



19TH NATIONAL CONFERENCE ON MEDICAL AND HEALTH SCIENCES

Theme

Deciphering the Path for the Betterment of Human Health

DATE:

7th - 8th September 2014 (Sunday & Monday)

VENUE:

School of Dental Sciences, Health Campus,
Universiti Sains Malaysia

ORGANIZED BY:

School of Dental Sciences, Health Campus,
Universiti Sains Malaysia

ABSTRACT BOOK

CONTENTS

Organising Committee	2-3
Scientific Programme	4
Invited Speakers	5-10
Free Communication I	
Biomedical Sciences	11
Clinical Sciences	12
Free Communication II	
Biomedical Sciences	13
Clinical Sciences	14
Poster Presentations	
Biomedical Sciences	15
Clinical Sciences	16-17
Abstracts: Oral Presentations	
Biomedical Sciences	18-28
Clinical Sciences	29-36
Abstracts: Poster Presentations	
Biomedical Sciences	37-46
Clinical Sciences	47-59
List of Participants	60-65

19th NCMHS Organizing Committee

Chairperson:	Assoc. Prof. Dr. Adam Husein
Deputy Chairperson:	Assoc. Prof. Dr. Zainul Ahmad Rajion (Head of Scientific Committee)
Secretary:	Abdul Hakim Abdul Basir
Treasurer:	Dr. Azlina Ahmad
Scientific:	Prof. Ismail Ab Rahman Assoc. Prof. Dr T.P. Kannan Dr. Fahisham Taib Dr. Ikhwan Sani Mohamad Dr. Irfan Mohamad Dr. Khairul Mohd Fadzli Mustaffa Dr. Lim Boon Huat Dr. Mahaneem Mohamed Dr. Mohd Ismail Ibrahim Dr. Muhamad Saiful Bahri Yusoff Dr. Norhayati Luddin Dr. Teguh Haryo Sasongko Dr. Zaihan Ariffin Dr. Zul Izhar Mohd Ismail
Finance & Sponsorship:	Noordini Ghazali Hasnah Abdullah Nurani Ahmad Mohd Nor Faiq Ahmad Nordin Safizaniah @ Safiza Ismail
Publication:	Azlizawati Ab Latiff Noraini Md Zain Marini Zainon Mohd Nazif Saadon Khadijah Mohd Ali
Registration:	Norliana Ghazali Radzina Ismail Wan Emiy Sazalin Wan Yusoff Suwaibah Hashim
Protocol:	Norheliza Mukram @ Sulaiman Marina Hassan Rosnani Muhamad Ramli Nurul Huda Mohd Baharuddin Rizwana Md Rashid Khairunisa Ibrahim
Publicity:	Nur Mohamad Mohd Makhatar Mohamad Hairie Sahabudin Siti Fadilah Abdullah

Technical:

Assoc. Prof. Dr Erry Mochamad Arief
Mohamad Ezany bin Yusoff
Khairul Ithma Mahdi
Ab Fatah Husin
Jasmani Ab Manaf
Marzuki Yusof
Mohd Yusof Soon Abdullah
Mazuan Sapuan Mohamad
Muhamad Fizrie Hashim
Ismail Mohamad
Abdul Razak Jaafar
Ahmad Shahir Che Mohd Ariffin
Hamzi Hassan
Abdul Rahim Awang
Mohd Shamsuri Mat Salleh
Mohd Asri Samat
Zawdi Badruddin
Che Rahim Che Man
Abdullah Jaafar
Mohd Afindi Ibrahim
Yuslan Kamaruzaman
Rosmadi Mat Nor
Sapizan Mohmad
Mohd Adnan Abdullah
Mohamad Fifi Rozee Mohd Sharif

Hospitality:

Zarina Jaafar
Nuremi Zahrina Che Suhaimi
Nora Aziz
Asiah Bakar
Suzana Yahya
Tengku Noor Daimah Tengku Din
Nik Yusliyana Nik Yusoff
Rohaya Abdullah

Programme Structure 19th NCMHS

Day 1: 7 September 2014 (Sunday)

Time	Programme	
8.00 am	Registration	
8.30 am	Welcoming Speech by Dean, the 19th NCMHS Chairman	Lecture Hall 1, PPSG
8.40 am	Opening Remarks by USM Vice Chancellor	Lecture Hall 1, PPSG
9.00 am	<u>Keynote Lecture</u> CP: Dean Deciphering the Path for the Betterment of Human Health Yang Mulia Tengku Tan Sri Mahaleel Tengku Ariff Member of the USM Hospital Restructuring Panel	Lecture Hall 1, PPSG
10.00 am	<i>Break</i>	
10.30 am	<u>Plenary I</u> CP: Dr. Teguh Haryo Sasongko Research Ethics Governance in the Asia Pacific Region Prof. Dr. Cristina E. Torres, FERCAP Coordinator	Lecture Hall 1, PPSG
11.30 am	<u>Symposium I</u> CP: Dr. Mahaneem Mohamed Title 1 The Changing Pharmaceutical Industry Landscape – “Halal” Pharmaceuticals as a Niche Industry Prof. Dr. Norazmi Mohd Nor, USM Title 2 My Brain Made Me Do It : A Paradigm Shift from Health to Wellness Prof. Zalina Ismail, USM Title 3 Sustainable Health and Community Wellbeing: Battling Social Determinants of Noncommunicable Diseases Prof. Dr. Wan Abdul Manan Wan Muda, USM	Lecture Hall 1, PPSG
1.00 pm	<i>Lunch Break</i>	
2.30 pm	<u>Free Communication I</u> Biomedical Sciences Clinical Sciences	Lecture Hall 1, PPSG Lecture Hall 2, PPSG
4.30 pm	<i>Afternoon Tea</i>	

Day 2: 8 September 2014 (Monday)

9.00 am	<u>Plenary II</u> CP: Dr. Azlina Ahmad Application of Drug Delivery System Technology for Implant Dentistry Dr Yoshihito Naito, Oral Implant Center, Tokushima University Hospital, Japan.	Lecture Hall 1, PPSG
10.00 am	<u>Symposium II</u> CP: AP Dr. Zainul Ahmad Rajion Title 1 Measurement of Nose-Chin Distance For Full Denture Treatment Prof. Haryo Mustiko Dipoyono, Universitas Gadjah Mada, Indonesia Title 2 Dental pulp regeneration: our in vitro experience Dr. Azlina Ahmad, USM	Lecture Hall 1, PPSG
11.00 am	<i>Break</i>	
11.30 am	<u>Free Communication II</u> Biomedical Sciences Clinical Sciences	Lecture Hall 1, PPSG Lecture Hall 2, PPSG
1.00 pm	<i>Lunch Break</i>	
2.00 pm	Award Presentations	
2.30 pm	Conference Ends	

List of Invited Speakers in the 19th NCMHS



TENGGU TAN SRI DR. MAHALEEL BIN TENGGU ARIFF graduated with Honours in Arts (History/ Economics/ Mandarin) from the University of Malaya in 1970 and completed the Malaysia Institute of Management courses in Contract Law and Marketing Management. He has attended courses at Harvard Strategy Development, London School of Economics and the Manchester Business School on Strategy, Strategic Management and Marketing. He was previously on Regional Board of London Business School and now a Distinguished LBS Member.

He has a very diverse career background spanning a period of over 40 years. He first started his career in Nestlé in the Marketing and Sales Department, and then in 1974 he joined Shell Malaysia for 20 years before leaving to serve New Toyo and Mofaz, with his last position as the Group Chief Executive Officer of Proton Holdings Berhad. Over the years, he has gained experience in various industries, including fast moving consumer goods, food, paper packaging, oil, marine, aviation and automotive. He was awarded Malaysia's CEO of the Year in 1999.

He was chosen to represent Malaysia in Asia Pacific Economic Council of 21 countries and also Malaysia's representative in ASEAN Business Council to promote business development in the 10 member economic community.

He received Honorary Doctorates in Engineering from Universiti Teknologi Malaysia and Universiti Malaysia Pahang for his achievements and dedication in the field of automotive engineering.

In sports, he was the Kelantan School badminton Champion and once had won University Malaya half blues colour in Badminton. He was Malaysia's Motor Rally Racing Champion in 1989.

Tengku Tan Sri Dr. Mahaleel Bin Tengku Ariff is currently the Chairman of Tien Wah Press, a Board member of New TOYO Singapore, the President of the Badminton Association of Malaysia, USM Graduate School of Business distinguished Advisor and Higher Education Ministry Panel on Strategic Repositioning of Universities and Heading Panel on USM Hospital Restructuring.

Abstract:

Despite the huge advancement in medical science and medicine, we still have a large numbers of death and illnesses throughout the world. It is great challenge for us to discover what has caused these phenomena. Maybe it is time to re-examine the role of government, society, science and technology, research, capitalism and have them play greater part in the global healthcare.



PROF. DR. NORAZMI MOHD NOR, PhD, FASc. is the Professor of Molecular Immunology at Universiti Sains Malaysia (USM). He obtained his B.Sc (Hon) from Monash University, Australia and his PhD from Flinders University, Australia. Norazmi has been working in USM since 1990 and has held several administrative posts. He is currently the Director, Institute for Research in Molecular Medicine (INFORMM). About 8 years ago, Norazmi was seconded to the Malaysian Biotechnology Corporation or BiotechCorp for 2.5 years as its Senior Vice President for Strategy & Planning –an experience that introduced him to the world of business in biotechnology & pharmaceuticals. Norazmi’s main research interest is in vaccine development for tuberculosis. He is also working on the development of *halal* meningococcal and typhoid vaccines with Finlay Institute, Cuba. Based on his experience at BiotechCorp, coupled with his scientific background and the many discussions he had with various regulatory agencies in Malaysia and with other interested parties, Norazmi has build some understanding on the potential field of *halal* pharmaceuticals and wishes to share his thoughts on the subject.

The Changing Pharmaceutical Industry Landscape – “Halal” Pharmaceuticals as a Niche Industry

Norazmi Mohd Nor

Institute for Research in Molecular Medicine, USM

norazmimn@usm.my

The pharmaceutical industry is experiencing important changes. As many products get off-patent since a few years ago, generic drugs and biosimilars have been flooding the market and increasing the competition for the pioneer drugs. To the consumer, this means reduced cost of medicines. However, the advent of specialty drugs has increased the cost of medicines for a small group of patients. Specialty drugs are expensive to produce and hence are costlier than generics. This presents a barrier for entry for the smaller drug companies. Enter the “halal” pharmaceutical factor! How would this emerging industry influence the pharmaceutical landscape – from generics/biosimilars to specialty drugs and vaccines? How would countries like Malaysia take advantage of this nascent yet potentially lucrative industry? The expanding world Muslim population has increased the demand for *halal* pharmaceuticals. The advent of the *halal* pharmaceutical industry would mean increasing barrier to entry for some of the industry players and put those who can cater for this niche market at a strong advantage. However, such an industry would need to be properly regulated and harmonized. Malaysia has come up with our own version of the *Halal* Pharmaceutical Standard Guidelines, the MS24:24 2010. This challenging yet exciting pharmaceutical field will be discussed.



PROF. WAN ABDUL MANAN WAN MUDA is a Professor of Nutrition & Public Health in the School of Health Sciences, Universiti Sains Malaysia. He has been an accredited Level 3 Anthropometrist since 2000, and also an Accredited Photoscopic Somatotype Rater. His areas of research interest include obesity, physical activity, anthropometry and public health nutrition. He has recently completed a research project on wellness integrated project for community wellbeing and is currently heading a research on physical activity, nutritional status, and environmental enhancement. He is also the country coordinator for Malaysia for the IPEN inter-country study on walkability and the built environment. He was elected as a Fellow of the Nutrition Society of Malaysia in 2002, and a fellow of Salzburg Global Seminar in 2013.

Sustainable Health and Community Wellbeing: Battling Social Determinants of Noncommunicable Diseases

Wan Abdul Manan Wan Muda

School of Health Sciences, Universiti Sains Malaysia

wanmanan@usm.my

The definition of health and wellbeing is everchanging and the absence of disease alone is not enough to qualify for the state of optimum health or wellness. The concept of wellness covers a wider spectrum of health and disease interface, both are a dynamic process that yield a positive state of personal well-being. To be healthy can mean to feel good about oneself, being able to function in an optimum manner physically, psychologically, and socially. At the global level the health data indicated that the prevalence of noncommunicable diseases has increased in both developed and developing countries. In fact most of the developing countries are simultaneously burden with both communicable and noncommunicable diseases. This is also true for Malaysia which has experienced increased prevalence and incidence of noncommunicable diseases at an alarming rate. The prevalence of obesity alone is a cause for concern as it is closely linked diseases such as diabetes, cardiovascular diseases, hypertension, and cancer.

In order to understand factors that can influence noncommunicable diseases and a condition such as obesity, we need to look at the big picture or the societal determinants. This is where the social determinants become very crucial in defining the problem of noncommunicable diseases. These determinants will include population, environment, social and economic variables. Redefining the individual and societal determinants can help us strategize in our battle against noncommunicable diseases. Medicalization of health is one of the issue that need to be reexamined to unravel some of the complexities of noncommunicable diseases. Practicing healthy lifestyle is a prerequisite to achieve optimum health. However, for greater impact we have to identify key enablers and role of actors outside the health sector.



PROF DR ZALINA ISMAIL is a Professor of Neurophysiology, and Coordinator of the BRAINetwork Centre for Neurocognitive Science at the School of Health Sciences, Universiti Sains Malaysia. She is a medical doctor with a degree in law and a doctorate in neurophysiology. She lectures in physiology and is currently pursuing her Masters in Medical Law. She has been a lecturer with USM since 1981, and is actively involved in undergraduate and postgraduate teaching as well as being active in research and community work. Her involvement in research is closely linked with her teaching-learning responsibilities and is focused on neurocognition and neuroplasticity in relation to learning and memory. In this context, she has been awarded one of only six highly competitive Research University Cluster Grants, where her team of researchers is investigating the role of memory, reward-controlled learning and neuroplasticity. In her quest to achieve this, Zalina has merged her

laboratory-based research with her teaching-learning and her community oriented brain-based learning approach. Zalina is an advocate of 21st century learning principles and this is reflected in her teaching-learning and her community brain-based learning projects particularly with indigenous children. She is especially interested in exploring the biological and sociocultural determinants of neurocognitive development and its impact on health and wellness.

Zalina is a fellow of the Foundation for Advancement of International Medical Education and Research, a committee member of the Women in World Neuroscience, International Brain Research Organisation and consultant to the Ministry of Education on a novel brain-based neuroplastic curriculum. As a visiting professor at Swinburne University, Australia her research collaboration involves affective pedagogy and neuroplasticity while her collaboration with the Faculty of Engineering at Toyohashi University, Japan illustrates the transdisciplinarity of her research projects. She is an external examiner to local and international medical schools and is an active member of the Malaysia Quality Agency where she assesses and evaluates the curricula of local medical schools. She routinely gets the opportunity to put forward this new agenda of learning through her various talks, seminars and workshops as well as her various papers and articles for both academics and the layperson.

USM has awarded Zalina the “Anugerah Khidmat Cemerlang” three times and she has been awarded the “Anugerah Pendidik Sanjungan” twice. Her contribution as a lecturer has also been recognised by students who consistently provide positive feedback on her teaching-learning programmes and they have also voted her as “Best Lecturer” in recognition of her contributions. Zalina strongly believes that a significant contribution to the betterment of human health lies in broadening our perspective on health with a strong focus on empowering the mind in order to improve neurocognitive wellness. She aims to achieve this via an ambitious socially oriented agenda of research and community practice embodied in the BRAINetwork Centre for Neurocognitive Science.

MY BRAIN MADE ME DO IT-A Paradigm Shift from Health to Wellness

Zalina Ismail

School of Health Sciences, Universiti Sains Malaysia

izalina@usm.my

Wellness is generally defined as a healthy balance of the mind, body and spirit that results in an overall feeling of well-being. It is an active process of becoming aware of and making choices with a shift in focus away from illness in viewing human health. The path to health lies not in the curing of illness but in the maintenance of health. The concept of neurocognitive wellness promotes effective self-management of health habits that keep people healthy through their life span. This talk focuses on health promotion and disease prevention by neurocognitive means. It will describe a core set of determinants and the optimal ways of translating this knowledge into effective health practices. In this context, neurocognitive, social, and emotional wellness are inextricably intertwined with physical health. To focus on the betterment of health, we need to consider all three components of wellness. The development of these three capacities occurs largely in the frontal lobe of the brain, and relies on interrelated neural circuits to function properly throughout the life course. The interaction of these capacities influences the quality of the experiences we have, driving further development in these domains. In turn, these three capacities provide a foundation for many of the activities that support our ability to cope with stress and illness. If we are to contribute significantly to the betterment of human health, we must broaden our perspective beyond the concept of health promotion and disease prevention to a socially oriented agenda of research and practice in relation to neurocognitive wellness.



DR. YOSHIHITO NAITO

Date of Birth: December 1, 1974 Japan

1998-2004 Study of dentistry at University of Tokushima

2004 Completed and obtained his University degree

2004-2008 PhD student at Department of Oral and Maxillofacial Prosthodontics and Oral Implantology, Institute of Health Biosciences, The University of Tokushima, Tokushima, Japan.

2008 Medical staff at Department of General Dentistry, Tokushima University Hospital.

2009-2012 Assistant Professor at Department of General Dentistry, Tokushima University Hospital.

2012-2014 Guest professor at Department of Prosthodontics, Faculty of Odontology, Malmö University, Malmö, Sweden.

