



**TMDU**  
東京医科歯科大学

# 7th TMDU International Summer Program

**27 August –  
3 September 2015**



## **PROGRAM & ABSTRACT BOOK**

Tokyo Medical and Dental University <http://www.tmd.ac.jp/>  
7th TMDU International Summer Program (ISP2015)

<http://www.tmd.ac.jp/english/international/program/isp/isp2015/index.html>

# 東京医科歯科大学

**TOKYO MEDICAL AND DENTAL UNIVERSITY**

7th TMDU International Summer Program

28 August – 3 September 2015

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# ISP2015 SCHEDULE

Day / Time	Event	Venue
<b>Friday, 28 August</b>		<b>Day 1</b>
<b>9:30-16:30</b>	<p><i>[Special Selection Participants]</i>  <i>The TMDU Graduate School Entrance Examination will be held for ISP2015 Special Selection Participants.</i>  <i>(Time and Place will be announced by Admission Section before arrival at Japan.)</i></p> <p><i>[General Participants]</i>  <i>Prepare for Student Symposium</i></p>	
<b>16:00-17:30</b>	<b>Registration</b>	M&D Tower, 2F Auditorium 1
<b>18:00-19:30</b>	<p><b>Welcome Party</b>  MC: David Cannell (Associate Professor, International Exchange Center)</p>	M&D Tower, 26F Faculty Lounge
18:00-18:15	Commemorative Photograph	
18:15-18:25	ISP2015 Address by Yasuyuki Yoshizawa (President)	
18:25-18:30	Welcome Message and Toast by Junji Tagami (Executive Director/Executive Vice President of Education and International Student Exchange, ISP2015 WG Chairperson)	
18:50-19:10	Self-Introduction from Invitees	
19:30	Closing Remarks by David Cannell (Associate Professor, International Exchange Center)	



Day / Time	Event	Venue
<b>Saturday, 29 August</b>	<b>~ TMDU Student Symposium 2015 ~</b>	<b>Day 2</b>
<b>9:00-16:00</b>	<b>TMDU Student Symposium 2015</b> Facilitator: Yoshitaka Murota / Chindanai Ratanaporncharoen / Suteera Viboonyssek (Student Working Group)	
<b>9:00-9:30</b>	Check-in	M&D Tower, 2F Auditorium 1
<b>9:30-10:30</b>	<b>Japanese Language Lecture</b> by Kazuhiro Yonemoto (Assistant Professor, International Exchange Center)	M&D Tower, 2F Auditorium 1
<b>10:40-11:30</b>	<b>Lecture</b> by Md. Sofiqul Islam (Project Assistant Professor, International Exchange Center)	M&D Tower, 2F Auditorium 1
<b>11:30-13:00</b>	 Lunch Break	
<b>13:00-16:00</b>	<b>Oral Presentation Session</b>	Building 3, 2F Lecture Room 1
<b>Sunday, 30 August</b>	<b>~ TMDU Student Symposium 2015 ~</b>	<b>Day 3</b>
<b>9:00-16:00</b>	<b>TMDU Student Symposium 2015</b> Facilitator: Edward Cho / Saori Kase (Student Working Group)	
<b>9:00-9:30</b>	Check-in	M&D Tower, 2F Auditorium 1
<b>9:30-10:30</b>	<b>Lecture</b> by Takashi Zaistu (Assistant Professor, Department of Oral Health Promotion)	M&D Tower, 2F Auditorium 1
<b>10:30-12:00</b>	<b>Cultural Tour</b> : Yushima Seido and Kanda Shrine	
<b>12:00-13:00</b>	 Lunch Break	
<b>13:00-14:30</b>	<b>Poster Presentation Session</b>	M&D Tower, 2F Foyer
<b>14:45-15:45</b>	<b>Presentation on Japanese School Life</b> by TMDU students	M&D Tower, 2F Auditorium 1

<i>Day / Time</i>	<i>Event</i>	<i>Venue</i>
<b>Monday, 31 August</b>		<b>Day 4</b>
<b>9:00-9:30</b>	Check-in	M&D Tower, 2F Auditorium 1
<b>9:30-12:00</b>	<b>Orientation and Campus Tour</b>	
9:30-9:40	Opening Remarks by Yoshinobu Eishi (Vice Dean, Graduate School of Medical and Dental Sciences/ Dean, Faculty of Medicine)	
9:40-10:50	Orientation	
11:00-12:00	Campus Tour	
<b>12:00-13:00</b>	 Lunch Break	
<b>13:00-16:00</b>	<b>TMDU Faculty and Institute Introduction</b>	M&D Tower, 2F Auditorium 1
13:00-13:30	Medical Science	
13:30-14:00	Dental Science	
14:00-14:10	Break	
14:10-14:40	Institute of Biomaterials and Bioengineering	
14:40-15:10	Biomechanics	
15:10-15:40	Medical Research Institutes	
<b>Tuesday, 1 September</b>		<b>Day 5</b>
<b>9:30-10:00</b>	Check-in	M&D Tower, 2F Auditorium 1
<b>10:00-12:00</b>	<b>Lab Visit #1</b>	
<b>12:00-13:00</b>	 Lunch Break	
<b>13:00-15:00</b>	<b>Lab Visit #2</b>	
<b>Wednesday, 2 September</b>		<b>Day 6</b>
<b>9:30-10:00</b>	Check-in	M&D Tower, 2F Auditorium 1
<b>10:00-12:00</b>	<b>Lab Visit #3</b>	
<b>12:00-13:00</b>	 Lunch Break	
<b>13:00-15:00</b>	<b>Lab Visit #4</b>	

<i>Day / Time</i>	<i>Event</i>	<i>Venue</i>
<b>Thursday, 3 September</b>		<b>Day 7</b>
<b>9:30-10:00</b>	Check-in	M&D Tower, 2F Auditorium 1
<b>10:00-12:00</b>	<b>Company Visit / Discussion Session</b>	
<b>12:00-13:00</b>	 Lunch Break	
<b>13:00-15:00</b>	<b>Company Visit</b>	
<b>16:00-16:45</b>	<b>Closing Ceremony</b>	M&D Tower, 2F Auditorium 1
16:00-16:10	Closing Remarks by Keiji Moriyama (Dean, Graduate School of Medical and Dental Sciences / Dean, Faculty of Dentistry)	
<b>17:00-19:00</b>	<b>Farewell Party</b>	M&D Tower, 26F Faculty Lounge
17:00-17:05	Farewell Party Opening Remarks by Junji Tagami (Executive Director/Executive Vice President of Education and International Student Exchange, ISP2015 WG Chairperson)	
17:05-17:10	Message and Toast by Ikuko Morio (Director, International Exchange Center)	
17:45-18:00	Presentation of ISP2015 Certificate by Junji Tagami (Executive Director/Executive Vice President of Education and International Student Exchange, ISP2015 WG Chairperson)	
18:00-18:10	Presentation of Best Presentation Award by Junji Tagami (Executive Director/Executive Vice President of Education and International Student Exchange, ISP2015 WG Chairperson)	
18:30-18:50	Performance by TMDU students	
19:00	Farewell Party Closing Remarks by David Cannell (Associate Professor, International Exchange Center)	





# **Welcome Messages**



## **Yasuyuki Yoshizawa**

President

Tokyo Medical and Dental University

### **Message from the President**

Tokyo Medical and Dental University (TMDU) is an institution well-known for its dedication to the education of health care professionals and the pursuit of bioscience research. The guiding principle for our university is the mission statement, “*Cultivating Professionals with Knowledge and Humanity, thereby Contributing to People’s Well-being.*” This powerful idea motivates our faculty and staff to help our students become world-leading health care professionals and bioscience researchers.

A critical part of our mission since the inception of our university has been the teaching of international students, who have helped the progress of medicine and dentistry in their home countries after returning to practice and teach. For our part, we have found the experience of educating international students to be invaluable in appreciating different cultures and cultivate intellectual sympathy, which is increasingly necessary for medical professionals worldwide. Furthermore, it is a great honor and pleasure for us to learn that our international student alumni have continually encouraged their friends, colleagues and students to join us in our academic endeavors.

In terms of international outreach, we are especially proud of our three overseas education and research collaboration centers in Ghana, Chile, and Thailand. The purpose of these centers is to promote collaborative research and advance the professional development of medical and dental professionals in each local area. For example, we sponsor the exchange of students and faculty members with our partner institutions, support training programs, and manage other outreach activities with and through these research centers.

As an important part of our international activities based here in Japan, we are very pleased to be able to organize our seventh annual International Summer Program, ISP2015. This program will provide students with excellent opportunities to summarize past successes and to embark on pathbreaking research in the future. I hope that you are as excited as we are about ISP2015. I am confident that this year’s program will help you develop professionally, stimulate your academic curiosity, and encourage you to explore the unique features of our university.



## **Junji Tagami**

Executive Director / Executive Vice President of  
Education and International Student Exchange  
Tokyo Medical and Dental University

### **Welcome to ISP2015**

It is our great pleasure to welcome you to ISP2015, our seventh annual International Summer Program. A total of 161 young researchers and students have attended ISP over the last six years. This year we are welcoming 31 excellent young researchers and students from Asia to ISP.

This year we extended and diversified our activities. As requested by former participants, we extended laboratory visits this year. We have arranged for visits to local Japanese companies to increase ISP participants' exposure to Japanese science-related industries. We organized a Student Symposium to give all participants an opportunity to present their work and research, exchange ideas and information, and expand their network socially and professionally.

ISP2015 will also feature the "ISP Special Selection" program. First initiated in 2012, this program gives selected ISP participants the opportunity to take the entrance exam for a TMDU PhD program. The number of ISP participants who have been admitted to TMDU has reached a total of 77 since ISP2009.

At TMDU we are putting a great deal of effort into not only educating our students, at both the undergraduate and graduate levels, but also into the promotion of interdisciplinary research in medical and dental science. As a reflection of these efforts, it was recently reported that TMDU ranked second in the category for citations per paper in the 2014 QS Asian University rankings. I believe TMDU is becoming increasingly attractive to promising students and young researchers from Asia and beyond, as evidenced by the 235 international students currently enrolled, primarily in our graduate schools, as of April 2015.

As the chairperson of the ISP2015 working group, I would like to express our sincere gratitude to everyone who is participating in ISP2015. I am confident that this program will yield many fruitful results and will also help build bridges of friendship between all of the participants.



# **TMDU Lecturer Biodata**



## **Takashi Zaitso**

Assistant Professor

Oral Health Promotion

Tokyo Medical and Dental University, Japan

### **Biodata**

Dr. Takashi Zaitso obtained his DDS in 2006 and did his residency in Tokyo Medical and Dental University Hospital. He then obtained his PhD in the field of Oral Health Promotion at Tokyo Medical and Dental University, studying oral health related to the quality of life, and social anxiety disorder in halitosis patients. He started his research in space dentistry at the Japan Aerospace Exploration Agency (JAXA), Space Biomedical Research Office, where he was an Aerospace Project Research Associate. He is currently an Assistant Professor, Dept. of Oral Health Promotion, Graduate School of Medical and Dental Sciences, TMDU, and visiting scholar with the Astronaut Medical Operations Group, JAXA.



## **Md. Sofiqul Islam**

Project Assistant Professor

International Exchange Center

Tokyo Medical and Dental University, Japan

### **Biodata**

Dr. Md. Sofiqul Islam obtained his B.D.S degree from Dhaka University in 2006 and joined the in-service training at Pioneer Dental College and Hospital. He then joined Bangabandhu Sheikh Mujib Medical University Hospital as an Honorary Medical Officer in the Department of Orthodontics to receive his Post Graduate Training. In 2008 he was awarded with a fellowship from the Japan Dental Association to participate in the exchange program in the Department of Orthodontics at Niigata University. Thereafter he joined Tokyo Medical and Dental University in the Department of Cariology and Operative Dentistry as a Ph.D. student. During his study at Tokyo Medical and Dental University he has published his thesis entitled “The Use of Natural Plant Extract to Enhance Caries Prevention and to improve the Performance of Dental Adhesives.” His research work has been published in several international journals in the field of dentistry. After completion of the Ph.D. he joined Tokyo Medical and Dental University in the Department of Cariology and Operative Dentistry as a research staff. He is currently working as a Project Assistant Professor at International Exchange Center of Tokyo Medical and Dental University.



