto A. : 2006 nationwide training seminar for day service centers, Japanese Council of Senior Citizens Welfare Service (Okayama) , 2006.
- 3 : [Oral care method][ja]: Matsumoto A. : Child-care course of a community program of the nursery school, Social welfare corporation Mimyo-Fukushi-Kai (Hiroshima) : 2006.
- 4 : [Lecture about mouth, group instruction of tooth-1][ja]: Matsumoto A. : Child-care course of a community program of the nursery school, Social welfare corporation Mimyo-Fukushi-Kai (Hiroshima) : 2006.

- 5 : [Lecture about mouth, group instruction of tooth-2][ja]: Matsumoto A. : Child-care course of a community program of the nursery school, Social welfare corporation Mimyo-Fukushi-Kai (Hiroshima) : 2006.
- 6 : [Oral care for pregnant woman and new born infant][ja]: Matsumoto A. : School for pregnant women in Gynecology department of Hiroshima University Hospital (Hiroshima) , 2006.
- 7 : [Research work for dental hygienist][ja]: Hara K. , Matsumoto A. : Hiroshima University recurrent seminar for Dental hygienists (Hiroshima) , 2006.
- 8 : [Oral relaxation method][ja]: Matsumoto A. : Hiroshima University recurrent seminar for dental hygienists (Hiroshima) , 2006.
- 9 : [Mouth and health –Oral care throughout all life stages-][ja]: Takemoto T. : Hiroshima University open seminar for senior high school students “Science for life force –Oral health science part 1 -“ (Hiroshima) , 2006.
- 1 0 : [Bacteriology for dental caries and periodontal disease][ja]: Takemoto T. : Hiroshima University open seminar for senior high school students “Science for life force –Oral health science part 2-“ (Hiroshima) , 2006.
- 1 1 : [Oral health seminar][ja]: Takemoto T. : YOSHIDA Chugoku-area Branch, 2006.

G) Social Contributions

- 1 : Program for kids from elementary schools, Dental Kids, “Let’s Be a Dentist!”: Hiroshima University Faculty of Dentistry, 2006.
- 2 : Program for kids from elementary schools, Dental Kids, “Let’s Be a Dentist!”: Higashi-Hiroshima city Dental Association, 2006.
- 3 : Program for high school students, Dental Kids: Hiroshima University Faculty of Dentistry, 2006.
- 4 : Member of Dental Hygienists’ Examination committee: Matsumoto A. : Foundation of Promoting Dental Care and Training (Tokyo) , 2006.
- 5 : Secretary of the regional association of Kinki , Chugoku and Shikoku area for Japanese Society for Dental Health: Matsumoto A, 2006.

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

(5) Academic Awards, etc.

(6) Patents

Division of Oral Health Engineering (Department of Oral Basic Science)

(1) Staffs and Students

Professor : Takahiro Satoda

Assistant Professor : Saiji Shimoe

(2) Main Research Activities

- 1 : Development of Effective model for anatomy education
- 2 : Morphological Reserch on masticatory nerural network
- 3 : Study on bonding prosthetic materials to dental alloys
- 4 : Study on effective denture marking for individual identification
- 5 : Study on dental materials for esthetic

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Current analysis concerning dental technician training in our school and associated changes by having become a university-Investigation of students- : S Shimoe, H Tajima, M Tamamoto, T Satoda, T Murayama, H Nikawa, H Amano, T Seo : Journal of Nippon Academy of Dental Technolory 27(1), 52-58, 2006.

B) Review

C) Publications

- 1 : Crown restoration made use of the adhesion : N Tanoue, S Shimoe, H Matsumura : written and edited by Hideo Matsumura, Takuo Tanaka, Suenaga Bookstore, 143-149, 2006. 9

D) Other Publications

- 1 : The introduction of embryological models for senior high school biology and health education. : Satoda T, Shimoe S, Fujimoto H, Shiraga M, Inoue J, Shinbori T, Otuji A, Ito-K, Sera M, Hashimoto N, Yamashita K : Hiroshima University The annals of educational Research 34.383-387,2006

E) Presentation at Scientific Meeting

- 1 : A model for functional instruction of temporomandibular joint : Satoda T, Shimoe S, Nikawa H, Tamamoto M, Tajima H, Murayama T, Oura S, Yamaguchi T, Yamanishi E, Hiyama S, Uchida T. : The 111th Annual Meeting of Japanese Association of Anatomists (Sagamihara), 2006..
- 2 : A model for functional instruction of tongue and soft palate : Satoda T, Shimoe S, Tajima H, Tamamoto M, Makihira S, Nikawa H, Murayama T, Ueda H, Toyoura T : 39th annual meeting of Hiroshima University Dental Society (Hiroshima) 2006.6.18
- 3 : Production of facemask by students for future use as a facial prosthesis : Saiji Shimoe, Hideaki Tajima, Seicho Makihira, Mitsuhiro Tamamoto, Takahiro Satoda, Takeshi Murayama, Hiroki Nikawa, Hideaki Amano, Misuzu Nagami : 28th Nippon Academy of Dental Technology 2006. 9 17-18, Hiroshima.
- 4 : A model for functional instruction of temporomandibular joint : Satoda T, Shimoe S, Tamamoto M, Tajima H, Makihira S, Nikawa H, Murayama T : 28th Nippon Academy of Dental Technology (Hiroshima) 2006,9,17-18
- 5 : A model for functional instruction of tongue and soft palate : Satoda T, Shimoe S, Tajima H, Tamamoto M, Makihira S, Nikawa H, Murayama T, Ueda H, Toyoura T : The 61st Annual Meeting of Japanese Association of Anatomists Chugoku-Shikoku regional meeting(Hiroshima), 2006.

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

(5) Academic Awards, etc.

(6) Patents

Division of Oral Health Engineering (Department of Biomaterial Engineering)

(1) Staffs and Students

Professor : Takeshi Murayama
Associate Professor : Mitsuhiro Tamamoto

(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: Health Monitoring System using Wearable Sensors involved in a Denture

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Questionnaire survey on the demand and education of dental technologists for companies related to dentistry : Tamamoto M, Tajima H, Shimoe S, Murayama T, Satoda T, Nikawa H, Amano H : Journal of Nippon Academy of Dental Technology, 27(1),43-51,2006.
- 2 : Outline and Curriculum of the School of Oral Health Science, Hiroshima University Faculty of Dentistry : Tamamoto M, Takemoto N : The Journal of the Japan Dental Technologists Association, 446, 33-40,2006.
- 3 : Current analysis concerning dental technician training in our school and associated changes by having become a university- investigation of students- : Shimoe S, Tajima H, Tamamoto M, Satoda T, Murayama T, Nikawa H, Amano H, Seo T : Journal of Nippon Academy of Dental Technology, 27(1), 52-58, 2006.
- 4 : An invitro evaluation of the adhesion of Candida species to oral and lung tissue cells : Nikawa H, Egusa H, Makihira S, Okamoto T, Kurihara H, Shiba H, Amano H, Murayama T, Yatani H, Hamada T : Mycoses, 49, 14-7, 2006.
- 5 : Production Planning and Simulation for Reverse Supply Chain : Murayama T, Yoda M, Eguchi T, and Oba F : JSME International Journal Series C, 49(2), 281-286, 2006.
- 6 : Simulation-based Evaluation of Forward and Reverse Supply Chain : Murayama T,

- Hatakenaka S, Hashimoto M, Eguchi T and Oba F : Transactions of the Japan Society of Mechanical Engineers(series C), 72(720), 281-288, 2006.
- 7 : Efficient Dynamic Scheduling with Short Forecast Window using the Mixture of a Genetic Algorithm and a Priority Rule : Eguchi T, Dougakiuchi M, Oba F, Murayama T : Proceedings of the 2006 International Symposium on Flexible Automation, 568-571, 2006.
- 8 : A Priority Rule Development Method for Dynamic Job Shop Scheduling Using Neural Networks : Eguchi T, Maeda N, Oba F, Murayama T : Transactions of the Japan Society of Mechanical Engineers(series C), 72(714), 567-574, 2006.
- 9 : Dynamic Scheduling Using the Mixture of a Genetic Algorithm and a Priority Rule : Eguchi T, Dougakiuchi M, Oba F, Murayama T : Transactions of the Japan Society of Mechanical Engineers(series C), 72(714), 575-583, 2006.
- 10 : Dynamic Scheduling with Processing Time Uncertainty Using the Mixture of Periodic Optimization and Real-time Scheduling : Eguchi T, Kozaki S, Oba F, Murayama T : Transactions of the Japan Society of Mechanical Engineers(series C), 72(717), 1630-1637, 2006.