2014- Assistant professor at Oral Implant Center, Tokushima University Hospital

Main focus of scientific work:

--Prosthodontics on implants

--Development of bone substitute materials

--Evaluation of bone response on implant surface

Abstract: Application of drug delivery system technology for implant dentistry

Bone conditions surrounding dental implants are important for the stabilities and the longevity of implants, therefore recipient sites of implant insertions are desired to ensure the appropriate bone quality and quantity. For this purpose, bone augmentation by bone induction and bone graft has been adapted to the insufficient shape or quantity of alveolar bone for implant placement. Bone augmentation has attracted much attention as useful therapeutics that based on tissue engineering skillfully to apply three elements, scaffold, cell and growth factors. By associating a temporal factor with these three elements, the control of bone augmentation to activate at the appropriate site during the required time is important to achieve the expected treatment results. As a way to control the duration of action of biologically active substances, drug delivery system (DDS) technology is suggested. This presentation will organize several scientific findings about DDS technologies for bone augmentation and an attempt to achieve bone regeneration using sustained release microspheres loaded simvastatin. Furthermore, it will touch on the cell delivery system concept with good potential as future perspective.



PROF. DR. CRISTINA E. TORRES is presently the Coordinator of FERCAP and an Adjunct Professor of Research Ethics and Social Sciences at Thammasat University Thailand. She is also a Visiting Professor at the National Institutes of Health, University of the Philippines. She was formerly a Professor of Social Sciences at the University of the Philippines. She received her Bachelor of Science in Education and Bachelor of Arts in English from the College of Holy Spirit - Philippines and her Master of Arts in Asian Studies and Doctor of Philosophy in Philippine Studies from the University of the Philippines.



Prof. Dr. drg. HARYO MUSTIKO DIPOYONO M.S., Sp Pros(K) is currently a professor at the Faculty of Dentistry, Universitas Gadjah Mada, Indonesia.

1981-1983: Master from University Airlangga, Surabaya, Indonesia.

1987-1991: PhD from University Airlangga, Surabaya, Indonesia.

1995-1998: Master of Clinical Dentistry (Prosthodontics), Universitas Gadjah Mada, Indonesia.

2006: Specialist 2, Kolegium Prostodonsia, Indonesia.

2008-present : Professor, Guest Lecturer at Muhamadiyah University Yogyakarta, Soedirman University Purwokerto, Sultan Agung University Semarang, External examiner on specialist competency (Airlangga University, Hasanuddin University, Padjajaran University, Indonesia University).



IKA DEWI ANA DDS., Ph.D. She was born in Yogyakarta on September 16th, 1968. She is a dentist by training, graduated from Gadjah Mada University in 1993 and doing her private practice in Yogyakarta. She is an associate professor of The Faculty of Dentistry, Gadjah Mada University. She has been working at her institution since 1993 just after her graduation from the faculty. Her area of interest is bioceramics, tissue engineering, and regenerative medical therapy. She got a PhD in Dental Sciences from Kyushu University, Japan, in 2004.

(January 2005 - December 2006) PostDoctoral, Biomaterials Department, Kyushu University, Japan.

(January 2007 - December 2009) PostDoctoral, RUMC, Radboud University Nijmegen, Netherlands.

(January 2010 - March 2010) PostDoctoral, Institute for Frontier Medical Sciences, Kyoto University, Japan.

Free Communication I, Biomedical Sciences

Day 1: 7 September 2014, Sunday

2.30 pm – 4.30 pm

Venue: Lecture Hall 1

ORAL	PRESENTER	TITLE	TIME
OB01	Abuzar Elnager	Caffeic acid phenethyl ester (CAPE) shows fibrinolytic activities in <i>in vitro</i> studies	2.30 pm- 2.39 pm
OB02	Amy Saik Yi Hsan	The cytotoxic/cytoprotective effects of enzymatically-produced acylated quercetin analogues on HT29 human colon carcinoma and CCD-112-CoN normal human colon cell	2.39 pm- 2.48 pm
OB03	Arefuddin Ahmed	Comparison of image quality between Standard Imaging (SI) mode and Tissue Harmonic Imaging (THI) mode in ultrasound	2.48 pm- 2.57 pm
OB04	Ezzeddin Kamil bin Mohamed Hashim	Rare DNA words: biological motif identification and computational prediction of CGI and promoter regions in the human genome	2.57 pm- 3.06 pm
OB05	Hany Ahmed	Dentinogenic differentiation potential of locally produced white Portland cement for dental application	3.06 pm- 3.15 pm
OB06	Jafar-Mohseni	A novel compound-heterozygous mutation of ARSA Gene in a Malaysian Malay family with Metachromatic Leucodystrophy	3.15 pm- 3.24 pm
OB07	Jaya Kumar a/l Murthy	Use of an optimised modified liquid diet for the development of ethanol dependence in rats	3.24 pm- 3.33 pm
OB08	Kabiru Mohammed	Establishment and evaluation of a LATE-PCR dipstick for the specific detection of <i>Schistosomiasis haematobium</i> in urine sample	3.33 pm- 3.42 pm
OB09	Khairunnuur Fairuz Azman	Tualang honey improves memory performance and decreases depressive-like behaviours in rats exposed to loud noise stress	3.42 pm- 3.51 pm
OB10	Manal Farea	Cemento/osteogenesis of SHED: a biochemical, morphological and microscopical study	3.51 pm- 4.00 pm
OB11	Nik Mohd Ariff Nik Abdul Malik	Low frequency of TSC1 mutations among Malaysian patients with Tuberous Sclerosis Complex; A preliminary report	4.00 pm- 4.09 pm
OB12	Nik Nur Sabrina Ishak	Image quality comparison between Filtered Backprojection (FBP) and different types of iterative reconstruction in single photon emission computed tomography (SPECT)	4.09 pm- 4.18 pm
OB15	Rasmaizatul Akma Rosdi	The CYP2C9 gene polymorphisms in Orang Asli Jahai population	4.18 pm- 4.27 pm

Free Communication I, Clinical Sciences

Day 1: 7 September 2014, Sunday

2.30 pm – 4.30 pm

Venue: Lecture Hall 2

ORAL	PRESENTER	TITLE	TIME
OC01	A.T.M. Emdadul Haque	High Phosphate-containing Foods and Beverages: Perceptions of the Future Healthcare Providers on Their Harmful Effect in Excessive Consumption	2.30 pm- 2.39 pm
OC02	Azlan Jaafar	Edentulism and associated risk factors of elderly living in Pasir Puteh, Kelantan	2.39 pm- 2.48 pm
OC03	Basheer Lawal	Clinical characteristic of vertigo and its outcome amongst children and adolescence attending vertigo clinic at Hospital Universiti Sains Malaysia: a retrospective study	2.48 pm- 2.57 pm
OC04	Bathma Dhevi Susibalan	The Effects of Channa striatus as an adjunct therapy in treatment of allergic rhinitis	2.57 pm- 3.06 pm
OC05	Fadzel Wong Chee Ping	Bee Bread Supplementation Improves Total Antioxidant Status and Running Performance in Recreational Runners	3.06 pm- 3.15 pm
OC06	Ganesh Ramalinggam	Parotid tumour and a near death experience: Where is the finishing line?	3.15 pm- 3.24 pm
OC07	Gerard Dunleavy	Assessing community sustainability in five indigenous villages: a baseline assessment to develop a road-map for future interventions	3.24 pm- 3.33 pm
OC08	Khairunnisak Misron	Clinical Experiences of Suspension Laryngoscopy in Hospital Universiti Sains Malaysia	3.33 pm- 3.42 pm
OC15	Rohaizam Jaafar	Imaging Profile of the Ear in hearing Loss Patients in Hospital Universiti Sains Malaysia	3.42 pm- 3.51 pm
OC10	Muhammad Nasri Abu Bakar	Effect of Channa striatus on inflammatory markers as an adjunct treatment in allergic rhinitis – a randomized double blinded study	3.51 pm- 4.00 pm
OC13	Nik Mohd Yunus Mohammad	Screening of laryngopharyngeal reflux disease in patients with gastroesophageal reflux disease symptoms in Hospital Universiti Sains Malaysia, Kubang Kerian	4.00 pm- 4.09 pm
OC09	Mohd Nazri Shafei	Risk factors for minor accident among long distance bus drivers in Malaysia	4.09 pm- 4.18 pm

Free Communication II, Biomedical Sciences

Day 2: 8 September 2014, Monday

11.30 am – 1.00 pm

Venue: Lecture Hall 1

ORAL	PRESENTER	TITLE	TIME
OB13	Norhida Ramli	REM sleep deprivation and spatial learning and memory in Sprague Dawley rats	11.30 am-11.39 am
OB14	Nur Farrah Dila Ismail	Targeted-Gene TSC2 Sequencing in patients with Tuberous Sclerosis Complex: Potentials for the clinical applications of Next-Generation Sequencing	11.39 am-11.48 am
OB16	Saima Ashraf	Effects of chronic sodium arsenite exposure on hippocampus and impairment of spatial learning and memory in male Sprague- Dawley rats.	11.48 am-11.57 am
OB17	Sathiya Maran	Optimization and development of long-range PCR for whole gene amplification	11.57 am-12.06 pm
OB18	Shing Cheng Tan	Association of MDM2 309T>G polymorphism with the risk of HPV-mediated cervical cancer in Malaysian population	12.06 pm-12.15 pm
OB19	Siti Aisyah Faten Mohamed Sa'dom	Comparison of conventional allele-specific PCR designed primers and Yaku-Bonczyk method designed primers	12.15 pm-12.24 pm
OB20	Siti Nurfarhana binti Sabireen	Preliminary Repeated Dose 28-days Oral Toxicity Study of Old Tualang Honey in Sprague Dawley Rats	12.24 pm-12.33 pm
OB21	Tee Jong Huat	MicroRNA profiling of the enhanced differentiation of mesenchymal stem cells into neural-like progenitor cells due to IGF-1 reveal specific miRNA signature	12.33 pm-12.42 pm
OB22	Tuan Nadrah Naim Tuan Ismail	Identification of chemical constituents of water and ethanolic extracts of Apis mellifera propolis from Malaysia and their antimicrobial screening	12.42 pm-12.51 pm

Free Communication II, Clinical Sciences

Day 2: 8 September 2014, Monday

11.30 am – 1.00 pm

Venue: Lecture Hall 2

ORAL	PRESENTER	TITLE	TIME
OC09	Mohd Nazri Shafei	Risk factors for minor accident among long distance bus drivers in Malaysia	11.30 am- 11.39 am
OC11	Muhammad Zulkefli Ramlay	Validation of Malaysia version of oral health literacy instrument (OHLI-M)	11.39 am- 11.48 am
OC12	Nafij Bin Jamayet	Management of a contracted eye socket by ocular prosthesis: a case report	11.48 am- 11.57 am
OC14	Noor Rashidah Saad	Evaluation of Serum Anti-Cardiolipin Antibodies in Chronic Periodontitis Patients: Preliminary Data	11.57 am- 12.06 pm
OC16	Tan Jian Liang	Comparative Study on Retinal Nerve Fiber Layer Thickness between Primary Open Angle Glaucoma and Primary Angle Closure Glaucoma	12.06 pm- 12.15 pm

Poster Presentations: Biomedical Sciences

No.	Presenter	Title
PB01	Chia Boon Hock	ACTN3 R577X polymorphism and sports performance in Malay male school children: A preliminary result
PB02	Liza Noordin	Additive effects of oxidant and estradiol increase cell proliferation and aromatase expression in endometriosis
PB03	Md. Asiful Islam	Nonsense mutations in a group of haematological disorders: Hope for therapy from stop-codon readthrough
PB04	Mohamed Qais bin Abu Bakar	Identification of chromosome microdeletion 7q11.23 associated with William-Beuren Syndrome using Fluorescence In Situ Hybridization (FISH)
PB05	Muhammad Amali Bin Kamarudin	Analytical performance evaluation of D-10 analyzers used for Glycohemoglobin A1c (Hba1c) routine test: A yearly quality program towards the sustainability of patients' life
PB06	Muhammad Hassan Yankuzo	Hematological and biochemical parameters of tumour – bearing female sprague dawley rats following treatment with N-methyl-N-nitrosourea
PB07	Muzammil Ullah	The human total facial index: An anthropometric study
PB08	Nik Mohd Zulfikri Bin Mat Zin	The Frequency of Major Autosomal Trisomies in North Eastern Peninsular Malaysia
PB09	Noor Suryani Mohd Ashari	Risk factors of allergic rhinitis
PB10	Norliana Ghazali	GC-MS analysis of some bioactive components in the root extract of <i>Ixora coccinea</i> Linn
PB11	Nurul Hidayat Yusoff	Isolation and characterisation of stem cells from human amniotic membrane
PB12	Roslina Husaini	Silencing of multidrug resistant genes in chronic myeloid leukaemia cells and its effects on the in vitro chemotherapeutic treatments
PB13	Sarfraz Ahmed	Malaysian Jungle [Tualang] honey modulates the size and the grading of breast cancer induced by N-Methyl-N-Nitrosourea (MNU) in rats – an in vivo study
PB14	Siti Nur Hasyila bt Muhammad	Anti-migratory effects of 15d-PGJ2 on human breast cancer cells
PB15	Siti Nurnasihah Md Hashim	Effect of <i>Stichopus Horrens</i> extract on cell proliferation and gene stem cell markers of dental stem cells
PB16	Suhailiza Saharudin	Sequencing analysis of exons 5 and 6 of RUNX2 gene in non-syndromic patients with supernumerary tooth/teeth in Kelantan
PB17	T. Nataraja Moorthy	Stature estimation from hand length measurements of Malaysian Malays in forensic perspective
PB18	Umar Zayyanu Usman	Extraction yield, antioxidant activity and phenolic content of water and ethanol extracts of Malaysian propolis
PB19	Wan Amir Nizam Wan Ahmad	A subacute comparative study (in vivo) on aqueous and methanol extract of <i>Sygyzium polyanthum</i> (Serai kayu) effects on rat's blood pressure
PB20	Yasrul Izad Abu Bakar	The effect of xylene on hippocampus of adolescence female Sprague-Dawley rats

Poster Presentations: Clinical Sciences

No.	Presenter	Title
PC01	Anani Aila Mat Zin	Medico Legal Cases: A 5-year retrospective study in Hospital Universiti Sains Malaysia
PC02	Aniza Mohd Jelani	Correlation between adiponectin and high density cholesterol in overweight adolescents
PC03	Erry Mochamad Arief	Serum Interleukin-17 (IL-17) in chronic periodontitis patients
PC04	Fahisham Taib	Reflective diary in community palliative care as impactful undergraduate learning
PC05	Fatma Hariati Mohamad Zaki	Self-Sampling for cervical cancer screening; the agreement of molecular detection of HPV DNA and the respective cytology findings
PC06	Hafizuddin Mohamed Fauzi	Factors influencing rapid haematopoietic engraftment in autologous peripheral blood stem cell transplantation for lymphoproliferative disease patients in Hospital Universiti Sains Malaysia
PC07	Hanim Afzan Ibrahim	The phenotypes of paraoxonase in Malay type 2 diabetes mellitus patients in Hospital Universiti Sains Malaysia
PC08	Hussein Ali Osman	Prevalence and endoscopic finding of Helicobacter pylori infection in dyspeptic patients
PC09	Izni Iwani Majid	Assessment of periodontal status and saliva among patients with diabetes mellitus type 2: A preliminary study
PC10	Khairunnisa Mohd Khathri	Cognitive impairment and self-management in elderly diabetics in Hospital Universiti Sains Malaysia
PC11	Mimi Azreen Abdullah	Preliminary Results of Laboratory and Clinical Significance of Rare Antiphospholipid Antibodies in Pre-eclampsia Patient in Hospital Sultan Ismail Johor Bahru and Hospital Universiti Sains Malaysia Kelantan
PC12	Mon Mon Tin Oo	Effectiveness of community based oral health awareness program conducted by undergraduate students in remote area of Kota Bharu, Malaysia
PC13	Muhammad Yusri Fauzi	Concomittant alpha thalassemia mutations among HbE beta thalassemia patients
PC14	Noor Azlin Azraini Che Soh	Screening for macroprolactinemia among hyperprolactinemia patients using Polyethelene Glycol 8000
PC15	Noorazliyana Shafii	The effect of Channa striatus extract on hsCRP and interleukin-6 levels during wound healing in post lower segment caesarean section women
PC16	Norazlin Abdul Aziz	Nasopharyngeal Carcinoma Bio-repository: Quality Control Assessment of Frozen Tissue Specimens Collected from Hospitals in Malaysia
PC17	Norfarid Irfan Mohd Subri	Nasal Colonization of Staphylococcus aureus (S.aureus) Including Methicillin Resistant Staphylococcus aureus (MRSA) Among Healthy Students from the Medical School
PC18	Nur Asyilla Che Jalil	The expression of insulin-like growth factor binding protein-related protein 1 (IGFBP-rP1) in breast and ovarian carcinoma patient with and without diabetes mellitus Type 2
PC19	Nur Karyatee Kassim	Reference Interval of Enhanced Liver Fibrosis (ELF) score in Healthy Multi-Ethnic Malaysian Population
PC20	Nur Syuhada Mohd Nafis	Association of Cervical Smear and Cervical Histology- A 5-Year Retrospective Study in Hospital Universiti Sains Malaysia

No.	Presenter	Title
PC21	Nurul Shafira Adi	Guided imagery relaxation audio as a psychological intervention tool for school-going children
PC22	Siti Hajar Umar	Comparison of uric acid level between good and poor control groups of Type 2 Diabetes Mellitus patients in Hospital Universiti Sains Malaysia
PC23	Tuan Salwani Tuan Ismail	Correlation between serum magnesium with eGFR among good and poor diabetic control
PC24	Wan Ruhma binti Wan Hassan	Serum lipid parameters in patients with a clinical diagnosis of STEMI and NSTEMI in Hospital Universiti Sains Malaysia, Kelantan
PC25	Wan Sazrina Wan Said	Self medication: product recommendation pattern by community pharmacists' for common illnesses
PC26	Wan Zuraida Wan Ab Hamid	A Study on Herpes viruses Infection and Epilepsy

Abstracts

19th National Conference on Medical and Health Sciences (19th NCMHS)

Universiti Sains Malaysia, Kota Bharu, Kelantan, Malaysia

7th-8th September 2014

Oral Presentations: Biomedical Sciences

OB01

Caffeic acid phenethyl ester (CAPE) shows fibrinolytic activities in *in vitro* studies

Abuzar Elnager¹, Rosline Hassan¹, Zamzuri Idris², Zulkifli Mustafa², Wan- Arfah Nadiah³, Sulaiman Siti Amrah⁴, Siew Hua Gan⁵, Wan Zaidah Abdullah¹

¹Department of Haematology, ²Department of Neurosciences, ³Unit of Biostatistics and Research Methodology, ⁴Department of Pharmacology, ⁵Human Genome Centre, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Caffeic acid phenethyl ester (CAPE) is a phenolic compound derived from plants, honey and propolis. It has been demonstrated to have many pharmacological activities.

