

## Cariology and Operative Dentistry

### 1. Staffs and Students (April, 2010)

Professor	Junji Tagami	
Associate Professor	Masayuki Otsuki	
Junior Associate Professor	Toru Nikaido,	Masatoshi Nakajima
Assistant Professor	Takako Yoshikawa, Yuichi Kitasako, Go Inoue, Keiichi Hosaka	Yasushi Shimada, Ryuzo Kishikawa, Eitetsu Cho,
Specially Appointed Junior Associate Professor (GCOE)		Alireza Sadr
Specially Appointed Junior Associate Professor		Shoji Nakashima
Specially Appointed Assistant Professor		Noriko Hiraishi
Hospital Staff	Tomohiro Takagaki, Miho Nishimura,	Meu Ariyoshi, Seiko Yamamoto
Technical assistant	Peththahandi Gayani Kanchana	
Secretary	Shiori Ogi,	Noriyo Miura
Graduate Student	Kanako Aoki, Mie Fujii, Kanako Horie, Ayaka Kishi, Keizo Tanno, Patricia Makishi, Yuko Shinoda, Masahiro Takahashi, Hidenori Hanba, Sitthikorn Kunawarote, Miyuki Tanaka, Mako Tsubone, Yuko Natsume, Hamid Nurrohman, Ilnaz Hariri, Kanako Imai, Sachiko Utaka, Masaru Kirihara, Wakae Sakano, Suppason Thittaweerat, Azusa Tanaka, Tuki Abdlsam Bakhsh Amir Masoud Anbarafshan, Mandurah Mona MohammadMd.Sofiqul Islam, Nakagawa Toshikazu, Ena Lodha, Thanatvarakorn Ornnicha,	Oto Aramaki, Fahimeh Hayati, Chiaki Ichikawa, Fumihiko Mori, Tomoyuki Takai, Naoko Seki, Rena Takahashi, Ryoichirou Uchida, Keisuke Kanbara, Takehiro Oyangai, Eri Tano, Wongyon Min, Chika Yahagi, Amir Nazari, Prasansuttiporn Taweesak, Yumi Imamura, Iori Gando, Emi Kuribayashi, Hitomi Mita, Gerardo Jose Joves Mendez, Kainose Kiminori, Mineo Kijima,
Research Student	Shinji Ogura, Tomomasa Nomura,	Nassar Mohannad Issa
Intern	Masahiro Ono, Shima Ito,	Ichiro Ikeda, Kanako Shida

### 2. Purpose of Education

Cariology and Operative Dentistry section offers a four-year graduate program. First-year graduate students attend lectures and seminars given in the graduate school and are expected to gain an understanding of the fundamentals about methodology and the knowledge necessary for their research. The contents of the classes given in our section include topics related to cariology and operative dentistry: caries diagnosis, biocompatibility, caries treatment and restoration,

prevention and control, dental materials, new instruments and equipment. In keeping with the internationally orientated philosophy of this section, lectures are conducted in English and are open to all foreign students. First-year graduate students also undergo clinical training the procedures of modern adhesive restorations. Laboratory work, which commences in the first year, is performed under the supervision of our faculty staff. During the four-year program, several papers are required to be presented in domestic and / or international conferences and submitted to journals. The minimum requirements are completing the prescribed courses, a supervised research project and a dissertation for the degree published in a top international journal.

### 3. Research Subject

Mechanism of dentin bonding  
 Adhesive of resin restoration systems to tooth substance and other restorative materials  
 Structure, diagnosis and treatment of dentin caries  
 Physic-chemical and manipulative properties of restorative materials  
 Durability of restorative materials  
 Pulpal response to restorative materials  
 Improvement of various restorative techniques for direct and indirect restorations  
 Improvement of various esthetic treatment techniques  
 Caries risk assessment and prevention of recurrent caries  
 Development and introduction for clinical works of OCT (Optical coherence tomography)

### 4. Clinical Service

Operative Dentistry clinic provide restoration of teeth with fillings for dental cavities, trauma and tooth wear, and root canal treatments.

### 5. Publications

#### Original Articles

1. Arimoto A, Nakajima M, Hosaka K, Nishimura K, Ikeda M, Foxton RM, Tagami J. Translucency, opalescence and light transmission characteristics of light-cured resin composites. *Dental Materials* 26(11): 1090-1097, 2010.
2. Ariyoshi M, Nikaido T, Foxton RM, Tagami J. Influence of filling technique and curing mode on the bond strengths of composite cores to pulpal floor dentin. *Dent Mater J* 29(5):562-569, 2010
3. Hiraishi N, Yiu CK, King NM, Tay FR. Chlorhexidine release and antibacterial properties of chlorhexidine-incorporated polymethyl methacrylate-based resin cement. *J Biomed Mater Res B Appl Biomater.* 94(1) 134-40, 2010.
4. Hiraishi N, Yiu CK, King NM, Tagami J, Tay FR. Antimicrobial efficacy of 3.8% silver diamine fluoride and its effect on root dentin. *J Endod* 36(6):1026-1029, 2010
5. Hiraishi N, Yiu CK, King NM, Tay FR. Effect of chlorhexidine incorporation into a self-etching primer on dentine bond strength of a luting cement. *J Dent.* 38(6) 496-502, 2010.
6. Hosaka K, Nakajima M, Takahashi M, Itoh S, Ikeda M, Tagami J, Pashley DH. Relationship between mechanical properties of one-step self-etch adhesives and water sorption. *Dent Mater.* 26(4):360-367, 2010
7. Itoh S, Nakajima M, Hosaka K, Okuma M, Takahashi M, Shinoda Y, Seki N, Ikeda M, Kishikawa R, Foxton RM, Tagami J. Dentin bonding durability and water sorption/solubility of one-step self-etch adhesives. *Dental Materials Journal* 29(5): 623-630, 2010.
8. Kitasako Y, Cochrane NJ, Matin K, Shida K, Adams GG, Burrow MF, Reynolds EC, Tagami J. The clinical use of pH measurements to quantitatively monitor white spot enamel lesions. *Journal of Dentistry* 38(7):584-90, 2010.
9. Kitayama S, Nikaido T, Ikeda M, Sadr A, Miura H, Tagami J. Internal coating of zirconia restoration with silica-based ceramic improves bonding of resin cement to dental zirconia ceramic. *Biomed Mater Eng* 20(2):77-87, 2010
10. Kitayama S, Nikaido T, Takahashi R, Lei Z, Ikeda M, Foxton RM, Sadr A, Tagami J. Effect of primer treatment on bonding of resin cements to zirconia ceramic. *Dent Mater* 26(5):426-432, 2010
11. Kondo Y, Takagaki T, Okuda M, Ikeda M, Kadoma Y, Yamauchi J, Okada K, Sadr A, Nikaido T, Tagami J. Effect of PMMA filler particles addition on the physical properties of resin composite. *Dent Mater J* 29(5):596-601, 2010
12. Kunawarote S, Nakajima M, Shida K, Kitasako Y, Foxton RM, Tagami J. Effect of dentin pretreatment with mild acidic HOCl solution on microtensile bond strength and surface pH. *Journal of Dentistry* 38(3): 261-268, 2010.
13. Li N, Nikaido T, Takagaki T, Sadr A, Makishi P, Chen J, Tagami J. The role of functional monomers in bonding to enamel: Acid-base resistant zone and bonding performance. *J Dent* 38(9):722-730, 2010

