

# Newsletter

School of Dentistry  
Showa University

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## Implementing new information-technology educational resources

by Professor Takashi Miyazaki: Dean, School of Dentistry, Showa University



Modern dentistry has been greatly refined over the past 100 years and has served populations around the world by maintaining their oral health.

However, as society ages, especially in Japan, we must understand that dentistry is a collaboration with medical and health care services. Therefore, communication and collaboration with other medical and healthcare professionals is essential in providing a patient-centered dental service.

We, Showa University, have schools of medicine, dentistry, pharmacy, and nursing and rehabilitation sciences. We have introduced team-based education starting with first-year education in the dormitories and continuing in school as PBL classes during students' third and fourth years of education, along with team-based ward practice in the fifth year for clinical training. Furthermore, we provide a

selective course on community-based team health care practice during the sixth year. We have also incorporated new educational resources such as an e-learning system, a virtual-patient system, and an electronic portfolio system to encourage our students to learn actively.

Our educational policy has been supported by the Ministry of Education, Culture, Sports, Science and Technology. Additionally, our competitive program of using new information-technology resources for the dental education of the elderly is being funded by the ministry from 2012–2016. I will continue to encourage the introduction, practical use, and assessment of new educational resources.

## Establishment of an e-portfolio system and its application for education in combination with e-learning system

by Professor Ryuta Kataoka: Department of Special Needs Dentistry, Division of Dental Education

In order for students to be able to practice patient-centered medicine in the future, Showa University promotes inter-disciplinary education among the schools of medicine, dentistry, pharmacy, and nursing and rehabilitation. As part of inter-disciplinary education, the school of dentistry at Showa University established profile and competencies in 2009. Based on these six competencies, 6 years of consistent educational programs started focusing on the improvements of communication ability, information literacy, dentistry in the community, and education for team medical care.

For this purpose, the e-portfolio system, which stores information of each individual's learning history, activities and evaluation, was developed.

With this system, consistency from fundamental education during the 1st year at Fujiyoshida campus to dental education during the 2nd to 6th year was achieved. Based on two years' research, it was found that the educational effects of e-portfolio improved students' abilities in: 1) setting an appropriate goal, 2) self-assessment, and 3) future view as a medical professional. This effect was based both on students' reflections that were required in the writing portfolios and on feedback from faculty members and students about the e-portfolio.

Recently, we combined e-learning system with e-portfolio system to record the learning while using e-learning, such as scores and the number of challenges. We have placed this new



combined e-portfolio and e-learning system at the center of our education to facilitate the communication between students and faculty and among our faculty. I hope this new developed system will help educate our students to become dental professionals who will be needed in this increasingly aging society.

## New Oral Cancer Center at Showa University Dental Hospital: An Integrative and Non-Invasive Approach for Treating Oral Cancer

by Professor Satoru Shintani : Department of Oral and Maxillofacial Surgery

The Oral Cancer Center at Showa University Dental Hospital was established in April of 2012. The Oral Cancer Center core team is composed of many different professional staff (12 dentists, one pharmacist, two nurses and one dental hygienist). Our center primarily focuses on oral and maxillofacial malignant neoplasm.

The team's main tasks are early detection of oral cancer, surgical treatment, and radiotherapy and chemotherapy for oral cancer patients. Additionally, we provide oral rehabilitation and oral function recovery of the patients after treatment.

In regards to the treatment of oral cancer, the policy of the Oral Cancer Center at Showa University Dental Hospital is to use most current, international standard treatment for our patients. In addition to standard treatment, we use minimally invasive



treatment whenever possible as a way to reduce the burden on the patient.

One example of minimally invasive treatment is a sentinel lymph node biopsy. Sentinel lymph node biopsy is the removal and examination of the first lymph node. Cancer cells often spread from a primary tumor to first lymph node, so examination of this site can help avoid unnecessary and more intrusive operations, such as neck dissection..

Another example is reconstruction surgery using autologous

bone graft after mandibular resection. This method uses heat-treated autogenous bone graft following resection of malignant bone and soft tissue. The benefit of this method is that the shape of the mandible is maintained and thus, patient's satisfaction is often high. Finally, during all surgery we try to ensure that the appearance of scars or any transformation of neck is as minimal as possible after an operation.

In conclusion, the prevalence of cancer patients in Japan continues to increase, and it is believed that about half of people today will develop cancer in the future. Oral cancer shows a similar tendency in the future. The purpose of the Oral Cancer Center is to offer superior diagnosis and treatment to these increasing number of oral cancer patients using a team of highly-skilled medical care professionals from different fields.