# **Oral Presentation Abstracts**



**Oral 1****Wan-Ting Chen**

National Defense Medical Center, Taiwan

**Optimization of a Cation Delivery System Based on the Pain-Transduction Channel TRPV1**

Blocking hyperactive pain-sensing nerves without disturbing normal pain perception is a desirable strategy for suppressing pathological pain. One can selectively silence aberrant nociception by introducing into sensitized neurons a cationic sodium channel blocker that can only reach its intracellular action site via the large-ion conducting TRPV1 channel. To enhance the efficacy of this therapy, one of the most important factors is the administration strategy of channel blockers. In this study, I used YO-PRO-1 as an indicator of large organic ion entry, to assess the extents to which other TRPV1-permeable organic cations compete with YO-PRO-1 for open TRPV1 channels in kinetic experiments. I found out that the cation permeation via TRPV1 is similar to enzyme-substrate binding mechanism. Denatonium, comparing to common sodium channel blockers, has good permeability and follows the above kinetic feature. The results of this study can be used for alternative analgesia, reducing health risks associated with other commonly used anti-inflammatory drugs and anesthetics. Moreover, the developed transport theory can conceivably be applied in the delivery of other cationic drugs, which can reach more effective drug treatment.

**Oral 2****Nguyen Minh Tuan Viet**

Ho Chi Minh University of Medicine and Pharmacy, Vietnam

**Radioscintigraphy and Radioimmunotherapy of Labelled Monoclonal Antibody  $^{131}\text{I}$ -Nimotuzumab in Tumor Bearing Nude Mice**

In recent years, radioimmunotherapy (RIT) has become a effective oncologic therapeutic modality. Nimotuzumab is a monoclonal anti epidermal growth factor receptor (EGFR) antibody which is used in head and neck cancer therapy in the mechanism of competition with EGF. In this study, the preclinical evaluations were performed on the radioscintigraphy and radioimmunotherapy of radiopharmaceutical  $^{131}\text{I}$ -nimotuzumab in nude mice bearing human HEP 2 tumors. Nimotuzumab was radioconjugated with radioisotope iodine-131 and purified before using in the experimental evaluations. The size of the growing tumors in the right thigh of the nude mice is in the range of 10-18 mm in diameter. The nude mice were injected intravenously through the tail vein with a single dose 100  $\mu\text{Ci}$  of the assigned concentration of  $^{131}\text{I}$ -nimotuzumab. At 24, 48 and 72 hrs. following injection, mice were periodically anesthetized and scanned with both Single Photon Emission Computed Tomography (SPECT) and Cyclone Plus Phosphor Imager B431200. The 10 nude mice in each therapeutic group were injected of 0.9 % saline, 20  $\mu\text{g}$  of cold nimotuzumab and 150  $\mu\text{Ci}$  of  $^{131}\text{I}$ -nimotuzumab. The experimental nude mice were well cared for 8 weeks and their tumor sizes were monitored everyweek. The whole body imaging of cancer bearing mice showed the biodistribution of radioimmunoconjugate  $^{131}\text{I}$ -nimotuzumab in tumor. The results in the tumor treatments using  $^{131}\text{I}$ -nimotuzumab were showed that there were significant differences in tumor size compared with two other groups. The study indicated that  $^{131}\text{I}$ -nimotuzumab is an ideal targeted radiopharmaceutical for diagnoses and therapeutics of head and neck cancer.

**Oral 3****Tran Anh Khoa**

Ho Chi Minh University of Medicine and Pharmacy, Vietnam

**Preclinical Evaluations of  $^{99m}\text{Tc}$ -NCA90 Monoclonal Antibody for Inflammation Imaging and Tumor Diagnoses**

Monoclonal anti NCA90 (nonspecific cross-reacting antigen-90) antibody was labeled with technetium-99m, which was used for inflammation imaging and tumor marker. The labelled antibody is located in inflammation areas by mechanism of binding to NCA90 surface antigen on granulocytes. This studies were described in the preclinical evaluations of  $^{99m}\text{Tc}$ -NCA90 antibody in the experimental inflammation animals and patients. The labeled NCA90 monoclonal antibody was injected into 18 normal and 3 inflammation rabbits with the range of radioactive 0.25 mCi, 0.5 mCi, 2.0 mCi, 5.0 mCi doses and the biodistribution, the clearance and the radioimmunosintigraphy using Gamma Camera Symbia T6 (SPECT-CT) were investigated. The specific binding was performed invitro with granulocytes which were isolated from inflammation patient with  $10^7$  -  $10^8$  cells per condition used compare with non specific binding. The immunoreactivity of  $^{99m}\text{Tc}$ -NCA90 antibody to excess CD66c antigen was carried out and the bound was separated using niken nitrotriacticacid agarose affinity chromatography. The specific processes of accumulation of granulocytes binding  $^{99m}\text{Tc}$ -NCA90 antibody in the inflammatory site after 10 minutes to 6 hours injection were found. The clearance of radiopharmaceutical from the body was more than 90% after 24h injection. The results in the specific binding evaluations of  $^{99m}\text{Tc}$ -NCA90 antibody to granulocytes from inflammation patients were  $72.74\% \pm 12.14\%$ . Nonspecific binding was  $2.91\% \pm 0.55\%$ . The immunoreactivity of  $^{99m}\text{Tc}$ -NCA90 antibody to CD66c recombinant protein his-tag on affinity chromatography was 78.4%. This is proving that monoclonal anti NCA90 antibody is unchanged immunoreactivity after labelling with radioactive. The preclinical evaluations prove the specific binding of  $^{99m}\text{Tc}$ -NCA90 to NCA90 antigens on the surface of granulocytes. This radiopharmaceutical is ideal for diagnostic inflammation imaging in clinical.

**Oral 4****Indravina Tan**

International University, Cambodia

**Diet and Nutrition of Diabetes Mellitus Type Ii (T2dm) Patients in Cambodia**

**Introduction:** While the world refers T2DM situation as “Diabetic Epidemic”, approximately 255 thousands of Cambodians are living with diabetes. Maintaining a good glycemic control to prevent complications is the main goal in treatment, which includes diet modification, exercise and proper medication.

**Objective:** To demonstrate T2DM patient’s daily diet and knowledge of carbohydrate food.

**Method:** 100 samples (73 females) from Preah Kosamak Hospital, aged 35 to 75, were diagnosed T2DM from 3months to 18 years and ongoing same type of medication. Questionnaires consist of 2 sections. Section 1 focus on daily diet of the patients (according to the Plate Method). Section 2 assess dietary knowledge with true/false questions of 10 carbohydrate foods. If they answered 1-3 correctly consider poor knowledge, 4-6 considers moderate knowledge and 7-10 considers good knowledge of carbohydrate food. Hemoglobin A1C (3-6months) was noted to determine the control of glycaemia.

**Results:** 85 samples have 3 mealtimes. Approximately 90% ( $\text{HbA1C} > 8\%$ ) consume starch 3/4 (White rice), protein (fish, pork) and vegetables for about 1/4 of their portion. The remaining 10% consumes vegetables about 1/2 and starch 1/2 of their portion, with small amount of protein (dried salty fish). These patients’ HbA1c: 7-8%.

74% of the samples aware of the need of diet modification but do not know how. Only 11% scored 7-10, which considers good knowledge of carbohydrate food.

**Conclusion:** Many samples have imbalance nutritional consumption, lack of dietary knowledge results in poorly controlled T2DM. Diet modification and education should be widely addressed in Cambodia in order to achieve effective treatment.

**Oral 5****Yu Ueda**

Faculty of Medicine, TMDU (Japan)

**Illness Narrative in Cultural Clinical Practices and the Reasoning Model:  
Exploratory Medical Anthropological Approach Using the MINI**

Despite extraordinary progress in biomedical technology and health care services, there is growing criticism of the depersonalization of clinical practice and the limits of medical knowledge. From the rise of this kind of clinical question, Kleinman proposed the concept called explanatory model, in which he explains the disease as the psychosocial experience of suffering illness. McGill Illness Narrative Interview (MINI) is the semistructured interview invented in McGill University as the tool to qualitatively analyze the influence of the culture on the illness. The objective of this study was to examine from the perspective of medical anthropology how psychiatric patients make sense of their illness experience when receiving treatment. We observed medical interviews of two patients at the psychiatry department. Toward one of two, we conducted the Japanese version of the MINI, which in advance we translated from the original version. The data were examined using thematic context analysis. The use of MINI requires understanding the model of three reasoning processes (chain-complex, prototype, explanatory model) advocated by Young in which people use medical knowledge to produce the statements whose meaning we wish to learn and also taking the condition of patients and relation between a doctor and them into consideration. Finally, we propose that the MINI is useful qualitative research method and have curing effect in itself. Clinicians could employ the MINI to trace the cognitive structure and affect of patients.

**Oral 6****Yuriko Wada**

Department of Human Pathology, TMDU (Japan)

**Functional Aspect of Human-CHAC1 in H.Pylori-Induced Gastric Carcinoma**

CHAC1, Cation Transport Regulator-Like Protein 1, was discovered as a new enzyme in  $\gamma$ -glutamyl cycle which has a similar structure as GGCT ( $\gamma$ -glutamyl cyclotransferase). The  $\gamma$ -glutamyl cycle is the synthesis and degradation of Glutathione (GSH) which is the important protein for maintaining cellular redox levels. In this cycle, GGCT controls GSH level cooperating with other enzymes, however recently it was shown CHAC1 can degrade GSH directly by itself. H.pylori infection as a main cause of stomach cancer is a well-known mechanism. However, many details have not been discovered yet. According to several studies, H.pylori infection leads to endoplasmic reticulum (ER) stress that causes a decrease of GSH and an increase of reactive oxygen species (ROS). I hypothesize it is CHAC1 that controls these factors in response to ER stress caused by H. pylori infection and that CHAC1 is the key protein to initiate the carcinogenic pathways.

In addition, a monoclonal antibody against CHAC1 has been produced, therefore the widespread expression of CHAC1 in various cancers can be investigated. As a result of histo-pathological analysis with this antibody, I found that CHAC1 expression is up-regulated in not only stomach cancer but other cancers as well.

This research is the collaborative project between Department of Human Pathology, TMDU and The John Curtin School of Medical Research (JCSMR), The Australian National University. Last year I went to JCSMR to carry out this research for several months. I would also like to talk about the research experiences in Australia as well.

**Oral 7****Min Chao**

National Defense Medical Center, Taiwan

**An Exploration of the Neuroprotective Effect and Anti-Inflammatory Mechanisms of Liver X Receptor Activation in Experimental Intracerebral Hemorrhage**

Intracerebral hemorrhage (ICH) is a subtype of stroke, with high rates of mortality and morbidity. Increasing evidence shows that cerebral inflammation is involved in the progression of ICH-induced brain injury. Cerebral inflammation following ICH is mediated by cellular components, such as leukocytes and microglia, and molecular components, including chemokines, cytokines, matrix metalloproteases (MMPs) via nuclear factor-kappa B (NF- $\kappa$ B) signaling. These inflammatory events may contribute to blood-brain barrier (BBB) disruption and brain edema formation, which further cause neuronal death and functional deficits. Both clinical and animal evidence suggest that cerebral inflammation plays a detrimental role in ICH. Clinically, plasma levels of pro-inflammatory cytokines correlated with deterioration and poor outcomes in patients. In parallel with clinical findings, suppression of cerebral inflammatory responses improved both histological and functional outcomes and reduce brain edema in animal studies. Thus, defining the signals that control cerebral inflammatory responses has important implications for modulating the disease processes following ICH.