B) Review

C) Publications

- 1 : Assembly Sequence Planning using K-nearest-neighbor Rule; Mechatronics for Safety, Security and dependability in a New Era (eds. Arai E. and Arai T.) : Murayama T, Eguchi T, and Oba F : Elsevier Science Ltd.(The Netherlands), 129-132, 2006.

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Chewing Gum Containing Citric acid Reduces the Burden of Periodontopathogens : Nikawa H, Igarashi S, Takasu O, Harano F, Shinohara S, Tamamoto M, Takemoto N, Shimoe S, Hara K, Matsumoto A, Niitani H, Fujimoto T, Murayama T, Satoda M, Sugiyama M, Amano H, Kurihara H & Samaranayake LP. : 84th General Session & Exhibition of the IADR (Brisbane), 2006.

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

(5) Academic Awards, etc.

(6) Patents

Division of Oral Health Science (Department of Medical Design & Engineering)

(1) Staffs and Students

Professor : Hiroki Nikawa
Associate Professor : Seicho Makihira (April-)
Research Student : Kana Osaki (April-), Eduardo Shuichiro Kosaka (May-)
Secretary : Kazumi Tahara (-March), Nobue Hiromoto (-September), Miki Onji

(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
- 7 : Study on bone resorption inhibitors
- 8 : Study on dental implant materials

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : An *in vitro* evaluation of the adhesion of *Candida* species to oral and lung tissue cells : Nikawa H, Egusa H, Makihira S, Okamoto T, Kurihara H, Shiba H, Amano H, Murayama T, Yatani H, Hamada T : *Mycoses*, 49, 14-7, 2006.
- 2 : The effect of saliva or serum on bacterial and *Candida albicans* colonization of type I collagen : Nikawa H, Egusa H, Yamashiro H, Nishimura M, Makihira S, Jin C, Fukushima H, Hamada T : *J Oral Rehabil*, 33, 767-74, 2006.
- 3 : In vitro Mechanisms of Interleukin 8 Response of Human Gingival Epithelial Cells to *Candida albicans* Infection : Egusa H, Nikawa H, Makihira S, Yatani H, Hamada T : *Int J Med Microbiol*, 296(4-5),301, 2006.
- 4 : B and T Lymphocytes Are the Primary Sources of RANKL in the Bone Resorptive Lesion of Periodontal Disease : Kawai T, Matsuyama T, Hosokawa Y, Makihira S, Seki M, Karimbux N, Goncalves Y R, Valverde B P, Dibart S, Li Y P, Miranda L A, Ernst C W O, Izumi Y, Taubman MA : *Am J Pathol*, 169 (3), 987-998, 2006.
- 5 : Application of magnetic attachment for connecting a fixed partial denture and a detachable gum

part: A clinical report : Sadamori S, Makihira S, Nakai N, Hamada T : Int Chin J Dent, 6,89-92, 2006.

6 : Attaching a magnetic root coping to a fiber-reinforced post : Makihira S, Sadamori S : J Prosth Dent ,96(5), 381-382, 2006.

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

1 : Chewing Gum Containing Citric acid Reduces the Burden of Periodontopathogens. : Nikawa H, Igarashi S, Takasu O, Harano F, Shinohara S, Tamamoto M, Takemoto N, Shimoe S, Hara K, Matsumoto A, Niitani H, Fujimoto T, Murayama T, Satoda M, Sugiyama M, Amano H, Kurihara H & Samaranayake LP : 84th IADR (Brisbane) , 2006

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

(5) Academic Awards, etc.

(6) Patents

Central research laboratory

(1) Staffs and Students

Director : Norihiko Maeda (by-work)

Educational Staff : Yasuhumi Myouishi , Ikue Hayashi

(2) Main Research Activities

- 1 : マウス ES 細胞からの顎顔面組織誘導
- 2 : マウス骨髄幹細胞からの顎顔面組織誘導
- 3 : Proteomics analysis by mass spectrometry in mammalian and bacterial cells
- 4 : Development of analytical method for the determination of physiologically active substances

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Identification and Molecular Characterization of N-Acetylmuraminidase, Aml, Involved in Streptococcus mutans Cell Separation: Yoshimura G, Komatsuzawa H, Hayashi I, Fujiwara T, Yamada S, Nakano Y, Kozai K, Sugai M.: Microbiol. Immunol., 50 (9), 729-742, 2006.
- 2: Identification of the NKG2D haplotypes associated with natural cytotoxic activity of peripheral-blood lymphocytes and cancer immunosurveillance: Hayashi T, Imai K., Morishita Y., Hayashi I., Kusunoki Y., Nakachi K.: *Cancer Res*, 66(1), 563-570, 2006

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Analysis of a protein interacted with H2AX: Satou J., Kobayashi J., Hayashi I., Komatsu K. : The 49th Annual Meeting of The Japan Radiation Research Society (Sapporo, 2006)
- 2 : Effects of inflammation-related gene polymorphism and atomic-bomb radiation exposure on stomach cancer risk: Hayashi T., Morishita Y., Imai K., Nagamura H., Maki M., Yoshida K., Hayashi I., Kusunoki Y., Tahara E., Nakachi K.: 16th International Symposium of Hiroshima Cancer Seminar (Hiroshima, 2006)
- 3 : Effects of HDAC inhibitor and radiation on rat liver epithelial cells inhibited gap junction by "transforming" RNA: Hayashi T., Kawasaki A., Ogawa T., Ago R., Hayashi I., Nakachi K., Hamada K.: International Conference Physiological and Pathological Importance of Gap Junctions (Tokyo, 2006)

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

(5) Academic Awards, etc.

(6) Patents

Department of General Dentistry (General Dentistry)

(1) Staffs and Students

Professor	: Tetsuji Ogawa
Assistant Professor	: Norihiro Taguchi (from April, 2006)
Assistant	: Norihiro Taguchi (until March, 2006), Yoshiharu Tanaka
Intern Dentist	: Nobuhito Tanaka (until March 2006), Masato Yoshihara (until March 2006), Yuken Outa (until March 2006), Masaaki Nagata (until March 2006), Kanna Miura (until March 2006), Ryouko Ohshita (from April 2006), Yoshiko Suzuki (from April 2006), Akane Mineoka (from April 2006), Hiroyuki Minamoto (from April 2006 to July 2006)
Secretary	: Tomoe Sakai (from January 2006)

(2) Main Research Activities

- 1: Study for Patient-Oriented and Narrative-Based Medicine
- 2: Study for Advanced General Dentistry
- 3: Study for Postgraduate Dental Clinical Training Program
- 4: Study for Health communication
- 5: Study for Clinical Teaching
- 6: Study for Clinical Assessment
- 7: Study for Training and Standardizing Simulated Patients

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Undergraduate Dental Education of University of Dundee : Taguchi N : UK. J Jap Dent Educ 22, 47-57, 2006.
- 2: A Project of ICLS Introduction in Dentist Clinical Training –SBOs : ICLS Simulation Course-. : Tanaka Y, Taguchi N and Ogawa T : J Jap Dent Educ 22, 155-160, 2006.
- 3: Survey of Insurance against Medical Malpractice and Accident Insurance Carried by Dentists in the Postgraduate Clinical Training Course. : Sasahara H, Kawamura M, Taguchi N and Ogawa T : J Jap Dent Educ 22, 42-46, 2006.

B) Review

C) Publications

D) Other Publications

- 1: Sasahara H and Ogawa T : What is Expected for Community Dental Practitioners in Postgraduate Clinical Training Program. : Dental Outlook 108(2), 395-400, 2006.