## Friendship Visit to our Sister School, Tianjin Medical University

by Professor Takehiko Iijima: Department of Perioperative Medicine, Division of Anesthesiology

Tianjin Medical University School of Dentistry is one of our most important partnerships, and we have maintained a deep friendship for decades. Our relationship began back in the 1990's when we hosted Professor Shi Shu Jun, the founder of the School of Dentistry and President of the Dental Hospital of Tianjin Medical University, as part of a collaboration with Dean Wakumoto.

A recent visit to Tianjin by our group, including Dean Miyazaki, Professor Manabe and myself, took place from June 21–23, 2012. Dr Zhao Zhen, who had an appointment to the Department of Orthodontics at Showa University last year, welcomed us at the airport. Tianjin is located 120 km from Beijing and is one of the biggest cities in mainland China, with a population of more than five million

in the city area alone.

We were cordially welcomed by the university Vice-President and several other executive officers with a Chinese tea ceremony. I was especially impressed with the warm hospitality of Professor Gao Ping, the current Dean of the school. We also met many professors who had previously visited Showa University. Dean Miyazaki was deeply

delighted to see Professor Shi, who was still very healthy and taking care of patients.

During our visit, we had the opportunity to give half-day lectures to the students, and enjoyed their thoughtful questions. The Dental Hospital is scheduled to be reconstructed in a few years. We look forward to seeing the new hospital in the near future.



### The first trilateral symposium on dental materials held in Hong Kong

by Professor Takashi Miyazaki, Department of Conservative Dentistry,  
Division of Biomaterials and Engineering

The first trilateral symposium "Zirconia and Titanium Today" was organized by Professor Jukka Pekka Matinlinna of the University of Hong Kong (HKU) and held in the lecture theatre at the Prince Philip Dental Hospital on October 31, 2012. This symposium was planned through the biomaterials research cooperation of the University of Hong Kong, Nippon Dental University (NDU) and Showa University. We, Showa University, have previously collaborated with HKU in terms of both education and research. Professor Matinlinna gave a special

lecture at the annual scientific meeting of Showa University Dental Society in 2011 and since then, we have conducted joint several research projects.



Zirconia and titanium are currently the most advanced dental and medical biomaterials. At the symposium, six key note lectures and eight posters presented by academics from these three universities covered the current status of the basic and clinic-simulated research on zirconia and titanium as it relates to clinical application. During the discussion session, we discussed the future of these materials and the future direction of collaborative research. We are planning the second symposium to be held at NDU in Tokyo next year under the chairmanship of Professor Shinnya.

### New Department Offers Comprehensive Care for Special Needs's Patients of All Ages

by Associate Professor Takahiro Funatsu: Department of Special Needs Dentistry,  
Division of Dentistry for Persons with Disabilities

The Center of Special Needs Dentistry is a new department established in April of 2012 and is located on the first floor of Showa University Dental Hospital.

Our center is intended for any patient who requires special consideration during dental treatment. Some examples of special needs of patients who have come to our center (no limit in age; current patients include a 1-month-old baby and a 86-year-old elderly person) are as follows: mental retardation, pervasive developmental disorder, cerebral palsy, muscular dystrophy, various syndromes, mental disorders, etc.



We cover a wide range of dental treatment, such as conservative treatment, prosthetic treatment, surgical treatment, and treatment of eating dysfunction. We try to provide optimal treatment, considering the psychological state and unexpected/uncontrollable body movement of the patients. Such patients are often treated with the aid of anesthetic technique provided by anesthesiologists from the Department of Anesthesiology of this hospital. The benefits of using of general anesthesia are that we can treat several teeth at one time, and that we can avoid any injury due to restraining the body. Especially for the patients who cannot accept unfamiliar environments, we utilize ambulatory anesthesia without overnight admission so they can return to their home on the same day.

Patients with a eating dysfunction are trained by physical practice based on the diagnosis of their tests (for



example, cystography or endoscopy). We try to help patients re-acquire physiological eating function so that they can enjoy eating once again. Our center continues to follow patients even after dental treatment to maintain their oral health condition. This can be achieved in cooperation with other specialists or dental offices in the neighborhood. We will continue to develop a more feasible patient-orientated system. We are looking forward to giving advice and hopefully contribute to an improved oral health for special-needs patients.



## A genetic approach to relating orofacial traits and disease

by Associate Professor Tetsutaro Yamaguchi: Department of Orthodontics, School of Dentistry

Many diseases and traits related to the orofacial region show a strong tendency of inheritance, such as malocclusion related to the abnormality of teeth and craniofacial morphology. Elucidating the genetic factors behind these abnormalities is expected to help advance orthodontic treatment.