Objective: To investigate the *in vitro* fibrinolytic activities of different doses of CAPE by using D-dimer (DD) assay, whole blood (WB) clot weight, LY30 parameter from Thrombo-elastograph (TEG) and fibrin morphology using confocal microscopy.

Methodology: Standardized WB clots were incubated in controls and CAPE at 3.75, 7.50, 15.00, 22.50 and 30.00 mM concentrations. DD, WB clot weights, TEG parameters for fibrinolytic activities were measured and fibrin structures were viewed under confocal microscopy. One way analysis of ANOVA, Wilcoxon sign Rank test and Kruskal Wallis ($p < 0.05$) statistical tests were used for analysis.

Results: There were significant mean differences of DD between different CAPE concentrations ($p < 0.001$) and significant median differences between pre and post WB clot weight for each respected concentrations of CAPE ($p < 0.005$). The removal of fibrin was observed under confocal microscopy and showed dose dependent effects. The LY30 from TEG test showed significant median difference results between two concentrations (15.00 and 22.50 mM) ($p = 0.001$) although there was a limitation in this test.

Conclusion: This study suggests that CAPE has fibrinolytic activities at minimum concentration of 15.00 mM *in vitro* and expressed dose dependent activities. CAPE has the potential to be an alternative thrombolytic agent and definitely require further investigations.

OB02

The cytotoxic/cytoprotective effects of enzymatically-produced acylated quercetin analogues on HT29 human colon carcinoma and CCD-112-CoN normal human colon cell

Amy Yi Hsan SAIK, Wee Sim CHOO

School of Science, Monash University Sunway Campus, Jalan Lagoon Selatan, 46150 Bandar Sunway, Selangor Darul Ehsan, Malaysia.

Introduction: Quercetin is a flavonoid with antioxidative and anticancer properties but is known to have low bioavailability. Enzymatic acylation of quercetin with aromatic or fatty acids could modify the bioavailability thus subsequently modifying the anticancer properties.

Objectives: This study aimed to compare the cytotoxic/cytoprotective effects of quercetin and its acylated analogues on HT29 human colon carcinoma and CCD-112-CoN normal human colon cells.

Methodology: Lipase-catalyzed acylation of quercetin with cinnamic, oleic and palmitic acids generated quercetin-4'-cinnamate (C₂₄H₁₆O₈), quercetin-4'-oleate (C₃₃H₄₂O₈) and quercetin-4'-palmitate (C₃₁H₄₀O₈), respectively. MTT assay was used to examine the effects of quercetin and acylated analogues on cell proliferation. Experiments were carried out at concentrations of 12.5, 25, 50, 100 and 200 µM and incubation periods of 24, 48 and 72 hours.

Results: In HT29, after 72-hour-incubation, at 200 µM, cell viability was reduced to 20.47±0.57% by quercetin-4'-cinnamate, significantly lower than quercetin (36.16±1.49%), quercetin-4'-palmitate (50.47±2.05%) and quercetin-4'-oleate (66.99±6.54%). In CCD-112-CoN, after 24-hour-incubation, at 200 µM, the cell viability was increased to 136.19±6.79% by quercetin-4'-palmitate, 110.75±11.73% by quercetin-4'-oleate, and 108.15±3.81% by quercetin. However, the cell viability was reduced to 44.40±4.11% by quercetin-4'-cinnamate. After 72-hour-incubation, at 200 µM, cell viability was maintained at 101.02±17.38% by quercetin-4'-oleate, but reduced to 86.70±13.72% by quercetin-4'-palmitate, 54.91±4.42% by quercetin and 18.33±2.12% by quercetin-4'-cinnamate.

Conclusion: Both quercetin-4'-palmitate and quercetin-4'-oleate were found to be cytotoxic to HT29 but not CCD-112-CoN, although their anticancer effects were similar to the original quercetin. Quercetin-4'-cinnamate had enhanced cytotoxic effects against HT29 as compared to quercetin, but it also caused cell death to CCD-112-CoN.

OB03

Comparison of image quality between Standard Imaging (SI) mode and Tissue Harmonic Imaging (THI) mode in ultrasound

Zoreefa Nadhratul Syaheera binti Zulkifli, Ahmad Zaky Harun, Mohd Hasni Muhammad Hanafi, Muhammad Syazwan Rosnan, Arefuddin Ahmed

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Atomic imaging with ultrasound (US) is accomplished with a pulse-echo technique generated by a transducer and sent into the patient. THI mode relies on the echoes produced at twice or thrice the fundamental frequency arising from the inhomogeneity of soft tissue.

Objective: This study aimed to compare the ultrasound image quality in THI and SI modes with different types of transducers.

Methodology: Image quality assessment was done by using SIEMENS (ACUSON X300) ultrasound scanner on a multipurpose tissue/cyst ultrasound phantom (84-317) from Fluke Corporation made of Zerdine polymer having monofilaments, cysts and other echogenic objects. The transducers used were curvilinear C6-2 (2-6 MHz), and linear VF8-3 (3-8 MHz) and VF13-5 (5-13 MHz). The phantom was scanned with different transducers at different frequencies in both THI and SI modes. Images were evaluated by Likert scale analysis method.

Results: THI mode showed superior image in terms of lateral resolution, speckle (noise) and overall image quality. However axial resolution was more or less equivocal in both modes. Cystic clearing was superior with THI in some settings but not in all.

Conclusion: This study showed that THI mode gives superior image quality over SI mode in visualizing majority of the phantom components.

OB04

Rare DNA words: biological motif identification and computational prediction of CGI and promoter regions in the human genome

Ezzeddin Kamil Mohamed Hashim, Rosni Abdullah

School of Computer Science, Universiti Sains Malaysia, 11800 Minden, Pulau Pinang, Malaysia.

Introduction: Human genome contains billions of DNA letters which provides enormous encoded information. Recent studies on DNA word histograms show peculiar pattern of rare DNA words.

Objectives: To analyze the compositions and biological motifs of the rare DNA words and to computationally predict the locations of CGI and promoter (the identified motifs) in the human genome.

Methodology: The first part was done and evaluated using bioinformatics tools, statistics, and deductive reasoning whereas the second part was done and evaluated using machine learning approaches.

Results: We inferred that rare DNA words are functional motifs based on their correlations with several annotated motifs such as CGI, promoter, 5'UTR, and open chromatin regions as well as several unique configurations of rare DNA words in numbers of promoters. Predicted CGI and promoter regions by our rare-word methods are ranked within the top five among the benchmarked programs.

Conclusion: Despite unique properties of rare DNA words in term of composition, distribution, enrichment, and topology, their micro-level functioning remained elusive. Generally, they are highly correlated with CGI and promoter. Furthermore, utilization of the identified empirical properties of rare DNA words to predict CGI and promoter motifs gave better results than the other methods in the class.

OB05

Dentinogenic differentiation potential of locally produced white Portland cement for dental application

Hany Mohamed Aly Ahmed¹, Norhayati Luddin¹, Thirumulu Ponnuraj Kannan^{1,2}, Khairani Mokhtar¹, Azlina Ahmad^{1,2}.

¹School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia; ²Human Genome Centre, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Introduction: Dentinogenic differentiation potential of endodontic biomaterials is a fundamental prerequisite for pulp regeneration and repair.

Objective: This study compared the dentinogenic differentiation potential of white Mineral Trioxide Aggregate (WMTA, Dentsply, USA) and a locally produced white Portland cement (MAWPC, Aalborg, Malaysia) on Dental Pulp Stem Cells (DPSCs).

Methods: The test materials were incubated in culture medium for seven days and extracts were prepared at a concentration of 12.5 mg/ml which was applied in 25-T flasks seeded with DPSCs for 1, 3, 7 and 14 days. For each time interval, RNA extraction and preparation of cDNA was carried out as recommended by the manufacturer. The expression of *BGLAP*, *DSPP*, *RUNX-2*, *SPP1* and *B-actin* (HKG) was examined using a real-time PCR. The PCR reaction mix and cycle conditions were followed according to the manufacturer's instructions. One way ANOVA was used for statistical analysis ($p < 0.05$).

Results: Our results showed that the expression of *BGLAP* in DPSCs was down-regulated at all-time intervals, except for day 14, where *BGLAP* was up-regulated compared to the control group but there was no significant difference between the delta cT values of WMTA and MAWPC ($p > 0.05$). Similar findings were observed with *DSPP*. The expression of *RUNX-2* was high for both the materials, and the up-regulation was comparable. *SPP1* was up-regulated for both the materials but the expression was significantly higher in WMTA than MAWPC ($p < 0.05$).

Conclusion: MAWPC can induce dentinogenic differentiation of DPSCs, and has the potential to be used as a viable substitute to WMTA.

OB06

A novel compound-heterozygous mutation of ARSA Gene in a Malaysian Malay family with Metachromatic Leucodystrophy

Jafar Mohseni¹, Hamshawagini Chandra^{1,3}, Chia Boon Hock¹, Zabidi Azhar Mohd. Hussin², Rowani Mohd. Rawi², Teguh Haryo Sasongko¹

¹Human Genome Centre, ²Department of Pediatrics, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian Kelantan, Malaysia, ³Institute of Biological Sciences, Universiti Malaya, Kuala Lumpur, Malaysia.

Introduction: Metachromatic Leucodystrophy (MLD) is an autosomal recessive liposomal storage genetic disorder, in which Arylsulfatase A (*ARSA*) gene mutation leads to Arylsulfatase enzyme deficiency and causes cerebroside sulphate lipid accumulation in nervous system and other organs.

Objective: This study aimed to identify *ARSA* gene mutation in a Malaysian Malay family with MLD.

Methodology: The proband is the third of four children. She was presented with neurodegeneration, progressive floppiness, regression of developmental milestones, mental retardation, dry skin, and epilepsy. She is currently bedridden. It was also found that her oldest sister had epilepsy. No clinical abnormalities were found in the other family members. The DNA of *ARSA* Gene from all the family members was sequenced.

Results: A compound heterozygous mutation of *ARSA* Gene in the proband, designated c.116dupG located in exon 1 and c.746 T>C located in exon 4 was found. Further sequencing of the rest of the family members showed that the father carried the mutation c.746 T>C in exon 4 and the mother carried the mutation c.116dupG in exon 1. None of the siblings carried the heterozygous mutation c.746 T>C. However, almost all the siblings carried the heterozygous mutation of c.116dupG, except the oldest.

Conclusion: A novel compound heterozygous mutation of *ARSA* Gene in a Malay family with MLD has been reported. It is apparent that the epilepsy shown by the oldest sibling is not related to MLD.

OB07

Use of an optimised modified liquid diet for the development of ethanol dependence in rats

Jaya Kumar, M.¹, Hermizi, H.², Yvonne-Tee Get Bee², Zalina, I¹.

¹BRAINetwork Centre for Neurocognitive Science, ²Biomedicine Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan.

Introduction: Ethanol withdrawal (EW) syndrome refers to symptoms that may appear when an individual reduces or stops ethanol consumption after a prolonged period of excessive drinking.

Objective: This present study investigates the manifestation of EW symptoms such as tail stiffness and stereotyped behaviours in rats following 20 days of ethanol consumption using an optimised Modified Liquid Diet (MLD).

Methodology: 24 Male Wistar rats were fed with a MLD containing low fat cow's milk, sucrose, and maltodextrin with gradual introduction of 2.4%, 4.8% and 7.2% ethanol for 20 days. Following 20 days of chronic ethanol administration, ethanol was removed from MLD at 10:00 hours and replaced with isocaloric carbohydrate. The rats were then observed at every hour for 12 hours from the time of withdrawal, for the manifestation of EW symptoms such as tail stiffness and stereotyped behaviours. During the period of EW, rats were treated intraperitoneally with normal saline and ethanol (2.5g/kg, 20% w/v) at 6th hours into withdrawal.

Results: A steady increase in stereotyped behaviours score was noticed during EW from hour one until hour seven while tail stiffness was observed at hour nine from withdrawal. Administration of acute ethanol significantly reduced EW induced stereotyped behaviours at hour seven until twelve while tail stiffness was observed at hour nine from withdrawal.

Conclusion: Manifestation of withdrawal symptoms such as tail stiffness and stereotyped behaviours following the withdrawal of ethanol from the MLD validates the use of the optimised MLD for the development of ethanol dependence in rats.

OB08

Establishment and evaluation of a LATE-PCR dipstick for the specific detection of *Schistosomiasis haematobium* in urine sample

Kabiru Mohammed¹, Ikeh E.I.³, Julia Omar¹, Faizul Rahman S², Nur Amalina Z², Muhamad Nuramin A², Fabiyi Joseph P⁴, Mohammed Rusli Abdullah¹, Aziah Ismail²

¹School of Medical Sciences, ²Institute for Research in Molecular Medicine, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia. ³Department of Medical Microbiology, School of Medical Science University of Jos Nigeria. ⁴Faculty of Veterinary Medicine, Department of Applied Parasitology Usmanu Danfodiyo University, Sokoto, Nigeria.

Introduction: *Schistosomiasis haematobium* is an important digenetic trematodes causing urinary schistosomiasis. The disease is considered as the most common, widespread parasitic infection with significant socio-economic and public health concern worldwide. The infection continues to be a significant cause of morbidity and mortality in developing and underdeveloped countries.

Objective: This study aims to establish Linear-After-The-Exponential-Polymerase Chain Reaction (LATE-PCR) dipstick for the detection of *S. haematobium* in urine samples.

Methodology: In an effort to establish and enhance accurate diagnosis of *S. haematobium* infection, LATE-PCR dipstick was used to detect the parasite in urine samples as the test is highly sensitive and specific with the advantages of rapid and simple to perform. Primers and probes targeting for gene ribosomal subunit were designed for species specific amplification of *S. haematobium*. In this study, the LATE-PCR dipstick parameters were optimized and detection of PCR products was performed using the nitrocellulose membrane coated with biotinylated anti-mouse IgG (control line), anti-FITC (target line) and assembled as lateral flow dipstick.

Results: The high sensitivity of the assay enables the detection of the parasitic DNA in urine samples as low as 1 fg/ μ l in concentration. The assay was evaluated with DNA from 30 positive urine samples and 20 negative urine samples confirmed by microscopy. The results revealed 100% sensitivity and specificity without any cross reactivity with other microorganism.

Conclusion: The findings of LATE-PCR dipstick developed in this study may constitute a valuable alternative for the diagnosis of *S. haematobium* infection in underdeveloped countries.

OB09

Tualang honey improves memory performance and decreases depressive-like behaviours in rats exposed to loud noise stress

Khairunnuur Fairuz Azman¹, Rahimah Zakaria¹, Che Badariah Ab Aziz¹, Zahiruddin Othman², Badriya Al-Rahbi³

¹Department of Physiology, ²Department of Psychiatry, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ³Institute of Health Sciences, Muscat P.O. Box 3720, Ruwi Code 112, Oman

Introduction: Recent evidence has demonstrated dietary influence on the manifestation of different types of behaviours induced by stressor tasks.

Objective: This study examined the effects of Tualang honey supplementation with the goal of preventing or even attenuating the occurrence of stress-related behaviours in male rats subjected to noise stress.

Methodology: Forty eight adult male rats were randomly divided into four groups: i) non-stressed with placebo, ii) non-stressed with honey, iii) stressed with placebo, and iv) stressed with honey. The supplementation was given orally, once daily at 200 mg/kg body weight. Two types of behavioural tests, novel object recognition test to evaluate working memory and forced swimming test to evaluate depressive-like behaviour were performed. Data were analyzed using repeated measure two-way ANOVA with $p < 0.05$ indicates statistical significance.

Results: It was observed that the rats subjected to noise stress expressed higher levels of depressive-like behaviour and lower memory functions compared to unexposed control rats. The results indicated that the supplementation regimen successfully counteracted the effects of noise stress. The forced swimming test indicated that climbing and swimming time were increased significantly whereas immobility time was significantly decreased in honey supplemented rats, thereby demonstrating an antidepressant-like effect. Furthermore, cognitive function was shown to be intensely affected by noise stress, but the effects were counteracted by the honey supplementation.

Conclusion: These findings suggest that sub-chronic exposure to noise stress induced depressive-like behaviour and reduced cognitive functions can be attenuated by Tualang honey supplementation. Further studies to examine the mechanism of Tualang honey in mediating these effects are warranted.

OB10

Cemento/osteogenesis of SHED: a biochemical, morphological and microscopical study

Manal Farea¹, Adam Husein¹, Ahmad Sukari Halim², Nurul Asma Abdullah³, Khairani Idah Mokhtar¹, Zurairah Berahim¹, Kasmawati Mokhtar¹

¹School of Dental Sciences, ²School of Medical Sciences, ³School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Stem cells derived from human exfoliated deciduous teeth (SHED) are easily acquired and they represent an attractive autologous cell source for cell-based tissue engineering. However, their ability to differentiate into cementoblast-like cells has not been investigated yet.

Objectives: The aim of this study was to investigate the cemento/osteogenic differentiation capacity of SHED co-cultured with human Hertwig's epithelial root sheath cells (HERS) in the presence of chitosan scaffold-TGF β ₁.