Liver X receptors (LXRs) are nuclear receptors that regulate cholesterol metabolism at the transcriptional level. Two isoforms of LXRs, LXR- $\alpha$  and LXR- $\beta$ , have been identified. Both of them have highly similar DNA or ligand-binding domain and are present in the central nervous system. Emerging evidence shows that activation of LXRs exerts anti-inflammatory activity at the transcription level. LXR agonists attenuate inflammation by blocking NF- $\kappa$ B DNA-binding activity, and reduce the expression of inflammatory mediators such as inducible nitric oxide synthase, cyclooxygenase-2, pro-inflammatory cytokines and chemokines in cultured microglia and astrocytes. Also, LXRs agonists exert neuroprotection and attenuate functional deficits in experimental cerebral ischemia.

**Oral 8****Thiha Tin Kyaw**

Moe Dental Clinic, Myanmar

**Myanmar: A Fascinating Place**

Myanmar, formerly known as Burma, is one of the association of Southeast Asian Nations (ASEAN). It is located between two giant countries namely India in the west and China in the east. It is also surrounded by Bangladesh, Laos and Thailand. It is also known as The Golden Land due to the presence of many historical pagodas enshrined with gold plates. The Shwedagon Pagoda, The Golden Rock Pagoda (Kyaiktiyo Pagoda), Bagan Pagodas and The Mahamuni Pagoda etc,... are famous. Besides, The Inle Lake, Mount Popa and Ngapali Beach are fascinating places to visit. Some ancient spots like stone-inscription caves of Buddhist scriptures and some old colonial buildings are also the places to impress the visitors. The cultural dances of residing different ethnic groups attracted the audiences. The charming smile and the hospitality of people also enhance the pleasure of visitors. Last but not the least, the Vipassana meditation practise prevailing the peace and tranquility of mind for who so ever practised fulfills the country with great fascination.

**Unmet Dental Needs and Barriers to Care among Children with and without Learning Difficulties**

**Objectives:** To investigate the caregiver's perceived unmet dental needs and barriers to care among children with learning difficulties compared to normal children in Sekolah Kebangsaan Taman Maluri, Kuala Lumpur.

**Methods:** Pilot-tested questionnaires were distributed to all the students studying in SKTM. Analysis of unmet dental needs and barriers between children case and control groups were carried out using Chi-square. Barriers with significant Chi-square results were further tested with multivariate logistic regression to investigate for possible confounders.

**Results:** From the total of 225 distributed questionnaires, only 41 caregivers of learning-disabled children (case study) and 50 caregivers of normal children (control group) responded. 23.1% of learning-disabled children have perceived unmet dental needs, though more than half of them last visited dentist within one year ago. Almost all caregivers (case group) believed that their child needed dental treatment within the past 12 months (95.1%). Regular dental check-up (27.1%) presented as the highest perceived need, followed by scaling (19.8%) and extractions (14.6%). Both groups depicted similar trends in dental visits whereby majority received dental treatment in school. Difference in unmet dental needs was found not statistically significant. Following comparison with control group, learning-disabled children reported statistically significant barriers related to child behavior (fear, anxiety, inability to communicate, difficult in understanding instruction, uncooperative) and unwillingness of dentist to treat the child. Low income and long working time were confounders identified in this study.

**Conclusion:** Learning-disabled children have high unmet dental needs despite regular dental visits. Access to dental care is mainly hindered by child's behavior and dentists' attitude.

**Key words:** Learning Difficulties; Unmet Needs; Barriers to Care; Disabled Children; Dental Care for Disabled; Control Groups.

**Caries Removal of Chemomechanical Technique**

Proper philosophy in minimal invasive treatment will lead to paradigm change in caries treatment from surgical model to the medical model. One of medical model principal is doing caries removal only in the degraded enamel and the infected dentin while leaving the affected dentin. Caries removal with chemomechanical technique (Carisolv<sup>®</sup>, MediTeam Dental AB, Sweden) is a medical model concept that more developed nowadays. Leaving soft dentin, demineralized and relatively sterile (affected dentin) on the cavity base is a safe thing to do. In doing remineralization and healing on the left affected dentin, application of biomimetic material that releases fluor, strontium, calcium, and phosphate is needed. Biomimetic material is material that results in one or more of natural phenomena in biological condition and biocompatible. This concept is very important in restorative dentistry. Glass ionomer cement (GIC) is one of the material that meets the requirements of biomimetic material concept.

**Key Words:** Caries, Chemomechanical Technique, Affected Dentin, GIC.

**Dental Situation in Cambodia**

Introduction: Cambodia is a developing country in Southeast Asia. Many Cambodian live below the poverty line and have little knowledge of oral hygiene. As the result, Dental problems occur more frequently in Cambodia. Almost everyone experiences toothache at one or many times. Strangely, in Cambodia we have two type of dentist. One is an official dentist and the other is a family dentist. What are the different between these two kinds of dentists?

Official dentist: Official dentist (Doctor of Dental Surgery), who graduate from dental school by completing 7 years of academic which include foundation year and the final year of internship. After that, Students are required to publish a thesis and take national exit examination. Being a DDS is very different from being a family dentist even the working place and knowledge. DDS should be able to pursue their knowledge and become a specialist on many scientific fields such as Implant, Orthodontic, Oral Pathology, surgery etc. They work in the standard dental clinic as well as various convenient materials.

Family dentist: Family dentist is a dentist who never attended school nor seminar. They being a dentist by follow their family technique. They could do some simple treatment such as filling, simple extraction and prosthodontics. They did many complicated problem on patient such as put on the crown and bridge without root canal treatment, nerves injuries during extraction etc. Normally, they work in their own house with one dental unit.

**Bi-Layered Construct for Simultaneous Regeneration of Alveolar Bone & Periodontal Ligament**

Periodontal disease causes severe inflammation, alveolar bone loss, tooth loss and other severe complications. This would require simultaneous regeneration of alveolar bone and periodontal ligament as an effective treatment. To recreate the complex architecture of the periodontium, we developed a bi-layered scaffold consisting of poly(caprolactone) (PCL) multiscale (micro/nano) electrospun fibrous membrane [to mimic and regenerate periodontal ligament (PDL)] and a chitosan/calcium sulfate polymeric scaffold (to mimic and regenerate alveolar bone). The bi-layered construct was characterized using SEM, FTIR and XRD. The SEM results showed the porous nature of the polymeric scaffold and the formation of beadless electrospun multiscale fibers. FTIR and XRD spectra confirmed the presence of calcium sulfate in the scaffold layer. Protein adsorption was significantly higher on the developed construct in comparison to the control. The developed construct was cytocompatible to human dental follicle stem cells (hDFCs). The chitosan/calcium sulfate scaffold layer showed enhanced alkaline phosphatase activity compared to the control and the PCL multiscale electrospun fibrous membrane also showed enhanced periodontal ligament associated protein-1 (PLAP-1) and COL-1 expression compared to the control. Hence the bi-layered construct favored the osteoblastic and fibroblastic differentiation of DFCs. Overall these results show that this bilayered construct might serve as a good candidate for the simultaneous regeneration of the alveolar bone and periodontal ligament.

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**Oral 13****Pa Pa Kay Khine**

Super Dent Dental Clinic, Myammer

**Dentistry in Myanmar**

**Aims:** To share the general knowledge about History of Dental University in Myanmar and to be familiar with interesting places and festivals of Myanmar.

My presentation is composed of 3 sections:

**1. The History of my mother university (Yangon)**

It is not so easy to be a Dental University, Yangon. Our former teachers faced with too many limitations at that time. I would like to present how the development of our university from the state of institute together with old rare photos. I will also describe about the dedication of our former teachers who established the dental institute.

**2. Oral Health Status of Myanmar**

Nowadays the occurrences of the dental diseases are dramatically increased within these decades in my country. I will present you with the table showing the percentage. Also Dental Surgeons and Population ratio of the country can't be negligible.

**3. General Knowledge about Myanmar and My Hiking experiences**

The Golden Land, Myanmar is one of the beautiful lands in South-East-Asia. There are lots of interesting places in my country and it is also full up with fascinating festivals in every month. There are also too many beautiful mountains in my motherland. I have been to some of them and I will share their beauties with photos together with my hiking experiences.

**Oral 14****Wuttapon Sadaeng**

Naresuan University, Thailand

**The Effect of Etching Times on Microtensile Bond Strength of Sealant on Remineralized Enamel Surface**

**Objective:** To evaluate the effect of etching times on microtensile bond strength of dental sealant to remineralized enamel surface.

**Method:** Ninety six extracted sound human molar teeth were collected from oral surgery clinic, Naresuan University. Each buccal enamel surface was prepared on a resin block. An artificial caries-like lesion was produced by suspending the specimens in demineralized solution at 37°C for 16 hours and submitted to topical fluoride varnish. The varnished specimens were immersed in artificial saliva at 37°C for 1 week, divided into 4 groups randomly and etched with 37% phosphoric acid corresponding to etching times 10S, 15S, 20S and 25S. The sealant was applied on enamel surface to build up a sealant block. Each specimen was longitudinally cut into a series of 1 mm. - thick slices. One slice from one specimen was trimmed to an hour glass shape with 1 mm. - width of constricted area. The microtensile bond strength test was performed and the fracture patterns of failure were observed.

**Result:** The microtensile bond strengths of dental sealant for 10s, 15s, 20s and 25s etches were 16.23±3.12 MPa, 17.24±3.79 MPa, 18.79±2.99 MPa and 17.68±2.50 MPa respectively. The etch time 20s showed significant highest microtensile bond strength. The lowest value of microtensile bond strength was found in 10s etched group. While etch time 20s and 10s were no significant difference among 15s and 25s etch time. SEM examination revealed majority of samples were classified as mixed failure pattern.

**Conclusion:** Microtensile bond strength of 20-second etch on the remineralized enamel surface was highest. However, the 15s and 25s etching time shows no statistically significant difference compared to the 20s group.

**Key words:** Microtensile bond strength, sealant, remineralized, enamel

**Oral 15****Nguyen Van Thai**

Hue University of Medicine and Pharmacy, Vietnam

**Discover the Hidden Charm of Vietnam and Hue City**

Tet (Lunar New Year) is time for family reunion and paying respect to ancestors and the elders. Ao dai and pho could be the signatures of Vietnam. The Ao Dai has become the symbol of the feminine beauty and the pride of the Vietnamese people. Pho consists of flat rice noodles in a light, meat-based broth and is served with fragrant leaves. Seeking for an unforgettable experience in Vietnam? Discover it on a motorbike and you will see a real Vietnam.

Hue, recognized as World Cultural Heritage, is an ancient capital located in central Vietnam on the banks of Huong River. Whether you want to visit historical or religious buildings, explore nature scenes, or please your hungry stomach, Hue can satisfy all. Going to the Imperial City and taking a dragon boat to visit tombs of Nguyen emperors and Thien Mu Pagoda are must-do activities. Lang Co Beach and Bach Ma National Park are places to relax and blend into nature. Awaken your senses with these five must-try foods: bun bo, banh khoai, com hen, banh beo-banh nam-banh loc, and lotus sweet soup. Finally, enrich your trip with two biennial festivals: Hue Festival (even years) and Hue Traditional Craft festival (odd years).

After six years of studying dentistry, graduate students are entitled as Doctor of Medicine major in Odonto-Stomatology. Besides mandatory curriculum, students actively join many voluntary activities and dental public health programs. Graduate examination could be either thesis defense or theoretical and practical examination based on student's score.

**Oral 16****Mengke Ge**

West China School of Stomatology, Sichuan University, China

**LLLT: A Promising Technique to Shorten Orthodontic Treatment Duration**

Orthodontic treatment, based on tooth movement, is a time-consuming procedure which usually takes 20–30 months treatment duration. This long-term treatment is not only burden-some for patients, but also is apt to cause a variety of side effects. Therefore, shortening the orthodontic treatment duration is desired.

Compared with drug injections, electric stimulation, pulsed electromagnetic fields and corticotomy which were also proved to speed up orthodontic tooth movement, LLLT has distinct advantages. It is deemed to be such a promising technique in dentistry owing to its multiple bio-stimulatory effect, non-invasive manner, and easy access.