For example, primary failure of tooth eruption (PFE) is a rare disorder characterized by the cessation of tooth eruption before emergence. Using Japanese individuals with PFE, we performed exome resequencing in combination with genome-wide linkage analysis, and identified several novel parathyroid hormone 1 receptor gene (PTH1R) variants within this group (J Bone Miner Res, 2011). We believe that finding such gene variation in patients with PFE will allow dentists to improve diagnosis and provide a starting point for

therapeutic investigations.

We also previously discovered a single nucleotide polymorphism (SNP) that was correlated with mandibular ramus height (Am J Orthod Dentofacial Orthop, 2001), and confirmed this relationship in other East Asian populations (Arch Oral Biol, 2009, Am J Orthod Dentofacial Orthop, 2009). Additionally, an exhaustive genomic search for the causative gene of mandibular prognathism revealed that it is probably located on chromosome 1 (J Dent Res, 2005). By identifying genetic markers that allow the prediction of future craniofacial morphology, studies like these should contribute to clinical orthodontics by making it possible to predict jaw growth, conduct more appropriate and early treatment, and select more effective orthopedic treatments.

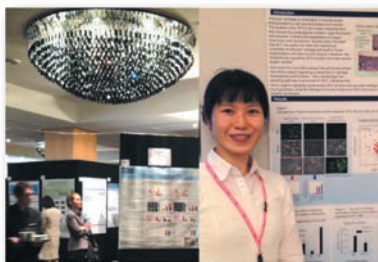


Finally, several genes are involved in the development of organs of ectodermal origin, such as hair, teeth, and sweat glands. We found that ectodysplasin A receptor gene (EDAR) was correlated with several dental traits, such as tooth size and the degree of tooth 'shoveling' in healthy populations (Am J Hum Genet, 2009; J Hum Genet, 2012). We believe that the identification of gene variation associated with dental traits will help clinicians estimate the risk of malocclusion in individual cases.

## Travel Award Recipients from Showa University attend the Asia-Pacific Bone and Mineral Research Meeting

by Rika Yasuhara: Division of Pathology, Department of Oral Diagnostic Sciences

I attended the inaugural Asia-Pacific Bone and Mineral Research Meeting, which was held in conjunction with 22nd annual Australian & New Zealand Bone & Mineral Society (ANZBMS) scientific meeting at the Pan Pacific Hotel in Perth, Australia from September 2nd-5th, 2012. The Japanese Society for Bone & Mineral Research offered travel awards to the ANZBMS meeting for several researchers based on the evaluation of their submitted abstracts. This year, two studies were selected from Showa University: 'Small GTPase Cdc42 is essential for chondrocyte differentiation and interdigital programmed cell death during limb development' by Dr. Ryo Aizawa, a graduate student from the department of periodontitis and 'The crosstalks between Wnt/ $\beta$ -catenin and  $\alpha$ 5 integrin signalings in the articular superficial cell functions' by myself, Dr. Rika Yasuhara from the department of oral pathology.



There were 12 pre-conference workshops, 30 symposiums, 39 oral presentations, and 157 poster presentations. This meeting covered topics such as the most-current clinical science on osteoporosis, basic science regarding the function analysis of bone and cartilage cells, and translational research, especially bone regeneration using mesenchymal stem cells, which attracted a number of researchers. The meeting society also focused on the education of young scientists; they awarded 8 studies a young investigator award, and they organized a career up

seminar for young scientists. During the poster session, I perused several posters and talked with speakers who were graduate students. I was so impressed by their presentation skills and ability to communicate with confidence and enthusiasm. I felt that attending this international meeting made us more positive about our work and was a good opportunity to improve our communication skills as well as determine the level of our research in relation to the international research field.

After the presentations, we had a conference dinner with all of the other attendants at Fraser's restaurant in Kings Park and enjoyed a nice night view of the city. I had a good time talking frankly with Australian clinicians and post-docs from New Zealand, and filling my mouth with 5cm thick Aussie beef.

## International Exchange Center

by Takeshi Miura: International Exchange Center

Showa University has a long history of inviting research fellows from overseas. While the International Exchange Center of Showa University was established in 1991, we had been accepting foreign research before then. In total, more than 800 research fellows have come to our university.