Methodology: HERS cells were isolated and characterized, before being co-cultured with SHED with/without chitosan scaffold-TGF β ₁. SHED proliferation and attachment to chitosan scaffold was examined using a scanning electron microscope. For cemento/osteogenic differentiation, alkaline phosphatase activity and mineralization assay were evaluated and real time-PCR and western blot analysis were performed.

Results: Our results showed that SHED are highly proliferative and that HERS in a combination with chitosan-TGF β ₁ has the potential effect to stimulate the differentiation of SHED along the cemento/osteoblastic lineages, which was demonstrated by high ALP activity, strong mineral deposition, and the up-regulation of cementum/bone-related genes/proteins expression (ALP, COL I, BSP, OCN, and CAP).

Conclusions: These results demonstrate, at the biochemical, morphological and microscopical levels, the multi-potency of SHED and thus highlight their potential therapeutic value for cell-based tissue engineering.

OB11

Low frequency of TSC1 mutations among Malaysian patients with Tuberous Sclerosis Complex; A preliminary report

Nik Mohd Ariff N. A. M^{1,3}, Nur Farrah Dila^{1,3}, Salmi Abdul Razak², Narazah Mohd. Yusof⁴, Zabidi Azhar Mohd. Hussin^{2,3}, Teguh Haryo Sasongko^{1,3}

¹Human Genome Centre, ²Department of Pediatrics, School of Medical Sciences; ³Center for Neuroscience Services and Research, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia. ⁴Advanced Medical and Dental Institute, Universiti Sains Malaysia, Bertam, Pulau Pinang, Malaysia.

Introduction: Tuberous sclerosis complex (TSC) is an autosomal dominant sporadic disease which shows multiple major and minor phenotype features in various parts of the body. TSC is caused by mutations affecting either *TSC1*(9q34) or *TSC2*(16p13.3) genes. *TSC1* mutations have been described in only about 20-30% of TSC cases. No data have been described from Malaysian patients.

Objective: This study aimed at identifying *TSC1* mutations in Malaysian patients affected with Tuberous Sclerosis Complex.

Methodology: Five patients fulfilled the 2013 clinical diagnostic criteria. Informed consent was obtained from the patients parents prior to taking blood. Genomic DNA was extracted from whole blood using commercially available kit. The DNA was subjected to long-range PCR and the amplicons were subjected to Illumina Miseq Targeted Sequencing. The data was analyzed using Illumina VariantStudio software.

Results: Out of 5 patients, only one was identified with *TSC1* mutation, designated c.2071C>T;p.R691X located at exon 7. This nonsense mutation is predicted to result in truncated protein. However, our analyses found *TSC2* mutations in the other 3 patients. No other mutation was identified in any other another patient due to amplification failure.

Conclusion: Our preliminary results show low frequency of *TSC1* mutations among Malaysian patients with TSC in a similar figure to other patient populations. Given that we identified mutations in 4 out 5 studied patients, we suggest the potential of Targeted-Gene Sequencing on MiSeq Platform for clinical application.

OB12

Image quality comparison between Filtered Backprojection (FBP) and different types of iterative reconstruction in single photon emission computed tomography (SPECT)

Nik Nur Sabrina Ishak, Abdullah Waidi Idris, Safri Zainal Abidin, Arefuddin Ahmed

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: There have been many conflicting evidences on superiority of different iterative reconstructions like iterative wallis (ITW) and ordered-subset expectation maximization (OSEM) over the FBP in improving the diagnostic image quality in nuclear medicine SPECT.

Objective: This study aimed to compare the image quality of FBP reconstruction with different iterative reconstruction methods.

Methodology: Image quality assessment was done by comparing image contrast using Jaszczak phantom and spatial resolution with a point source, both using ^{99m}Tc-pertechnetate source. The image reconstruction in ITW, OSEM-2D and OSEM-3D was done by using Gaussian filter with a full width half maximum (FWHM) fixed at 9.0 mm. FBP was done by using Butterworth filter with 0.5 cut-off frequency and order 6 for both contrast and spatial resolution and same parameters were also used for ITW spatial resolution. To know the effect of the iterations and subset numbers, changes to iteration were made while maintaining subset numbers (6 subsets) and vice versa (9 iterations). The results from ITW, OSEM-2D and OSEM-3D were then compared with FBP.

Results: In measuring the contrast, OSEM-2D had the highest value and ITW had the lowest. On the other hand ITW showed the best spatial resolution while the OSEM-3D had the worst spatial resolution.

Conclusion: The findings of this study showed that the iterative image reconstructions gave superior image quality over FBP, where OSEM-2D gave the highest contrast and ITW yielded the best spatial resolution; thus proving the superiority of iterative methods over FBP in SPECT imaging.

OB13

REM sleep deprivation and spatial learning and memory in Sprague Dawley rats

Norhida Ramli, Idris Long, Zalina Ismail

BRAINetwork Center for Neurocognitive Sciences, School of Health Sciences, Health Campus, USM, Kubang Kerian, Kelantan.

Introduction: Learning and memory involves many intricate neural mechanisms in the brain. Sleep in the stage of Rapid Eye Movement (REM) is believed to be an important step for learning and memory consolidation.

Objective: This study investigated the effect of REM sleep deprivation in Sprague Dawley rats on spatial learning and memory via Morris Water Maze tasks.

Methodology: Eighteen male Sprague Dawley rats were equally divided into three groups. REM sleep deprivation was induced by putting them on a small platform in a tank of water (RSD group). Positive control group were put in the same condition as the RSD group except that they were put on a wider platform where they were able to sleep and relax well (PC group). Negative control groups were put in normal propylene cages (CC group). After 72 hours of sleep deprivation, a Morris Water Maze task was conducted to assess spatial learning and memory performance.

Results: The mean daily escape latency for rats from each group was counted. The mean daily escape latency of rats was reduced significantly from day 1 to day 5 for each group. However, the mean daily escape latency were significantly longer in RSD group compared to PC and CC groups on days 3, 4 and 5.

Conclusion: REM sleep deprivation can reduce spatial learning and memory in Sprague Dawley rats. The molecular mechanism of this effect is still elusive and is currently being investigated.

OB14

Targeted-gene TSC2 sequencing in patients with Tuberous Sclerosis Complex: Potentials for the clinical applications of Next-Generation Sequencing

Nur Farrah Dila Ismail^{1,3}, Nik Mohd Ariff Nik Abdul Malik^{1,3}, Jafar Mohseni¹, Rani Abdulqawee Mahyoob¹, Salmi Abdul Razak², Narazah Mohd Yusof⁴, Zabidi Azhar Mohd Hussin^{2,3}, Teguh Haryo Sasongko^{1,3}

¹Human Genome Centre, ²Department of Paediatrics, School of Medical Sciences; ³Center for Neuroscience Services and Research, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia. ⁴Advance Medical and Dental Institute, Universiti Sains Malaysia, Bertam, Pulau Pinang, Malaysia.

Introduction: Molecular diagnosis for Mendelian disorders with large disease-causing gene has always been challenging. Tuberous Sclerosis Complex (TSC) is an autosomal dominant disorder characterized by broad phenotypic spectrum and caused by mutations in *TSC1* or *TSC2* genes. Both genes comprised around 90 kilobases of genomic region with more than 60 coding exons. We report here our preliminary molecular genetics analyses of *TSC2* gene in 5 Malaysian patients with TSC using Next-Generation Sequencing platform.

Objective: To identify mutations of *TSC2* gene in Malaysian patients with TSC.

Methodology: All patients fulfilled the 2013 clinical diagnostic criteria. Informed consent was obtained from the patient's parents prior to taking blood. Genomic DNA was extracted from whole blood using commercially available kit. The DNA was subjected to long-range PCR and the amplicons were subjected to Illumina Miseq Targeted Sequencing. The data was analysed using Illumina VariantStudio software.

Result: We identified *TSC2* mutation in 3 of the patients. Each carries different pathogenic mutations designated as c.4344_4345insC; p.S1448S-FsX1523 (insertion-frameshift), c.3754C>A; p.S1252X (nonsense) and c.1361+1G>A (splice site). Another patient in our cohort was reported somewhere else to show *TSC1* mutation, while another one does not show any mutation due to incomplete fragments to be sequenced.

Conclusion: Our preliminary molecular genetics analyses on TSC patients show the clinical application potentials of using Next-Generation Sequencing.

OB15

The CYP2C9 gene polymorphisms in Orang Asli Jahai population

Rasmaizatul Akma Rosdi¹, Surini Yusoff¹, Nurfadhina Musa², Mohamed Saleem³, Narazah Mohd. Yusoff³

¹School of Medical Sciences, ²Institute for Research in Molecular Medicine (INFORMM), Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia. ³Advanced Medical and Dental Institute, Universiti Sains Malaysia, Bertam, 13200 Kepala Batas, Pulau Pinang, Malaysia.

Introduction: Polymorphisms in *CYP2C9* gene have been shown to encode enzymes with altered catalytic activity for variety of drugs including S-warfarin, non-steroidal anti-inflammatory drugs and phenytoin among others. Therefore, inter-individual, and inter-ethnic variance in *CYP2C9*-mediated drug metabolism may be explained by its sequence variation in the gene. However, till to date, the genetic variations of the gene among indigenous people population remain scarce.

Objectives: To determine the main haplotypic variants of *CYP2C9* gene (*CYP2C9*2* and *CYP2C9*3*) distributed amongst Orang Asli (OA) Jahai; one of the Malaysia's indigenous populations.

Methodology: Genomic DNA was extracted from whole blood obtained from 155 OA Jahai subjects whose ethnic origin was ascertained up to three generations. The isolated DNA was subjected to the previously developed nested allele-specific multiplex PCR. Direct DNA sequencing was performed on a subset of sample to validate the test results.

Results: Genotyping results for *CYP2C9*2* allele was not observed in OA Jahai but *CYP2C9*3* allele at a high frequency of 0.34 was encountered, making them the most frequent carriers of the allele thus far reported among other indigenous people of the world.

Conclusion: 18% of OA Jahai's were poor metabolisers while 41% were intermediate between extensive and poor metabolisers. This information is, therefore, critical in reducing possible adverse drug reactions and drug-drug interaction by modifying drug selection or dosing adjustment in poor- or intermediate-metabolisers of *CYP2C9* enzyme. The high frequency of *CYP2C9*3* haplotype observed in this small cohesive ancestral population was likely to be the result of genetic drift.

OB16

Effects of chronic sodium arsenite exposure on hippocampus and impairment of spatial learning and memory in male sprague-dawley rats.

Saima Ashraf, Zalina Ismail

BRAINetwork Center for Neurocognitive Science, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Sodium arsenite is a common inorganic contaminant in the environment. Chronic sodium arsenite exposure has an adverse effect on neurobehavioral function. Many epidemiological studies and in vitro experiments have found that chronic arsenic exposure influences memory formation and spatial learning.

Objective: This study explored the effects and underlying mechanisms of chronic exposure of sodium arsenite on memory and spatial learning.

Methodology: Thirty two Sprague-Dawley (SD) male rats were randomly divided into four groups (n=8 /group), a control group and three treatment groups. The rats were exposed to 3mg/kg, 5mg/kg and 8mg/kg dose of sodium arsenite in exposure groups. Sodium arsenite was administered by IP injection for 2 months. The Morris Water Maze was then used to evaluate the spatial memory of the rats. The concentration of arsenic in the blood and the brain was determined by an atomic fluorescence absorption spectrometer. The structure of hippocampal neurons was observed by microscope.

Results: We found that the concentration of sodium arsenite in the blood and the brain increased in a dose-response manner ($P < 0.05$). The performance of rats in the sodium arsenite exposed group (5mg/kg and 8mg/kg) was significantly impaired in the Morris Water Maze than those in the 3mg/kg and control group ($P < 0.05$). Sodium arsenite exposure resulted in abnormal structural changes in the CA1 and CA2 areas of the hippocampus.

Conclusion: Together, chronic sodium arsenite exposure results in detrimental changes in the structure of the hippocampus, which contributes to the sodium arsenite-induced impairment of spatial learning and memory.

OB17

Optimization and development of long-range PCR for whole gene amplification

Sathiya Maran¹, Siti Aisyah Faten¹, Wan Rohani Wan Taib^{1,4}, Wan Pauzi Wan Ibrahim^{2,4}, Abdul Rahim Wong³, Ravindran Ankathil¹, Mohd Rizal Mohd Zain², Tan Huay Lin¹

¹Human Genome Center, ²Department of Paediatrics, Universiti Sains Malaysia, 16150 Kubang Kerian, ³Department of Paediatrics, Hospital Raja Perempuan Zainab II, 15586 Kota Bharu, Kelantan, Malaysia. ⁴Faculty of Medicine and Health Sciences, Universiti Sultan Zainal Abidin, 20400 Kuala Terengganu, Terengganu, Malaysia.

Introduction: Long-range PCR (LR-PCR) has been commonly used to prepare specific high-molecular-weight DNA fragments for a variety of applications including cloning, genome mapping, sequencing and contig construct. The recent advancements of combining Next-Generation Sequencing and LR-PCR enables not only sequencing of the coding exons and conserved splice sites but also provides the capacity to analyze the entire intronic sequence of a target gene.

Objective: This study aims to optimize and develop LR-PCR for amplification of a targeted gene with the genomic size of 40kb.

Methodology: Four sets of primers that span the entire gene were synthesized. Two-step PCR cycling method using SeqTarget Long-range PCR kit (Qiagen, Germany) was used in amplifying the gene of interest.

Results: Current study has successfully optimized all the four sets of primers encompassing the entire targeted gene. LR-PCR technique was employed using specific annealing temperature and various extension time for each set of primers; 62°C for 10 minutes, 64°C for 10 minutes, 64°C for 10 minutes, 62°C for 10 minutes respectively.

Conclusion: An effective approach for whole gene amplification suited for next-generation targeted sequencing was described in this study. This method also promises a low cost, fast turn-around time and improved accuracy in whole gene amplification.

OB18

Association of *MDM2* 309T>G polymorphism with the risk of HPV-mediated cervical cancer in Malaysian population

Shing Cheng Tan¹, Mohd Pazudin Ismail², Nor Hayati Othman³, Daniel Roza Duski⁴, Ravindran Ankathil¹

¹Human Genome Centre, ²Department of Obstetrics and Gynecology, ³Department of Pathology, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ⁴Department of Obstetrics and Gynecology, Hospital Sultan Ismail, 81100 Johor Bahru, Johor, Malaysia

Introduction: Murine double minute 2 homolog (MDM2) protein, encoded by *MDM2* gene, is a negative regulator of the p53 tumor suppressor protein. Polymorphism within the *MDM2* gene may therefore play a role in modulating the risk of cancers.

Objective: To investigate the association of *MDM2* 309T>G polymorphism with human papillomavirus (HPV)-mediated cervical cancer risk among Malaysian subjects of Malay and Chinese ethnicities.

Methodology: The polymorphism was genotyped on 60 histopathologically confirmed cervical cancer patients and 60 cancer-free female controls by using PCR-RFLP method. The genotype of HPV present in the cervical specimen was determined by using flow-through hybridization technique. The association between the polymorphic genotypes and cervical cancer risk was evaluated by using unconditional logistic regression analysis, with the wild type genotype served as the reference.

Results: The homozygous variant genotype was found to be significantly associated with an increased risk of cervical cancer (OR=3.03, 95% CI=1.09-8.46, $p=0.03$). Stratification by ethnicity of the study subjects indicated that significant risk association was present only among the Malays (OR=4.25, 95% CI=1.23-14.64, $p=0.02$), but not the Chinese ($p>0.05$). When the results were analyzed according to the HPV genotypes of the patients, we found that the homozygous variant genotype conferred a statistically significant risk increment only for cervical cancers mediated by HPV-16 (OR=4.85, 95% CI=1.06-22.11, $p=0.04$), but not the other types of HPV ($p>0.05$).

Conclusion: The homozygous variant genotype of the *MDM2* 309T>G polymorphism could increase cervical cancer risk in the Malaysian population, particularly among the Malays and among the subjects infected by HPV-16.

OB19

Comparison of conventional allele-specific PCR designed primers and Yaku-Bonczyk method designed primers

Siti Aisyah Faten Mohd. Sa'dom¹, Sathiya Maran¹, Mohd Rizal Mohd Zain², Wan Pauzi Wan Ibrahim^{2,3}, Huay Lin Tan¹

¹Human Genome Centre, ²Department of Pediatrics, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan. ³Faculty of Medicine and Health Sciences, School of Clinical Medicine, Universiti Sultan Zainal Abidin, 20400 Kuala Terengganu, Terengganu.

Introduction: The development of highly automated and expensive methods is widely used to improve the single nucleotide polymorphism (SNP) detection process in genotyping analysis. However, allele-specific PCR is still the preferred method to be used as it is a simple and economical to detect SNPs.

Objective: The objective of this study was to investigate the *SMAD7* polymorphisms using allele-specific PCR (AS-PCR) and to compare the conventional designed AS-PCR primers with Yaku-Bonczyk method designed primers.

Methodology: Allele-specific PCR method was developed to detect the *SMAD7* SNPs, namely rs3764482, rs3809923 and rs375444823. Using the conventional method, the 3' terminal base of each specific primer (either forward or reverse) matching to the wild-type and mutant alleles respectively were designed for AS-PCR assay. Another set of primers were generated for all the SNPs using the Yaku-Bonczyk method where two base pairs mismatch on the first and the third base pair at the 3' end of the primer. A common forward or reverse primer was designed to amplify the SNPs. Subsequently, PCR optimization was carried out to obtain the best annealing temperature. PCR products that were amplified with AS-PCR primers were visualized on agarose gel.

Results: The presence of PCR band with the estimated size for each SNP has accurately detected the homozygous wild-type and heterozygous variant using Yaku-Bonczyk method. Positive controls were included in gel electrophoresis to ensure that the right bands were amplified.

Conclusions: This effective and cost-efficient method can be implemented for genetic polymorphism studies in the future.

