



## EDITORIAL

## ADHESIVE MATERIALS AND TECHNOLOGY – BRAZIL &amp; JAPAN

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Adhesive materials and technology have advanced quickly, which is a key to achieve minimal invasive caries treatment and also aesthetic restorations. The studies on Adhesive Dentistry cover material sciences, clinical trial and applications. The 1st International Congress on Adhesive Dentistry (IAD) was organized in 2002 in Tokyo. The president of the 1st IAD was Dr. Junji Tagami, who was the coordinator of the Japanese side Brazil-Japan Joint Research Workshop on Adhesive Dentistry (JRWAD). This event was held at Piracicaba Dental School, University of Campinas, Piracicaba, SP, Brazil (Oct 31 – Nov 1st). He was always invited as a keynote speaker for the IAD meetings that have successfully continued every two/three years in several countries, such as China, South Korea, Thailand, and USA. But there was still no opportunity to be organized in Brazil.

Dr. Junji Tagami was appointed to the Professor and Chair of Cariology and Operative Dentistry, Graduate School of Medical and Dental Sciences at Tokyo Medical and Dental University (TMDU) in 1995. He is still responsible to manage the activities of the department. He is a prolific author who has contributed more than 450 papers to peer-reviewed international journals and some 200 papers to Japanese academic journals in the fields of Cariology, tooth-coloured dental restorative systems, the bonding of materials to dental tissues, and dental education. His

background in research on the mechanism and structure of caries is believed to be one of the most important factors orienting adhesion as a means of achieving minimally invasive dentistry. As the vice president and immediate past dean of TMDU, he is a man of great power, influence and potential in academic dentistry. As the chair of Cariology and Operative Dentistry, he has supervised over 150 graduate students and postdoctoral researchers from Japan and around the world in the past 20 years, some of whom have become prominent academicians themselves in Japan, North America, Europe, Asia, South America and Australia. Because of his contribution in dental research and education, he was awarded Honorary Degrees from King's College of London and Mahidol University in Thailand. He received the Wilmer Souder Award in IADR Dental Materials Group, 2017, which is the highest honor in the field of dental materials research.

Dr. Nikaido is now Senior Lecturer in Cariology and Operative Dentistry, Department of Oral Health Sciences of TMDU. His research topics cover basic and clinical aspects of Adhesive Dentistry, Operative Dentistry and Preventive Dentistry. He is on the editorial board of Dental Materials Journal, and Journal of Adhesive Dentistry, and is Associate Editor for Asian Pacific Journal of Dentistry. He was a guest scientist at National Institute of Standards and Technology, USA in 1995. He

was Visiting Professor of State University of Campinas, Brazil in 2003; Chulalongkorn University, Thailand in 2008 and a Mentor of JRWAD (2017). He published more than 110 peer-reviewed articles.

The research activity on Adhesive Dentistry is quite high in Brazil, which can be proved by a lot of publications to the international peer-reviewed journals. Dr. Marcelo Giannini, the coordinator from the Brazilian side of JRWAD, is one of active researchers in Adhesive Dentistry. He works as a Latin America Counsellor and is the elect president (2019 to 2021) of the International Association of Adhesive Dentistry (IAAD) now. He has published more than 220 peer-reviewed scientific publications, including some review papers on Adhesive Dentistry invited from the international academic journals. His affiliation is the Department of Restorative Dentistry – Operative Dentistry section, Piracicaba Dental School, University of Campinas (FOP-UNICAMP). He was the Boss of Department of Restorative Dentistry (2008-2010) and the Coordinator of Dental Materials Graduate Program at FOP-UNICAMP (2010-2014). Supervision completed: undergraduate students (28), master (20), PhD (14) and post-doctoral (5). He published seven book chapters and received Awards from SBPqO, ADM, IAAD, GBMD, IAD scientific meetings.

The JRWAD coordinators (Drs. Tagami and Giannini) and the JRWAD Mentor have collaborated the studies since 2002 at the 1st IAD. The research collaboration between Tokyo Medical and Dental University and University of Campinas, Piracicaba Dental School has been very active and successful for more than 15 years.

Detailed information of this Collaboration and Exchange:

1 - Professor Tagami: Invited speaker, Conference of Brazilian Group of Dental Materials, 2000 and Coordinator of JRWAD, 2017.