This April we recently created dormitory housing in university building #15. This new housing can accommodate 12 people and is located across from the Hatanodai campus, convenient for those who go to the University Hospital or Dental Hospital. These dormitories have a "common space" area (shower, toilet, and kitchen) that the foreign research fellows share with their roommate. Our hope is that they can enjoy experiencing Japanese culture, but also another country's culture from their roommate.

From April 2011 to March 2012, we coordinated many travel-abroad activities. We hosted 43 new

foreign students and researchers, 656 faculty or officials from Showa traveled overseas, 30 doctors from Showa studied abroad, and 85 Showa students traveled overseas for clinical training or study.



This April, we welcomed a new group of 12 foreign research fellows and organized a welcome party. The president of Showa University and the deans and doctors from each of the departments that had accepted the foreign research fellows participated in this party. Everyone had a good time interacting with the different departments.

In autumn, we went to the Tokyo National Museum in Ueno with several foreign students and foreign research fellows. They were able to experience the Japanese culture of a tea ceremony. Recently, we held a party for foreign research fellows, foreign students and students of Showa University. Everyone enjoyed singing songs and playing games at the party.

We keep in touch with those who visited our university and our aim is that there are foreign students and research fellows present in our campus throughout the year. We want to further develop active international exchange activities at Showa University.

Number of international guest scholars at the School of Dentistry in 2012.

Country	Number
India	3
Mongolia	1
Indonesia	1

## Introduction of Foreign Research Fellow

by Dr. Seema Patil (Rajiv Gandhi University of Health Sciences, Bangalore, India)



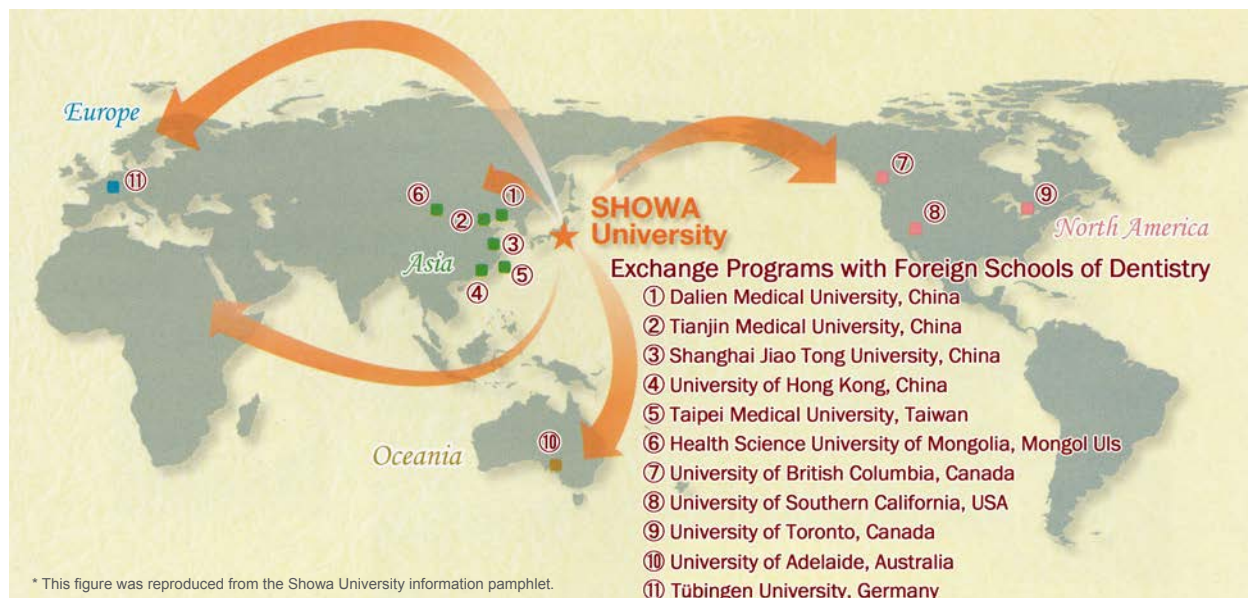
I, Seema Patil, from India extend a warm greeting to everyone at Showa University School of Dentistry. I would like to begin by expressing my sincere gratitude to the management at Showa University for giving me this golden opportunity to work as a research fellow in the Department of Oral Radiology from April to September 2012. I received my Master's degree in Oral Medicine and Radiology from the Rajiv Gandhi University of Health Sciences, Bangalore, India and I am currently a faculty member of R.V. Dental College, Bangalore.