Several preliminary experiments clinical trials have investigated the effect of LLLT on accelerating orthodontic tooth movement. Thus we conducted a meta-analysis to comprehensively evaluate, in an evidence-based way, the effectiveness of LLLT on accelerating tooth movement in orthodontic treatment.



**An Overview about Maxillofacial Prosthetics in TMDU**

Maxillofacial Prosthetics is subspecialty of Prosthodontics that involves prosthetic treatment for patients with defects in oral and/or maxillofacial regions. The main goal of the research in our department is to establish a novel theory and feedback it to the clinic to improve the quality of life of maxillofacial defect patients. In this respect, we are focusing on several projects:

1. Diagnosis of functional impairment in patients with a maxillofacial defect
2. Treatments for functional rehabilitation of patients with a maxillofacial defect
3. Masticatory evaluation in patients with a maxillofacial defect
4. Speech evaluation in patients with a maxillofacial defect
5. Development of new materials for facial prosthesis.

In this presentation, we will give an insight about the methods used to evaluate the prosthetic treatment outcomes of maxillofacial defect patients treated in our department's clinic.

**Ligature Induced Peri-Implantitis:  
Tissue Destruction and Inflammatory Progression in a Murine Model**

**Background:** Canines have been extensively used in peri-implantitis study. However, mice would be advantageous concerning the precise pathological progression mechanism and host responses to this inflammation.

**Aim:** to evaluate the possibility to establish an alternative murine model of peri-implantitis.

**Material and methods:** Thirty male C57BL/6NCrSlc mice (4 week-old) were used. Maxillary left first molar was extracted. Eight weeks after extraction, a custom-made pure titanium self-tapping screw type implant (0.8x1.2 mm) was placed. Four weeks later, a 5-0 silk ligature was applied under the implant head to induce peri-implantitis. All animals were sacrificed at 0 (before ligatures), 7, 14, 21 and 28 days after ligatures for radiological and histological analysis to measure bone level. Osteoclast number, density and distribution were examined after TRAP staining.

**Results:** Bone levels before ligatures which were  $0.81 \pm 0.04$  mm (mesial),  $0.84 \pm 0.03$  mm (distal),  $0.9 \pm 0.06$  mm (buccal) and  $0.84 \pm 0.09$  mm (palatal) decreased significantly to  $0.37 \pm 0.03$  mm (mesial),  $0.37 \pm 0.07$  mm (distal),  $0.53 \pm 0.03$  mm (buccal),  $0.45 \pm 0.04$  mm (palatal) after 4 weeks of ligatures, respectively ( $p < 0.01$ ). Osteoclast numbers at all post-ligature time points increased significantly ( $p < 0.05$ ). However, their density at day 28 decreased significantly compared to that of day 21 ( $p < 0.05$ ).

**Conclusion:** Inflammatory response followed by significant peri-implant bone loss suggests 4 weeks ligation is sufficient to successfully induce peri-implantitis in a novel C57BL/6 mice model. This animal model would open a new avenue to study peri-implantitis.

**Effect of Curing Mode and Restoration Thickness on Tensile Bond Strength of a Dual-Cure Resin Cement to Dentin**

<Purpose> The purpose of this study was to determine the effect of curing mode and restoration thickness on microtensile bond strength ( $\mu$ TBS) of a dual-cure resin cement to dentin.

<Materials and Methods> Indirect composite disks (1, 2 and 3 mm thickness) were prepared and light intensity of a halogen light curing unit through each composite disk was measured. Two dual-cure resin cements, Panavia V5 and Panavia F2.0 (Kuraray Noritake Dental), were used with either dual-cure mode (DC) or chemical-cure mode (CC) to bond a composite disk to dentin. After the bonded specimens were stored in water for 24 hours,  $\mu$ TBSs were measured at a crosshead speed of 1 mm/min. The data were statistically analyzed by two-way ANOVA with Bonferroni's correction ( $\alpha=0.05$ ).

<Results> The light intensity [ $\text{mW}/\text{cm}^2$ ] was attenuated with thickness of a composite disk: 600 (0 mm), 200 (1 mm), 90 (2 mm) and N.D. (3 mm), respectively. The  $\mu$ TBSs of Panavia V5 and Panavia F2.0 [MPa] were  $54.2 \pm 11.3$  and  $40.4 \pm 6.8$  (0 mm, DC),  $39.4 \pm 6.4$  and  $22.2 \pm 6.7$  (1 mm, DC),  $28.2 \pm 4.5$  and  $17.1 \pm 5.0$  (2 mm, DC),  $24.3 \pm 5.5$  and  $12.0 \pm 3.4$  (3 mm, DC), and  $22.9 \pm 5.2$  and  $9.1 \pm 3.0$  (3 mm, CC), respectively. Two-way ANOVA indicated that both curing condition and type of cement affected dentin  $\mu$ TBS ( $p < 0.001$ ).

<Conclusions> The dentin  $\mu$ TBSs of the resin cements tended to decrease with increase of a composite thickness due to light attenuation. Panavia V5 provided higher dentin  $\mu$ TBSs than Panavia F2.0 in the same restoration thickness and curing mode.



# **Poster Presentation Abstracts**

**Poster 1****Bhawana Humagai**

Bhutan Pharmaceuticals Private Limited, Bhutan

**Lemon Grass: Plant Based Medicine**

Lemongrass: Also known as CYMBOPOGAN CITRATUS

Family: Gramineae

The prefix “lemon” owes to its typical lemon like odor, which is mainly due to the presence of citral, acyclic monoterpene which is important raw material used in the pharmaceutical, perfumery and cosmetics industries, especially for the synthesis of Vitamin A and ionones. Cymbopogon citratus a fast growing, perennial aromatic grass is native to South India, Sri Lanka and even to Bhutan. Now widely cultivated in the tropical areas of America and Asia. Freshly cut and partially dried leaves are used medically and are the source of essential oil. The plant is extensively used in Ayurvedic medicine. Studies indicate that cymbopogon citratus possess various pharmacological activities such as anti-amoebic, anti-bacterial, anti-diarrheal, anti-filarial, anti-fungal, anti-inflammatory properties. Various other effects like anti-malarial, anti-mutagenicity, anti-mycobacterial, anti-oxidants, hypoglycemic and neurobehavioral have also been studied. Hence, Cymbopogon citratus is a great interest due to its commercially valuable essential oils and widely used in food technology as well as in traditional medicine. People nowadays are more aware on health issue due to the emergence of new diseases. Treatment using plant-based medicine appears to be an alternative approach due to the adverse effects associated with the use of synthetic drugs. Studies indicate that the results are very encouraging which could mean if the plant is studied more extensively we could not only confirm these results but also reveal other potential therapeutic effects.

**Poster 2****Prekchha Jha**

Teaching Hospital, Tribhuvan University, Nepal

**Transfusion Medicine and its Present Scenario in Nepal**

Transfusion medicine is the branch of medicine that deals with transfusion of blood and blood components. Blood transfusion is the infusion of compatible blood or blood components directly into one's bloodstream. The various components of blood serve a variety of different purposes. RBCs are required for tissue oxygenation. Packed RBCs is whole blood in which plasma has been removed. WBCs and gamma globulin are necessary for providing immunity. Albumin is a protein that maintains blood volume. Platelets, cryoprecipitate, and other clotting factors are necessary for blood clotting. Blood given in a transfusion may be the individual's own blood (autologous transfusion) or it may be from a donor. An exchange transfusion is where individual's entire blood volume is slowly replaced with donor blood. One of the most important aspects of transfusion medicine is the compatibility of the donor and recipient blood. Cross matching involves blood group proteins ABO (A, B, AB, O) and Rhesus (Rh) blood types (Rh negative or positive). If an incompatible blood type is transfused, it results in blood cell destruction (transfusion reaction). In an emergency situation, O Rh-negative blood ("universal donor blood"), may be given to the individual until tested blood becomes available. Similarly AB blood groups are the universal recipients. The amount of blood given depends upon the condition for which it is required (surgery, anemia, liver disease, hemorrhage). In Nepal the supplies of donor blood are limited mostly due to lack of public awareness and voluntary blood donation. The demand of blood supply of the 75 districts is met by 21 District Blood Transfusion Service Centers.

**Related Analysis of Language Ability to Motor Skills in Parkinson's Disease**

**Objective:** The aim of this study was to explore character of language impairment of Parkinson's disease (PD) and the relationship of language with motor symptoms.

**Methods:** A total of 68 patients with PD were recruited. Patients were divided into two groups: Language dysfunction group with Aphasia quotient (AQ) score <93.8; And non- language dysfunction group with AQ ≥93.8. Assessments of disease severity, language, cognitive function, motor skills were performed on the basis of Heohn-Yahr classification, Western Aphasia Battery (WAB), Montreal Cognitive Assessment (MoCA), Unified Parkinson's disease rating scale (UPDRS), respectively. Spearman correlation coefficient was used to explore the relation of language with cognitive function, motor symptoms.

**Results:** In 68 cases of Parkinson's disease, 35 cases (51.5%) AQ <93.8, defined as speech disorders group. The remaining 33 cases (48.5%) AQ > 93.8, classified as non-speech disorder groups. The differences of age, duration, MoCA and UPDRS-III score between the two groups were analyzed. There is no distinction of patient age, disease duration, and HY stage, but MoCA score and UPDRS-III scores were statistically different.

**Conclusion:** Montreal Cognitive Assessment (MoCA) score, Unified Parkinson's disease rating scale, (UPDRS)-III score have statistical meaning between normal and abnormal AQ of PD patients. WAB sub scores appear to be relevant to cognitive function. Spontaneous speech and naming are relevant to the motor functions evaluated by UPDRS. PD patients are dysfunctional in language, and the dysfunction is related to cognitive function and motor skills.

**Association between Osteoporosis and Genes Polymorphisms of Mongolian Postmenopausal Women**

In this study, we have investigated the association between osteoporosis and estrogen receptor 1 gene (*ER1*) 397 T>C, and calcitonin receptor gene (*CALCR*) 1340 T>C polymorphisms. All subjects were over 45 year old women and selected from the 4 districts of Ulaanbaatar city, Mongolia. Genomic DNA was obtained from 120 persons (60 osteoporotic and 60 healthy women), extracted from EDTA-preserved peripheral venous blood and analyzed by PCR-RFLP. As a result, there was no statistically significant difference in the genotype and allele frequencies of patients and controls for *ER1* and *CALCR* polymorphisms. *ER1* CC single nucleotide genotypes compared with TT and TC genotypes was found more significantly in women with osteoporosis [p=0.015, OR=2.7; 95% CI (1.2-5.7)]. There was no statistically significant difference in the genotype and allele frequencies of patient and controls for *ER1* combined nucleotides [p=0.729, OR=0.786, 95% CI (0.2-3.081)]. Our study showed, low serum estradiol level is risk factor for osteoporosis and the polymorphic genotypes of ER1 single forms found to be associated with osteoporosis.

**Pharmacological and Biological Investigation of Ethanolic Extract of Leaves,  
Barks and Seeds of Three Different Plants from Fabaceae Family in Animal Model**

**Background:** Medicinal plants are widely used in the traditional treatment system of Bangladesh. The present study investigated the analgesic, anti-inflammatory, antipyretic, anti-emetic, thrombolytic, membrane stabilizing activity of ethanolic extract of leaves, barks and seeds of *Atylosia scarabaeoides*, *Crotalaria pallid* and *Crotalaria spectabilis*.

**Methods:** Analgesic activity was determined by acetic acid-induced writhing, formalin induced paw licking, hot plate and tail flick test methods while for anti-inflammatory, antipyretic and antiemetic activity, carrageenan-induced paw edema, yeast-induced pyrexia in mice and chick emesis tests were undertaken respectively. Again clot lysis and hypotonic solution-induced hemolysis method was used for investigating thrombolytic and membrane stabilizing activity respectively.