2 - Dr. Toru Nikaido: Visiting researcher, Department of Restorative Dentistry, Piracicaba Dental School - University of Campinas, Piracicaba, 2003 (FAPESP, Visiting Researcher Grant – International, process # 2003/05066-8). Other visits in 2012 and 2017.

3 - Other TMDU Japanese researchers who also visited FOP-UNICAMP: Drs Masatoshi Nakajima (2007), Tomohiro Takagaki (2011 and 2012), Yasushi Shimada (2011), Masayuki Otsuki (2013) and Alireza Sadr (2016 and 2017).

4 - Dr. Marcelo Giannini: Guest researcher, Department of Cariology and Operative Dentistry, TMDU, in 2002, 2011, 2013, 2015 and 2016.

5 - Student visitors – under Marcelo Giannini's supervision: Rubens Nazareno Garcia (TMDU in 2008) and Marina Di Francescantonio (TMDU in 2010). Patricia Makishi (2013).

6 - Other Brazilian PhD Student visitors (in collaborations): Mirela S. Shinoraha (2004 – Mentor Dr. Mario F. De Goes / FOP-UNICAMP), Lisia E. Nishimori (2015 – Mentor Dr. Adilson L. Ramos / UEM-PR), Gabriel F. Abuna (2017 - Mentor Dr. Mário A. C. Sinhoreti / FOP-UNICAMP) and Rose Y. Kumagai (2018 - Mentor Dr. André F. Reis / UNG-SP).

Professor Junji Tagami and Drs. Marcelo Giannini (the JRWAD Coordinators) and Toru Nikaido (a mentor of JRWAD) have published various scientific papers on Adhesive Dentistry. Main scientific publications resulting from collaborative research between FOP/UNICAMP and TMDU are listed as follows:

1 - Bacelar-Sá R, Sauro S, Abuna G, Vitti R, Nikaido T, Tagami J, Ambrosano GMB, Giannini M. Adhesion Evaluation of Dentin Sealing, Micropermeability, and Bond Strength of Current HEMA-free Adhesives to Dentin. *J Adhes Dent.* 2017;19(4):357-64.

2 - Makishi P, Pacheco RR, Sadr A, Shimada Y, Sumi Y, Tagami J, Giannini M. Assessment of Self-Adhesive Resin Composites: Nondestructive Imaging of Resin-Dentin Interfacial Adaptation and Shear Bond Strength. *Microsc Microanal.* 2015 Dec;21(6):1523-29.

3 - Marcelo Giannini, Patrícia Makishi, Ana Paula Almeida Ayres, Paulo Moreira Vermelho, Bruna Marin Fronza, Toru Nikaido, Junji Tagami. Self-Etching Adhesive Aystems: a literature review, *Braz Dent J.* 2015 Jan-Feb;26(1):3-10.

4 - Giannini M, Takagaki T, Bacelar-Sá RC, Vermelho PM, Ambrosano GM, Sadr A, Nikaido T, Tagami J. Influence of resin coating on bond strength of self-adhesive resin cements to dentin. *Dent Mater J* 2015;34(6):822-7.

5 - Makishi P, Thitthaweerat S, Sadr A, Shimada Y, Martins AL, Tagami J, Giannini M. Assessment of current adhesives in class I cavity: Nondestructive imaging using optical coherence tomography and microtensile bond strength. *Dent Mater.* 2015 Sep;31(9):e190-200.

6 - Di Franciscantonio M, Nurrohman H, Takagaki T, Nikaido T, Tagami J, Giannini M. Sodium hypochlorite effects on dentin bond strength and acid-base resistant zone formation by adhesive systems, *Braz J Oral Sci.* 2015 Oct./Dec;14(4):334-340.

7 - Bacelar-Sá RC, Carvalho A O, Puppini-Rontani RM, Ambrosano GM, Nikaido T, Tagami J, Giannini M. The effects of water storage on bond strength and dentin sealing ability promoted by adhesive systems. *J Adhes Dent.* 2012 Dec;14(6):543-9.

8 - Carvalho AO, Oliveira MT, Nikaido T, Tagami J, Giannini M. Effect of adhesive system and application strategy on reduction of dentin permeability. *Braz Oral Res.* 2012 Sep-Oct;26(5):397-403.