During my fellowship period at Showa University, I was able to complete two research studies on accessory foramina and canals in the mandible. My studies wouldn't have been possible without the guidance and support of the entire faculty in the

Department of Oral Radiology. Professor Okano's tremendous knowledge and vast experience is of course known to all. Aside from this, he also comes across as a very casual and humble person. Despite his hectic schedule, he's always ready to spare time for my research with a smile on his face. Dr Matsuda helped me to a great extent in both of my studies with her excellent computer and statistics skills. Mr Endo, the radiology technician, was also always willing to lend a helping hand in my research.

I found that the library offered a very wide range of journals and books that was more than sufficient for a good research publication. The staff of the International exchange centre were very kind and helpful. Furthermore, the accommodation they provided to me was quite comfortable. Last, but not the least, I want to heartfully thank my beloved teacher, Dr Nagesh, Former Dean of R.V. Dental College for extending me this opportunity to visit Showa University. The time spent in Showa University was probably one of the most memorable periods of my life up till now.

## Exchange Agreements with Foreign School of Dentistry



### Ph.D. Program: Application Information

*Showa University Graduate School of Dentistry offers interdisciplinary training programs in basic and clinical dental sciences, leading to a Ph.D. degree. Our Ph.D. program, for enrollment in either September 2013 or April 2014, accepts applications from international students. For further information, please contact Showa University International Exchange Center (e-mail: [int-exc@ofc.showa-u.ac.jp](mailto:int-exc@ofc.showa-u.ac.jp)). <http://www.showa-u.ac.jp/en/index.html>*

## Scientific Grants Awarded to Showa University School of Dentistry in FY2012

*by Professor Ryutaro Kamijo: Chair of the Research-Activities Committee*

The Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) and Japan Society for Promotion of Science have awarded Grants-in-Aid for Scientific Research to researchers and research groups in Showa University School of Dentistry. The summary of Grants-in-Aid for Scientific Research they received in FY2012 is indicated below.

MEXT awarded a five-year, 175 million yen grant to Showa University Graduate School of Dentistry to establish a multi-disciplinary research center for anti-aging in 2010. This project, done in collaboration with researchers at the National Center for Geriatrics and Gerontology,

The University of Tokyo Faculty for Engineering, and Showa University School of Medicine, is in the end of its third year. The principal investigator, Dr. Takashi Miyazaki, Dean of the School of Dentistry, said that the goal is to set up a worldwide multi-disciplinary network of scientists and clinicians who have been carrying out advanced research in anti-aging. We have two other MEXT-funded 5-year projects. One is by Dr. Tetsuhiko Tachikawa, Professor Emeritus of Showa University, entitled "Innovative research of oral cancer based on molecular evidence—from

elucidation of the pathogenic mechanisms to improvement of quality of life through comprehensive rehabilitation". The other is by Dr. Ryutaro Kamijo, Professor of Biochemistry, entitled "The formation of advanced research center for state-of-the-art regenerative medicine of oral and maxillofacial tissues". These are in the end of the final and first year of project length, respectively.

Categories	Number of Grants
Grant-in-Aid for Scientific Research (B)	5
Grant-in-Aid for Scientific Research (C)	38
Grant-in-Aid for Challenging Exploratory Research	8
Grant-in-Aid for Young Scientist (B)	42
Grant-in-Aid for Research Activity Start-up	13

Summary of Grants-in-Aid for Scientific Research that School of Dentistry awarded in FY2012

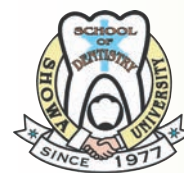


## Invitation for contributions of articles and presentations to Showa University Dental Society

by Executive Director: Masanori Nakamura

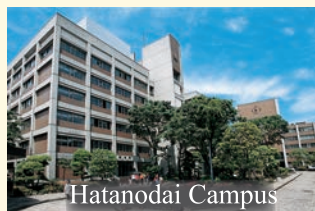
Showa University Dental Society organizes a meeting of researchers twice a year (in July and December). Showa University Dental Society has also renewed publication of the journal of Dental Medicine Research (DMR) starting from volume 28. DMR is a peer-reviewed scientific journal dedicated to the dissemination of new knowledge and information on all sciences relevant to dentistry (including the oral cavity and associated structures) on topics related to health and disease. In addition to the original emphasis on basic and clinical research, the journal is also accepting papers on technical advances, which report original and new research on clinical tools and techniques.

Showa University Dental Society welcomes contributions of articles to DMR and also participation in our bi-annual meeting from domestic and foreign researchers who are working in this scientific field.



Cover Photograph: "TOKYO STATION" The station building destroyed by the air raid was restored in October, 2012.

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