OB20

Preliminary repeated dose 28-days oral toxicity study of old Tualang honey in Sprague Dawley rats

Siti Nurfarhana Sabireen¹, Siti Amrah Sulaiman², Wan Ezumi Mohd Fuad¹

School of Health Sciences¹, School of Medical Sciences², Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Tualang honey (TH) stored for a year had higher 5-hydroxymethylfurfural (5-HMF) concentration that exceeded the international recommended levels. It is a neo-formed contaminant that exhibits high toxicological potential.

Objective: This study aimed to investigate the potential effects of old TH via sub-acute (28 days) toxicity study in Sprague Dawley (SD) rats.

Methodology: This is an experimental study adopting OECD Guidelines No. 47, with the equal number of both males and females SD rats were chosen in this study. Ten rats (5 females and 5 males) were assigned into groups receiving different dosages of 0, 200, 1000, 2000 mg/kg/day old TH or 2000 mg/kg/day fresh TH once daily for a period of 28 days. All rats were examined for general toxicological observations and weighed daily. On the day of scheduled sacrifice, blood was collected from the fasted rats for measurement of haematological, biochemical and hormonal assays. Data collected were analysed statistically.

Results: Results obtained revealed that old TH did not alter general health of all rats. There were also no significant changes in most of the haematological, biochemical and serum hormonal parameters of the rats. However, both creatinine and oestradiol levels of female rats that received 1000 mg/kg old TH were found to be significantly increased when compared to the control group. The elevated creatinine might be due to the biotransformation effects of 5-HMF into another reactive compound, 5-sulfoxymethylfurfural (SMF) in vivo. While the increased oestradiol levels might be influenced by the presence of phytoestrogen in TH. For male rats on the other hand, there were no significant differences in all parameters between control and treated groups of animals.

Conclusion: The preliminary findings demonstrated that the consumption of old TH could give impact in creatinine and oestradiol levels in female rats.

OB21

MicroRNA profiling of the enhanced differentiation of mesenchymal stem cells into neural-like progenitor cells due to IGF-1 reveal specific miRNA signature

Tee Jong Huat^{1,2}, Amir Ali Khan^{4,2}, Jafri Malin Abdullah^{2,3}, Hasnan Jaafar²

¹Department of Pathology, ²Department of Neuroscience, School of Medical Sciences; ³Neuroscience Centre for Services and Research (P3Neuro), Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ⁴Department of Applied Biology, University of Sharjah, United Arab Emirates.

Introduction: In this research, we enhanced the early differentiation of mesenchymal stem cells (MSCs) into neural progenitor cells (NPCs) by using combination of EGF+bFGF+IGF-1 compared to the published protocol of using the combination of EGF+bFGF. Addition of IGF-1 in the differentiation improved the quality of MSCs-derived NPCs due to enhanced cellular proliferation and reduced apoptosis. However, the role of microRNAs in early neural differentiation of MSCs remains unknown.

Objective: To unravel the roles of specific microRNA activated by IGF-1 which in turn enhance the early differentiation of MSCs into NPCs.

Methods: We induced MSCs differentiation using three different combinations of growth factors: (A) EGF+bFGF, (B) EGF+bFGF+IGF-1 and (C) negative control involving no growth factors. Total RNA was isolated at Day 1, 3 and 5 post-induction from the three groups. Microarray analysis was carried out using Affymetrix microRNAs geneChip 2.0 according to manufacturer's protocol. CEL files generated were analyzed using Expression Console software. The candidate miRNAs derived from all groups were analyzed using DAVID software.

Results: IGF-1 treated MSCs-derived NPCs (B) exhibited highest cell proliferation and better survivability as compared to control and A groups. The annotated microRNAs fingerprints (GEO accession number GSE60060) delineated the differentially expression of miR-26a and miR-181a specific to IGF-1 addition; their uniquely expressions were confirmed by real-time PCR assay.

Conclusions: IGF-1 enhanced the early differentiation of MSCs into NPCs and trigger the expression of unique miRNAs (of miR-26a and miR-181a) which warrant further investigation to unravel their roles in the differentiation.

OB22

Identification of chemical constituents of water and ethanolic extracts of *Apis mellifera* propolis from Malaysia and their antimicrobial screening

Tuan Nadrah Naim Tuan Ismail¹, Siti Amrah Sulaiman², Thirumulu Ponnuraj Kannan¹, Siti Suraiya Md Noor², Norul Badriah Hassan²

¹ School of Dental Sciences, ² School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Propolis is a resinous material collected by honeybees from various plant sources. The composition of propolis depends on the vegetation area and method of extraction. To date, there are no reports on the chemical constituents of *Apis mellifera* propolis from Malaysia with very limited studies on its water extract properties.

Objectives: This study aimed to determine the chemical constituents of water (WEP) and ethanolic (EEP) extracts of *Apis mellifera* propolis from two regions in Malaysia (Johor and Penang) and to screen their antimicrobial activity.

Methodology: WEP and EEP were prepared and trimethylsilylated compounds were analysed by gas chromatograph mass spectrometer. The compounds were characterised by comparison with library searches. Then, the extracts were screened for antimicrobial activity against *Staphylococcus epidermidis* using agar well diffusion assay.

Results: More than forty individual compounds were identified and four compounds were identified for the first time from propolis includes m-salicylic acid, β -panasinsene, mannose-6-deoxy and β -DL-lyxopyranose. The main compounds identified from WEP and EEP were phenolic compounds and terpenoids, respectively. All extracts inhibited *Staphylococcus epidermidis* with zone of inhibition was above 20 mm. The zone of inhibition of WEP was higher than that of EEP. WEP from Penang showed the highest zone of inhibition (33 mm) and as good as standard (doxycycline).

Conclusion: The WEP and EEP of *Apis mellifera* propolis from Malaysia demonstrate antimicrobial potential and WEP should be considered as an alternative to EEP especially when water extract application is more desirable mainly for intestinal, dermatological and dental application.

Oral Presentations: Clinical Sciences

OC01

High phosphate-containing foods and beverages: perceptions of the future healthcare providers on their harmful effect in excessive consumption

ATM Emdadul Haque

Faculty of Medicine, University Kuala Lumpur Royal College of Medicine Perak, No. 3, Jalan Greentown, 30450 Ipoh, Perak, Malaysia

Introduction: Phosphorus is an essential nutrient which is regularly consumed with food, and exists in the body as phosphate. Phosphate is needed for bone mineralization and is an important component of cellular structures. Excessive accumulation of phosphate is an important driving factor of mortality in chronic renal failure patients; of relevance, these patients are usually provided healthcare by doctors, nurses and pharmacists.

Objective: This study was planned to determine the level of awareness of the future healthcare providers about the phosphate-containing foods and beverages and to assess their knowledge on the harmful effects of excess phosphate consumption.

Methodology: A questionnaire was developed and distributed among the Year-1 medical, nursing and pharmacy students. 432 medical, nursing and pharmacy students responded with age ranging from 18-24 years.

Results: About 70% of the respondents were female with majority (90.7%) from Malay ethnicity. Among the respondents, 29.9% were medical, 35.4% were pharmacy and 34.7% were nursing students. 79.2% students knew that phosphate was an important component of the body but only 61.8% knew that consuming too much phosphate could be harmful to the body. Despite 97% of the students knew that carbonated soda contained high sugar, surprisingly 77% of them did not know the presence of high phosphate in the same soda drinks; in the similar line of observation, 67% did not know the presence of it in the fast food. However, it was encouraging that 94% of the students wanted to know more about the effects of phosphate consumption, 74.3% were willing to give up drinking soda and eating fast food, and 52% considered taking green coconut water instead of soda drinks.

Conclusion: It is therefore central to take educational initiative to increase the awareness of the future healthcare providers about phosphate-containing food & its harmful effects in excessive consumptions.

OC02

Edentulism and associated risk factors of elderly living in Pasir Puteh, Kelantan

Azlan Jaafar, Mohd Zulkarnain Sinor, Norkhafizah Saddki, Ruhaya Hassan

School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian Kelantan, Malaysia

Introduction: Edentulism is a condition of total tooth loss and related to elderly person.

Objective: To determine the prevalence and risk factors associated with edentulism among elderly resided in Pasir Puteh, Kelantan

Methodology: A simple random multistage cross-sectional study comprised of six hundred (n=600) elderly age 60 years and above was conducted at area of Selising, Pasir Puteh, Kelantan. The oral examination was performed by single examiner according to the WHO standard criteria using head light, WHO probe and disposable mouth mirror. Before commencing with oral examination a home-based interview was conducted and recorded. Data obtained were then analysed using IBM SPSS version 20.0 with the *p*-value was set at 0.05.

Results: The prevalence of edentulism was 61.8%. In the multivariate analysis, age, gender, time since last dental visit, dental anxiety and level of education of the elderly were significantly associated with edentulism.

Conclusion: Age factor, female and fear to dental treatment were more likely to be the risk factors associated with edentulism among elderly.

OC03

Clinical characteristic of vertigo and its outcome amongst children and adolescence attending vertigo clinic at Hospital Universiti Sains Malaysia: a retrospective study

Basheer Lawal, Rosdan Salim

Department of ORL- Head & Neck Surgery, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Vertigo is a specific kind of dizziness express as an illusion of movement of oneself or the environment. It is not common in children and adolescence, its presentation is usually non classical in this age group. In this study we review the clinical and characteristic and outcome of vertigo in children and adolescence attending vertigo clinic at Hospital Universiti Sains Malaysia.

Objective: To review clinical characteristic of vertigo and its outcomes in Paediatric and Adolescent age group.

Methodology: This is a retrospective observational study. The study group consists of 24 patients' age between 5-20 years out of all patients who attended Vertigo Clinic at Hospital Universiti Sains Malaysia from 2007 to 2013.

Results: The most common cause of giddiness from this study is childhood paroxysmal vertigo account for 33 %, followed by paroxysmal positional vertigo in 20%, then Sensory neural hearing loss which account for 16.6%. Chronic suppurative otitis media and anxiety disorder each account for 8.3%. One case of cholesteatoma and another case of ear wax was seen each account for 4.1%. No diagnosis is reached on three cases accounting for 12.5%.

Conclusion: Number of children and adolescence suffering from vestibular disorder is increasing. Presentation can be confusing because of their immature structural development. Generally treatment outcomes is better than adult.

OC04

The effects of *Channa striatus* as an adjunct therapy in treatment of allergic rhinitis

Bathma Dhevi Susibalan¹, Baharuddin Abdullah¹, Azidah Abdul Kadir², Norhafiza Mat Lazim¹

Department of Otorhinolaryngology-Head & Neck Surgery ¹, Department of Family Medicine ², School of Medical Sciences, Universiti Sains Malaysia, 16150 Kota Bharu, Kelantan, Malaysia.

Introduction: This is a randomized controlled trial, double-blind, comparative study of giving *Channa striatus* extract or better known as ikan haruan versus placebo as an adjunct in treatment of allergic rhinitis.

Objectives: This study aims to determine the therapeutic effect of *Channa striatus* in allergic rhinitis patient, by comparing the levels of specific IgE and total nasal symptom score between the *Channa striatus* and placebo group.

Methodology: A total of 70 patients were selected and assigned to treatment and placebo groups. They received treatment for 6 weeks while continuing their nasal spray and loratidine along with oral *Channa striatus* extract (500mg).The other group was given placebo. Patients were screened with detailed history, physical examination and nasoendoscopy, and skin prick test. The patients will answer questionnaires at the beginning and end of the study to assess their symptom score. A measurement of pre and post of specific IgE were taken.

Results: In this study, majority of subjects, 94% were positive for house dust mite (*Dermatophagoides pteronyssinus* and *Blomia tropicalis*). The remaining were found sensitive to shrimp. In this study, we compared the mean difference for nasal symptoms score between the control and placebo, and it shows improvement in all symptoms except for sneezing and nasal discharge when given *Channa striatus*. While comparing the levels of IgE in pre and post treatment with *Channa striatus*, reduction of specific IgE as compared to the placebo group was significant.

Conclusion: *Channa striatus* is found to be beneficial and proves to improve the patient symptoms while also significantly decreases the levels of IgE, proves to be beneficial and can be used as an adjunct in the treatment of allergic rhinitis in the coming years.

OC05

Bee bread supplementation improves total antioxidant status and running performance in recreational runners

Fadzel Wong Chee Ping¹, Foong Kiew Ooi¹, Mahaneem Mohamed², Chee Keong Chen¹

¹Sports Science Unit, ²Department of Physiology, School of Medical Sciences, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia.

Introduction: Antioxidant is a substance that helps to reduce the severity of oxidative stress and could possibly enhance running performance.

Objective: This study investigated the effects of short term supplementation of bee bread on antioxidant status and running performance

Methodology: Twelve recreational runners were recruited in this randomised double blind placebo controlled cross-over study. Subjects consumed bee bread or placebo at a dosage of 20 gram per day for 8 weeks. On the day of the experimental trial, subjects ran at 60% of their respective VO_{2max} on a treadmill for 90 minutes and this was immediately followed by a 20 minute-running time trial performance. Room temperature and relative humidity were measured at intervals of 10 minutes. Blood samples were collected at intervals of 20 minutes during trials to determine plasma glucose, insulin, haemoglobin and haematocrit. Blood were also collected at pre-exercise, immediately after exercise and 24 hours post exercise to determine total antioxidant status (TAS). Statistical analyses were performed using Repeated Measure ANOVA.

Results: The distance ran in the time trial for bee bread trial was significantly longer compared to the placebo trial. Room temperature, relative humidity, plasma glucose, insulin, haemoglobin and haematocrit were not significantly different between study groups. TAS in was significantly in bee bread group. Plasma glucose, insulin and TAS increased significantly during exercise as compared to resting value in both trials ($p < 0.01$).

Conclusion: Supplementation of bee bread for 8 weeks at a dosage of 20 g daily seems to increase TAS and may have a beneficial effect on running performance.

OC06

Parotid tumour and a near death experience: where is the finishing line?

Ganesh Ramalinggam¹, Norhafiza Mat Lazim¹, Baharudin Abdullah¹, Wan Faiziah Wan Abdul Rahman², Fatimah Mohd Nor³

¹Department of Otorhinolaryngology, ²Department of Pathology, ³Department of Plastic Surgery, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Parotid tumours represent one of common tumours seen in the field of otorhinolaryngology. Common benign tumours include pleomorphic adenoma and Warthin's tumour while most common malignant parotid gland tumour is mucoepidermoid carcinoma. This case, however, highlights a rare parotid tumour with an unexpected post-operative cardiac complication.

Case report: A 35-year-old Malay gentleman with no prior medical illness first presented with history of left parotid swelling for more than 10 years. He was compelled to seek treatment after a drastic increase in size within 2 weeks prior to presentation. Patient has been an active smoker past 20 years. Examination revealed a large, lobulated left parotid mass measuring 10 cm x 9 cm x 8 cm which was hard, not tender and fixed to overlying skin. There were no palpable neck nodes and facial nerve was intact. Fine needle aspiration cytology revealed mucoepidermoid carcinoma ex pleomorphic adenoma. He underwent tracheostomy, left extended total parotidectomy, left supraomohyoid neck dissection with soft tissue reconstruction with free fasciocutaneous anterolateral thigh (ALT) flap. However, on post-surgery day 2, patient had a cardiac arrest and was revived. He sustained hypoxic ischemic encephalopathy and had certain neurological deficits.

Conclusion: This patient faced multitude of problems from being diagnosed with a rare malignant transformation of a parotid tumour to hypoxic ischemic encephalopathy secondary to brief cardiac arrest post operatively. Further hurdles awaits this patient in view of possible adjunct radiotherapy, facial reanimation and patient care at home in a race to regain his optimal functional status.

OC07

Assessing community sustainability in five indigenous villages: a baseline assessment to develop a road-map for future interventions

Gerard Dunleavy, Mohd Ridhwan Che Musa, Ahmad Fakhurrazzi Yahaya

Brain Research and Information Network, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: There is a need to monitor and enhance the sustainability and quality of life of the Orang Asal in Peninsular Malaysia. Establishing a baseline of community sustainability will provide a guiding platform for future interventions.

Objective: This study aimed to develop a baseline level of Community Sustainability in indigenous villages in the Belum-Temenggor Forest Reserve, Perak.

Methodology This is a quasi-experimental design. The Community Sustainability Assessment tool, developed by the Global Ecovillage Network, was used to collect data in 5 indigenous villages in the Belum-Temenggor Forest Reserve. The assessment comprises of three sections; an ecological, a social and a spiritual sections. The score of each section was total up to indicate a community's sustainability. Data collection took place over 2 days with 3 hours spent in each village. The head of each village was interviewed as part of the process. The overall scores and subsection scores of each village were viewed absolutely to gauge whether the result was positive or negative, and it was also used to identify inequalities between villages.

Results: The Community Sustainability Assessment results indicate that action is needed in each village. The assessment identified a number of problematic areas including health care, local economy, and food availability, production and distribution.

Conclusion: The findings demonstrate an urgent need to initiate a program which will help to foster sustainability and promote the quality of life among the indigenous communities. The assessment identifies key areas and priorities, which require improvement in order to achieve sustainability goal.

OC08

Clinical experiences of suspension laryngoscopy in Hospital Universiti Sains Malaysia

Khairunnisak Mison, Hazama Mohamad, Suzina Sheikh Ab Hamid.

Department of Otorhinolaryngology-Head & Neck Surgery, School of Medical Sciences, Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Suspension laryngoscopy is a routine procedure under general anaesthesia which is performed as both diagnostic and therapeutic tools in laryngeal lesion as well as tracheobronchial disease.

Objective(s): This study was designed to determine the indications, disease distributions based on suspension laryngoscopy findings, procedures performed and complications encountered during suspension laryngoscopy.

Methodology: We retrospectively analysed our experiences on 43 cases of suspension laryngoscopy in Hospital Universiti Sains Malaysia from 1st January 2013 till 31st December 2013. Data was taken from patients' medical files. All procedures were done under general anaesthesia.