**Results:** Ethanolic extracts of *C. pallida* leaves and seeds showed maximal analgesic potential (95.61% inhibition) in acetic acid induced writhing and pain inhibition (82.89%) in Phase I of formalin induced analgesia in mice at 300 mg/kg dose respectively. But both *C. pallida* and *C. spectabilis* leaves at the dose of 450 mg/kg completely inhibited the thermal pain of mice in phase II of the test. A maximum reduction in paw edema volume of  $0.19 \pm 0.01$  mm was observed for *A. scarabaeoides*, *C. pallida* seed extracts (200 mg/kg), after 5h of the carrageenan injection. *C. pallida* leaf extract (450 mg/kg) demonstrated maximal and significant ( $P < 0.05$ ) body temperature lowering ( $30.26 \pm 10.81^\circ\text{C}$ , 2h after pyrogen administration) and also antiemetic (50.27% emesis inhibition) activity. Highest thrombolytic ( $41.117 \pm 17.682\%$ ) and RBC hemolysis inhibitory ( $77.13 \pm 6.61\%$ ) activity were observed for *C. pallida* barks and *A. scarabaeoides* leaves respectively.

**Conclusion:** Further studies are suggested to evaluate the active compounds responsible for the pharmacological activities of the plant extracts.

**Development and Evaluation of Tetra-PCR for Differential Diagnosis  
of *Mycoplasma Gallisepticum* and *M. Synoviae***

Avian mycoplasmosis, caused by *Mycoplasma gallisepticum* and *M. synoviae*, is one of the economically significant diseases of the commercial poultry flocks. So far, even in developed countries, the poultry farmers could not eliminate the disease completely from the commercial flock because of their chronic mode of infection. So there is always a need of quick and authentic method of diagnosis and confirmation. Among the available methods, PCR remains one of the most reliable and sensitive tool as compared to culture and serology. In this study we combined the two step PCR i.e. Nested PCR by Tetra PCR one of variant of PCR as the nested PCR is more sensitive compared to the conventional PCR technique.

We targeted the 16s rDNA for primer designing and evaluation. The PCR was optimized by incorporation of variable concentrations of each of the primer designed as Outer Forward & Outer Reverse and Inner Forward and Inner Reverse. The outer pair specifically amplified the 16s rDNA universal region of mycoplasmas while the Inner pair primer targeted the specie specific region. The optimum  $\text{MgCl}_2$  concentration was 3 mM, dNTPs 200  $\mu\text{M}$  and the optimum annealing temperature  $56^\circ\text{C}$ .

The sensitivity of outer pair of primer was comparable to other universal mycoplasmas primers which could detect the DNA upto femto grams while the Tetra PCR (using all four primers) sensitivity is between 100-1000 cfu/mL. The specificity of the designed primers as assessed by the sequencing of the amplified product confirmed that the primers specifically anneals to the target species sequence. The mycoplasma was detected after 06 hours of inoculation of clinical specimen in broth which made possible the positivity of culture in a very short span of time. Analysis of clinical samples submitted for diagnosis indicated sensitivity and specificity of the developed PCR test were 90% and 100% respectively.

**Status of Serum Trace Elements and Macro Minerals in Schizophrenia Patients**

**Background:** Schizophrenia (SCZ) is a chronic, severe, and disabling neuropsychiatric disorder often characterized by abnormal social behavior and failure to recognize the reality. Study says trace metals play an important role in neuropsychiatric diseases like SCZ. Less information is available about the role of macro and trace elements in SCZ.

**Objective:** The objective of this study was determining serum level of macro-minerals (Calcium, Potassium and Sodium) and trace elements (Zinc, Iron and Selenium) in patients with SCZ and thereby, finding any pathophysiological correlation.

**Method:** Our study was conducted as case-control study with 63 SCZ patients as case and 63 healthy normal individuals as controls. Serum macro-minerals and trace elements were determined by atomic absorption spectroscopy. Independent sample t-test and Pearson's correlation test were used for statistical analysis using SPSS for Windows® version 16.0.

**Results:** The study found significantly lower level of trace elements, and macronutrients in patients than controls ( $P < 0.05$ ). Serum level of zinc, iron, selenium, calcium, potassium, and sodium were found  $0.33 \pm 0.008$ ,  $0.24 \pm 0.01$ ,  $0.025 \pm 0.0006$ ,  $36.88 \pm 2.56$ ,  $64.18 \pm 2.72$ , and  $2657.5 \pm 53.32$  mg/L respectively in patients, whereas  $0.79 \pm 0.03$ ,  $0.78 \pm 0.03$ ,  $0.0650 \pm 0.004$ ,  $86.43 \pm 2.55$ ,  $168.01 \pm 2.85$ , and  $3200.8 \pm 29.96$  mg/L respectively were found in controls. Pearson's correlation analysis revealed negative correlation between zinc and sodium ( $r = -0.189$ ,  $p = 0.137$ ); zinc and potassium ( $r = -0.021$ ,  $p = 0.869$ ); zinc and calcium ( $r = -0.087$ ,  $p = 0.499$ ); zinc and iron ( $r = -0.143$ ,  $p = 0.263$ ); zinc and selenium ( $r = -0.097$ ,  $p = 0.448$ ); iron and sodium ( $r = -0.070$ ,  $p = 0.586$ ); and iron and selenium ( $r = -0.119$ ,  $p = 0.353$ ) in patients.

**Conclusion:** Study suggests that pathogenesis of SCZ has strong relation with decreased level of macro-minerals and trace elements. Dietary supplements may help to improve this abnormality, and therefore it demands further research.

**Comparison of Effect of Mental Stress on Autonomic Nervous Activity between the Normotensive Offspring of Normotensive and Hypertensive Parents**

Hypertension is one of the major risk factors for coronary artery diseases, congestive heart failure, stroke, etc. Numerous controlled clinical trials have verified that lowering blood pressure significantly reduces morbidity and mortality.

Essential hypertension is characterized by an increase in sympathetic activity, reduced vagal modulations of the sinoatrial node and blunted baroreflex gain. Genetic component of essential hypertension is as high as 60%.

Heart Rate Variability (HRV) is a practical, non-invasive tool to quantitatively investigate cardiac autonomic dysregulation in hypertension. Change in the HRV pattern provides an early and sensitive indicator of compromised health. A high HRV is a sign of good adaptability, whereas lower variability is an indicator of abnormal and insufficient adaptability of the autonomic nervous system. A number of studies have shown that during mental stress, there is an increase in sympathetic activity and a decrease in parasympathetic activity, resulting in an increased strain on the heart.

During mental stress in offspring of normotensive parents there is an increase in sympathetic and decrease in parasympathetic activity but in offspring's of hypertensive parents there is evidence of sympatho-vagal imbalance during mental stress. This suggests the necessity to target reduction in sympathetic activation as a primary goal in prevention of hypertension, which can be done by early identification of individual with pre hypertensive state and by implementing preventive measures like regular exercises, change in food habits and life style modification.



**Chronic Low Back Pain is Associated with Cortical Structural and Functional Alterations**

[Background] Chronic low back pain (cLBP) is a common disorder that often lacks recognizable pathology, however it is associated with alterations in increased central cerebral responses to pain, functional reorganization of the default mode network connectivity, and decreased prefrontal and thalamic Gray Matter Density (GMD). The objective of this study was to explore how the GMD and functional connectivity changes in cLBP and whether there is an interaction between structural and functional alterations.

[Method] 20 cLBP patients and 20 Healthy controls, all right handed, were recruit to this study. Each subject was placed in a prone position on a 3T MRI scanner, given lumbar mechanical stimulations by an in-house algometer at 4th-5th lumbar interspace, 5 cm left lateral. The whole-brain functional MRI and high-resolution 3D T1 image were in turn obtained. GMD changes were measured by Voxel-based Morphometry (VBM) in SPM8, Matlab. Parameter estimates for GMD were examined for correlation with physiological variables such as age, gender, illness duration and McGill Pain Questionnaire Score. Regions of Interests (ROI) were set from significant GMD regions to explore functional connectivity around the whole cortical voxels by Conn in SPM8. Finally, whether there was a correlation between anatomical and functional alterations would be examined.

[Conclusion] We found possible atrophic changes in the regions associated with somatosensory and partly affective processing of pain perception in cLBP. Right Superior Parietal Lobule might act as a hub linking to grey matter volume and functional connectivity changes, where age may be considered as an assignable confounding factor.

**Fibroblast Growth Factor 21(FGF21) Gene Expression is Epigenetically Regulated via Peroxisome Proliferator-Activated Receptor (PPAR)  $\alpha$  Activation in Perinatal Period**

[Background] We previously showed that fatty acid oxidation gene expressions are regulated by PPAR  $\alpha$  dependent DNA methylation in the perinatal mouse liver (Diabetes 2015). FGF21 is a hormone predominantly produced in the liver regulating glucose and lipid metabolism. It is known that FGF21 gene expression is positively regulated by PPAR $\alpha$  at the transcriptional level. However it is unclear whether FGF21 gene expression is epigenetically regulated or not.

[Object and Method] To determine whether FGF21 gene expression is epigenetically regulated by PPAR $\alpha$ , we employed PPAR $\alpha$  knockout mice and examined their DNA methylation status of FGF21 gene in the liver. Next, to determine whether perinatal PPAR $\alpha$  activation could promote the DNA demethylation of FGF21 gene, we administered PPAR $\alpha$  ligand (Wy14643: Wy) or vehicle to dams in late gestation and lactation period and examined DNA methylation status and mRNA levels of FGF21 gene and serum FGF21 concentrations of the offspring derived from the Wy or vehicle administered dams, referred to as Wy and vehicle group, respectively.

[Result] DNA demethylation was induced in wild-type mice in a time-dependent manner but not in PPAR $\alpha$  knockout mice. In perinatal period, DNA demethylation in Wy group was significantly induced compared with that in vehicle group, and the DNA methylation status was maintained to adulthood. Moreover, FGF21 mRNA levels and serum FGF21 concentrations in adulthood were significantly increased in Wy group compared with those in vehicle group. [Conclusion] The DNA demethylation status is preserved to adulthood suggesting that "Epigenetic memory" is existed in FGF21 gene expression.

**Pirfenidone Prevents Liver Fibrosis with Decreased Hepatic Cell Death in a Mouse Model of NASH**

Non-alcoholic steatohepatitis (NASH) is a severe form of non-alcoholic fatty liver disease, and characterized histologically by the presence of hepatic steatosis and inflammation with hepatocyte injury. Although NASH can progress to cirrhosis and its related complications including hepatocellular carcinoma, pathogenesis and effective pharmacological treatment of NASH remain elusive. Pirfenidone (PFD) has been clinically used for the treatment of idiopathic pulmonary fibrosis, but the mechanism of action is still unknown. To clarify the effectiveness of PFD and the pathogenesis of NASH, we administered PFD to melanocortin 4 receptor-deficient (MC4R-KO) mice; an originally-developed mouse model of NASH that displays steatohepatitis with obesity and insulin resistance. Oral administration of PFD strongly prevented liver fibrosis in MC4R-KO mice without affecting hepatic steatosis and systemic glucose/lipid metabolism. Microarray analysis showed that PFD attenuated the changes of cell death- and apoptosis-related gene expression in the liver of MC4R-KO mice. Accordingly, TUNEL staining in the liver confirmed that PFD decreased the number of apoptotic cells. PFD also suppressed the induction of *Tgfb1* and *Col1a1* gene expression, and inhibited the activation of stellate cells in the liver of MC4R-KO mice. In TNF- $\alpha$ -induced experimental hepatitis model using wild-type mice, PFD pretreatment markedly inhibited increase of serum ALT levels, and hepatic cell death assessed by TUNEL staining. In primary cultured hepatocytes from wild-type mice, PFD pretreatment attenuated TNF- $\alpha$ -induced apoptosis associated with decreased Caspase-8 activity. In summary, PFD may have therapeutic potential for human NASH, and our observation revealed pathophysiological significance of hepatocyte apoptosis in development and progression of NASH.