E) Presentation at Scientific Meeting

- 1: Dental Students Initial Perceptions of Their Clinical Educational Environment : Kuse M, Taguchi N and Stirrups D R : Hiroshima Conference on Education and Science in Dentistry, Hiroshima 2006.
- 2: Self-Directed Learning in Dental Clinical Training Course. : Ogawa T, Taguchi N, Tanaka Y and Okada M : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 3: . Advanced OSCE of Clinical Assessment in Dental Clinical Training Course. : Ogawa T, Taguchi N, Tanaka Y, Sasahara H, Shirai K, Shimasue H, Abe Y, Nishimura M, Watanabe M, Taguchi A, Okada M and Ogawa I : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 4: Effectiveness of PHEEM.: Taguchi N, Ogawa T, Tanaka Y and Sasahara H : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 5: Self-Directed Learning and Assessment on Dental Clinical Training Course. : Taguchi N, Ogawa T, Tanaka Y and Okada M : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 6: Problem-Based Learning Dealing with Postgraduate Dental Training Course in Undergraduate Clinical Training. : Takarada T, Tsuga K, Miyauchi M, Taguchi A, Okada M, Yoshino H, Takemoto T, Taguchi N, Ogawa T and Uchida T : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 7: Two-year Longitudinal Study for Postgraduate Dentists in Oral Health Examination in School. : Okada M, Hayashi F, Taguchi N, Kozai K and Ogawa T : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 8: A Study on Effectiveness of Making Picture Cards in PBL Tutorial. : Hara K, Matsumoto A, Fujimoto H, Niitani Y, Takemoto T, Ogawa T, Okada M and Amano H. : 25th Scientific Meeting of Japanese Dental Education Association. Sendai 2006.
- 9: Safety Management Training in terms of Incident Cases of Postgraduate Dental Trainee. : Suzuki Y, Ohsita R, Mineoka A, Tanaka Y, Taguchi N and Ogawa T : 45thScientific Meeting of Hiroshima Prefecture Dental Association and 90th Hiroshima University Dental Society. Hiroshima 2006.
- 10: After the Postgraduate Clinical Training Program in Hiroshima University Hospital. : Ohshita R, Suzuki R, Mineoka A, Tanaka Y, Taguchi N and Ogawa T : 45thScientific Meeting of Hiroshima Prefecture Dental Association and 90th Hiroshima University Dental Society. Hiroshima 2006.
- 11: Survey for Recognition of Managerial Postgraduate Training Program. : Mineoka A, Ohshita R, Suzuki Y, Tanaka Y, Taguchi N and Ogawa T : 45thScientific Meeting of Hiroshima Prefecture Dental Association and 90th Hiroshima University Dental Society. Hiroshima 2006.
- 12: Problem-Based Learning Dealing with Japanese Mandatory Postgraduate Dental Training Course :

Takarada T, Tsuga K, Miyauchi M, Taguchi A, Okada M, Yoshino H, Hirono C, Takemoto T, Ogawa T and Uchida T : 6th Asian-Pacific Conference on PBL. Tokyo 2006.

- 13: Problem-Based Learned Task Useful to Understand Needs of Patients with Mental Retardation. : Okada M, Hara K, Amano H, Ogawa T, Tokikazu T, Niitani Y, Matsumoto A, Fujimoto H, Sugiyama M and Takemoto T : 6th Asian-Pacific Conference on PBL. Tokyo 2006.

F) Special Lectures in Academic Meetings

- 1: Postgraduate Clinical Training Workshop for Postgraduate Trainee 2006. Hiroshima, 2006.
- 2: Postgraduate Clinical Training Workshop for Cooperative Trainer 2006. Hiroshima, 2006.
- 3: 7th Chugoku-Shikoku Area Postgraduate Clinical Training Workshop for Trainer. Hiroshima, 2006.

G) Special Lectures in Academic Meetings and Taskforce

- 1: Taskforce : Ogawa T, Taguchi N, Tanaka Y : Postgraduate Clinical Training Workshop for Postgraduate Trainee 2006. Hiroshima, 2006.
- 2: Taskforce : Ogawa T, Taguchi N, Tanaka Y : Postgraduate Clinical Training Workshop for Cooperative Trainer 2006. Hiroshima, 2006.
- 3: Keynote Speaker : Taguchi N : Beginning of Postgraduate Dental Clinical Training Program. Alumni Meeting of First Department of Oral Surgery, Hiroshima University School of Dentistry. Hiroshima, 2006.
- 4: Taskforce : Ogawa T, Taguchi N, Tanaka Y : 7th Chugoku-Shikoku Area Postgraduate Clinical Training Workshop for Trainer. Hiroshima, 2006.
- 5: Keynote Lecture : Taguchi N : Portfolio –Reflection and Self-Directed Learning. 7th Chugoku-Shikoku Area Postgraduate Clinical Training Workshop for Trainer. Hiroshima, 2006.
- 6: Ogawa T, Taguchi N, Tanaka Y, Maeda J, Okusako E, Syo Y and Sasaki T : Teaching and Assessment of Health Communication from Undergraduate to Postgraduate Training in Dentistry. Dental Education Symposium, Japanese Dental Education Association. Tokyo, 2006.

H) Lectures, Seminar, Workshop

- 1: Observer : Ogawa T, Taguchi N : 62nd PBL Tutorial Workshop. Nippon Dental University Niigata, 2006.
- 2: Taguchi N : 2nd Health Science Educational Research Skill Workshop. Japan Society for Medical Education, Tokyo 2006.
- 3: Taguchi N : Workshop for Postgraduate Dental Training Program Director and Vice Director 2006. Japanese Dental Education Association. Tokyo 2006.

I) OSCE, CSA, etc.

- 1: Hiroshima University Hospital 2nd Advanced OSCE for Junior Residents in 2006
- 2: Hiroshima University Hospital Advanced OSCE (CSA) for Senior Residents in 2006
- 3: Hiroshima University Hospital 1st Advanced OSCE for Junior Residents in 2006

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

(5) Academic Awards, etc.

(6) Patents

Department of Oral Health and Development (Preventive Dentistry)

(1) Staffs and Students

Assistant Professor: Makoto Kawamura (Manager)

Research Associate: Hisako Sasahara

(2) Main Research Activities

1: Behavioral science regarding oral health

2: International studies on oral health promotion

3: Studies on community dental health

4: Studies on school dental health

5: Studies on dental education

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

(3) Research Achievements

A) Original Papers (including Case Reports)

1. Is it possible to distinguish the understanding of denture adhesive between Japanese dental students and Indonesian peers by a questionnaire. : Sadamori S, Hamada T, Hong G, Kawamura M, Nakai N, Razak A : *Maj Ked Gigi (Dent J)* 39, 89-92, 2006.
2. The hierarchical cluster analysis of oral health attitudes and behaviour using the Hiroshima University - Dental Behavioural Inventory (HU-DBI) among final year dental students in 17 countries. : Komabayashi T, Kawamura M, Kim K-J, Wright F A C, Declerck D, Goiás-Freire M C, Hu D-Y, Honkala E, Lévy G, Kalwitzki M, Polychronopoulou A, Yip K-H-K, Eli I, Kinirons M J, Petti S, Srisilapanan P, Kwan S Y L, Centore L S : *International Dental Journal* 56, 310-316, 2006.
3. Development of Computer-Aided Diagnosis Scheme for Periodontal Disease: Quantitative Computerized Analysis of Periodontal Status. (In Japanese, abstract in English). : Uchiyama Y, Kawamura M, Sasahara H, Okada M : *Medical Imaging Technology* 24 , 125-132, 2006.
4. Epidemiological survey of temporomandibular disorders in adolescents by Dental Prescale®. (In Japanese, abstract in English).: Sasahara H, Sadamori S, Tsuga K, Kawamura M : *Journal of Dental Health*, 56:148-155, 2006.
5. Details and results of dental health check-ups for mothers and children : A change in the compliance rate and mothers' gingival condition. (In Japanese, abstract in English). Sasahara H, Otani H, Kawamura M, Sato M, Fujii H : *Journal of Dental Health* 56 , 289-294, 2006.

6. A study on the meaning of the lessons in physical education for university students. (In Japanese).: Sasahara H, Oiwa M, Kawamura K, Sasahara H : Japan Journal for Health, Physical Education, Recreation, and Dance in Universities 3 , 15-23, 2006.
7. The Interrelationship among Denture Wearing, N-ADL, NM Scale, and Oral Status of the Elderly with Dementia in a Group Home. (In Japanese, abstract in English). : Sadamori S, Furuebisu M, Hamada T, Sasahara H : Journal of the Japanese Society for Disability and Oral Health 27(2), 128-133, 2006.