9 - 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.* 2010 Nov;29(6):697-705.

10 - Santos Daroz CB, Oliveira MT, De Góes MF, Nikaido T, Tagami J, Giannini M. Bond strength of a resin cement to dentin using the resin coating technique. *Braz Oral Res.* 2008; 22(3):198-204.

11 - Garcia RN, Takagaki T, Nikaido T, Tagami J, Giannini M. Evaluation of bond strength of an indirect composite luting fixed by different techniques and resin cements to dentin. *Graduate Journal of São Paulo Dental School, University of São Paulo.* 2008;15(2);91-6.

12 - De Goes MF, Giannini M, Foxton RM, Nikaido T, Tagami J. Microtensile bond strength between crown and root dentin and two adhesive systems. *J Prosthet Dent.* 2007; Apr;97(4):223-8.

13 - Shinohara MS, Yamauti M, Inoue G, Nikaido T, Tagami J, Giannini M, De Goes MF. Evaluation of antibacterial and fluoride-releasing adhesive system on dentin regarding microtensile bond strength and acid-base challenge. *Dent Mater J.* 2006;25(3):545-52.

14 - Giannini M, De Goes MF, Nikaido T, Shimada Y, Tagami J. Influence of Activation Mode of Dual-cured Resin Composite Cores and Low viscosity Composite Liners on Bond Strength to Dentin Treated with Self-etching Adhesives. *J Adhes Dent.* *J Adhes Dent.* 2004 Winter;6(4):301-6..

15 - Arrais CA, Giannini M, Nakajima M, Tagami J. Effects of additional and extended acid etching on bonding to caries-affected dentine. Eur J Oral Sci. 2004 Oct;112(5):458-64.

### **BRAZIL - JAPAN JOINT SYMPOSIUM ON ADHESIVE DENTISTRY 2017**

#### **Coordinators:**

Dr. Marcelo Giannini - University of Campinas, SP, Brazil

Dr. Junji Tagami - Tokyo Medical and Dental University, Japan

#### **Brazilian Mentors:**

Dr. Cínthia Pereira Machado Tabchoury - University of Campinas, SP, Brazil

Dr. André Figueiredo Reis - University of Guarulhos, SP, Brazil

Dr. Roberto Ruggiero Braga - University of São Paulo, SP, Brazil

#### **Japanese Mentors:**

Dr. Toru Nikaido - Tokyo Medical and Dental University, Japan

Dr. Atsushi Mine - Osaka University, Japan

Dr. Noriyuki Nagaoka - University of Okayama, Japan

#### **Brazilian Young Researchers:**

- Carolina Bosso Andre - University of Campinas, SP, Brazil
- Dayane Carvalho R. Salles de Oliveira - University of Campinas, SP Brazil
- Carlos Alberto Kenji Shimokawa - University of São Paulo, SP, Brazil

- Beatriz Togoro Ferreira da Silva - University of São Paulo, SP, Brazil
- Marina Ciccone Giacomini - University of São Paulo / Bauru, SP, Brazil
- Odair Bim Júnior - University of São Paulo / Bauru, SP Brazil
- Lourenço de M. R. Roselino - University of São Paulo / Ribeirão Preto, SP, Brazil
- Fabiana Almeida C. Zotti - University of São Paulo / Ribeirão Preto, SP, Brazil
- Rodrigo Sversut de Alexandre - São Paulo State University / Araçatuba, SP, Brazil
- Thais Yumi Umeda Suziki - São Paulo State University / Araçatuba, SP, Brazil
- Bruna de Oliveira Reis - São Paulo State University / Araçatuba, SP, Brazil
- Guilherme Saavedra - São Paulo State University / S. José dos Campos, SP, Brazil
- Tânia Mara da Silva - São Paulo State University / S. José dos Campos, SP, Brazil
- Marina Gullo Augusto - São Paulo State University / S. José dos Campos, SP, Brazil
- Giovana Anovazzi Medeiros - São Paulo State University / Araraquara, SP, Brazil
- Diana Gabriela de S. Soares - São Paulo State University / Araraquara, SP, Brazil
- Marina Guimarães Roscoe - University of Guarulhos, SP, Brazil
- José Carlos Romanini Junior - University of Guarulhos, SP, Brazil
- Alline de Cerqueira Kasaz - University of Guarulhos, SP, Brazil
- Bruno Bueno-Silva - University of Guarulhos, SP, Brazil
- William Cunha Brandt - University of Santo Amaro, SP, Brazil

