

THE RESEARCH BULLETIN



USM UNIVERSITI
SAINS
MALAYSIA



SCHOOL OF DENTAL SCIENCES

Issue 1 • July 2016

CHEMIST@WORK PROF. DR. ISMAIL AB RAHMAN IN PERSON

INSIDE THIS ISSUE

**Prof. Adam shared his
travels in the foreign
lands (page 3)**

**School's achievements
and awards in 2015
(page 4-5)**

**List of Publications
(page 8-9)**

**List of Research
Activities (page 10-11)**

**Introduction to R&I
Office (page 12)**

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THE RESEARCH

BULLETIN SCHOOL OF DENTAL SCIENCES



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It is my great pleasure and privilege to bring greetings to you from the School of Dental Sciences, USM. This school began in 1998 with a simple but profound mission of becoming a centre of excellence in academia, innovation and research, as well as services and be the catalyst and leader for new knowledge in teaching, learning, research and services for Malaysian higher education and the world.

As more research grants were awarded, it is high time to expect more publications, patents and products to be produced by researchers. The value of publications could be measured by its impact factor and its placing in the quartiles, as issued by the Thomson-Reuters' Web of Science. The value of one article can also be regarded from the citation it accumulates over the years, as evident in the Scopus database.

However, the impact of research should not only be measured by the number of publications produced, but also by virtue of its significance to the society and country if not the world.

Apart from that, it is equally important to share the knowledge by disseminating it to the public through conferences, seminars or workshops, which is attended by peers and professionals with similar research interest.

In this inaugural issue, we would like to thank Prof. Dr. Ismail Ab Rahman for sharing his life story with us. We believe his success story could be a morale booster to all of us, fellow researchers.

I also would like to thank the committee members and all contributors to this project. Let us all strive for a better future.

Happy reading.

Prof. Dr. Adam Husein
Dean



SEULAS PINANG

Welcome to the first issue of, GIGI, The Research Bulletin for School of Dental Sciences, USM. Our primary aim is to feature research activities and achievements related to our projects to signify our presence in the academic domain. It is high time for us to keep our peers informed and updated on some events that have happened in the School of Dental Sciences pertaining to research and innovation.

We intend to publish this bulletin twice a year to cater for the rather large number of ongoing research activities in our school. It is meant to highlight the profile of our staff, their achievements in research, latest information on grant availability, research progress, products, awards and publications in national and international journals. Besides, it will also focus on sharing the experience of our academic staff in their involvement in research collaboration, academic partnership, community work and social responsibility.

As the Editorial-in-Chief, I would like to take this opportunity to convey my appreciation to the editorial board that has put their hearts and minds to make this a success. Special thanks to Prof. Dr. Adam Husein, who had initiated this project.

To work smart with unduly commitment should always be the motto in every aspect of our life.

Lastly, we would be delighted to receive any feedback on this bulletin. Please do convey your comments and suggestions for improvements regarding the issue of this bulletin to azlinakb@usm.my.

Thanking you in advance.

Dr. Azlina Ahmad
Editor-in-Chief

SHARING

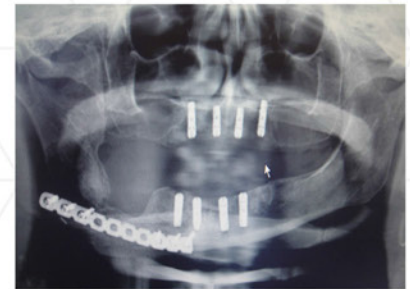
EXPERIENCE / EXPERTISE

Subspecialty training in Liverpool and Manchester, UK and short attachment at the Memorial Sloan Kettering Cancer Center, USA

Liverpool and Manchester, UK (Nov 2009 - Oct 2010): I worked in several hospitals in both cities that dealt with head and neck cancers. Many such cases from the two cities were related to high alcohol consumption and smoking. In those hospitals, the focus was on implant-based rehabilitation, largely due to the fact that National Health Service has granted cancer patients with free implant treatment.