B) Review

C) Publications

D) Other Publications

1. A program for oral health promotion using intra-oral scanner system. (In Japanese, abstract in English). : Amano H, Hara K, Fujimoto H, Kawamura M, Okada M, Mizoue N, Morinaga S, Ishihara Y, Hashimoto N, Iga Y : The Annals of Educational Research, Hiroshima University 34, 475-479, 2006.
2. A longitudinal study on gingivitis under observation (GO) in oral health examination. (In Japanese). : Yasuda R, Seki H, Mizoue N, Okada M, Kawamura M : The Annals of Educational Research, Hiroshima University 34, 481-484, 2006.
3. Effects of using the computer-based training program, DAAGS, on the ability of students to assess periodontal health status in a program for school nurses. (In Japanese, abstract in English). : Kajiwara K, Kawamura M, Tsusima H, Tanaka Y : Journal of Health Sciences Hiroshima University 5(2), 70-76, 2006.
4. An assessment of oral self-care among Romanian dental students using the Hiroshima University - Dental Behavioral Inventory. : Dumitrescu A L, Kawamura M, Sasahara H : Journal of Clinical Periodontology 33(supplement 7): 141, 2006.
5. Survey of Insurance against Medical Malpractice and Accident Insurance Carried by Dentists in the Postgraduate Clinical Training Course. (In Japanese). : Sasahara H, Kawamura M, Taguchi N, Ogawa T : Journal of Japanese Dental Education Association 22(1) , 42-46, 2006.
6. A Study on the occlusal function of hemiplegic patients. (In Japanese).: Fujisawa Y, Togashi S, Sasahara H, Goto T, Fujimura M, Nara I : The Japanese journal of physical therapy 40(11), 963-966, 2006
7. How can dentists in private practice contribute for the training system of young dentists? Young dentists need on-the-job training in your private offices. (In Japanese). : Sasahara H, Ogawa T : Dental Outlook 108(2), 395-400, 2006.

E) Presentation at Scientific Meeting

1. An assessment of oral self-care among Romanian dental students using the Hiroshima University - Dental Behavioral Inventory. : Dumitrescu A L, Kawamura M, Sasahara H : Europerio 5 (Madrid), Spain, 2006.
2. Investigating the relationship between self-reported oral health status, oral health-related behaviours and self-consciousness. : Dumitrescu A L, Kawamura M, Dogaru B, Dogaru C : The International Conference of Psychology, (Bucharest), Romania, 2006
3. A comparison of 3 factors for a clinical application of nursing research between Japanese and Australian nurses. (In Japanese). : Oka M, Ishida S, Kawamura M, Chaboyer W, Creedy D : The 21st Meeting of the Japan Academy of Health Behavioral Science, (Osaka), 2006.
4. A case report: Effects of oral hygiene care, including self-care instruction to a patient with oral lichen planus. (In Japanese).: Kawashima A, Dainobu K, Iwasaki Y, Tamura H, Sasahara H, Kawamura M : The 90th Meeting of Hiroshima University Dental Society &The 45th Meeting of Hiroshima Prefecture Dental Association, (Hiroshima), 2006.
5. Evaluation of the equivalence between the Evidence Based Practice (EBP) scales and a Japanese version of the EBP. (In Japanese). : Ishida S, Oka M, Kawamura M : The 26th Meeting of Japan Academy of Nursing Science, (Kobe), 2006.
6. A study of an oral health promotion program for junior high school students using an intra-oral scanner system. : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe S, Kawamura M, Okada M : PDAA, (Taiwan), 2006.
7. A study of an oral health promotion program for junior high school students using an intra-oral scanner system- For deeper understanding of the oral health -. (In Japanese). : Amano H, Hara K, Fujimoto H, Sugiyama M, Takemoto T, Matsumoto A, Niitani Y, Nikawa H, Satoda T, Murayama T, Tamamoto M, Makihira S, Shimoe S, Kawamura M, Okada M : The 2nd Meeting of Hiroshima Society of Child Health, (Hiroshima), 2006.
8. Advanced OSCE of clinical assessment in dental clinical training course. (In Japanese): Ogawa T, Taguchi N, Tanaka R, Sasahara H, Shirai K, Shimasue H, Abe Y, Nishimura M, Watanabe M, Taguchi A, Okada M, Ogawa I : The 25th Meeting of the Japanese Dental Education Association, (Sendai), 2006.
9. Effectiveness of postgraduate hospital educational environment measure (PHEEM). (In Japanese): Taguchi N, Ogawa T, Tanaka R, Sasahara H : The 25th Meeting of the Japanese Dental Education Association, (Sendai), 2006.
10. The Relationship between Occlusal Support, N-ADL and NM scale of the Elderly with Dementia in a Group Home. (In Japanese). : Furuebisu M, Sadamori S, Hamada T, Sasahara H : The 17th Meeting of the Japanese Society of Gerodontology, (Okinawa), 2006.

11. Oral status and oral care of the elderly with dementia in a group home. (In Japanese). : Furuebisu M, Sadamori S, Hamada T, Sasahara H : The 23rd Meeting of the Japanese Society for Disability and Oral Health, (Seindai), 2006.

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

1. Grant-in-aid for Scientific Research(C): Continued : Sasahara H (representative), Kawamura M, Taguchi N, Ogawa T : Causal relationships between people's dental health behavior and community dental health activity -Differences between a model and the reality-. (No.16592090) ¥500,000
2. Grant-in-aid for Scientific Research(C), New : Kawamura M. (representative), Sasahara H, Ogawa T : Reasons for dental visits and needs for oral health/disease after 50 years in the poisoning patients caused by dried milk. (No.18592279) ¥1,000,000

(5) Academic Awards, etc.

(6) Patents

Department of Oral Health and Development (Special Care Dentistry)

(1) Staffs and Students

Associate Professor : Mitsugi Okada Head

Research Associate : Hideki Tabe (January to March), Koichi Hayashida (April to present)

Resident : Eri Taguchi, Mie Aoki

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

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1: Subgingival distribution of *Campylobacter rectus* and *Tannerella forsythensis* in healthy children with primary dentition : Hayashi F, Okada M, Soda Y, Miura K, Kozai K : Arch. Oral Biol. 51, 10-14, 2006.
- 2: Development of computer-aided diagnosis scheme for periodontal disease: quantitative computerized analysis of periodontal status : Uchiyama Y, Kawamura M, Sasahara H, Okada M : Med. Imag. Tech. 24, 125-132, 2006
- 3: A program for oral health promotion using intra oral scanner system : Amano H, Hara K, Fujimoto H, Kawamura M, Okada M, Mizoue N, Morinaga S, Ishihara Y, Hashimoto N, Iga Y : Proceeding of Hiroshima University Faculty and attached school collaborations 34, 475-479, 2006.
- 4: A longitudinal study on gingivitis under observation (GO) in oral health examination : Yasuda R, Seki H, Mizoue N, Okada M : Proceeding of Hiroshima University Faculty and attached school collaborations 34, 481-484, 2006.

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1: Problem-based learned task useful to understand needs of patients with mental retardation : Okada M, Hara K, Amano H, Ogawa T, Tokikazu T, Niitani Y, Matsumoto A, Fujimoto H, Sugiyama M, Takemoto T : 6th Asian-Pacific Conference on PBL (Tokyo), 2006
- 2: Real-time PCR assay for quantitative detection of Streptococcus mutans in pre-school children : Okada M, Hayashi F, Kozai K : 84th General session and Exhibition of the international association for dental research (Brisbane), 2006.
- 3: Study of periodontal tissue regeneration by transplantation of bone marrow mesenchymal stem cells : Hanaki K, Hayashida K, Hasegawa N, Ozeki Y, Kitamoto Y, Kajiya M, Kawaguchi H, Tuji K, Kurihara H : 48th the spring meeting of the Japanese Society of Periodontology (Ichikawa), 2006.
- 4: Expression of glucocorticoid and effects of insulin in diabetic periodontitis : Akazaki T, Nakamura S, Yoshino H, Hayashida K, Kudo S, Hanaki K, Tsunekuni N, Nagahara T, Shiba H, Kawaguchi H, Kurihara H : 49th the autumn meeting of the Japanese Society of Periodontology (Osaka), 2006.
- 5: A study on effectiveness of making picture cards in PBL tutorial: Hara K, Matsumoto A, Fujimoto H, Niitani Y, Takemoto T, Ogawa T, Okada M, Amano H : 25th annual meeting of the Japanese Dental Education Association (Sendai), 2006.
- 6: Two-year longitudinal study evaluation for postgraduate dentists in oral health examination in school : Okada M, Hayashi F, Taguchi N, Kozai K, Ogawa T : 25th annual meeting of the Japanese Dental Education Association (Sendai), 2006.
- 7: Self-directed learning and assessment on dental clinical training course : Taguchi N, Ogawa T, Tanaka R, Okada M : 25th annual meeting of the Japanese Dental Education Association (Sendai), 2006.
- 8: Advanced OSCE of clinical assessment in dental training course : Ogawa T, Taguchi N, Tanaka R, Okada M, et al : 25th annual meeting of the Japanese Dental Education Association (Sendai), 2006.
- 9: Expressions of bone related proteins on periodontal tissue regeneration by application of brain derived neurotrophic factor : Hayashida K, Kawaguchi H, Hanaki K, Mizuno T, Akasaki T, Takeda K, Okada M, Tuji K, Kurihara H : 125th autumn meeting of Japanese Society of Conservative Dentistry (Kagashima), 2006.