- Letícia C. Cidreira Boaro - University of Santo Amaro, SP, Brazil
- Régis Cléo Fernandes Grassia Junior - University of Santo Amaro, SP, Brazil
- Michael Gomes Vidal - University of Santo Amaro, SP, Brazil
- Flávia L. Botelho do Amaral - São Leopoldo Mandic Dental School, SP, Brazil
- Fernando Pelegrim Fernandes - São Leopoldo Mandic Dental School, SP, Brazil
- Enrico Coser Bridi - São Leopoldo Mandic Dental School, SP, Brazil
- Marina Amaral - University of Taubaté, SP, Brazil

#### Japanese Young Researchers:

- Rena Takahashi - Tokyo Medical and Dental University, Japan
- Takaaki Sato - Tokyo Medical and Dental University, Japan
- Juri Hayashi - Tokyo Medical and Dental University, Japan
- Mariko Matsumoto - Hokkaido University, Japan
- Akimasa Tsujimoto - Nihon University, Japan
- Nanako Hirose - Osaka University, Japan
- Tomohiro Hoshika - Kagoshima University, Japan
- Akito Yokoyama - Okayama University, Japan
- Kumiko Yoshihara - Okayama University, Japan
- Kazuhiko Shibuya - Okayama University, Japan

Brazil-Japan Joint Symposium on Adhesive Dentistry 2017 was held on Oct.

31th to Nov. 1st at Piracicaba Dental School, University of Campinas, Piracicaba, São Paulo, Brazil. This event was supported by Japan Society for the Promotion of Science (JSPS – process # 2017/1-14) and São Paulo Research Foundation (FAPESP – process # 2017/50088-2). The purpose of this program was to encourage young researchers of both countries to share knowledge, experience and ideas in the research areas stipulated in the call for proposals, to provide them with a career development opportunity, and to build networks for future collaborations among them that may lead to the development of new research areas.

Total 304 researchers and clinicians participated this workshop, including 14 Japanese researchers from 6 universities, 28 Brazilian young researchers from eleven universities of São Paulo state and attendants from 40 Brazilian dental schools. The coordinators and the mentors from the Japanese and Brazilian sides presented their keynote lectures with the different subjects on Adhesive Dentistry and in basic sciences of adhesive materials, technology and also clinical applications of the advanced materials. The coordinators and mentors selected in the program were the experts in Biomaterial Sciences, Operative Dentistry and also Prosthetic Dentistry. The lecturers encouraged the research activity of the young researchers.

The Japanese and Brazilian young researchers also presented their original papers in the oral/poster sessions. They engaged deep discussion about their research topics and shared the plenty time through the events. The Japanese participants also visited both University of Campinas, Piracicaba Campus and School of Dentistry of University of São Paulo after the workshop, which were the wonderful experiences to understand the educational and research activities in Brazilian

dental schools. Through the current workshop, it is strongly expected that the Japanese and Brazilian young researchers will expand their international network and develop the research collaboration in the future.

More information about “Brazil-Japan Joint Symposium on Adhesive Dentistry 2017” can be obtained from the following websites:

Congress information: <http://www.fop.unicamp.br/index.php/pt-br/component/k2/fop/1983-congresso-giannini>

Abstracts publication (Transaction of the Workshop): Brazilian Journal of Oral Sciences (Vol 16, 2017): [http://www.fop.unicamp.br/bjos/index.php/bjos/article/view/Brazil-Japan\\_Joint\\_Research\\_Workshop\\_on\\_Adhesive\\_Dentistry](http://www.fop.unicamp.br/bjos/index.php/bjos/article/view/Brazil-Japan_Joint_Research_Workshop_on_Adhesive_Dentistry)



Figure 1 - JRWAD Opening Ceremony at FOP/UNICAMP Auditorium.



Figure 2 - FOP/UNICAMP auditorium with more than 300 attendants.



Figure 3 - Lecture by Professor Junji Tagami.



Figure 4 - Japanese researcher visitors and FOP/UNICAMP Brazilian members organizing of the JRWAD.