Results: Suspension laryngoscopy comprised of 9.1% of all operation done in our hospital. It consisted of 29 paediatrics cases (67.4%) and 14 adults cases (32.6%). The commonest indications for diagnostic and therapeutic purposes were stridor (20.9%) and airway stenosis dilatation (20.9%). The main findings during suspension laryngoscopy in paediatrics were subglottic/ tracheal stenosis (24.1%) and infra/ suprastomal granulation tissue (24.1%). While in adults, malignant pharyngeal/ laryngeal tumour accounted for the most common findings during suspension laryngoscopy (35.7%). Two most prevalent procedures being performed were airway dilatation and removal of granulation tissue, which represent 21.9% each. There were 3 cases developed minor complications which resolved completely. However, no major complication observed in this study.

Conclusion: Suspension laryngoscopy was performed for various indications and it helped in diagnosing and managing laryngeal and lower airway diseases. Although minor complications occurred, it is relatively a safe procedure.

OC09

Risk factors for minor accident among long distance bus drivers in Malaysia

Nik Nor Ronaidi Nik Mahdi ¹, Norsa'adah Bachok ², Norlen Mohamed ³, Mohd Nazri Shafei ²

¹ State Health Department, Wisma Persekutuan, Jalan Sultan Ismail, 20920 Terengganu, Malaysia.

² School of Medical Sciences, Universiti Sains Malaysia, 16150 Kota Bharu, Kelantan, Malaysia.

³ Malaysian Institute of Road Safety Research, Taman Kajang Sentral, 43000 Selangor, Malaysia.

Introduction: Road traffic accident involving buses is a worldwide public health issue. Most previous studies concerned more on the causality of the accidents with serious injuries.

Objective: To determine the prevalence and risk factors for minor accident among long distance bus drivers in Malaysia.

Methodology: A cross sectional study was conducted among 517 long distance bus drivers. Data were collected using interview-guided translated and validated Pittsburgh Sleep Quality Index and Manchester Driver Behaviour questionnaire. Multiple logistic regression analysis was performed to determine the significant factors for minor accident among long distance bus drivers in Malaysia.

Results: The prevalence of minor accident among long distance bus drivers was 15.7% (95% CI: 12.8, 19.1). The significant associated factors for minor accident among younger age-group were working experience of less than 10 years (OR_{adj}: 2.46; 95% CI: 1.18, 5.11) and error in driving behavior (OR_{adj}: 1.18; 95% CI: 1.09, 1.27). Meanwhile, the significant associated factors among older age-group were sleep disturbances (OR_{adj}: 2.79; 95% CI: 1.18, 6.63), error in driving behavior (OR_{adj}: 1.18; 95% CI: 1.08, 1.29) and poor visual acuity (OR_{adj}: 3.13; 95% CI: 1.32, 7.41).

Conclusion: Self-reported minor accidents were relatively high among long distance bus drivers in Malaysia. This issue should be taken seriously and preventive action should consider the significant human factors such as inexperience, error in driving behaviors, sleep disturbances as well as poor visual acuity.

OC10

Effect of *Channa striatus* on inflammatory markers as an adjunct treatment in allergic rhinitis: a randomized double blinded study

Muhammad Nasri Abu Bakar, Irfan Mohamad, Baharudin Abdullah, Norhafiza Mat Lazim, Nurul Khaiza Yahya.

Department of ORL-HNS, School of Medical Sciences, Universiti Sains Malaysia Health Campus, 16150 Kota Bharu, Kelantan, Malaysia.

Introduction: *Channa striatus* (snakehead fish) have been shown to have anti-inflammatory and anti-nociceptive properties. This study aimed to discover the effect of its anti-inflammatory property on the inflammatory process in allergic rhinitis.

Objective: To determine the effect of *Channa striatus* extract on patients' serum eosinophil and interleukin-4 level.

Methodology: This was randomized double-blind placebo-controlled trial, parallel group comparative clinical study. Forty six allergic rhinitis patients were randomized to receive *Channa striatus* extract capsules or placebos for 6 weeks. Patients were assessed clinically at weeks 0, 2 and 6. Serum eosinophil and interleukin-4 were taken at initial and final visit.

Results: The result showed significant reduction of serum eosinophil level in group treated with *Channa striatus* extract ($p < 0.05$). However, the comparative analysis of the mean difference between two study groups was not statistically significant. The result for interleukin-4 level showed no statistically significant changes between the groups. **Conclusion:** While *Channa striatus* has been proved to have potent anti-inflammatory property in various studies for tissue healing, its role as an adjunct treatment in allergic rhinitis did not show significant immunomodulation effects.

OC11

Validation of Malaysia version of oral health literacy instrument (OHLI-M)

Muhammad Zulkefli Ramlay¹, Mon Mon Tin-Oo¹, Norkhafizah Saddki¹, Wan Nor Arifin Wan Mansor²

¹School of Dental Sciences, ²School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Oral health literacy refers to the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate oral health decisions. Up to date, there is no valid and reliable instrument to measure of oral health literacy for adult in Malaysia.

Objectives: This study aims to translate 'Oral Health Literacy Instrument' into Malay Language and to test its validity to measure oral health literacy among Malay population.

Methodology: This study involved two phases. Phase 1 was translation of original OHLI into Malay language (OHLI-M) by using forward and backward technique with committee approach and phase 2 was cross-sectional study to test psychometric properties of OHLI. One hundred and ninety-five Malaysian adult respondents filled up (OHLI-M) and a Malay version of 'The Test of Functional Health Literacy in Adults' (TOFHLA-M). Fifty respondents were involved in test-retest of OHLI-M after 2 weeks from first administration. Data analysis was done by using SPSS 21.0 with $p < 0.05$ indicated significance level. Convergent validity, known group validity, internal consistency, and stability of questionnaire were assessed through Pearson Correlation, One-way ANOVA, Cronbach's alpha and Interclass Correlation Coefficient (ICC).

Results: Content and face validity were developed at Phase 1. OHLI-M have good correlation with TOFHLA-M ($r = 0.50$) and OHLI-M score was significantly associated with level of education ($p < 0.001$). The ICC was 0.87 ($p < 0.00$) and Internal Consistency is 0.94.

Conclusion: This study has established the validated and reliable instrument OHLI-M to evaluate oral health literacy among adult in Malaysia.

OC12

Management of a contracted eye socket by ocular prosthesis: a case report

Nafij bin Jamayet, Yanti Johari, Adam Husein, Mohammad Khursheed Alam

School of Dental Sciences, Universiti Sains Malaysia, Kota Bharu, Kelantan

Introduction: Eye sockets are considered to be contracted when the fornices are too small to retain prosthesis. Most common causes includes radiation treatment of tumor, extrusion of orbital ball implant, severe injury like burn and removal of the conformer or not using any prosthesis for prolonged periods. Several surgical procedures are introduced to manage the contracted sockets. But surgical methods are not often chosen as a definitive option. This case report describes the rehabilitation of post-enucleation socket syndrome with a modified ocular prosthesis.

Case report: A 72-year-old Malay lady was presented with acquired left eye defect by retinoblastoma at Maxillofacial Prosthetic Clinic, School of Dental Science, Universiti Sains Malaysia, Kota Bharu, Malaysia. On examination, it was found that the remaining eye socket was severely contracted with absence of palpebral fissure opening. Treatment plan was made to fabricate a custom made ocular prosthesis for the patient. Modifications to the ocular prosthesis's were performed by using several sized conformer and gradual expansion of eye socket.

Conclusion: The rehabilitation procedure with a new ocular prosthesis produced satisfactory results.

OC13

Screening of laryngopharyngeal reflux disease in patients with gastroesophageal reflux disease symptoms in Hospital Universiti Sains Malaysia, Kubang Kerian

Nik Mohd Yunus Mohammad¹, Baharudin Abdullah¹, Nik Fariza Husna Nik Hassan^{1,2}

¹Department of Otorhinolaryngology-Head & Neck Surgery, School of Medical Sciences; ²Speech Pathology Program, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kota Bharu, Kelantan, Malaysia.

Introduction: Laryngopharyngeal reflux (LPR) has been recognized as an extraesophageal manifestation of gastro esophageal reflux disease (GERD). However, many questions still exist as how to diagnose this disease accurately and to identify patients with silent reflux.

Objective: This study was conducted to determine the prevalence of LPR in patients with GERD symptoms in Hospital USM, Kubang Kerian.

Methodology: This is a cross sectional study involving 115 patients presenting to Gastroenterology clinic and Outpatient clinic in Hospital USM from December 2011 to June 2012. Participants were required to answer the Symptomatic GERD questionnaire and Reflux Symptom Index questionnaire. This was followed by laryngeal examination and documentation of Reflux Finding Score.

Results: The prevalence of LPR in patients with symptomatic GERD was 33.04%. The most common symptom in RSI was 'heartburn, chest pain, indigestion or stomach acid coming up'. The most common sign seen in RFS is 'erythema'. There was significant correlation between RSI and RFS.

Conclusion: LPR is present in patients with symptoms of GERD. RSI and RFS play an important role to identify patients with LPR and aid the clinician to deliver the appropriate treatment to them.

OC14

Evaluation of serum anti-cardiolipin antibodies in chronic periodontitis patients: preliminary data

Noor Rashidah Saad, Wan Majdiah Wan Mohamad, Haslina Taib

School of Dental Sciences, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Periodontal pathogens in chronic periodontitis were believed to induce the production of systemic inflammatory markers together with increase in serum level of auto antibodies including anti-cardiolipin antibodies.

Objectives: This study aimed to evaluate and compare the levels of anti-cardiolipin antibodies among non-periodontitis (NP) and chronic periodontitis (CP) patients as well as to determine its correlation with periodontal parameters.

Methodology: A cross-sectional study was conducted on thirty NP adult (control group) and thirty CP patients aged 18 to 65 years old attending Hospital Universiti Sains Malaysia Dental Clinic. Plaque index (PI), gingival index (GI), periodontal pocket depth (PPD), and clinical attachment loss (CAL) were recorded in all subjects. Blood sample were then taken for determination of serum level of IgG and IgM anti-cardiolipin antibodies by using Enzyme Linked Immunosorbent Assay method. Data were analysed by using SPSS version 20 with significant level set at p value <0.05 at 95% CI.

Results: The mean IgG anti-cardiolipin antibodies were significantly higher in CP patients (mean=4.83, SD=1.76) compared to control group (mean=3.46, SD=1.24); ($p=0.01$) but the levels still within normal range. No significant different were observed for IgM levels. A positive correlation was found only between serum IgG anti-cardiolipin antibodies and PI (r value=0.386; $p=0.035$).

Conclusion: This preliminary data demonstrated that serum IgG anti-cardiolipin antibodies were significantly higher in periodontitis patients and correlated with the amount of plaque accumulation which may suggest the chronic inflammatory response towards bacterial plaque.

OC15

Imaging profile of the ear in hearing loss patients in Hospital Universiti Sains Malaysia

Rohaizam Jaafar¹, Dinsuhaimi Sidek¹, Suzina Sheikh Abdul Hamid¹, Rohaizan Yunus²

¹Department of Otorhinolaryngology-Head and Neck Surgery, ²Department of Radiology, Universiti Sains Malaysia, Kota Bharu, Kelantan, Malaysia.

Introduction: Hearing impairment is a major disability. The otology assessment together with high-resolution CT images is able to obtain precise diagnostic profile of ear malformations. These details are essential for further management of patients.

Objective: This study is conducted to investigate the details anatomy of the ears in hearing loss patient in Hospital Universiti Sains Malaysia by high-resolution CT scan.

Methodology: A cross-sectional study of high-resolution CT scans of the temporal bone was conducted from 1st Mac 2013 to 31st December 2013 in Hospital Universiti Sains Malaysia. The study sample consisted all patients with hearing loss who had undergone high-resolution CT scans in Hospital Universiti Sains Malaysia before and during the study and fulfilled the inclusion criteria.

Results: 16.4% and 13.7% of the subject noted to have outer ear anomaly on right and left side, respectively. Middle ear abnormality on right and left side is both seen in 3.7% of patients. 14.5% and 7.3% noted to have cochlear anomaly on the right and left ear, respectively. Measurements of vestibular aqueduct diameter are 0.08 ± 0.09 cm (R) and 0.06 ± 0.04 cm (L), lateral semicircular canal diameter 0.10 ± 0.03 cm (R) and 0.10 ± 0.02 cm (L), vestibule diameter 0.30 ± 0.06 cm (R) and 0.31 ± 0.05 cm (L), bone width between the lateral vestibular wall and the inner wall of the lateral semicircular canal diameter 0.35 ± 0.07 cm (R) and (L) and internal acoustic meatus diameter 0.40 ± 0.08 cm (R) and 0.41 ± 0.08 cm (L). One patient has cochlear aplasia and common cavity deformity, 2 patients have lateral semicircular dehiscent and internal acoustic meatus stenosis, 4 patients have cochlear ossification and 5 patients noted to have enlarged vestibular aqueduct.

Conclusion: A high-resolution CT image is a good single imaging modality to detect ear anomalies with some limitations. The findings obtained only reflect in one center. Thus, larger sample with longer period could emphasize our findings in the future.

OC16

Comparative study on retinal nerve fiber layer thickness between primary open angle glaucoma and primary angle closure glaucoma

Tan Jian Liang, Lau Kheng Joe, Lee Yee Liong, Syed Mudassar Imran Bukhari, Liza-Sharmini Ahmad Tajudin

Department of Ophthalmology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Glaucoma is a chronic, irreversible neurodegenerative disease which causes specific patterns of visual field defect. Glaucoma is common among elderly. Early detection of structural changes in glaucoma is important to prevent irreversible blindness. The advances in technology allow visualization of retinal structural defect using Optical Coherence Tomography (OCT).

Objective: This study aimed to compare the retinal nerve fiber layer thickness (RNFL) between primary open angle glaucoma (POAG) and primary angle closure glaucoma (PACG).

Methodology: A cross-sectional study was conducted involving 49 patients with POAG and 31 with PACG. A thorough ophthalmic examination was conducted including visual acuity, slitlamp biomicroscopy, intraocular measurement, gonioscopic, and visual field assessment using Humphrey Field Analyzer. Severity of glaucoma was determined based on Advanced Glaucoma Intervention Study (AGIS) score; mild (1-5), moderate (6-11), severe (12-17), advanced (18-20). RNFL thickness was evaluated using OCT without dilatation of the pupil. Vertical Cup-Disc Ratio (VCDR), rim area, cup volume were also obtained.

Results: There was female preponderance among PACG patients. There was significantly higher percentage of hypertension in POAG compared to PACG ($p=0.010$). There was no significant difference of RNFL thickness between POAG and PACG patients ($p=0.200$). However, there was significant difference of VCDR ($p=0.001$), rim area ($p=0.024$) and cup volume ($p=0.012$) between POAG and PACG at mild stage of the disease.

Conclusion: OCT is good tool to evaluate the early structural changes of optic nerve head. Identifying early structural changes can prevent further functional changes in glaucoma patients.

PB01

ACTN3 R577X polymorphism and sports performance in Malay male school children: a preliminary result

Chia Boon Hock¹, Mohd Saat B. Hj. Ismail², Chee Keong Chen³, Teguh Haryo Sasongko¹

¹Human Genome Center, School of Medical Sciences, ²Exercise and Sport Science, School of Health Sciences, ³Sports Science Unit, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: ACTN3 R577X polymorphism has been associated with good performance of elite athletes on sprint type sports. However, the influence of the polymorphism on the potentials of school children in sports performance is lacking.

Objective: To investigate whether polymorphisms in ACE is associated with sport performance of male school children with Malay ethnicity.

Methodology: The study involved 93 male student athletes, aged 16 -17 years and 38 sedentary male students, aged 16 – 17 years from secondary schools in Kelantan state in their Form 4 or 5. Subjects were males with Malay ethnicity. Genotyping was performed by polymerase chain reaction and restriction fragment length polymorphism analysis using Dde1 enzyme restriction.

Results: The genotype distribution was RR = 24(25.8%), RX = 48(51.6%) and XX = 21(22.6%). No significant differences in sprint performance were found among the genotypes.

Conclusion: Our preliminary results showed that there was no association between sprint performance and ACTN3 R577X genotypes in Malay male school children.

PB02

Additive effects of oxidant and estradiol increase cell proliferation and aromatase expression in endometriosis

Liza Noordin¹, Elizabeth M Ellis²

¹Department of Physiology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ²Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, SIPBS Building, 161 Cathedral Street, Glasgow G4 0RE, Scotland, United Kingdom.

Introduction: Endometriosis, an estrogen dependent disease, results from “retrograde menstruation” into the peritoneal cavity. Oxidative stress has been implicated to promote its continued growth. However, the association between oxidative stress and estrogen in cell growth has not been established yet.

Objectives: i) To determine effects of oxidant, estradiol or both on cell growth, aromatase expression and aromatase activity ii) To determine levels of aromatase expression in human samples

Methodology: i. *Cell line:* Immortalized human endometriotic epithelial cells (12-z) were treated with oxidant H₂O₂ (0.5-500 μM) for 48 hours and E2 (10⁻¹¹ M-10⁻⁶ M) for 24 hours. Cells were also pre-treated with E2 (10⁻⁹ M and 10⁻⁸ M) for 24 hours followed by addition of H₂O₂ (0.5-500 μM) for 48 hours. Cell viability was assessed by MTT assay. To determine aromatase expression (Western blotting) and activity (Estrone EIA), cells were pre-treated with E2 at 10⁻⁸ M for 24 hours followed by H₂O₂ (1 μM) for 48 hours ii. *Human tissue:* Aromatase mRNA expression was determined in normal endometrium and ovarian endometriosis by Quantitative Real Time-Polymerase Chain Reaction (Q-PCR).

Results: H₂O₂ at 1 μM and E2 at 10⁻⁸ M significantly induced cell proliferation. Aromatase expression and activity were significantly higher in 12-z treated cells especially in the combination of both compounds. Levels of aromatase were increased significantly in samples of ovarian endometriosis.