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

(5) Academic Awards, etc.

(6) Patents

Central Clinical Sections (Special Dental Clinic Section)

(1) Staffs and Students

Chief Professor :Katsuyuki Kozai
Assistant :Yuri Fujiwara

(2) Main Research Activities

1:Perceptual Evaluation of Cleft Palate Speech
2:Clinical Application of Electropalatography

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : A review of electropalatographic (EPG) studies written in Japanese : Y Fujiwara, I Yamamoto : Journal of Japanese Cleft Palate Association 31, 261-266, 2006.
- 2 : The effect of home training with electropalatography-a post-operative cleft palate patient with residual articulation problems- : I Yamamoto, M Inoue, Y Fujiwara : Journal of Japanese Cleft Palate Association 31, 274-284, 2006.

B) Review

- 1 : A review of Japanese articles on perceptual assessment of speech sounds in individuals with cleft palate : Y Fujiwara, G Henningsson, N Ainoda : The Japan Journal of Logopedics and Phoniatrics 47, 252-257, 2006.
- 2 : Electropalatography (EPG)-past, present, and future- : Y Fujiwara, M Inoue, K Muraguchi, N Takagi, M Ishimaru, I Yamamoto : Japanese Journal of Speech, Language, and Hearing Research 3, 79-81, 2006.

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : The effect of EPG home training, using EPG portable training unit : Y Fujiwara, M Inoue,

- K Muraguchi, M Takagi, M Ishimaru, I Yamamoto : The 7th annual meeting of Japanese Association of Speech, Language, and Hearing Therapist (Kanazawa), 2006.
- 2 : A review of electropalatographic (EPG) studies written in Japanese : Y Fujiwara, I Yamamoto : The 30th annual meeting of Japanese Cleft Palate Association (Shirouma), 2006.
- 3 : Normal tongue-palate contact patterns during production of Japanese sounds -electropalatographic analysis- : Y Fujiwara, I Yamamoto, K Maekawa, K Muraguchi, N Takagi, M Ishimaru : The 51th annual meeting of Japan Society of Logopedics and Phoniatics (Kyoto), 2006.
- 4 : The effect of EPG home training for a junior high school student with residual articulation disorders : I Yamamoto, Y Fujiwara, M Inoue, N Takagi, M Ishimaru : The 51th annual meeting of Japan Society of Logopedics and Phoniatics (Kyoto), 2006.

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

- 1 : Daiwa Anglo-Japanese Foundation, Small Grant : F Gibbon, Y Fujiwara, I Yamamoto : EPG Symposium in Kyoto. ¥500,000

(5) Academic Awards, etc.

(6) Patents

Central Clinical Sections (Center of Oral Clinical Examination)

(1) Staffs and Students

Director : Takashi Takata (~March), Hiroki Nikawa (April~)

Assistant Professor : Ikuko Ogawa

Research Associate : Keiko Oue (~March), Keiko Morita(~March), Tomoaki Shintani (April~),
Masae Kitagawa (April~)

Research Assistant : Keiko Banno

(2) Main Research Activities

- 1 : Cationic antimicrobial peptides
- 2 : Clinicopathological study on head and neck lesions
- 3 : Molecular pathological study on proliferation and development of oral squamous cell carcinoma
- 4 : Study on cellular differentiation of salivary gland tumors
- 5 : Study of molecular target therapy to oral cancer targeted with VEGFR and EGFR
- 6 : Developmental study of treatment to dysgeusia
- 7 : Studies of test and treatment to metal allergy and dry mouth
- 8 : Study on mechanism of cementoblast specific genes in human cementoblast

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : An invitro evaluation of the adhesion of Candida species to oral and lung tissue cells. :
Nikawa H, Egusa H, Makihira S, Okamoto T, Kurihara H, Shiba H, Amano H, Murayama T,
Yatani H, Hamada T. : Mycoses 49, 14-7, 2006.
- 2 : The effect of saliva or serum on bacterial and Candida albicans colonization of type I
collagen.: Nikawa H, Egusa H, Yamashiro H, Nishimura M, Makihira S, Jin C, Fukushima H,
Hamada T.: J Oral Rehabil 33, 767-74., 2006.
- 3 : In vitro Mechanisms of Interleukin 8 Response of Human Gingival Epithelial Cells to Candida
albicans Infection.: Egusa H, Nikawa H, Makihira S, Yatani H, Hamada T. : Int. J. Med.
Microbiol 296(4-5), 301-11, 2006.
- 4 : Characteristics of periodontal ligament subpopulations obtained by sequential enzymatic
digestion of rat molar periodontal ligament.: Kaneda T, Miyauchi M, Takekoshi T, Kitagawa S,
Kitagawa M, Shiba H, Kurihara H, Takata T.: Bone 38, 420-6, 2006.

- 5 : Characterization of established human cementoblast-like cell lines from human cementum lining cells in vitro and in vivo.: Kitagawa M, Kitagawa S, Kudo Y, Ogawa I, Miyauchi M, Tahara H, Ide T, Takata T.: Bone 39, 1035-42, 2006.
- 6 : Establishment and characterization of a spindle cell squamous carcinoma cell line.: Kudo Y, Ogawa I, Kitagawa M, Kitajima S, Siriwardena S, Aobara N, Matsuda C, Miyauchi M, Takata T.: Journal of Oral Pathology and Medicine 35, 479-83, 2006.
- 7 : Periostin promotes invasion and anchorage-independent growth in the metastatic process of head and neck cancer.: Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Kawai H, Gaffney P M, Miyauchi M, Takata T.: Cancer Research 66, 6928-35, 2006.
- 8 : Effect of F-spondin on cementoblastic differentiation of human periodontal ligament cells.: Kitagawa M, Kudo Y, Iizuka S, Ogawa I, Abiko Y, Miyauchi M, Takata T.: Biochemical and Biophysical Research Communications 349, 1050-6, 2006.
- 9 : Periostin is frequently overexpressed and enhances invasion and angiogenesis in oral cancer.: Siriwardena B S M S, Kudo Y, Ogawa I, Kitagawa M, Kitajima S, Hatano H, Tilakaratne W M, Miyauchi M, Takata T : British Journal of Cancer 95, 1396-1403, 2006.
- 1 0 : Effects of endogenous and exogenous prostaglandin E2 on the proliferation and differentiation of a mouse cementoblast cell line (OCCM-30):. Mada Y, Miyauchi M, Oka H, Kitagawa M, Sakamoto K, Iizuka S, Sato S, Noguchi K, Somerman M J, Takata T : Journal of Periodontol 77(12), 2051-8, 2006.

B) Review

- 1 : Degradation of cyclin-dependent kinase inhibitor p27 in oral cancer.: Kudo Y, Keikhaee M R, Kitajima S, Ogawa I, Miyauchi M, Takata T : Oral Medicine and Pathology 11, 19-26, 2006.

C) Publications

- 1 : Development of periodontal tissue regeneration therapy with new bioactive agents. -Studies on Brain-derived neurotrophic factor and ameloblastin peptide. : Takeda K, Kitagawa S, Kitagawa M, Shiba H, Kawaguchi H, Miyauchi M, Tsuji K, Uchida T, Kurihara H, Takata T : Proceedings of Hiroshima Conference on Education and Science in Dentistry, 113-119, 2006.