(MSKCC)



(Liverpool)

The range of cases treated varied from simple to highly complex; involving zygomatic and other extra oral implants such as periorbital for eye prostheses. In rehabilitating the head and neck cancer patients, there are two concepts which are widely used, namely primary and secondary (conventional). In the primary procedure, implants were placed at the same time during cancer surgery. The rationale was to reduce the number of surgery needed by patients and to allow initial osseointegration prior to radiation therapy; thus, hasten healing and rehabilitation. The main disadvantage of this concept was the lack of certainty about survival and limited opportunity for proper implant and rehabilitation planning. In the conventional method, implants were considered well after the recovery from cancer surgery.

Memorial Sloan Kettering Cancer Center (MSKCC), USA (2 weeks, 2014): Different treatment approach is practised in MSKCC as they prefer the more conventional methods of rehabilitation; therefore, implant-based rehabilitation is not commonly used. This is partly due to the different views and opinions of clinicians there.

Moving forward from these two different scenarios, we are now in the process of developing this discipline in USM. At present, it is not yet well developed in Malaysia even though the need is there. There are plans to offer fellowship in this discipline with the aim of expanding it and granting other interested specialists the opportunities for further training. In addition, I encourage clinicians to seriously consider in respective disciplines subspecialty training to help USM achieves her objective to be the centre of excellence.

First International Oral & Maxillofacial Rehabilitation Fellowship for Liverpool



The Dental Hospital has achieved a first for its oral & maxillofacial rehabilitation service.

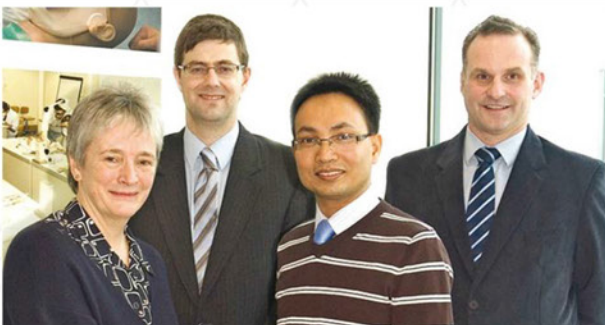
The team recently welcomed Dr Adam Husein, Senior Lecturer at the Universiti Sains Malaysia to a one year international training fellowship – the first of its kind in the UK – and Adam is also the UK's first tier 5 dental training fellow.

In a program hosted by the Trust, the aim of the clinical fellowship is to give Adam in-depth experience of the provision of complex oral & facial rehabilitation for head and neck cancer patients in the North West.

The training program is the brainchild of Mr Chris Butterworth, Consultant in Oral Rehabilitation at the Trust.

He said: "I am really pleased to welcome Adam to the unit for the training fellowship. Merseyside is home to the largest head and neck cancer centre in the UK with an international reputation for its standard of patient care."

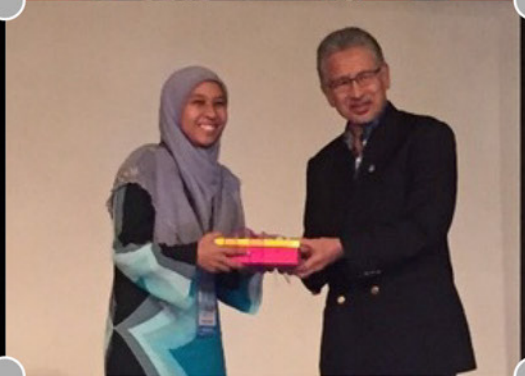
"This program recognises the expertise that we have developed for oral and facial rehabilitation in the North West and I trust that Adam and the Trust will benefit greatly."