14. Makishi P, Shimada Y, Sadr A, Wei S, Ichinose S, Tagami J. Nanoleakage expression and microshear bond strength in the resin cement/dentin interface. *J Adhes Dent*. Oct;12(5):393-401, 2010.
15. Nakajima M, Kanno T, Komada W, Miura H, Foxton RM, Tagami J. Effect of bonded area and/or fiber post placement on the fracture strengths of resin-core reconstructions for pulpless teeth. *American Journal of Dentistry* 23(6), 300-304, 2010.
16. Nayif M M, Shimada Y, Ichinose S, Tagami J. Nanoleakage of current self-etch adhesives bonded to artificial carious dentin. *American Journal of Dentistry* 23(5); 279-284, 2010
17. Nomura T, Ikeda I, Otsuki M, Tagami J. Effect of high-power LED light curing unit on bond strength of composite resin to dentin. *Int Chin J Dent* 10(3):35-40, 2010
18. Okuma M, Nakajima M, Hosaka K, Itoh S, Ikeda M, Foxton RM, Tagami J. Effect of composite post placement on bonding to root canal dentin using 1-step self-etch dual-cure adhesive with chemical activation mode. *Dental Materials Journal* 29(6): 642-648, 2010.
19. Peerzada F, Yiu CK, Hiraishi N, Tay FR, King NM. Effect of surface preparation on bond strength of resin luting cements to dentin. *Oper Dent* 35(6) 624-33, 2010.
20. Reis AF, Carrilho MR, Ghaname E, Pereira PN, Giannini M, Nikaido T, Tagami J. Effects of water-storage on the physical and ultramorphological features of adhesives and primer/adhesive mixtures. *Dent Mater J* 29(6):697-705, 2010
21. Senawongse P, Pongprueksa P, Tagami J. The effect of the elastic modulus of low-viscosity resins on the microleakage of Class V resin composite restorations under occlusal loading. *Dent Mater J* 29(3): 324-329, 2010
22. Shimada Y, Chow LC, Takagi S, Tagami J. Properties of injectable apatite-forming premixed cements. *Journal of Research of the National Institute of Standards and Technology* 115(4): 233-241, 2010.
23. Shimada Y, Sadr A, Burrow MF, Tagami J. Validation of swept-source optical coherence tomography (SS-OCT) for the diagnosis of occlusal caries. *Journal of Dentistry* 38(8): 655-665, 2010.
24. Takahashi R, Nikaido T, Ariyoshi M, Foxton RM, Tagami J. Microtensile bond strengths of a dual-cure resin cement to dentin resin-coated with an all-in-one adhesive system using two curing modes. *Dent Mater J* 29(3):268-276, 2010
25. Takahashi R, Nikaido T, Ariyoshi M, Kitayama S, Sadr A, Foxton RM, Tagami J. Thin resin coating by dual-application of all-in-one adhesives improves dentin bond strength of resin cements for indirect restorations. *Dent Mater J* 29(5):615-622, 2010
26. Takanashi H, Hosaka K, Kishikawa R, Otsuki M, Tagami J. The effect of the dentin preparation with an ultrasonic abrasion on the microtensile bond strength of self-etch adhesive systems. *Int Chin J Dent* 10(1):7-15, 2010
27. Tanaka Y, Matin K, Gyo M, Okada A, Tsutsumi Y, Doi H, Nomura N, Tagami J, Hanawa T. Effects of electrodeposited poly(ethylene glycol) on biofilm adherence to titanium. *J Biomed Mater Res A* 95(4): 1105-13, 2010.
28. Tsujimoto M, Nikaido T, Inoue G, Sadr A, Tagami J. Ultrastructural observations of the acid-baseresistant zone of all-in-one adhesives using three different acid-base challenges. *Dent Mater J* 29(6):655-660, 2010
29. Waidyasekera K, Nikaido T, Weerasinghe DDS, Watanabe A, Ichinose S, Tay F, Tagami J. Why does fluorosed dentine show a higher susceptibility for caries: An ultra- morphological explanation. *J Med Dent Sci* 57:17-23, 2010

## Review articles

## Books