**Preparation of the Surface Immobilized with Conjugates of Antibody and Functional Groups for Cell Capture and Recollection**

Recently, the immuno-therapy which is expected to increase the immune response to cancer has been drawing a researcher's attention. Nowadays, one of the key factors which determine the efficiency of the immuno-therapy is thought to be the controlling of regulatory T cell (Treg). It has been reported that the Treg removal from the patient's blood could enhance the tumour immunity and the increase of Treg would be effective for the treatment of the autoimmune disease. In this study, our aim is set to the development of the device which can capture and collect Tregs from the patient's blood selectively and effectively. We designed and synthesized the surface of the device by immobilization of antibody through desthiobiotin-avidin interaction. In this system, the dissociation of desthiobiotin occurs by addition of biotin due to substitution mechanism. Briefly, we polymerized PAAc to PP film by surface-grafting method and immobilized the amine-PEG3-biotin using esterification reaction between carboxyl-group of PAAc and amine group. The desthiobiotin- and the biotin-modified antibody (DB-CD45, B-CD45) were immobilized on the film, respectively. GFP mouse bone marrow cells were seeded on the film and the specific adhesion of cells was observed by using fluorescence microscope. When the biotin-modified water soluble polymer, which was dissociation agent, was added, the dissociation of the cells was occurred. From these results, it was suggested that cells could be captured and recollected by using a device having surface immobilizing antibody via desthiobiotin-avidin interaction.

**J - Hook and Upper Ant. Bone Screw with Torque Control**

Every orthodontic dentist know that the bite and torque control is the most difficult but also the most important thing when we face extraction ortho cases .If we choose the wrong method to close the upper premolars space, the outcome of cases will be unacceptable. Though the extraction space is closing, the overbite is becoming deeper and deeper and the torque of upper anterior teeth is losing. The more worse part is the upper anterior teeth block by the lower anterior dentition combine with the anchor of upper molar loss, upper posterior teeth mesial shifting , when this situation happen , you can't close the upper space forever.

Nowadays, most of orthodontic doctors have starting to use mini screw for the retraction of upper anterior dentition. I plan to share the method we use for recent years. It's the extraoral J-hook device, it is a kind of headgear which have the effect of instruction and retraction of upper anterior dentition. Mini screws sometimes drop by several reasons; Ex: the loose texture of maxillary bone, inappropriate force of retraction. J-hook doesn't has these kind of unpredictable problem and it can be use in the early stage of space closing period. Although the wire is not rigid enough, J-hook still could interfere the retraction force.

The position we hang hook always related to the space we left, in the early stage of closing space, canine distal drive could perform with J-hook, the backward and upward force will become the intrusion and retraction effect. J-hook can accelerate the retraction speed and it is the second insurance of upper posterior anchor.

After mention about J-hook, I like to introduce another weapon we use to intrude the upper anterior dentition very often. The upper anterior mini screw I think every orthodontic dentist has the experience of insertion upper anterior mini screw, the annoying part of upper anterior mini screw is the incisor root distance and the "foreign object" feeling that patient complained. My method of insertion upper anterior mini screw is a little different with traditional way, it would be more apically .The goal we want to achieve is instruction and bite opening, weekly changing the elastic rope which tie from the upper anterior mini screw to main wire could help the effect become obviously.

**Reponse of Dog's Pulp Tissue to Improved white Portland Cements Compared with ProRoot® Mta**

The purpose of this study was to compare dog's pulp response to partial pulpotomy sealed with Improved white Portland cements and ProRoot MTA®. Partial pulpotomy was done in four dogs thirty-five premolars teeth and divided into three groups. Group 1 was capped with ProRoot ®MTA (n=10) Group 2 was capped with Portland cement with bismuth oxide mixed with 5% calcium chloride and 1% methyl cellulose (n=20). After pulp capping, teeth were based with glass ionomer cement and restored with resin composite. Both groups were done in seven and seventy days. Group 3 was positive control group, pulp exposure was open for seven days (n=5). Teeth were extracted and processed for histopathologic examination. Results were analyzed by Kruskal-wallis and Chi-square at 0.05 level of confidence. There is no statistically different between ProRoot ®MTA and Portland cement to pulp inflammation and healing in seven and seventy days. No inflammation was observed in both experimental groups. In addition, completed hard tissue formation were detected. The hard tissue morphology and thickness were also not different between both groups. However, positive control group which showed moderate to severe inflammations. From results of this study can concluded that Thai Portland cement with bismuth oxide mixed with calcium chloride and methyl cellulose, when used as pulp capping material, could retain pulp vitality without inflammation and also promote pulp healing and repaired process. Furthermore, it could induce hard tissue formation similar to ProRoot ®MTA.

**Prevalence of Temporomandibular Disorders among Dental Students  
at the Faculty Odonto-Stomatology**

**Objective:** The objective of this research is to find the prevalence of TMD (LMO, CS, and P) among dental students at the Faculty of Odonto-Stomatology, Phnom Penh, Cambodia.

**Materials and Methods:** 128 dental students (female = 46) aged 20 to 25 were selected randomly for this study to gather information related to TMD applied to participants in cross-sectional of those having LMO, CS, and P.

**Results:** It was found that 72.65% of 128 samples had signs and symptoms, of which 31.18% was female. Six cases (4.69%) had LMO, CS, and pain. Nineteen cases (14.84%) had CS, and LMO. Seven cases (5.47%) had CS and pain. Three cases (2.34%) had pain only. Eighteen cases (14.1%) had CS and 40 (31.25%) had LMO only.

**Discussion:** This study showed that 72.65% of dental students had TMD signs and symptoms with the common cause being stress and 4.69% having TMD. This study has similar outcomes with previous studies in that:

1. 14.3% having TMJ sounds which is the most essential risk factor in terms of LMO
2. 15 individuals (32.6%) displayed of TMJ dysfunction (pain, clicking) and

**Conclusion:** This study confirms the psychological effects of TMD among Cambodian dental students. It is recommended that dental students should be taught about how to prevent, to diagnose, and to treat nondental orofacial pain, particularly TMD and stress reduction.

**Keywords:** TMD, clicking sound (CS), limited mouth opening (LMO), pain (P)

**Relationship of Biofilm Formation and LuxS Gene Expression in Enterococcus Faecalis Isolated  
from Extraradicular Persistent Apical Periodontitis Lesions**

**Objective:** Investigate the relationship between biofilm formation ability and LuxS gene expression level of Enterococcus faecalis (E.f) in periapical lesions associated with persistent apical periodontitis.

**Methods:** The expression rate of E.f and LuxS was detected by polymerase chain reaction (PCR). E. faecalis Icl1709 was isolated from clinical samples of persistent apical periodontitis, ATCC 29212 strain was used as control group. Automatic microplate reader and Laser Scanning Confocal Microscopy (LSCM) were used to investigate the biofilm formation ability of E. faecalis after cultivated 12h, 24h, 36h, 48h. Observing the structure of the biofilm comprising Enterococcus faecalis by using the scanning electron microscopy (SEM). The expression level of LuxS gene in E. faecalis was assessed by Real-time quantitative polymerase chain reaction.

**Results:** The detection rate of Ef in Persistent periodontitis is 50%, luxS gene expressed in 50% of the Ef positive lesions. The biofilm formed in 96 well plates of Icl1709 is thicker than ATCC 29212, as well as formed on apical part of extracted tooth which evaluated by LSCM increasing over time is larger, significant differences emerge at 36h and 48h ( $P < 0.05$ ). 48h, biofilm structure is complex than it was at 12h. The biofilm formation ability of Ef is related to the expression level of LuxS gene. The expression level of LuxS gene of Icl1709 is significantly higher than ATCC 29212 ( $P < 0.05$ ).

**Conclusion:** Biofilm formation ability of Ef is correlated to the expression level of luxS. In the strains isolated from persistent periodontitis lesion, the luxS expression level and biofilm formation ability is stronger than ATCC strain.

**X Ray and CBCT Findings of Non-Hodgkin's Lymphoma Involving Jaws**

**Objective:** The study aim to suggest the X ray and CBCT findings of non-Hodgkin's lymphoma involving jaws.

**Method:** Cone Beam Computational Tomography (CBCT) of four oral and maxillofacial non-Hodgkin's lymphoma (NHL)

cases verified by pathology were retrospectively analyzed. Panoramic radiographs were only available for two patients.

**Results:** 3 cases involved maxillary region and one case occurred at bilateral maxilla and mandible. All CBCT imaging findings possessed the features of ill-defined borders and osteocytic regions. However, the extent of bone destruction was various. The tumor totally replaced normal bone tissue in two cases, the other cases remained residual bone tissue. Although panoramic imaging of two cases cannot surely suggest the bone destruction caused by cancer-associated osteolysis, but they also exhibited bony changes which could provide tips for radiologists and surgeons.

**Conclusion:** Although both CBCT and panoramic findings of NHL demonstrated general malignant features, its variety of jaw change deserved to further study.

**Evaluation Of Factors Related to Extraction of Endodontically Treated Teeth**

**Introduction:** The teeth that have been endodontically treated although may have a long term high functional survival rate, yet they are generally more susceptible to fractures as compared to teeth with vital pulps. Thus, coronal and/or radicular tooth fractures continue to remain important reasons for post endodontic extractions.

**Aim:** To evaluate the factors related to extraction of endodontically treated teeth.

**Methodology:** 114 cases of extraction of endodontically treated teeth performed from 2012 to 2014 were reviewed, and the following items were recorded: type of tooth, presence and type of coronal restoration, reason for extraction and chief complaints.

**Result:** The percentage of teeth most extracted were maxillary and mandibular premolar (45.6%) and follow by mandibular first molar (30.7%). The reasons of extraction were periodontal diseases (9.6%), endodontic-periodontal reason (14.9%), endodontic failure (7.0%), vertical root fracture (37.7%), non-restorable crown fracture (21.9%) and for orthodontics reasons (8.8%). The percentage of teeth extraction due to Vertical Root Fracture (VRF) was highest among reasons. The percentage of teeth extraction due to VRF was about two times higher than that of non-restorable crown fracture.

**Conclusion:** The most common extracted types of tooth were maxillary and mandibular premolar and mandibular first molar which were lost due to vertical root fracture. The relatively high prevalence of VRF in this survey indicates that difficulties in making a clinical diagnosis of VRF before extraction. Therefore Cone-Beam Computed Tomography much more appropriate and necessary rather than periapical radiograph. Prevention of vertical root fracture is more important for endodontic treatment success. Further studies is still need to support this findings.

**Poster 19****Su Yee Myo Zaw**

Milkyway Dental Clinic, Myanmar

**Comparison of Cone Beam Computed Tomography and Direct Digital Radiography in Detecting Periapical Lesions**

**Introduction:** Radiography plays an essential role in the identification and diagnosis of osseous lesions. Accurate interpretation may largely depend on the extent of bony involvement, type of diagnostic imaging system used and technique precision. Direct Digital radiograph is a two dimensional representation of a three dimensional object. Periapical lesions confined within cancellous bone were not usually detected in periapical radiograph. Cone Beam Computed Tomography (CBCT) is a technique that produces three dimensional digital imaging.

**Aim:** To compare the accuracy of Cone Beam Computed Tomography and Direct Digital radiograph in diagnosis of periapical lesions.

**Study Design:** Database such as Pub med Central and Medline were searched for the related topics from January 2004 to December 2014. Trials were selected if they met the following criteria of clinical trials comparing the accuracy of CBCT and Direct Digital radiography. All the studies included were based on the data extraction and analysis of the studies for quality and publication bias.

**Result:** The review concluded that CBCT is superior to Direct Digital radiography in detection of periapical lesions. CBCT was accurate in diagnosing the presence and absence of the periapical lesions.

**Conclusion:** With direct digital radiography, external factors (that is anatomical noise and poor irradiation geometry), which are not in the clinician's control, hinder the detection of periapical lesions. CBCT removes these external factors. In addition, it allows the clinician to select the most relevant views of the area of interest resulting in improved detection of the presence and absence of periapical lesions.