With consultants in Liverpool and Manchester

AWARDS

ACHIEVEMENTS 2015

2015
AWARDS ACHIEVEMENTS2015
AWARDS ACHIEVEMENTS

AWARDS

ACHIEVEMENTS 2015

Medal Award and Best Oral/Poster Presentation 2015

- **Best Poster Presentation** - 3rd National Conference on Medical Laboratory Sciences (NaCMeLS), 28-30 Apr 2015.
Project Title: A 3 Years Review of CA 125 in Male Patients of HUSM.
Project Members: Dr. Nur Karyatee Kasim, Aniza Mohd Jelani, T Salwani T Ismail, Julia Omar, Mohamad Rusli Abdullah, Tan Say Koon.
- **First Price for Quiz Competition** - 7th National Dental Student's Scientific Conference 2015, 15-17 May 2015.
Quiz winner team: Yeo Wan Xi, Tan Fo Yew, Yap Lian Ching.
- **2nd Prize Best Poster Presentation Award** - Malaysian Association of Clinical Biochemists, 3-5 Aug 2015.
Project Title: The Value of Serum Bilirubin as an Indicator Marker for Perforated Appendicitis.
Project Members: Dr. Nur Karyatee Kasim, Aniza Mohd Jelani, T Salwani T Ismail, Julia Omar, W. Aisyah Fadilah, Mohamad Rusli Abdullah.
- **2nd Oral Presenter Award** - 1st International Symposium on Allied Health Sciences, 5-6 Sept 2015.
Project Title: Spectrum of Enamel Surface Preparations on Shear Bond Strength of Orthodontic Metallic Brackets Bonded with a Resin Modified Glass Ionomer Cement.
Project Members: Dr. Mohammad Khurseed Alam, Ayman Anaam Saied Elnafar, Prof. Rozita Hassan.
- **3rd Best Oral Presentation** - Diabetes Asia 2015, 6-9 Aug 2015.
Project Title: Periodontal Status and Its Severity Among Type 2 Diabetes Mellitus Patients.
Project Members: Dr. Haslina Taib, Dr. Norsila Abdul Wahab, Dr. Izni Iwani Majid.
- **Gold Medal Award** - Novel Research and Innovation Competition 2015, 15-17 Aug 2015.
Project Title: Development of Gypsum-Based Biomaterial: Effect of Chitosan on Bacterial Property.
Project Members: Dr. Fazal Reza, Dr. Nurul Asma Abdullah, Ikhwan Hakimi Mohamad.
- **Best Presenter Award** - 4th International Conference on Advances in Mechanical Engineering, 26-27 Aug 2015.
Project Members: Assoc. Prof. Dr. Dasmawati Mohamad, Assoc. Prof. Dr. Zainul Ahmad Rajion, Tuan Noraihan Azila.
- **1st Place Best Oral** - 20th National Conference on Medical and Health Sciences (NCHMS), 12-14 Sept 2015.
Project Title: A Novel Mutation in Class III Malocclusion: A Family Study.
Project Members: Dr. Rehana Basri, Dr. Muhamad Khurseed Alam, Dr. Saidi Jaafar, Assoc. Prof. Dr. Khairani Idah Mokhtar, Dr. Shifat A Nowrin.
- **3rd Place Best Poster** - 20th National Conference on Medical and Health Sciences (NCHMS), 12-14 Sept 2015.
Project Title: The Efficacy of Cetylpyridium Chloride (CPC) Mouthwash as an Adjunct to Toothbrushing in Reducing Established Dental Plaque and Gingivitis.
Project Members: Dr. Phyo Htut Oo, Dr. Mon Mon Tin, Assoc. Prof. Dr. Norkhafizah Saddki, Dr. Ninin Sukminigrum.
- **2nd Place Best Oral Presenter** - USIM 2nd International Conference on Medicine and Health 2015, 17-18 Oct 2015.
Project Title: HIV-Related Oral Lesions among HIV Patients Receiving Medical Care in Kota Bharu, Kelantan, Malaysia.
Project Members: Assoc. Prof. Dr. Norkhafizah Saddki, Prof. Dr. Azizah Yusoff, Dr. Nurhayu Ab Rahman, Dr. Anilawati Mat Jelani, Dr. Nurulasmak Mohamed.
- **Gold Medal Award** - Research Innovation Symposium & Exposition 2015 (RISE 2015), 15-16 Nov 2015.
Project Title: 3D-OPACC Implant (3D Orbital Polyamide Composite Customised Implant).
Project Members: Assoc. Prof. Dr. Dasmawati Mohamad, Abdul Manaf Abdullah, Tuan Noraihan Azila Tuan Rahim, Prof. Dr. Hazizan Md Akil.
- **Gold Medal Award** - Research Innovation Symposium & Exposition 2015 (RISE 2015), 15-16 Nov 2015.
Project Title: G-Acerin: Glass-Ionomer Cements with Improved Antibacterial Effect.
Project Members: Assoc. Prof. Dr. Dasmawati Mohamad, Prof. Dr. Ismail Ab Rahman, Prof. Habsah Hasan, Fatimah Suhaily Abdul Rahman.
- **Awarded Science & Technology Research Grant 2015 amounting RM 20,000.00 by Malaysian TORAY Science Foundation (MTSF).**
Project Members: Siti Nurnasihah Md. Hashim, Dr. Azlina Ahmad, Dr. Khairul Bariah Ahmad Amin Noordin.
- **Best Scanning Electron Microscope (SEM) Micrograph** - 24th Scientific Conference of the Microscopy Society Malaysia (SCMSM 2015), 2-4 Dec 2015.
Project Members: Raihaniah Abd. Rahman, Assoc. Prof. Dr. Dasmawati Mohamad, Dr. Zuryati Ab. Ghani, Prof. Dr. Habsah Hasan, Dr. Nurul Asma Abdullah.
- **Best Scanning Electron Microscope (SEM) Micrograph** - 24th Scientific Conference of the Microscopy Society Malaysia (SCMSM 2015), 2-4 Dec 2015.
Project Members: Siti Nurnasihah Md Hashim, Dr. Azlina Ahmad, Muhammad Fuad Hilmi Yusof, Dr. Saaid Ayeshe Alshehadat, Prof. Dr. Suzina Sheikh Abdul Hamid, Assoc. Prof. Dr. Khairani Idah Mokhtar.
- **1st Place Oral Category (Basic Sciences)** - 13th Students Scientific Conference 2015, 17 Dec 2015.
Project Title: Cytotoxicity of Locally Produced Portland Cement Mixed with Different Nano-Radiopacifying Agents on HPLFs: An in Vitro Study.
Project Members: Wong Sim Yang, Assoc. Prof. Dr. Norhayati Luddin, Dr. Hany Mohamed Aly Ahmed, Siti Suraya Zulkifli.
- **1st Place Poster Category** - 13th Students Scientific Conference 2015, 17 Dec 2015.
Project Title: Evaluation of Microleakage in Combined Amalgam-Composite Resin Class II Restoration.
Project Members: Ng King Hua, Mohamad Aiman Mohd Sabri, Assoc. Prof. Dr. Sam'an Malik Masudi.
- **Winner of Persada Kencana Award, for Excellent Achievement in Best Research for 2015, 31 Dec 2015.**
Awarded to: Manal Abdulrahman Farea.
Main Supervisor: Prof. Dr. Adam Husein.