Conclusion: This study has implicated the additive effects of oxidant and estradiol in the mechanism of cell proliferation in endometriosis. Aromatase is suggested to be responsible for increase production of E2 thus maintaining endometriotic cell growth. There may be some interplay between the two compounds to further enhance cell proliferation, aromatase expression and aromatase activity.

PB03

Nonsense mutations in a group of haematological disorders: Hope for therapy from stop-codon read-through

Md. Asiful Islam, Fahmida Alam, Teguh Haryo Sasongko

Human Genome Centre, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Introduction: Though 11.2% of lethal human inherited diseases are caused by nonsense mutations, studies on these are lacking. Any of the three (UGA, UAG and UAA) premature termination codons (PTC) emerges before the natural canonical stop codon producing truncated non-functional protein.

Objectives: We aimed to determine the distribution of stop codons in a group of haematological disorders and looked at their treatability with stop codon read-through approach.

Methodology: We chose from ICD-10, a group of diseases (D65-D69; coagulation defects, purpura and other haemorrhagic conditions). We correlated each disease in ICD-10 with that in the Online Mendelian Inheritance in Man (OMIM®) database in order to determine the disease-causing genes retrieved their lengths, strand orientations, cytogenetic locations and natural stop codons. We subsequently used Human Gene Mutation Database (HGMD® professional version 2014.1) to compile reported nonsense mutations of the disease-causing genes.

Results: There are 23 categories of disorders in ICD-10 for classes D65-D69. Our search located 24 genes harbouring 732 nonsense mutations that cause the diseases. The most frequent (277 times) PTC emerged was UAG (37.8%), the most frequent transition mutation (232 times) was C>T (31.8%) and amino acid, Gln was the most frequently mutated into PTC (22.0%). PTC UGA appeared 239 times (32.7%), while UAA appeared 216 times (29.5%).

Conclusion: Our study showed the distribution of different premature stop codons within a group of haematological disorders. PTC UGA has been reported to respond best to a known stop-codon read-through substance PTC124, although other PTCs also respond with different read-through efficiency.

PB04

Identification of chromosome microdeletion 7q11.23 associated with William-Beuren Syndrome using Fluorescence In Situ Hybridization (FISH)

Mohamed Qais AB¹, Siti Mariam I¹, Norhidayah R¹, Nurul Alia MN¹, Nik Mohd Zulfikri MZ¹, Nazihah MY¹, Hashima H¹, Ruzi Hamimi R¹, Rose Adzrianee A¹, Iluni Hayati I², Ravindran Ankathil¹

¹Human Genome Centre, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia. ²Pathology Department, Hospital Raja Perempuan Zainab II, 15586 Kota Bharu, Kelantan, Malaysia.

Introduction: Williams-Beuren syndrome (WBS) is a congenital genetic and developmental disorder caused by a chromosome microdeletion 7q11.23, resulting in distinct clinical features. It affects 1 in 7500 to 20,000 people worldwide. Although it can be diagnosed by physical characteristics, the diagnosis needs to be confirmed using FISH test. Here we report 2 cases of WBS diagnosed using FISH test. Case 1: A 7-year-old Malay boy, firstborn of non-consanguineous parents presented with facial dysmorphism including thick lips, protruding tongue and micrognathia, coarctation of aorta and learning disability. Case 2: 20-month-old Malay boy presented with facial dysmorphism including macroglossia, hypertrophic cardiomyopathy and global developmental delay. He is a second child of 3 siblings born to non-related parents with a history of miscarriage.

Objective: To diagnose WBS employing FISH test using Elastin Gene probe for 7q11.23 microdeletion.

Methodology: Peripheral blood lymphocytes were cultured and chromosome preparations were made and FISH technique was applied to chromosome preparation using standard procedure.

Results: For both cases, molecular cytogenetic analysis carried out employing FISH technique using WBS (Elastin gene) probe for del(7)(q11.23) showed 1R 2G signals in 10 metaphases indicating a deletion of segment 7q11.23 on chromosome 7.

Conclusion: The chromosome segment 7q11.23 which is deleted in WBS contains 25 genes, of which *CLIP2*, *ELN*, *GTF2I*, *GTF2IRD1*, and *LIMK1* are most important genes typically deleted in WBS. Given the complex nature of the problems found in WBS, regular monitoring for potential medical problems is necessary.

PB05

Analytical performance evaluation of D-10 analyzers used for Glycohemoglobin A1c (HbA1c) routine test: A yearly quality program towards the sustainability of patients' life

Muhammad Amali K, Ibrahim I, Afiqah Ilyia Ab H

Endocrinology Laboratory, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan.

Introduction: Glycohemoglobin A1c (HbA1c) is globally recognized as one of the most precise indicators for metabolic control of blood glucose.

Objective: To evaluate the analytical performance of D-10 analysers used for HbA1c test.

Methodology: For precision study, patient samples and third party control material of two levels were analysed on D-10 system, routine D-10 (1) and backup D-10 (2) twice a day for five consecutive days (between run). The carry-over of the D-10 is that which follows a specific algorithm of 11 vial samples of low level (< 6%) and 10 vials of high level (>10%). A correlation comparison was performed for D-10 and in2it system. For linearity and recovery, samples were diluted by using Haemolysis reagent and later mixed in ratios of 1:3, 1:1 and 3:1. Finally, for simple drift monitoring study, one normal patient sample was tested at 4 intervals time, 10.00 am; 3 times, 11.00 am, 12.00 pm, 4.00 pm.

Result: For precision, the coefficient variation (CV) for both D-10 analysers are within the proposed target set by The International Federation of Clinical Chemistry, which is < 2.5% for both controls and samples. The linearity and recovery analysis with $y = 1.0373x - 0.2904$ ($R = 0.9995$) for D-10 (1) and $y = 1.0458x - 0.5587$ ($R = 0.9989$) for D-10 (2). For correlation study, simple linear regression analysis of D-10 (1) versus D-10 (2) gave correlation coefficient value $R > 0.990$, while for D-10 (1) with in2it system gave a high correlation coefficient value $R > 0.985$. Finally, for simple drift monitoring, both analysers gave < 2.5% CVs value.

Conclusion: The D-10 analyser is a reliable HPLC-based HbA1c analyser with acceptable precision, good accuracy and efficiency, high correlation value, good linearity and recovery result and also stable as proven by simple drift monitoring analysis.

PB06

Hematological and biochemical parameters of tumour – bearing female sprague dawley rats following treatment with N-methyl-N-nitrosourea

Hassan Muhammad Yankuzo¹, Nik Soriani Yaacob^{1,2}

¹Department of Chemical Pathology, School of Medical Sciences, ²Centre for Research Initiatives, Universiti Sains Malaysia, 16150, Kota Bharu, Kelantan, Malaysia.

Introduction: NMU is a standard chemical carcinogen widely used to induce breast cancer and other solid tumors in experimental animal models. However effect of NMU on the blood profile of these animals has been grossly under reported.

Objective: To compare hematological and biochemical indices of the rats-bearing NMU-induced mammary tumours with the normal (un-induced) controls.

Methodology: Breast cancer was induced using three intraperitoneal doses of NMU 50 mg/kg beginning at 43 days of age while the corresponding normal rats (n = 6 per group) were administered equal volume of the vehicle. Tumours appeared within 6 – 9 weeks of induction and animals were sacrificed when the tumors reached 10 – 15 mm size, blood samples were collected by cardiac puncture and processed using Sysmex auto analyzer to assess changes in the full blood count (FBC) and biochemical indices.

Results: Significant differences (suggestive of macrocytic anemia) were observed in the red cell mass indices (HB, PCV and RBC) and red cell size indices (MCV & MCH) of NMU-treated rats compared to the normal (un-induced) control. Total WBC counts were also significantly elevated in the tumour-bearing animals indicating secondary bacterial infection. The levels of platelets count, serum total protein, liver enzymes (AST & ALT), alkaline phosphatase (ALP) and electrolytes were not significantly different between the two groups except for the significant decrease of potassium, urea, and creatinine in tumour-bearing animals compared to the corresponding physiological values.

Conclusion: Above findings show that NMU has negative compounding effects on hematological and biochemical indices in these animal models, and therefore comprehensive evaluation of these metabolic changes and their management may contribute to improve the poor treatment response of this deadly malignancy.

PB07

The human total facial index: An anthropometric study

Muzammil Ullah¹, Aaijaz Ahmed Khan², Asma' Hassan², Marina Yu Kapitonova³

¹Faculty of Dentistry, Universiti Teknologi MARA (UiTM), Shah Alam. ²Department of Anatomy, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan. ³ Faculty of Medicine, Universiti Teknologi MARA (UiTM), Shah Alam.

Introduction: Measurement of total facial index (TFI) is important for studies of human growth, population variation and aesthetic surgery. All medical specialities interested in improving facial appearance need to measure the face to quantify the desired facial changes. On the basis of TFI, the human population can be classified into five types: (1) Hypereuriprosopic (up to 79.9 =very short-faced); (2) Euriprosopic (80 to 84.9 = short/broad-faced); (3) Mesoprosopic (85 to 89.9 =moderate facial form); (4) Leptoprosopic (90 to 94.9 =long/narrow-faced); (5) Hyperleptoprosopic (95 and above =very long narrow-faced).

Objectives: (1) To determine the total facial index of human skulls available and (2) to find out the types of human population to whom those skulls belonged.

Methodology: Twenty-five human skulls available in Multidisciplinary Laboratory of School of Medical Sciences, USM, Kelantan were used in the study. Nasion-gnathion height and bizygomatic breadth were measured using spreading caliper. The total facial index were calculated using the following formula: (nasion-gnathion height / bizygomatic breadth) x 100.

Results: The TFI varied from 75 to 98.40 in 25 skulls used. Two were hypereuriprosopic (TFI: 75 to 76.74), six (6) were euriprosopic (TFI: 80 to 83.3), seven were mesoprosopic (TFI: 85.48 to 89.56), six were leptoprosopic (TFI: 90.16 to 94.48) and four were hyperleptoprosopic (TFI: 95.83 to 98.40)

Conclusion: Out of skulls of 25 individuals, two (8%) were hypereuriprosopic (very short-faced), six (24%) were euriprosopic (short/broad-faced), seven (28%) were mesoprosopic (moderate facial form), six (24%) were leptoprosopic (long/narrow-faced) and four (16%) were hyperleptoprosopic (very long narrow-faced).

PB08

The Frequency of Major Autosomal Trisomies in North Eastern Peninsular Malaysia

Nik Mohd Zulfikri MZ¹, Siti Mariam I¹, Norhidayah R¹, Nurul Alia MN¹, Mohamed Qais AB¹, Sarina S¹, Tan HL¹, Noratifah MA¹, Nazihah MY¹, Hashima H¹, Ruzi Hamimi R¹, Rose Adzrianee A¹, Zilfalil BA², Iluni Hayati I³, Ravindran Ankathil¹

¹Human Genome Centre, ²Pediatric Department, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia. ³Pathology Department, Hospital Raja Perempuan Zainab II, 15586 Kota Bharu, Kelantan, Malaysia.

Introduction: Specific chromosome disorders have been associated with over 60 identifiable syndromes. Chromosome analysis is an important component to the diagnosis and evaluation of these syndromes. We reviewed cytogenetic studies performed on 1917 patients who were referred from hospitals in North Eastern parts of Peninsular Malaysia to the Cytogenetic Laboratory of Human Genome Centre between 2009 and 2014.

Objective: To identify the most frequently occurring live born autosomal trisomies.

Methodology: Cytogenetic analysis was performed using peripheral blood lymphocyte culture, chromosome preparations were made, and karyotypes abnormalities were reported following An International System for Human Cytogenetic Nomenclature (ISCN) 2009 and 2013. Only cases with autosomal trisomies were included in this analysis.

Results: Abnormal autosomal trisomies were observed in 482 (25%) cases out of which, trisomy 21 (Down Syndrome) was detected in 409 cases (85%), trisomy 18 (Edwards Syndrome) in 51 cases (11%) and trisomy 13 (Patau Syndrome) in 22 cases (4%). Advanced maternal ages was associated with 64% of Down Syndrome cases whereas maternal age was not associated with Edwards Syndrome and Patau Syndrome

Conclusion: The frequency of trisomies observed in the current study was similar as well as dissimilar with other studies. The high frequency of Down Syndrome cases encountered might be the result of mothers with advanced age not opting for prenatal diagnosis due to religious reasons. The study highlights the importance of clinicians validating their diagnoses with karyotyping for confirmatory diagnosis, determining the risks of recurrence, clinical treatment decision and genetic counseling.

PB09

Risk factors of allergic rhinitis

Noor Suryani Mohd Ashari, Siti Noor Syuhada Mohd Amin, Wan Zuraida Wan Abdul Hamid

Department of Immunology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kelantan, Malaysia.

Introduction: The worldwide prevalence showed an increasing trend of allergic rhinitis (AR). Nobody knows why with certainty, but there are many theories including better diagnosis, atmospheric pollution, nutrition, lifestyle changes, diesel fumes, geography and several others.

Objectives: To evaluate the effect of smoking, occupational exposure, area of living and serum level of cytokines IL-31 in AR and in normal controls in Kelantan, Malaysia.

Methods: This was a cross-sectional study of 70 samples of AR patients attending the Ear, Nose and Throat Clinic of Hospital Universiti Sains Malaysia and 70 samples of normal controls. History taking was done by physician. Blood was collected from the controls and patients and analyzed for IL-31 using ELISA kits (Human IL-31 Duoset, RnD System).

Results: There was no significant difference in the mean levels of IL-31 between AR and controls. However, mean (SD) of IL-31 was higher in allergic rhinitis as compared to controls group. The results also showed that the smokers were 15.44 at odds of having allergic rhinitis as compared to non-smokers while those without occupational exposure were less likely to have allergic rhinitis as compared to those with occupational exposure with adjusted odds ratio of 0.23. Patients living in urban area were 3.48 at odds of having allergic rhinitis compared to those living in rural area.

Conclusions: The results of this study suggest that although the level of IL-31 serum levels was higher, there was no significant difference in IL-31 serum levels between AR patients and non-allergic control. In addition there were significant associations between smoking status, occupational exposure and area of living with AR.

PB10

GC-MS analysis of some bioactive components in the root extract of *Ixora coccinea* Linn

Norliana Ghazali¹, Asiah Abu Bakar¹, Nurul Asma Abdullah²

¹School of Dental Sciences, ²School of Health Sciences, Universiti Sains Malaysia, Health Campus 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: *Ixora coccinea* Linn is commonly known as jungle of geranium and red ixora found throughout India. In addition, the flowers, leaves, root and stems of *I. coccinea* Linn are used to treat various ailments in the Indian traditional system of medicine, the Ayurveda and also in various folk medicines

Objective: To evaluate the chemical constituents in the methanol extract of the root of *I. coccinea* Linn.

Methodology: In the current study, the methanolic extract of *I. coccinea* Linn root has been subjected to Gas Chromatography-Mass Spectrum (GC-MS) analysis.

Results: Seventeen chemical constituents have been identified, the major chemical constituents are n-Hexadecanoic acid (7.38 %), 9-Octadecenoic acid, Methyl-ester (1.97), Phenol, 2,6-dimethoxy (1.35 %), 13-Docosenamide (1.31%), Phenol, 3,4,5-trimethoxy (1.24 %), 4, 8, 12, 16-Tetramethylheptadecan-4-olide (1.13 %).

Conclusion: The presence of various bioactive confirms the application of the root of *I. coccinea* Linn for various ailments by traditional practitioners. Gas chromatography and mass spectrometry (GC-MS) are highly compatible technique in separation of volatile compound and identifying characteristic of the compound.

PB11

Isolation and characterisation of stem cells from human amniotic membrane

Nurul Hidayat Yusoff¹, Saaid Ayesah Alshehadat¹, Siti Nurnasihah Md Hashim¹, Thirumulu Ponnuraj Kannan¹, Suzina Sheikh Abdul Hamid², Azlina Ahmad¹

¹School of Dental Sciences, ²School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Bone-marrow mesenchymal stem cells are considered the gold standard for use in tissue regeneration among mesenchymal stem cells. The procedure required to obtain bone marrow is invasive, painful, associated with morbidity and the number of cells also low. Due to several limitations, stem cells from amniotic membrane are the best source of stem cells because it is easily obtained, discarded post-partum, abundant and inexpensive.

Objectives: The first objective of this study is to isolate, establish and characterise the Human Amniotic Membrane Mesenchymal Stem Cells (HAMMSCs). The second objective is to differentiate the clonality (maternal vs. neonatal) of HAMMSCs by quantifying the SRY gene expression in the culture by RT-PCR.

Methodology: This study started with the isolation of HAMMSCs according to the method previously published with slight modifications. Then, the stem cell characterization was done. There are several methods used for stem cell characterisation which includes Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), immunocytochemistry and flow cytometry. Next, the HAMMSCs were subjected to SRY gene expression analysis.

Results: For RT-PCR, the results showed the expression of Nestin, Nanog and Rex1 genes. For immunocytochemistry, HAMMSCs were positive for CD90, CD105, and CD44 antibodies. For flow cytometry, the HAMMSCs revealed strong positive expression for CD90, CD73 and CD44 antibodies and a weak positive expression for CD105. For SRY gene expression, the SRY gene was highly expressed at passage 6.

Conclusion: The male neonate HAMMSCs are successfully isolated based on its characterisation as well as the SRY gene expression.

PB12

Silencing of multidrug resistant genes in chronic myeloid leukaemia cells and its effects on the *in vitro* chemotherapeutic treatments

Roslina Husaini¹, Munirah Ahmad², Zubaidah Zakaria¹

¹Haematology Unit, ²Molecular Pathology Unit, Institute for Medical Research (IMR), Jalan Pahang, 50588 Kuala Lumpur, Wilayah Persekutuan, Malaysia.