**Poster 20****Tu Thi Huyen Trang**

University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam

**Comparison of Decalcifying Solutions for Histological Tooth Preparation**

Human teeth and bones consist of hard and soft tissues. The mineralized tissue with the most calcium content in the human body is tooth enamel with a ratio 96-98%, followed by the dentin layer of tooth with 70%. Because of that, it is very hard to prepare tooth for microscopic examinations. On the other hand, complex tooth structure and first of all the extraordinary hardness of enamel makes this organ very difficult to process and section for observation under microscope. Decalcification is a process of complete removal of calcium salt from mineralized tissues like bone and teeth and other tissues. Therefore, the goal of decalcification is to prepare them for further sectioning of histologic specimen. Histological observations of the pulp, immature enamel, dentin and cementum, require the removal of the mineral component of the dentin and cementum. These effects depend on the solution's acidity and duration of the decalcification process.

**Objective:** This in vitro randomized controlled trial aimed to evaluate the efficacy of 4 commonly decalcifying solutions in preparing histological tooth to identify the best demineralizing agent.

**Materials and Methods:** This study included 4 different decalcifying solutions: 10% formal nitric acid, 10% formic acid, Perenyi's fluid and 15% EDTA (Ethylene Di-Amine Tetra Acetic Acid). 24 freshly extracted periodontally compromised human premolar teeth without evidence of dental caries were used for decalcification in 4 agents. In each agent 6 teeth was used.

Complete decalcification was checked using X-ray and physical methods. The teeth were sent for routine processing and stained using Haematoxylin and Eosin.

**Statistical Analysis Used:** One-way ANOVA was used for multiple group comparisons and Chi-square test was used for analyzing categorical data. P value of 0.05/less was set for statistical significance.

**Result:** Not complete.

**Conclusion:** Not complete.

**The Active Oral Hygiene Education Model for 12-to-17 Year-old Patients Wearing Orthodontic Brackets**

**INTRODUCTION:** Patients undergoing orthodontic treatment often develop oral diseases due to increased risk of plaque accumulation. Therefore, active plaque control is considered to be an effective prevention against oral diseases among these patients.

**OBJECTIVES:** The objective of this study was to develop, test and evaluate the Active Oral Hygiene Education Model.

**METHODS:** A Randomized Controlled Community Intervention Trial was conducted through three stages: (1) developing the Active Oral Hygiene Education Model; (2) testing the model tools; (3) conducting a community intervention trial to evaluate the efficiency of the model. 104 patients from 12 to 17 year-old wearing braces were randomly divided into experimenting group which received Active Oral Hygiene Education and control group which only received instructions on oral hygiene instructions from dentists in the orthodontic clinics.

Knowledge on oral hygiene during fixed orthodontic treatment was collected (via a questionnaire), Modified Plaque Index, early dental caries, Modified Gingival Index were recorded by calibrated examiners. The data were recorded after 4, 12, 24 weeks

**RESULTS:** Active Oral Hygiene Education tools were successfully created. The results showed that the percentage of patients with satisfactory level of knowledge on oral hygiene while wearing braces increased by 95% after educated.

**CONCLUSIONS:** The establishment of the Active Oral Hygiene Education Model for Orthodontic Patients is both essential and practical as it can contribute to improving orthodontic treatment outcomes. However, the trial should be continued to prove the real effectiveness of the model.

**Fabrication of Obturator Type of Sports Mouthguard for Maxillectomy Patient and its Speech Intelligibility Assessment : A Case Study**

**Introduction:** Sports mouthguard is an effective dental protector widely used in contact sports such as American football, boxing, rugby, football and martial arts. The objective of this study was to develop a customized obturator type of mouthguard for sports-active patient with maxillectomy and encourage the sporting activity without any functional hindrance.

**Materials and methods:** The subject was football loving elderly (male, 64 years old) who had undergone maxillectomy to remove his right side maxillary bone due to squamous cell carcinoma and had finished maxillary obturator prosthesis rehabilitation. To respond to his demand for mouthguard from preventing football injury, dental impressions with compound sticks and alginate impression materials were taken and casts were prepared for both upper and lower jaws. The occlusal bite registration was done and casts were mounted in mean value articulator using split cast technique. The customized obturator type of mouthguard was fabricated by lost-wax method. After waxing up on upper cast, flasking, deflasking and cooling process, the thermoplastic polyolefin-based mouthguard materials were adapted in mould cavity. Re-flasking and cooling was completed and excess material was trimmed with scissors and tungsten carbide burs. The final product was polished with silicon burs and buff wheels.

**Result and discussion:** The fabrication of the obturator type of mouthguard was successfully completed. After the chair side adjustment, speech intelligibility test was performed to confirm non-interference of the special mouthguard. Satisfactory feedback was obtained from the player after use. The fit, protection, respiration, speech and comfortability were clinically assessed with visual analog scale.

**Poster 23****Alaa Abdulahad Turkistani**

Department of Cariology and Operative Dentistry, TMDU (Saudi Arabia)

**Marginal Sealing of Adhesive Restorations and Lesion Progress:  
in Vitro Evaluation by Optical Coherence Tomography**

This study evaluated the influence of adhesives and marginal sealing on demineralization progress using optical coherence tomography (OCT). Cervical cavities (4x2mm) were restored with Estelite Flow Quick (EF) and one of four adhesives; SE Protect (SP), Bond Force (BF), Scotchbond Universal (SB) or G-Bond Plus (GB). Control group was restored with EF only (n=10). After 3-day incubation in artificial saliva and 10,000 thermal cycles, enamel and dentin marginal gaps were measured on four B-scan images obtained across each restoration by swept-source OCT at 1310nm wavelength. Specimens were then demineralized (pH=4.5) for 5w and scanned every week to monitor lesion progress at the same margins. Repeated-measures ANOVA showed that demineralization period and adhesive type, and their interaction had a significant effect on lesion size in both substrates ( $p<0.001$ ). Before demineralization, SP, BF and SB had significantly lower enamel and dentin microgaps than control and GB ( $p<0.05$ ). In enamel, lesion progress was slower in fluoride-releasing adhesives SP and BF, and significantly different from SB, GB and Control ( $p<0.001$ ). lesions formed around dentin margins of SP and BF were smaller and significantly different from GB and Control ( $p<0.001$ ), but not from SB ( $p>0.05$ ). Pearson's correlation suggested a significant positive correlation ( $p<0.05$ ) between initial gap and formed lesion size in both substrates, which was stronger in enamel ( $r=0.63$ ) than dentin ( $r=0.35$ ). Clinical OCT would be a promising tool for monitoring and evaluation of composite-restoration margins. Marginal microgaps significantly contribute to lesion progress around margins, while fluoride-release may decrease the progression rate, especially in enamel.

**Poster 24****Thwe Zin Ei**

Department of Cariology and Operative Dentistry, TMDU (Myanmar)

**Monitoring the Fluoride Release of Pit and Fissure Sealants in Simulated Saliva Solutions**

Fluoride incorporation into pit and fissure sealants (PFS) is a viable way for caries prevention through its potential to inhibit demineralization with the release of fluoride into enamel. This study compared the fluoride release (FR) of Teethmate F-1 (TF, light-cured) and Fuji VII (FVII, glass ionomer) in artificial saliva (AS) solutions containing the salivary phosphoprotein homologue casein. 2 x 2 x 0.5 mm Class I cavities were prepared in bovine enamel blocks and were filled with the PFS according to the manufacturers' instructions (n=20). Specimens were then incubated in AS (1mM CaCl<sub>2</sub>, 3mM KH<sub>2</sub>PO<sub>4</sub>, 100mM NaCl, 100 mM Na acetate, 0.02% NaN<sub>3</sub>, 100µg/ml casein), pH 6.3 at 37°C. AS were refreshed every 2 days for 30 days and FR were measured accordingly. Morphological assessment of adjacent enamel surfaces of PFS and PFS-free specimens was performed using scanning electron microscopy. FVII showed higher cumulative FR at all times that was significantly greater ( $p<0.05$ ) than TF after 12 days. Precipitates on adjacent enamel surfaces were observed for 30-day PFS specimens. Both FVII and TF may provide some protection to the adjacent enamel with FVII exhibiting consistently greater FR over time. Concurrent studies are being undertaken to further elucidate their demineralization inhibition potentials.



**Inhibition of IGF-IR Retards Release from Radiation-induced G2 Arrest**

We previously reported that the fluorescent ubiquitination-based cell cycle indicator (Fucci) visualizes radiation-induced G2 arrest kinetics in HeLa cells lacking the p53 function. Using this system, we are investigating factors which influence radiation-induced G2 arrest kinetics. Insulin-like growth factor I receptor (IGF-IR) is a multifunctional transmembrane receptor tyrosine kinase, including cell growth, transformation, inhibition of apoptosis, and DNA repair. The object of this study was to examine the possible involvement of the receptor in the radiation-induced G2 arrest kinetics. For this purpose, we utilized HeLa cells expressing the Fucci (HeLa-Fucci cells) and a specific inhibitor for IGF-IR (NVP-AEW541). We found that 2  $\mu$ M AEW541 almost completely inhibit IGF-I-induced activation of ERK, a downstream kinase of IGF-IR. Using the inhibitor, pedigree analysis of each cell exhibited that the significant elongation of G2 arrest was observed in both cells irradiated in red phase (G1 phase) and green phase (S/G2 phases). Because IGF-IR is reportedly involved in DNA double strand break (DSB) repair, we next examined DSB repair kinetics following irradiation. Inhibition of IGF-IR is likely to inhibit DSB repair as detected by 53BP1 foci. Taken together, it was suggested that IGF-IR inhibitor inhibits DSB repair following irradiation, thereby, G2 arrest is prolonged, subsequently resulting in a retarded release from G2 arrest. We are now assessing the effect of the inhibitor on radiosensitivity.

**Epidemiological Study: TB among Bhutanese in Bhutanese Refugee Camps, Jhapa, Nepal**

**GENERAL OBJECTIVE:** To conduct an epidemiological study on TB among Bhutanese refugees in 7 Camps of Jhapa district of Nepal.

**METHODOLOGY:** Retrospective study on 7 Bhutanese refugee Camps on a total population of 107279 and total cases reviewed were 897.

**INTRODUCTION:** TB is one of the major public problems in the SAARC region with immense socioeconomic impact. 45 percentage of the total population is infected with TB, out of which 60 percentage are adults. Refugees are the most vulnerable populations for the occurrence of TB because of their lifestyles, poor economy, overcrowding, malnutrition, low literacy and HIV-AIDS.

**CONCLUSION:** TB is a major health problem of refugees in the Bhutanese refugee Camps, which is the scenario in National situation. Though, there has been consistency in high case detection ratio, smear conversion rate, cure rate, recording and reporting of TB cases, similar incidence of the TB cases every year reflects that the risk factors for TB still do prevail and there is profound need of upliftment of socioeconomic, health and nutritional status and continuation of the awareness programme.