COVER STORY

CHEMIST@WORK

PROFESSOR DR. ISMAIL AB RAHMAN

EDUCATION

Professor Dr. Ismail Ab Rahman received his Diploma in Industrial Chemistry from ITM (now UiTM) in 1979. He then pursued his study in Universiti Sains Malaysia and received BSc (Hons) degree in Chemistry and Management in 1983. He obtained his PhD in ceramic processing from the University of Leeds in 1988.

ROLES

From 1988-2008, Prof. Dr. Ismail was an academic staff at the School of Chemical Sciences, Universiti Sains Malaysia, Pulau Pinang. In November 2008, he joined the School of Dental Sciences, Universiti Sains Malaysia Health Campus, which is located in his hometown, Kelantan. He has held several administrative posts and currently is the Coordinator of Biomaterial Research Unit, Editor-in-Chief for Journal of Physical Science, and one of the USM Senate Members.

RESEARCH

Prof. Dr. Ismail's research interest is in material processing; he started with producing nitride materials and adsorbent from agriculture waste materials. He also has high interest in the sol-gel process and had collaborated with other research groups to develop nanocomposites. His current research interests are the processing of nanopowder by sol-gel method and the development of dental nanocomposites.

**PROF. DR. ISMAIL
AND HIS GROUPS HAVE
MANAGED TO SECURE
GRANTS FROM IRPA, USM,
MOSTI, INTEL, AND FRGS,
TOTALLING ABOUT
RM 4.7 MILLION**



ACHIEVEMENTS

Prof. Dr. Ismail has published many papers in highly esteemed journals and presented his research findings in the international and local communities. Additionally, his work has produced several patents and product prototypes which have won local and international awards.

Prof. Dr. Ismail and his groups have managed to secure grants from IRPA, USM, MOSTI, Intel, and FRGS, totalling about RM 4.7 million for material processing. Products developed from these grants have won more than five awards in local and international competitions. Most recently, his team had won gold medals on dental composite developed from rice husk (D-hybridfil). He received the Sanggar Sanjung awards since 2003 until year 2015, for his contributions in publications and innovation products, either as the main or one of the co-authors.