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Periostin promotes invasion and anchorage-independent growth in the metastatic process of head and neck cancer. : Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Miyauchi M, Takata T : 95th Annual Meeting of the Japanese Society of Pathology (Tokyo), 2006.
- 2 : Periostin is involved in the invasion and metastasis in oral cancer. : Siriwardene B S M S,

- Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Miyauchi M, Takata T : 95th Annual Meeting of the Japanese Society of Pathology (Tokyo), 2006.
- 3 : Histopathologic diversity in epithelial-myoepithelial carcinoma. : Ogawa I, Nishida T, Shimamoto F, Saito A, Oka H, Miyauchi M, Takata T : 95th Meeting of The Japanese Society of Pathology (Tokyo) , 2006.
- 4 : Roles of PGE receptors in osteoclastogenesis by osteoblast and cementoblast.: Oka H, Miyauchi M, Sakamoto K, Iizuka S, Kawazoe Y, Kitagawa M, Ogawa I, Takata T : 39th Plenary Meeting of The Hiroshima University Dental Society (Hiroshima), 2006.
- 5 : Study on bone tissue regeneration using heparin and its derivatives.: Iizuka S, Saito A, Yoshida M, Oka H, Kitagawa M, Ogawa I, Miyauchi M, Takata T : 9th Annual meeting of the Japanese Society of Tissue Engineering (Kyoto), 2006.
- 6 : Effect of phosphoric acid on expression of mineralization-related genes in dental follicle cells.: Sato S, Kitagawa M, Iizuka S, Sakamoto K, Oka H, Miyauchi M, Foater B, Somerman M, Takata T. : 15th Annual Meeting of the Society for Hard Tissue Regenerative Biology (Kyoto), 2006.
- 7 : Gene amplification and protein overexpression of Saki, substrate of Aurora-B, in oral squamous cell carcinoma. : Sato S, Ogawa I, Shimamoto F, Kanda A, Tatsuka M, Takata T : 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 8 : Comprised clinico-pathological study on Aurora-B substrate, SAKI in human cancer tissues. : Shimamoto F, Sato S, Ogawa I, Takata T, Tatsuka M : 65th Annual Meeting of Japanese Cancer Association (Yokohama), 2006.
- 9 : The role of Aurora-B (AIM-1) for cancer metastasis : Kanda A, Kawai H, Suzuki F, Sato S, Ogawa I, Takata T, Shimamoto F, Ota T, Tatsuka M : 65th Annual Meeting of Japanese Cancer Association (Yokohama) , 2006.
- 10 : A case of orthokeratinized odontogenic cyst : Maeda K, Sakamoto K, Ogawa I : 51st Annual Meeting of Japanese Society of Oral & Maxillofacial Surgery (Kitakyushu), 2006.
- 11 : A case of chondrosarcoma arising in the mandibular condyle.: Nishi H, Nobumori T, Tohmori H, Higashikawa K, Sato S, Ogawa I, Kamata N : 51st Annual Meeting Japanese Society of Oral and Maxillofacial Surgery (Kitakyusu), 2006.
- 12 : Roles of prostaglandin E2 and PGE receptors on osteoclastogenesis by osteoblasts and cementoblasts.: Miyauchi M, Oka H, Kitagawa M, Sakamoto K, Iizuka S, Kawazoe Y, Sato S, Takata T : 49th Annual Meeting of the Japanese Society of Periodontology (Osaka), 2006.
- 14 : Study on mechanism of human cementoblast specific gene in human cementoblast. : Kitagawa M, Iizuka S, Oka H, Ogawa I, Miyauchi M, Abiko Y, Takata T : 49th Annual Meeting of the Japanese Society of Periodontology (Osaka), 2006.
- 15 : Brain-derived neurotrophic factor regulates expressions of bone-cementum-related proteins in human cementoblast cells through a p44/42 signalling pathway. : Kajiya M, Shiba Y, Fijita G, Ohara K, Takeda K, Mizuno T, Kawaguchi H, Kitagawa M, Takata T, Tuji K, Kurihara H : 49th Annual Meeting of the Japanese Society of Periodontology (Osaka), 2006.

- 1 6 : Histopathological study on boundary area between Lugol-stained and unstained of oral dysplastic lesions. : Ohta K, Ono S, Mizuta K, Taki M, Miyauchi M, Ogawa I, Takata T, Kamata N : 54th Annual Meeting, The Japanese Stomatological Society, Chugoku-Shikoku Division (Tokushima), 2006.
- 1 7 : A case of glandular odontogenic cyst in mandibular molar region. : Nihkawa S, Koizumi K, Takatani S, Ogawa I, Takata T, Okamoto T : 54th Annual Meeting, The Japanese Stomatological Society, Chugoku-Shikoku Division (Hiroshima) , 2006.
- 1 8 : Establishment of tumor dormancy in a mouse melanoma model : Shintani T, Okamoto T, O'Reilly M S : 60th Annual Meeting of Japanese Stomatological Society (Nagoya) 2006.
- 1 9 : Purification of ocean product-derived antitumoral agents and structural and functional analysis : Yoshioka Y, Shintani T, Ojika H, Okamoto T : 60th Annual Meeting of Japanese Stomatological Society (Nagoya) 2006.
- 2 0 : Photofrin-mediated photodynamic therapy for treatment of superficial gingival squamous cell carcinoma : Toratani S, Tani R, Matsumoto S, Nabeshima K, Niikawa S, Fukuhara Y, Fukui Y, Okamoto K, Shintani T, Koizumi K, Kobayashi M, Yoshioka Y, Okamoto T : 51st Annual Meeting of Japanese Society of Oral and Maxillofacial Surgery (Kitakyusyu) 2006
- 2 1 : Parotid gland tumor(pleomorphic adenoma with oncocyctic metaplasia). : Sakamoto K, Ogawa I, Shimamoto F, Okada A, Takata T : 89th Slide Conference, Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Ube), 2006.
- 2 2 : Mandibular cystic lesion (Orthokeratinized odontogenic cyst). : Kitajima S, Ogawa I, Oka H, Miyauchi M, Suei Y, Miyauchi M, Takata T : 90th Slide Conference, Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Takamatsu) , 2006.
- 2 3 : Palatal tumor (polymorphous low-grade adenocarcinoma) : Ogawa I, Siriwardena B S M S, Miyauchi M, Takata T : 91st Slide Conference, Academic Meeting of Chugoku-Shikoku Branch of the Japanese Society of Pathology (Kure), 2006.
- 2 4 : Sclerosing polycystic adenosis or pleomorphic adenoma with sclerotic changes ? The resemblance of histopathological features. : Ogawa I, Takada S, Miyauchi M, Matsuura H, Takata T : 51st Annual Meeting of the Japanese Salivary Gland Society (Tokyo), 2006.
- 2 5 : Advanced OSCE of Clinical Assessment in Dental Clinical Training Course.: Ogawa T, Taguchi N, Tanaka Y, Sasahara H, Shirai K, Shimasue H, Abe Y, Nishimura M, Watanabe M, Taguchi A, Okada M, Ogawa I : 25th Scientific Meeting of Japanese Dental Education Association (Sendai), 2006.
- 2 6 : Chewing Gum Containing Citric acid Reduces the Burden of Periodontopathogens.: Nikawa H, Igarashi S, Takasu O, Harano F, Shinohara S, Tamamoto M, Takemoto N, Shimoe S, Hara K, Matsumoto A, Niitani H, Fujimoto T, Murayama T, Satoda M, Sugiyama M, Amano H, Kurihara H & Samaranayake LP. : 84th IADR (Brisbane), 2006.
- 2 7 : Effects of low-intensity ultrasound on the biometabolism of PDL cells. : Inubushi T, Tanaka E, Dalla-Bona D A , Oka H, Ohta A, Okada H, Miyauchi M, Takata T, Tanne K : 84th IADR (Brisbane), 2006.
- 2 8 : Periostin overexpression is involved in the invasion and metastasis of oral squamous cell

- carcinoma. : Siriwardena B S M S, Kudo Y, Kitagawa M, Ogawa I, Miyauchi M, Takata T : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2006.
- 2 9 : Invasion and metastasis of oral cancer cells require methylation of E-cadherin and/or degradation of membranous β -catenin : Keikhaee M R, Kudo Y, Kitajima S; Ogawa I, Miyauchi M, Takata T : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2006.
- 3 0 : Development of periodontal tissue regeneration therapy with new bioactive agents. -Studies on Brain-derived neurotrophic factor and ameloblastin peptide. : Takata T, Takeda K, Kitagawa S, Kitagawa M, Shiba H, Kawaguchi H, Miyauchi M, Tsuji K, Uchida T, Kurihara H : 40th Anniversary of Hiroshima University Faculty of Dentistry, Hiroshima Conference on Education and Science in Dentistry (Hiroshima), 2006.
- 3 1 : Aurora-A degradation by APC^{Cdh1}. : Kitajima S, Kudo Y, Ogawa I, Kawai H, Tatsuka M, Miyauchi M, Takata T : The 2006 meeting on The Cell Cycle, Cold Spring Harbor Laboratory (New York), 2006.
- 3 2 : Periostin promotes invasion and anchorage-independent growth in the metastatic process of head and neck cancer. : Kudo Y, Ogawa I, Kitajima S, Kitagawa M, Miyauchi M, Takata T : 13th International Congress on Oral Pathology and Medicine (Brisbane), 2006.