# **ISP2015 Participants**

## ISP2015 Participants

(SS) : Special Selection Participant    (GP) : General Participant

(Self-supported) : Self-financially Supported General Participant

### Bangladesh



**Syed Masudur Rahman  
Dewan**

Noakhali Science and Technology University

(SS)

Poster  
# 7



**MD Mohiuddin**  
Southeast University

(GP)

Poster  
# 5

### Bhutan



**Bhawana Humagai**

Bhutan Pharmaceuticals Private  
Limited

(GP)

Poster  
# 1

### Cambodia



**Phirun Sorn**

University of Health Sciences

(GP)

Oral  
# 11



**Sivkeng Try**

University of Health Sciences

(GP)

Poster  
# 15



**Indravina Tan**

International University

(GP)

Oral  
# 4

### P.R. China



**Yue Yang**

Beijing Stomatological Hospital,  
Capital Medical University

(SS)

Poster  
# 16



**Wenhao Guo**

West China School of Stomatology,  
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(SS)

Poster  
# 17



**Mengke Ge**

West China School of Stomatology,  
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Oral  
# 16



**Fengju Mao**

The hospital of Benxi Steel  
Group Corporation

(GP)

Poster  
# 3

### India



**Kanmani Tumkur  
Lakshmikantha**

Alumni of K.S.Hegde Medical Academy

(SS)

Poster  
# 8



**Nivedhitha Sundaram  
Muthiah Pillai**

Amrita Center for Nanoscience and  
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(GP)

Oral  
# 12

## Indonesia



Citra Kusumasari  
University of Indonesia

GP

Oral  
# 10

## Malaysia



Sylvia Lim Sze Fen  
University of Malaya

GP

Oral  
# 9

## Mongolia



Unentsatsral Lkhagvasuren  
First Maternity Hospital

GP

Poster  
# 4

## Pakistan



Faiz Muhammad  
University of Karachi

GP

Poster  
# 6

## Myanmar



Kyaw Thu Htun  
Milkyway Dental Clinic

SS

Poster  
# 18



Su Yee Myo Zaw  
Milkyway Dental Clinic

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Poster  
# 19



Pa Pa Kay Khine  
University of Dental Medicine,  
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Oral  
# 13



Thiha Tin kyaw  
University of Dental Medicine,  
Mandalay

Self-supported

Oral  
# 8

## Nepal



Prekchha Jha  
Maharajgunj Medical Campus,  
Teaching Hospital, TU

GP

Poster  
# 2

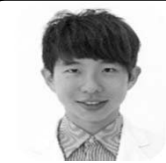


Ashik Pokharel  
Tribhuvan University

GP

Poster  
# 26

## Taiwan



Yu-Fei Chai  
U-smile Dental clinic

GP

Poster  
# 13



Wan-Ting Chen  
National Defense Medical Center

GP

Oral  
# 1



Min Chao  
National Defense Medical Center

Self-supported

Oral  
# 7

## Thailand



Kunlanun Dumrongvute  
Srinakharinwirot University

GP

Poster  
# 14



Wuttapon Sadaeng  
Naresuan University

GP

Oral  
# 14

# Vietnam



**Nguyen Van Thai**

Hue University of Medicine and Pharmacy

SS

Oral  
#15



**Tu Thi Huyen Trang**

University of Medicine and Pharmacy  
at Ho Chi Minh City

SS

Poster  
#20



**Vu Hoang Tri**

University of Medicine and Pharmacy  
at Ho Chi Minh City

SS

Poster  
#21



**Nguyen Minh Tuan Viet**

Ho Chi Minh University of Medicine  
and Pharmacy

GP

Oral  
# 2



**Tran Anh Khoa**

Ho Chi Minh University of Medicine  
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GP

Oral  
# 3

*Total 32 Participants  
from 14 countries/regions*

## TMDU Students

### Participants

**Ganbold Khongorzul** (Pediatric Dentistry)

**Ijbara Manhal M.A.** (Pediatric Dentistry)

**Islam GM Rabiul** (Health Care Economics)

**Junichi Shinagawa** (Cariology and Operative Dentistry)

**Kaung Si Thu** (Molecular Epidemiology)

**Khin Thet Thet Zaw** (Molecular Epidemiology)

**Kong Sophannary** (Periodontology)

**Le Son Hoang** (Behavioral Dentistry)

**Myoe Kyaw Thet** (Oral Implantology and Regenerative Dental Medicine)

**Nguyen Yen Thi Hoang** (Oral Health Promotion)

**Nozomi Tsunemoto** (Organic and Medical Chemistry)

**Ridan Cao** (Educational Media Development)

**Shajian Kelimu** (Maxillofacial Prosthetics)

**Suvarna Kruthi Sharanjeet** (Bioactive Compounds Discovery Research Unit)

**Wai Myo Maung** (Oral Implantology and Regenerative Dental Medicine)

**Yu Mon Myint** (Oral Implantology and Regenerative Dental Medicine)

**Yusuke Okazaki** (Organic and Medical Chemistry)

# Oral and Poster Presentation



**Yu Ueda**

Faculty of Medicine  
Japan

Oral  
# 5



**Yuriko Wada**

Department of Human Pathology  
Japan

Oral  
# 6



**Mohamed Moustafa Said**

Maxillofacial Prosthetics  
Egypt

Oral  
#17



**Trang Ngoc Nguyen**

Oral Implantology and  
Regenerative Dental Vietnam

Oral  
# 18



**Atsuko Tagami**

Cariology and Operative Dentistry  
Japan

Oral  
# 19



**Tiangiao Li**

Anesthesiology  
China

Poster  
# 9



**Kazutaka Tsujimoto**

Molecular Medicine and Metabolism  
Japan

Poster  
#10



**Noriko Shimazu**

Faculty of Medicine  
Japan

Poster  
# 11



**Nao Sasaki**

Material-based Medical Engineering  
Japan

Poster  
# 12



**Abhishek Shrestha**

Sports Medicine and Dentistry  
Nepal

Poster  
# 22



**Alaa Abdulahad Turkistani**

Cariology and Operative Dentistry  
Saudi Arabia

Poster  
#23



**Thwe Zin Ei**

Cariology and Operative Dentistry  
Myanmar

Poster  
# 24



**Nisha Gowri Manila**

Oral Radiation Oncology  
India

Poster  
# 25

# School Life Presentation

Group 1: **Yoshitaka Murota** (Stem Cell Regulation)

Group 2: **Le Hoang Son** (Behavioral Dentistry)

**Na Li** (Maxillofacial Prosthetics)

**Ridan Cao** (Educational Media Development)

**Thitsamay Luangxay** (Comprehensive Pathology)

Group 3: **Kenta Yao** (School of Medicine)

Group 4: **Andres Esteban Mora** (Esophageal Surgery)

**Emmanuel Awusah Blay** (Environmental parasitology)

**Jerry Kwame Ndzinu** (Molecular Virology)

**Nguyen Thi Thanh Tam** (Dental Education Development)

**Soulideth Vilayvong** (Comprehensive Pathology)

**Thatawee Khemwong** (Periodontology)





**ISP2015**  
**Faculty Working Group**  
**and**  
**Student Working Group**

## ISP2015 Faculty Working Group



**Junji Tagami**

Executive Director/Executive Vice President  
Educational and International Student Exchange  
Professor, Department of Cariology and Operative Dentistry



**Akinori Kimura**

Vice President Accreditation and Evaluation  
Professor, Department of Molecular Pathogenesis



**Shoji Yamaoka**

Professor, Department of Molecular Virology



**Masanobu Kitagawa**

Professor, Department of Comprehensive Pathology



**Takashi Ono**

Professor, Department of Orthodontic Science



**Hiroyuki Kagechika**

Professor, Department of Organic and Medicinal Chemistry



**Kenji Kawashima**

Professor, Department of Biomechanics



**Takeshi Tsubata**

Professor, Department of Immunology



**Ikuko Morio**

Director of International Exchange Center/  
Professor, Department of Dental Education Development



**David Richard Cannell**

Associate Professor of International Exchange Center



**Kazuhiro Yonemoto**

Assistant professor of International Exchange Center



**Takashi Yoshida**

Director of Administrative Division  
of International Exchange Center

# ISP2015 Student Working Group

**Chindanai Ratanaporncharoen** (Bioelectronics)

**Edward Cho** (Orthodontic Science)

**Hiroyuki Yamaguchi** (Orthodontic Science)

**Keisuke Abe** (Neurology and Neurological Science)

**Miao Tang** (Immunology)

**Minami Hanai** (Metallic Biomaterials)

**Miwa Higashi** (Neurology and Neurological Science)

**Ryoken Miyazaki** (Bioelectronics)

**Saori Kase** (School of Medicine)

**Shen Donghe** (Inorganic Biomaterials)

**Suteera Viboonnyasek** (Systems Neurophysiology)

**Yeh Tzuwen** (Pediatrics and Developmental Biology)

**Yohsuke Yagi** (Neurology and Neurological Science)

**Yoshitaka Murota** (Stem Cell Regulation)

## Student Symposium Facilitator

### 29 August



Yoshitaka Murota



Chindanai  
Ratanaporncharoen



Suteera  
Viboonnyasek

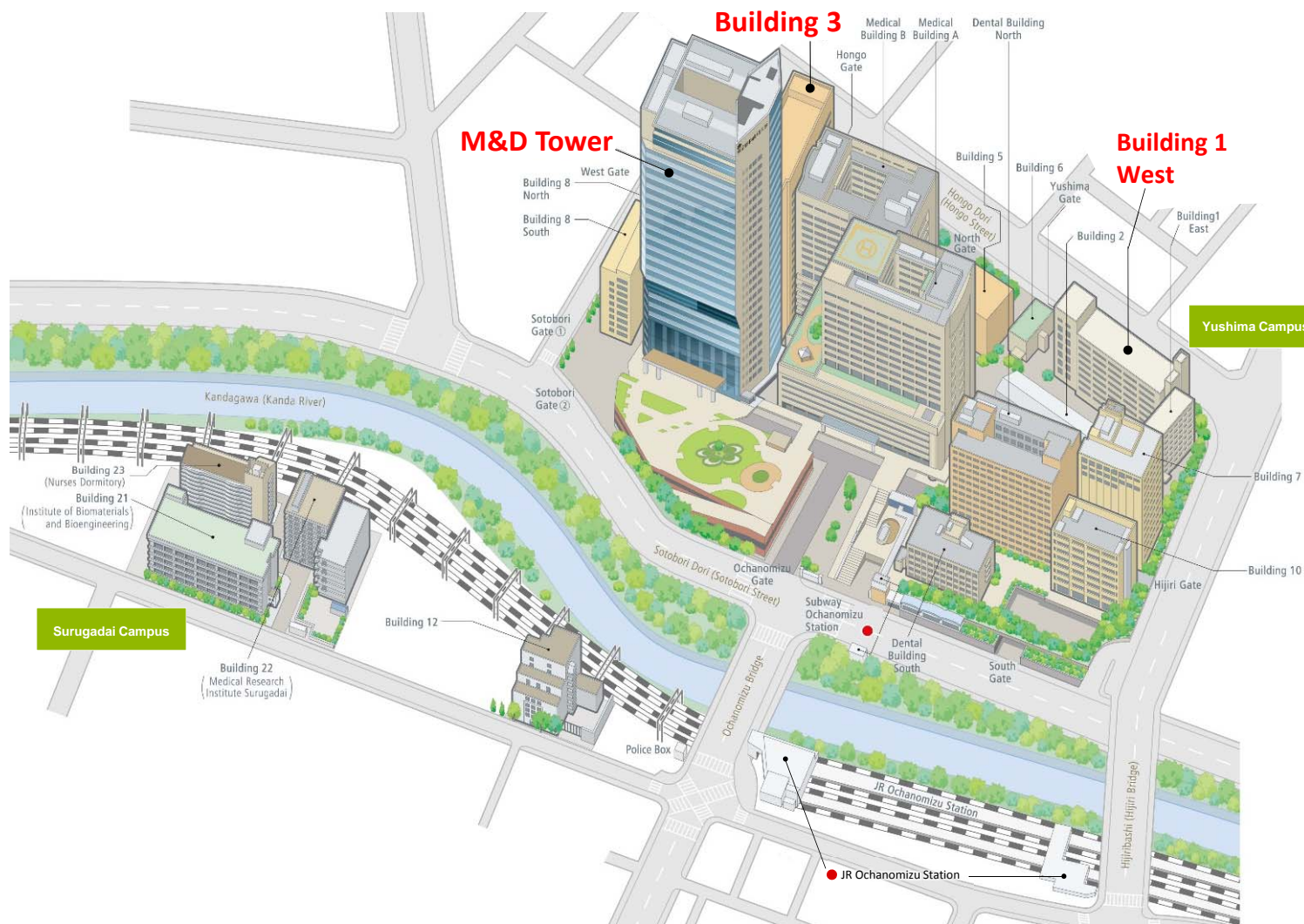
### 30 August



Edward Cho



Saori Kase



## Yushima & Surugadai Campuses

**TMDU ISP2015**

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