MONDAY, JUNE 10, 2013

NEW STRAITS TIMES | PAGE 7

PRIME NEWS

USM bags gold for dental filling

ORGANIC INNOVATION: It has potential to replace conventional amalgam product



Prof Dr Ismail Ab Rahman showing the organic composite dental filling made from rice husk at Universiti Sains Malaysia Hospital in Kubang Kerian yesterday. Bernama pic

KOTA BARU
A TEAM of researchers from the School of Dental Science at Universiti Sains Malaysia (USM) in Kubang Kerian here has produced the world's first organic composite dental filling made from rice husk.

Team leader Prof Dr Ismail Ab Rahman said the innovation, which could potentially replace the conventional amalgam dental filling, was the culmination of research which began in 2011 under a USM three-year research grant of RM424,500.

"It complies with dental international standards, can be produced at a lower cost, has a longer shelf life and a conceivably wide market," he said at a press conference here yesterday.

Dr Ismail said they chose rice husk because it had a comparably high silica content of 10 per cent,

and the estimated cost of producing 4g of composite rice husk was only RM44 compared with the amalgam market price of between RM100 and RM200, depending on the grade.

"Amalgam has been used as dental fillings for a long time but they can be toxic if used incorrectly, corrode and non-aesthetic.

"The colour of nanocomposite resin is similar to teeth, hence the choice," he said of the innovation which bagged a gold medal at the 24th International Invention, Innovation & Technology Exhibition 2013 last month.

Another USM researcher, Dr Zuraida Zaiman, also won a gold medal for her BSc ex Zuraide Shah Rotatory Chair which can be used for body imbalance therapy and rehabilitation.

"The United States first invented the chair, which costs RM275,000 each. I took the initiative to produce it, with the cooperation of researchers from Universiti Malaysia Perlis at a cost of only RM1,000," she said.

(New Straits Times, 10 June 2013, page 7)

NOVEL PRODUCTS

When he started his service as an academic staff in PPSG, he initiated dental nanocomposite research group that consists of material scientist, engineers, and dentists. His research group has developed protocol for synthesis of nanosilica by sol-gel technique, which has been successfully utilised as filler for dental composite (KelFil). Beyond the development of nanosilica, he has also produced silica-hydroxyapatite nanocomposite by one-pot method which is able to enhance the hardness of glass ionomer cements and improved root canal treatment. Recently, he successfully extracted silica from rice husk and produced hybrid silica that is useful for the manufacturing of dental nanocomposite known as D-hybridfil. The product won him and his team gold medal in PECIPTA, ITEX 2013, and Brussels Eureka 2014. Until now, he is still actively working to improve the dental nanocomposite product for future applications.

■ Kumpulan penyelidik, pelajar USM Kubang Kerian turut cipta kerusi pusing rawat pening

Oleh Ismail Muhammad
arnaimediprma.com.my
Kuala Lumpur

Universiti Sains Malaysia (USM) Kampus Kesihatan Kubang Kerian berjaya mencipta bahan tampalan gigi dihasilkan daripada sekam padi dan kerusi pusing bagi merawat pening.

Inovasi bagi bahan tampalan gigi itu dihasilkan sekumpulan lima penyelidik dan pelajar diiktiraf Persatuan Unit Biobahan Pusat Pengajian Sains Pengajian Prof Dr Ismail Ab Rahman manakala kerusi pusing dihasilkan sekumpulan 12 penyelidik diiktiraf Persatuan Perubatan Kanan yang juga Pakar Perubatan Klinik Vertigo Dr Zuraida Zaiman.

Kedua-dua ciptaan kumpulan penyelidik itu meraih anugerah: pingat emas pada



OMAR (dua dari kanan) menunjukkan sampel gigi daripada sekam padi sambil diperlihatkan Dr Ismail (dua dari kiri) dan Dr Zuraida (kanan).

Sekam padi jadi tampal gigi

Pertandingan pameran ketika Cipta Inovasi dan Teknologi Antarabangsa ke-24 (ITEX 2013) di Pusat Konvensyen Kuala Lumpur (KLCC) bermula 9 hingga 11 Mei lalu.