F) Special lectures in academic meetings

- 1 : Differential diagnosis of clear cell carcinoma, NOS of salivary gland (Symposium "Salivary Gland Tumors"). : Ogawa I, Miyauchi M, Kudo Y, Sato S, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata), 2006.
- 2 : Differential Diagnosis of Adenoid Cystic Carcinoma and Other Salivary Gland Tumors with "Cribriform pattern". : Takata T, Ogawa I, Kudo Y, Miyauchi M : 95th General Meeting of Japanese Society of Pathology (Tokyo), 2006.
- 3 : "Salivary gland tumors"(Slide seminar).: Ogawa I, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata), 2006.
- 4 : Differential diagnosis of clear cell carcinoma, NOS of salivary gland (Symposium "Salivary Gland Tumors").: Ogawa I, Miyauchi M, Kudo Y, Sato S, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata), 2006.
- 5 : Histological diagnostic standard for oral borderline malignancies -Preliminary report of activity of working committee on new histopathological criteria for borderline malignancies of oral mucosa -Histological diagnostic criteria of epithelial dysplasia and carcinoma in-situ proposed by WHO and their problems : Ogawa I, Takata T : 17th Annual Meeting of The Japanese Society for Oral Pathology (Niigata) , 2006.
- 6 : Invasion mechanisms of cancer cells. Invited Lecture : Takata T, Kudo Y, Sato S, Miyauchi M, Ogawa I, Kitagawa M, Kitajima S : 13th International Congress on Oral Pathology and Medicine (Brisbane), 2006.

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

(5) Academic Awards, etc.

(6) Patents

Central Clinical Sections (Dental Technicians Section)

(1) Staffs and Students

Director of Dental Technicians Section : Hiroki Nikawa (Prof.)

Chief Dental Technician : Hirotaka Okura

Supervisor Dental Technician : Masanobu Yamamoto, Eisaku Habu, Yoshihiro Otani, Meiji
Yamamoto,

Dental Technician : Ryoji Kato

Trainee of Dental Technician : Kaori Taguchi, Misa Nishikawa, Hiroyuki Miura, Yuki
Murakami,

(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 : Handy PET bottle dust chamber for healthy medical environment : Tsuga K, Ohkura H, Maruyama M, Hayashi R, Tajiri T, Okane H, Akagawa Y : 28th the meeting of the Nippon Academy of Dental Technology(Hiroshima) 2006

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

(5) Academic Awards, etc.

(6) Patents

Central Clinical Sections (Oral Hygien Section)

(1) Staffs and Students

Director of Dental Hygien Section : Tetsuji Okamoto
Chief Dental Hygienist : Hiroko Tamura
Supervisor Dental Hygienist : Yoriko Iwasaki, Miyuki Nakaoka
Dental Hygienist : Akiko Kawashima, Miho Hidaka, Tomoko Hatakeyama, Kayo Kajitani, Tetsuko Shimoda, Kumi Miyakawa, Tomoko Tokikazu, Kanako Matsui, Kanako Yano, Masae Shimada, Kana Dainobu, Naomi Hara, Yamashita Satomi
Trainee of Dental Hygienist : Ayaka Nagahara (2006.4~ 7)

(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 : Clinical Assessment of Adhesive Tooth-coating Material -Causes and Measures against Cases of Failure- : Shimoda T, Dainobu K, Shimada M, Hara N, Kitagawa S, Shibata S, Hatakeyama T, Yano K, Miyakawa K, Yamashita S, Oda R, Shirai K, Ueda H, Motoyama T, Tamura H, Fujitani M : Journal of Esthetic Dentistry,19,45-50,2006.
- 2 : The Status of Treatment for Mentally Disabled Patients Visiting the Department of Pedodontics at Hiroshima in University Hospital : Miura K, Nakae H, Suzuki J, Nakaoka M, Amano H, Kozai K : Jpn.j.Ped.Dent.44, 396-402, 2006.

B) Review

C) Publications

D) Other Publications

- 1 : Kagayaku Hana-no Shikaeiseshi-korekara-no shikain keiei-wo kangaeru(Become A brilliant star in clinic: Wonderful world of professional dental hygienist-Exploring the future by teamwork approach of hygiene care) : Obara K, Takemoto M, Tubosima H, Hatakeyama T, Ishii H, Kajiyama M, Soneda S, Kuroda K, Ukita M, Shimoda T, Shimada M, Yamashita S, Kawahara N, Fujiwara K, Itou M, Yoshino H, Oyama T, Ueda I, Nakamitsu S : ISHIYAKU publishers, INS (Tokyo), 2006.

E) Presentation at Scientific Meeting

- 1 : A study on dental treatment cooperation level in developmental disability person Relationship between lips of mouth tension level and dental treatment cooperation level : Yano K, Tokikazu T, Tabe H, Hayashida K, Aoki M, Nakamori T, Kanda T, Okada M : A meeting for presenting research papers of the Japanese Society for Disability and oral health (Sendai), 2006.
- 2 : Clinical Application of Adhesive Tooth-coating Material -In Reference to Failure Cases- : Shimoda T, Dainobu K, Shimada M, Hara N, Yamashita S, Kitagawa S, Shibata S, Hayashida K, Tamura H, Fujitani M : 2006 Meeting of Hiroshima Society for Dental Hygiene (Hiroshima), 2006.
- 3 : Quantitive change of bacteia in periodontal pocket by a using sonic toothblush : Hatakeyama T, Hino T, Simada M, Yamasita S, Iwata T, Kawaguchi H, Tamura H, Kurihara H : 1th the meeting of the Japanese society of dental hygienist (Tokyo), 2006.
- 4 : Quantitive change of bacteia in periodontal pocket by a using sonic tooth blush : Hatakeyama T, Hino T, Simada M, Yamasita S, Iwata T, Kawaguchi H, Kurihara H : 49th the autumn meeting of the Japanese society of periodontology (Osaka), 2006.
- 5 : A clinical survey of outpatients with disabled in Special Care Dentistry Hiroshima University Hospital; a survey in 2005-2006: Tokikazu T, Hayashida K, Aoki M, Taguti E, Hatakeyama T, Simada M, Okada M : Hiroshima University Dental Society (Hiroshima), 2006.
- 6 : About the oral hygiene consultation of a patient during anticancer agent treatment : Nakaoka M, Nakae H, Ariki M, Suzuki J, Kozai K : The 16th congress of Japanese Society Of Pediatric Dentistry Chushikoku Branch (Shimonoseki), 2006.
- 7 : Examination of Odontology Department Support that uses 3DS to Infant who does Bone Marrow Transplantation : Miura K, Yoshimura G, Hyashi F, Nakaoka M, Suzuki J, Kozai K : 13rd Japanese Society of Dental Welfare (Sappo), 2006.
- 8 : Dental Hygienist Outpatient Center (Hiroshima University Hospital) Overvie : Tamura H, Iwasaki Y, Nakaoka M, Kawashima A, Hidaka M, Hatakeyama T, Kajitani K, Shimoda T, Miyakawa K, Tokikazu T, Yano K, Matsui K, Shimada M, Dainobu K, Hara N, Yamashita S : Hiroshima Dental Hygienist's Association (Hiroshima), 2006.
- 9 : An oral-care case of Oral Lichen Planus patient : Kawashima A, Dainobu K, Iwasaki Y, Tamura H, Sasahara H, Kawamura M : Hiroshima Prefecture Dental Association · Hiroshima University Dental Society (Hiroshima), 2006.