Kerjasama kumpulan penyelidik itu diumumkan Naini Gamisior USM Prof Da-

tuk Omar Osman pada sidang media di Kompleks Pensiastrian USM Kampus Kesihatan di Kubang Kerian di sini, semalam.

Hadir pada sidang media itu Prof Dr Ismail serta Dr Zuraida bersama rakan penyelidik mereka, Pensiastrian Ka-

nan/Perunding Audiologi Dr Mohd Normani Zakaria.

Menerusi Prof Dr Ismail, beliau bersama rakan-rakannya mula membangunkan inovasi bahan tampalan gigi dihasilkan daripada sekam padi sejak hampir tiga tahun lalu.

nyetelikan RM242,000. Bagaimanapun, katanya, beliau memerlukan tiga tahun dari sekarang untuk satu tahun untuk menjalankan ujian bahan tampalan gigi itu ke atas bukaan manakala dua tahun lagi untuk klinikal kepada manusia selain perlu mendapat kelulusan daripada Kementerian Kesihatan sebelum dapat dikomersialkan untuk dipasarkan.

"Bahan tampalan gigi empat gram dihasilkan ini hanya membabitkan kos RM44 dan harga pasaran marginnya boleh diuji tawar: RM100 berbanding RM150 yang dijual ketika ini," katanya.

"Saya sedia bekerjasama dengan syarikat tempatan yang bernilai menjadi rakan kongsi bagi memasarkan produk ini," katanya.

Sementara itu, Dr Zuraida berkata, kumpulannya membangunkan kerusi pusing untuk merawat pesakit mengalami masalah pening sejak pertengahan tahun lalu dengan RM11,000.

"Idea timbul disebabkan kos membeli kerusi ini dari luar negara seperti Amerika Syarikat dan Perancis agak mahal atau RM375,500 seunit," katanya.

(Harian Metro, 10 June 2013, page 23)

PUBLICATIONS 2015

Number of New Research Grants Obtained in 2015

NEW RESEARCH GRANTS 2015	
USM Short - Term Grants (Total value: RM 263,604.60)	6
Research University (Total value: RM 739,409.58)	5
Science Fund (Total value: RM 237,720.00)	1

Total value of grants obtained in 2015: RM 1,240,734.18

Spectacular Gold Award in RISE 2015 - by Dr. Dasmawati Mohamad



From left: Ezwan Shah Nordin, Abdul Manaf Abdullah, Tuan Noraihan Azila Tuan Rahim, Dr. Dasmawati Mohamad, Ain Fatimah Azlisham, Fatimah Suhaily Abdul Rahman

Nowadays, it is a trend that researchers from multidisciplinary background to work together. As I am from an engineering background, being in dental school has given me the opportunity to work with clinicians. Our research is mainly focusing on developing new materials with sustainability in mind.

Recently, my team, comprised of material scientist, engineers, maxillofacial surgeon, and neurosurgeon, has developed an implant material based on polymer composite for craniofacial applications. It is called 3D-Orbital PolyAmide Composite Customised (3D-OPACC) implant, made specifically for orbital floor where, due to its thinness, is the most likely part to fracture following motor vehicle accident. Titanium sheet is commonly used for orbital floor reconstruction; however, it possesses extremely higher elastic modulus than bone and is expensive.

Hence, we aimed to develop a new polyamide composite. Polyamide is compounded with ceramic fillers and extruded out to form a filament. The filament is used to print the orbital floor implant with a 3D printer, which was bought with funding from USM Research University Team grant (1001/PPSG/852004), initiated by Assoc. Prof. Dr. Zainul Ahmad Rajion.

3-OPACC had won Gold medal at Research Innovation Symposium & Exposition 2015 (RISE 2015) held at Dewan Agung Tuanku Canselor, UiTM, Shah Alam on 15-16 November 2015.

Another product that we have developed is the glass-ionomer cements (GICs) with incorporation of 3-acetylcoumarin (G-ACERIN). At present, the release of fluoride from commercial GICs to inhibit bacteria growth and prevent secondary caries is still inadequate; thus, we took the challenge for innovation to develop better GICs. G-ACERIN provides low toxicity, has remarkable antibacterial effect and comparable physical and mechanical properties with commercial GICs. G-ACERIN also had won Gold medal in the RISE 2015.

It is hoped that the conducive atmosphere of different people from diverse background working together will continue and grow further contributing towards more development of new materials in dentistry. After being patented, my vision is that the new product will not only be available in our country but can be introduced and marketed in other countries as well. Thus, it will generate income for the school and the university in the long run.

WORKSHOPS

SEMINARS 2015



BIL	DATE	WORKSHOPS / SEMINARS	SPEAKERS
1.	12 Feb 2015	Series 1: Workshop on Efficient Management of Grants (Purchasing: Vot 27)	Dr. Azlina Ahmad (PPSG) Mr. Abdul Hakim Abdul Basir (PPSG) Mr. Nur Mohamad Mohd Makhtar (PPSG) Mr. Abdullah Jaafar (PPSG)
2.	26 Feb 2015	Workshop on Human Ethics	Prof. Dr. Hans Van Rostenberghe (PPSP) Assoc. Prof. Siti Hawa Ali (PPSK) Dr. Teguh Haryo Sasongko (PPSP)
3.	5 Mar 2015	Workshop on Animal Ethics	Prof. Dr. Siti Amrah Sulaiman (PPSP) Dr. Mohd Fadhli Khamis (PPSG) Dr. Saidi Jaafar (ARASC)
4.	19 Mar 2015	Seminar on Writing an Effective Proposal	Prof. Dr. Mustafa Musa (PPSP) Assoc. Prof. Dr. Shaharum Shamsuddin (PPSK) Assoc. Prof. Dr. TP Kannan (PPSG)
5.	9 Apr 2015	Series 2: Workshop on Efficient Management of Grant (Purchasing: Vot 35)	Ms. Maslina Zukhaireen Mohd Zaharial (Jab. Bendahari) Ms. Elly Fatmawatee Hussein (Jab. Bendahari)
6.	23 Apr 2015	Series 3: Workshop on Efficient Management of Grants (Petty Cash Expenditure)	Ms. Shafinaz Mohamad Saat (Jab. Bendahari)
7.	29 Apr 2015	Molecular & Cell Biology: Western Blot	Dr. Azlina Ahmad (PPSG)
8.	30 Apr 2015	Seminar on Winning Short Term Grant Application	Prof. Dr. Mustafa Musa (PPSP) Prof. Dr. Ismail Ab Rahman (PPSG) Assoc. Prof. Dr. TP Kannan (PPSG)
9.	30 Apr 2015	Seminar Kawalan Infeksi	Prof. Dr. Azizah Yusoff (PPSG) Assoc. Prof. Dr. Zaidah Abd. Rahman (PPSP)
10.	14 May 2015	Seminar on Writing a Research Manuscript: Research Article	Dr. Norkhafizah Saddki (PPSG) Prof. Dr. Gan Siew Hua (PPSP) Assoc. Prof. Dr. TP Kannan (PPSG)
11.	16 May 2015	Seminar on Case Report Writing	Prof. Dr. Adam Husein (PPSG) Assoc. Prof. Dr. Irfan Mohamad (PPSP) Assoc. Prof. Dr. TP Kannan (PPSG)
12.	11 June 2015	Seminar on Manuscript Writing: Case Report	Assoc. Prof. Dr. TP Kannan (PPSG) Assoc. Prof. Dr. Khairi Md Daud (PPSP) Prof. Dr. Ab. Rani Samsudin (Sharjah Universiti)