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

1 : yamashita S : エンドセリン高産生型歯周炎における PMTC の及ぼす効果について.
(No.18926009). ¥760,000

2 : Hatakeyama T : Quantitive change of bacteria in periodontal pocet by a using sonic toothblush.
(No.17926009). ¥760,000

(5) Academic Awards, etc.

(6) Patents

Dental clinic

(1) Staffs and Students

Assistant Professor : Hiroshi Yoshino

Assistant : Masaru Obara

(2) Main Research Activities

1 : Bacterial toxin

2 : Stress and periodontitis

(3) Research Achievements

A) Original Papers (including Case Reports)

- 1 : Nishikubo S, Ohara M, Ikura M, Katayanagi K, Fujiwara T, Komatsuzawa H, Kurihara H, and Sugai M : Single nucleotide polymorphism in the cytolethal distending toxin B gene confers heterogeneity in the cytotoxicity of *A. actinomycetemcomitans*. *Infect Immun* 74, 7014-7020, 2006
- 2 : Ueno Y, Ohara M, Kawamoto T, Fujiwara T, Komatsuzawa H, Oswald E, and Sugai M : Biogenesis of *Actinobacillus actinomycetemcomitans* CDT holotoxin. *Infect Immun* 74, 3480-3487, 2006

B) Review

C) Publications

- 1 : Yoshino H : Infection control ; Essential in postgraduate clinical training guide for instructing dentists. (Tanaka Y. , Ito T. , Umemura T. editor), Ishiyaku Publishers, Inc. , Tokyo, 168-171, 2006

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : expression of glucocorticoid and effects of insulin in diabetic periodontitis. : Akasaki T, Nakamura S, Yoshino H, Hayashida K, Kudo Y, Hanaki K, Tsunekuni N, Nagahara K, Shiba H, Kawaguchi H, Kurihara H. : Japanese society of periodontology 49th annual meeting

(osaka), 2006

2 : Stress response system in periodontal tissues. Tsunekuni N, Yoshino H, Hayashida K, Hanaki K, Akazaki T, Niitani M, Nakamura S, Kawaguchi H, Kurihara H. : AAP/JSP 2006 Annual Meeting (San Diego), 2006

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

(5) Academic Awards, etc.

(6) Patents

Dental Medical Information Section

(1) Staffs and Students

Director : Katsuyuki Kozai (Co.)
Professor : Hideaki Amano (Co.)
Research Associate : 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 : Requirements of transborder EHR system for an international disaster : T. Tanaka, K. Ishikawa, H. Tsukuma, N. Iwata, Y. Iwasaki, M. Ikeuchi : Proceedings of Joint Conference on Medical Informatics 26, 908-911, 2006.
- 2 : Reconsideration of the Management Model of PHR (Personal Health Record) : H. Tsukuma, T. Tanaka, N. Iwata, N. Konishi, Y. Iwasaki, K. Sakata, K. Iwasawa, K. Ishikawa : Proceedings of Joint Conference on Medical Informatics 26, 1079-1082, 2006.
- 3 : A trial of space placement of the clinical inspection data which considered an axis time : N. Iwata, S. Nagata, Y. Uehara, T. Baba, H. Tsukuma, T. Tanaka, K. Ikeuchi, K. Ishikawa : Proceedings of Joint Conference on Medical Informatics 26, 546-549, 2006.
- 4 : Comparison analysis of necessity nursing degree and nursing intensity seen from record in progress: K. Sakata, A. Kawamura, S. Kodani, M. Sugimura, T. Sainohara, H. Tsukuma, T. Tanaka, K. Ishikawa : Proceedings of Joint Conference on Medical Informatics 26, 979-982, 2006.
- 5 : Next Generation Information System to Support and Evaluate Emergency Relief Service at Wide Area Disaster : K. Ishikawa, M. Matsuura, Y. Takada, Y. Tasaka, T. Ushio, Y. Iwasaki, M. Ishiguro, Y. Houshaku, H. Tsukuma, T. Tanaka, M. Ikeuchi, N. Iwata : Proceedings of Joint Conference on Medical Informatics 26, 569-572, 2006.
- 6 : Evaluation of the hospital information system from a view point of safety management : K. Ishikawa, H. Tsukuma, T. Tanaka, K. Sakata, A. Kawamura, M. Sugimura, T. Sainohara : J. of the Japanese Society on Hospital Administration, 43 (Suppl.), 181, 2006.
- 7 : Problems on a Transborder EHR System in a Disaster in Asia-Pacific Region : T. Tanaka, K. Ishikawa, H. Tsukuma, N. Iwata, M. Ikeuchi : APAMI 2006 in conjunction with MIST 2006

Proceedings, 138-141, 2006.

- 8 : Construction and Evaluation of EHR which Supports Team Practice : H. Tsukuma, T. Tanaka, K. Sakata, A. Kawamura, N. Iwata, K. Ishikawa : APAMI 2006 in conjunction with MIST 2006 Proceedings, 160-164, 2006.
- 9 : The Requirement of Health Record to Satisfy the Patients' Safety Management : K. Ishikawa, H. Ohmichi, Y. Umesato, H. Terasaki, H. Tsukuma, N. Iwata, T. Tanaka, A. Kawamura, K. Sakata, T. Sainohara, M. Sugimura, N. Konishi M. Tooya : APAMI 2006 in conjunction with MIST 2006 Proceedings, 249-256, 2006.

B) Review

C) Publications

D) Other Publications

E) Presentation at Scientific Meeting

- 1 : Requirements of transborder EHR system for an international disaster : T. Tanaka, K. Ishikawa, H. Tsukuma, N. Iwata, Y. Iwasaki, M. Ikeuchi : The 26th Joint Conference on Medical Informatics (Sapporo), 2006.
- 2 : Reconsideration of the Management Model of PHR (Personal Health Record) : H. Tsukuma, T. Tanaka, N. Iwata, N. Konishi, Y. Iwasaki, K. Sakata, K. Iwasawa, K. Ishikawa : The 26th Joint Conference on Medical Informatics (Sapporo), 2006.
- 3 : A trial of space placement of the clinical inspection data which considered an axis time : N. Iwata, S. Nagata, Y. Uehara, T. Baba, H. Tsukuma, T. Tanaka, K. Ikeuchi, K. Ishikawa : The 26th Joint Conference on Medical Informatics (Sapporo), 2006.
- 4 : Comparison analysis of necessity nursing degree and nursing intensity seen from record in progress: K. Sakata, A. Kawamura, S. Kodani, M. Sugimura, T. Sainohara, H. Tsukuma, T. Tanaka, K. Ishikawa : The 26th Joint Conference on Medical Informatics (Sapporo), 2006.
- 5 : Next Generation Information System to Support and Evaluate Emergency Relief Service at Wide Area Disaster : K. Ishikawa, M. Matsuura, Y. Takada, Y. Tasaka, T. Ushio, Y. Iwasaki, M. Ishiguro, Y. Houshaku, H. Tsukuma, T. Tanaka, M. Ikeuchi, N. Iwata : The 26th Joint Conference on Medical Informatics (Sapporo) , 2006.
- 6 : Evaluation of the hospital information system from a view point of safety management : K. Ishikawa, H. Tsukuma, T. Tanaka, K. Sakata, A. Kawamura, M. Sugimura, T. Sainohara : The 44th Academic Meeting of the Japanese Society on Hospital Administration (Nagoya), 2006.
- 7 : Problems on a Transborder EHR System in a Disaster in Asia-Pacific Region : T. Tanaka, K. Ishikawa, H. Tsukuma, N. Iwata, M. Ikeuchi : APAMI 2006 (Taipei), 2006.
- 8 : Construction and Evaluation of EHR which Supports Team Practice : H. Tsukuma, T. Tanaka, K. Sakata, A. Kawamura, N. Iwata, K. Ishikawa : APAMI 2006 (Taipei), 2006.

9 : The Requirement of Health Record to Satisfy the Patients' Safety Management : K. Ishikawa, H. Ohmichi, Y. Umesato, H. Terasaki, H. Tsukuma, N. Iwata, T. Tanaka, A. Kawamura, K. Sakata, T. Sainohara, M. Sugimura, N. Konishi' M. Tooya : APAMI 2006 (Taipei), 2006.

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

(5) Academic Awards, etc.

(6) Patents

広島大学大学院医歯薬学総合研究科・歯学部附属病院
〒734-8553 広島市南区霞一丁目2番3号
電話：(082) 257-5555
編集：広島大学歯学部紹介小冊子作成委員