WORKSHOPS

SEMINARS 2015



BIL	DATE	WORKSHOPS / SEMINARS	SPEAKERS
13.	3 June 2015	Lunch and Learn with Fisher Scientific	Ms. Eng Hui San (Fisher Scientific) Mr. Chan Cun Wei (Fisher Scientific) Mr. Muhammad Kamal (Fisher Scientific)
14.	2 July 2015	A Seminar with Distinguished Scholars from the Dental Faculty of Toronto	Assoc. Prof. Dr. Siew-Ging Gong (Dental Faculty of Toronto) Assoc. Prof. Dr. Celine Levesque (Dental Faculty of Toronto)
15.	27 July 2015	When RNA Sequencing Delivers What Microarray Can't: A Walk-Through of RNA-Sequencing vs Array	Mr. Joan Blin (Science Vision Sdn. Bhd.)
16.	30 July 2015	Materialise Seminar @ USM: 'Patient-Specific Pre-Operative Virtual Planning & 3D Printing Technology'	Mr. Stefaan Cortebaack (Materialise) Dr. Roselinda Ab Rahman (PPSG, USM)
17.	5 Aug 2015	Seminar on Preparing RU Grant Application	Prof. Dr. Zalina Ismail (PPSK) Prof. Dr. Ismail Ab Rahman (PPSG)
18.	10 Sept 2015	Series 4: Workshop on Efficient Management of Grants (Honorarium & Tuntutan Imbuhan)	Mr. Tuan Haji Ahmad Kamil Syed Zakaria (Jab. Bendahari)
19.	26 Oct 2015	Seminar on Writing a Research Manuscript: Review Article	Prof. Dr. Gan Siew Hua (PPSP) Assoc. Prof. Dr. TP Kannan (PPSG)
20.	27 - 28 Oct 2015	Seminar and Workshop on Gene Expression using Real-Time PCR	Dr. Azlina Ahmad (PPSG) Dr. Siti Norashikin Mohd Nafi (PPSP) Dr. Noor Fatmawati Mokhtar (INFORMM) Mr. Ooi Keat Soon (Analisa Resources Sdn. Bhd.)
21.	5 Nov 2015	One Day Seminar & Demo: An Introduction of Marketing Innovative Equipment for Molecular Practice	Kev Ng (Nanolife Sdn. Bhd.) LJ Ong (Nanolife Sdn. Bhd.)
22.	8 - 9 Nov 2015	Seminar on Writing Club & Hala Tuju PPSG 2016	YM Tengku Tan Sri Mahaleel Tengku Ariff (Member of The Board of Governors USM) Prof. Dr. Ismail Ab Rahman (PPSG)
23.	26 Nov 2015	Half Day Seminar on Stem Cell	Assoc. Prof. Dr. Bakiah Binti Shahrudin (IPPT) Assoc. Prof. Dr. Wan Azman Wan Sulaiman (PPSP) Dr. Azlina Ahmad (PPSG) Dr. Khairul Bariah Ahmad Amin Nordin (PPSG) Dr. Norhayati Yusop (PPSG) Dr. Tan Jun Jie (IPPT)
24.	14 - 15 Dec 2015	Seminar Material Characterization with MBS Annual Meeting	Prof. Dr. Ahmad Fauzi Mohd Noor (School of Material & Minerals Resources Engineering) Prof. Dr. Ismail Ab Rahman (PPSG) Mr. Ngo Siong How (Hi-Tech Instruments Sdn. Bhd.) Dr. Dasmawati Mohamad (PPSG) Mr. Lam Chee Leong (Hi-Tech Instruments Sdn. Bhd.)



RESEARCH AND INNOVATION UNIT

The Research and Innovation (R&I) Unit, previously called the Research and Development Unit, was founded in 1998 along with the School of Dental Sciences. It is located at the hind wing on the second floor of the School of Dental Sciences building. Headed by the Deputy Dean of Research, R&I Unit has two administrative assistants and one operational assistant, who are supervised by a Chief Science Officer. The R&I Unit is a dedicated division serving as a secretariat by providing assistance to the school's research committee in reviewing and vetting all research applications funded by Universiti Sains Malaysia, namely the Short-Term and Research University (RUI and RUT) research grants. The unit is also responsible for ensuring the smooth running

of the School of Dental Sciences' systems and processes regarding research administration, compliance, and regulatory activities related to research. Overall, this unit supports research being conducted by all staff and student through the five (5) research groups that have been established under the Craniofacial Research Cluster, namely the Craniofacial Medical Imaging, Stem Cell & Tissue Engineering, Craniofacial Biology, Biomaterial, and Oral Health & Oral Diseases groups. Together with the Research Ethics & Compliance Committee, the R&I Unit ensures that the right culture of ethical research and compliance is being upheld at all times by researchers in areas such as the protection of human and animal subjects and biological safety. The R&I Unit also manage knowledge transfer, coordinate research communications, and advocate research through joint efforts with RCMO. To help spur research activities in this school, this unit, together with the science officers and research officers from the various research groups, are actively engaged in conducting seminars and workshops throughout the year. All seminars and workshops were aimed to provide researchers with a better understanding of the processes involved in their grant management. In its effort to assist the university in achieving its global status, this unit pledges to provide services of the highest caliber and professionalism.