Introduction: Imatinib mesylate, which specifically targets the BCR-ABL tyrosine kinase, and Etoposide are used to treat Chronic Myeloid Leukaemia (CML) but the cells are not exceptionally resistant to the drugs. Resistance to drug treatments is believed partly due to overexpression of multidrug resistant genes (MDR).

Objective: To study whether siRNA silencing of MDR will sensitise leukaemia cells to existing chemotherapeutic drugs.

Methodology: K562 CML cell line, both sensitive and resistant to Adriamycin, were screened for MDR; MDR1, MRP1 and BCL-2 by RT-PCR. siRNA silencing of MDR genes of resistant K562 cells (K562/Adm) was carried out followed by Real-Time PCR. The percentages of cell viability and apoptosis were determined by MTS and TUNEL assays, respectively, after treatment with Imatinib mesylate and Etoposide.

Results: K562 cells expressed MRP1 but very low levels of MDR1 and BCL-2 whereas K562/Adm highly expressed all three MDR genes. The knockdown percentages of MDR genes in K562/Adm were 15.4% for MRP1, 17.8% for MDR and 30.7% for BCL-2. The IC50s between the MDR genes knockdown in K562/Adm cells after treatment with Etoposide were not significant. Both K562 and K562/Adm were sensitive to Imatinib mesylate, but only K562, not K562/Adm, was sensitive to Etoposide. A lot of apoptotic cells were observed in both K562 (28.2%) and K562/Adm (31.1%) treated with Imatinib mesylate compared to treatment with Etoposide (15.5% for K562 and 6.36% for K562/Adm).

Conclusion: The knockdown of individual MDR genes was not significant. Imatinib mesylate was effective in killing both K562 and K562/Adm when compared to Etoposide.

PB13

Malaysian Jungle [Tualang] honey modulates the size and the grading of breast cancer induced by *N-Methyl-N-Nitrosourea* (MNU) in rats – an *in vivo* study

Sarfraz Ahmed, Nor Hayati Othman

Department of Pathology, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Chemotherapeutic drugs administration in cancer patients produces several side effects. Honey has been shown to have anticancer effect.

Objective: To study the therapeutic effect of Malaysian Jungle Tualang honey (TH) on the size and grading of breast cancer induced by *N-methyl-N-nitrosourea* (MNU) in rats.

Methodology: Thirty Sprague-Dawley rats were randomly divided into 3 groups with 10 animals each (n=10); 2 groups received a single intraperitoneal dose (80 mg/kg body weight) of MNU. Group 1 was administered with only distilled water (negative control) and Group 2 was also administered with only distilled water (positive control). Group 3 was treated orally with honey 1.0 g/kg body weight daily when tumor diameter reached 10-12 mm in size. At the day 120, all animals were sacrificed and tumors were harvested for histopathological examinations.

Results: The mean number of tumors developed per rat in control group was 4.9 ± 2.2 , and TH treatment group 3.4 ± 2.4 . The mean tumor weight and size in the control group were 5.25 ± 5.6 g and 2.59 ± 3.3 cm³. The mean tumor weight and size in the TH treatment group were 2.04 ± 2.7 g and 0.35 ± 0.52 cm³ respectively (P<0.05). Honey was found to reduce the tumor multiplicity, weight and size. Histopathological grading revealed that majority of TH treated group tumors were of grade 1 and 2 compared to control group of grade 3.

Conclusion: Tualang honey modulates the size and grading of mammary tumors induced by *N-methyl-N-nitrosourea* (MNU) in rats.

PB14

Anti-migratory effects of 15d-PGJ₂ on human breast cancer cells

Siti Nur Hasyila Muhammad¹, Noor Fatmawati Mokhtar², Nik Soriani Yaacob¹

¹Department of Chemical Pathology, School of Medical Sciences, ²Institute for Research in Molecular Medicine, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia

Introduction: 15-deoxy- Δ -12,14-prostaglandin J₂ (15d-PGJ₂), is a natural agonist of the nuclear receptor peroxisome proliferator activated receptor gamma (PPAR γ). 15d-PGJ₂ has been reported to have anticancer effects but its anti-metastatic potential remains controversial.

Objective: To investigate the anti-migratory effects of 15d-PGJ₂ in human breast cancer cells (MCF-7 and MDA-MB-231) at EC₅₀ (15 μ M and 10 μ M) and low dose concentration (5 μ M).

Methodology: The cells were treated with 15d-PGJ₂ for 24 h and cellular migration according to chemotaxis analysis was performed using 8 μ m Transwell PET membrane cell culture inserts (BD Falcon™) and migrated cells were observed under the microscope following crystal violet staining. Reverse Transcriptase (RT) PCR was used to determine the expression of the chemokine receptor 4 and 7 (CCR4 and CCR7). Involvement of intracellular calcium in cell migration was detected using Fluo-4 AM staining and observed under the fluorescence microscope.

Results: 15d-PGJ₂ at EC₅₀ inhibited the migration of MCF-7 and MDA-MB-231 cells, possibly via down regulation of CCR4 and CCR7 gene expression, at least in MCF-7 cells. At low concentration of 15d-PGJ₂ where cell growth was not inhibited, suppression of migration was observed and supported by the decrease in intracellular calcium intensity.

Conclusion: These findings suggest 15d-PGJ₂ as a potential anti-metastatic agent in human breast cancer.

PB15

Effect of *Stichopus Horrens* extract on cell proliferation and gene stem cell markers of dental stem cells

Siti Nurnasihah Md Hashim¹, Nurul Hidayat Yusoff¹, Thirumulu Ponnuraj Kannan¹, Suzina Sheikh Abdul Hamid¹, Khairani Idah Mokhtar¹, Ridzwan Hashim², Khairul Bariah Ahmad Amin Noordin¹, Ahmad Azlina¹

¹School of Dental Sciences, Universiti Sains Malaysia (USM), Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.²International Islamic University Malaysia, Kuantan, 25200, Pahang, Malaysia.

Introduction: Sea cucumber, *Stichopus horrens* (*S. horrens*), a well-known remedy for wound healing, has a proliferative effect towards stem cells.

Objective(s): To investigate the effect of *S. horrens* crude extract on the proliferation rate of the stem cells from human exfoliated deciduous teeth (SHED) and its expression of gene stem cell markers.

Methodology: SHED was cultured in an Alpha-Minimal Essential Medium supplemented with 15% of Fetal Bovine Serum and 1% of Penicillin/Streptomycin at 37°C in a 5% CO₂ humidified atmosphere. For Presto Blue assay, crude extract of *S. horrens* at concentrations of 50 and 100 µg/mL were used for cell treatment and observed every day 1, 3, 7, 10 and 14. The graph was plotted and the population doubling time (PDT) was calculated. Then, the extracted RNA of treated cells on day 1, 7 and 10 were used for One-Step RT-PCR (Bioline). The amplified genes were analyzed using gel electrophoresis.

Results: The PDT of cells was 59.9 hours for cells treated with 100 µg/mL and 68.8 hours for the one treated with 50 µg/mL whereas it was 72.7 hours in the case of untreated control. Statistical analysis showed a significant difference between the cell viability indexes of all samples for both concentrations compared to that of control. Gene stem cell markers of *nestin* and *nanog* showed decreased expression throughout the experiment.

Conclusion: Decreased gene expression level of stem cells markers suggested that *S.horrens* reduce the *stemness* of stem cells even though it has a promising role in promoting cells proliferation.

PB16

Sequencing analysis of exons 5 and 6 of RUNX2 gene in non-syndromic patients with supernumerary tooth/teeth in Kelantan

Suhailiza Saharudin, Sarliza Yasmin Sanusi, Thirumulu Ponnuraj Kannan

School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Supernumerary tooth is any tooth or tooth like structure in excess when compared to the normal series of dentition. The aetiology of supernumerary tooth is multifactorial and remains poorly understood. Gene mutations have been identified to cause disturbances in the regulatory mechanisms of odontogenesis leading to the formation of supernumerary tooth. *RUNX2* is identified as a master gene for bone and tooth development. It plays a major role in odontogenesis by controlling the proliferation of cells on the dental lamina and the formation of successive dentitions.

Objective: To analyze the mutations of *RUNX2* in patients with supernumerary tooth/teeth.

Methodology: Patients with supernumerary tooth/teeth were identified from retrospective radiographic review. Blood samples were collected from 41 patients and DNA was extracted. From this, 10 samples of DNA were chosen randomly for PCR amplification using designated primers of exons 5 and 6 of *RUNX2* followed by DNA sequencing.

Results: The prevalence of mutation in exon 6 of *RUNX2* in non-syndromic patients with supernumerary tooth/teeth was 100%. 12 missense and 2 deletion mutations were detected in exon 6 of *RUNX2*. These mutations may cause changes in protein products and non-sense codon locations.

Conclusion: The change in the protein sequence and alteration of non-sense codon locations due to the missense and deletion mutations in the exon 6 of *RUNX2* could contribute to the formation of supernumerary tooth/teeth in non-syndromic patients. However, further investigation of other exons and genes is deemed necessary for any pleiotropic effect in the formation of supernumerary tooth/teeth.

PB17

Stature estimation from hand length measurements of Malaysian Malays in forensic perspective

T.Nataraja Moorthy¹, Nuranis Raihan Binti Zulkifly²

¹Forensic Sciences, Faculty of Health and Life Sciences, Management and Science University, 40100 Shah Alam, Selangor; ²Forensic Science Program, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan.

Introduction: A person's stature is an identifying characteristic that is used in forensic investigation, in cases of mass disasters where disintegrated and amputated body organs are found very frequently. Estimating stature from hand length measurement becomes an important exercise for person identification.

Objective: To develop population specific linear regression equations to estimate stature from hand length measurements among Malaysian Malays.

Methodology: The study sample of consenting volunteers comprised 100 males and 100 females of adult Malaysian Malays, ages ranged from 18 to 59 years. Participants with any apparent hand related disease, deformity and under the age of 18 years were excluded from the study. The height and hand measurements were made following the standard procedure. The data was analyzed using the Statistical Package for Social Sciences (SPSS) Program version 20.0 and developed linear regression equation to estimate stature from hand lengths. Pearson's correlation coefficient (*r*) was used to assess the degree of linear relationship between hand lengths and stature.

Results: Regression equations have been formulated with standard error ranging from 4.465-4.757 cm to estimate stature. The result of the present investigation reveals that the male mean hand length (R18.6 cm, L18.7 cm) and height (168.7 cm) measurements are comparatively larger than female mean hand lengths (R17.0cm L16.9 cm) and height (156.3 cm). All hand length measurements exhibit statistically positive significant correlation with stature ($p < 0.05$).

Conclusion: The present study developed regression equations to estimate stature from hand lengths for Malaysian Malays for person identification in forensic perspective.

PB18

Extraction yield, antioxidant activity and phenolic content of water and ethanol extracts of Malaysian propolis

Umar Z. Usman, Mahaneem Mohamed, Ainul Bahiyah Abu Bakar

Department of Physiology, School of Medical Sciences Universiti Sains Malaysia. 16150, Kubang Kerian, Kelantan.

Introduction: Propolis is a natural product collected by bees and exhibits various pharmacological and biological properties. However, little is known on properties of Malaysian propolis.

Objective: To determine the extraction yield, antioxidant activity and phenolic contents of water (WEP) and ethanol (EEP) extracts of Malaysian propolis.

Methodology: Raw propolis (30g) was extracted using water or ethanol at different concentrations (10, 30, 50, 70, 95 and 100%) and yield of each extract was presented as percentage. The antioxidant activity and total phenolic content of WEP and EEP with the highest yield were determined using 1,1-diphenyl-2-picryl-hydrazyl radicals (DPPH) assay and Folin-Ciocalteu reaction, respectively. The tests were run in triplicate and results represented as Mean \pm SD.

Results: The extraction yields for WEP was 4.59%, while for EEP at 10, 30, 50, 70, 95 and 100% were 1.69, 2.25, 2.16, 12.12, 11.38, and 11.94 respectively. The antioxidant activity and total phenolic content of WEP vs. EEP were $70.69 \pm 0.05\%$ vs. $82.44 \pm 0.49\%$ and 119.00 ± 7.00 gallic acid eq versus 646.67 ± 30.44 gallic acid eq respectively.

Conclusion: Malaysian propolis extract using 70% ethanol (EEP) produced higher yield with more antioxidant activity and total phenolic content compared to WEP.

PB19

A subacute comparative study (*in vivo*) on aqueous and methanol extract of *Syzygium polyanthum* (Serai kayu) effects on rat's blood pressure

Wan Amir Nizam Wan Ahmad, Azlini Ismail, Nurul Syahida Ramli

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Natural products have been used as supplement for treatment of hypertension. *Syzygium polyanthum* (Serai kayu) has been used by Kelantanese for the purpose, despite no available scientific data.

Objective: To compare the effectiveness on reducing blood pressure in spontaneous hypertensive rat (SHR) between 2 different extracts (aqueous and methanol) of *S. polyanthum* and standard treatment for hypertension (irbesartan), administered orally over the period of 3 weeks (subacute *in vivo* study).

Methodology: *S. polyanthum* methanol extract was prepared using Soxhlet extractor and successively fractionated using methanol to obtain the methanol extract (MESP). The aqueous extract (AESP) was prepared using boiling method. Three- to five-month-old of twenty (20) adult male SHR weighing between 200g and 300g were used in this study, divided equally to five (5) groups. The treatment, 2500mg/kg MESP and AESP and 10mg/kg irbesartan were given daily within the study period. The changes in systolic blood pressure (SBP) were measured weekly using non-invasive method (the tail-cuff). Data were analysed statistically using one-way ANOVA with post-hoc test, with $p < 0.05$ indicates statistical significance.

Results: Both extracts produce a significant reduction in SHR blood pressure after 2 weeks administration. These reductions were comparable to positive control, irbesartan. However, MESP exhibit more reduction in SBP compared to AESP.

Conclusion: The findings demonstrated oral administration of *S. polyanthum* able to reduce blood pressure. The dose administered was effective and comparable to the standard hypertension treatment.

PB20

The effect of xylene on hippocampus of adolescence female Sprague-Dawley rats

Yasrul Izad Abu Bakar, Nurul Aiman Mohd Yusof, Mohd Asnizam Asari, Nazlahshaniza Shafin, Wan Faiziah Wan Abdul Rahman

School of Medical Sciences, Universiti Sains Malaysia Health Campus, 16150 Kelantan, Malaysia.

Introduction: Xylene, widely used in many industrial and histological laboratory fields is considered as environmental contaminant. Studies have shown that xylene exposure may lead to memory deficits. However, the effect of xylene on the cellular level of the hippocampus that plays a role in memory is still unclear.

Objective: To investigate the neurotoxic effect of xylene at the cellular level of hippocampus by observing the histological changes in CA1, CA2, CA3 and dentate gyrus regions.

Methodology: Twelve 28 day old female Sprague-Dawley rats were divided into control and xylene groups. The xylene group was given 8.47 mmol/kg/day of xylene in olive oil vehicle via oral gavage for 2 weeks. The control group received only olive oil vehicle via oral route for 2 weeks. The rats were sacrificed and the sections of hippocampus were stained with cresyl fast violet. The obtained data was analysed using the SPSS version 20.

Results: The study found that xylene caused a significant reduction in the number of pyramidal cell in CA1, CA2 and CA3 subfields of hippocampus in xylene group in comparison to control group. There was also a significant neuronal loss in granular cell of dentate gyrus in xylene group compared to the control group. However, there was no significant difference in the thickness of layers in CA1 subfield of hippocampus between both groups.

Conclusion: The present study found that xylene exposure had caused a significant reduction of cells in the CA1, CA2, CA3 subfields and dentate gyrus of hippocampus.

PC01

Medico legal Cases: A 5-year retrospective study in Hospital Universiti Sains Malaysia

Anani Aila Mat Zin, Siti Fatheah Amerah Mohd Nor

Forensic Unit, Pathology Department, Hospital Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Medico legal case is defined as a situation arising out of treatment at the hospital for any bodily injuries sustained in an accident or an attempt of suicide, which needs to be intimated to the police and other concerned authorities for any investigation and procedures.

Objectives: To review and to retrieve details data of death cases in Hospital Universiti Sains Malaysia (HUSM)

Methodology: Data for the past five years (2009 until 2013) were retrieved by looking at mortuary registration book in the Forensic Unit.

Results: The total number of medico legal cases in HUSM from 2009 until 2013 is 746 cases. Type causes of death in medico legal cases includes primary (66.4%) and secondary (21.5%) motor vehicle accident, drowning (3.9%), burn (0.8%) and others (7.4%).

Conclusion: Causes of death in medico legal cases according to genders, reported in forensic unit Hospital Universiti Sains Malaysia (HUSM) showed that the most common cause of deaths involving male compare to female. Road traffic accidents were the most common individual cause of death in males and were overall the most common single cause of death in young people.

PC02

Correlation between adiponectin and high density cholesterol in overweight adolescents.

Aniza Mohd Jelani¹, Win Mar Kyi¹, Tuan Salwani Tuan Ismail¹, Najib Majdi Yaacob², Aziz Al-Safi Ismail²

¹Department of Chemical Pathology, ²Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan

Introduction: Obesity is a global health problem that predisposes to multiple health consequences. Adiponectin is an adipocytokine which have a potential to be a marker for obesity and its related diseases. Previous studies shown that adiponectin has a correlation with high density cholesterol (HDL-C), which was known to have a protective role against the development of cardiovascular disease.

Objective: To determine the correlation of adiponectin with HDL-C in normal weight adolescents and overweight adolescents groups.

Methodology: A total of 118 Malay consisting of 60 normal weight adolescents (BMI:18.5 - 22.9 kg/m²) and 58 overweight adolescents (BMI - ≥ 23 kg/m²) were selected. Adiponectin level was measured by ELISA method and serum HDL-C was determined by precipitation method on ARCHITECT analyzer. Correlation between adiponectin and HDL-C was analysed by Pearson correlation.

Result: The mean serum adiponectin and HDL-C concentrations were significantly lower in overweight subjects compared to normal weight subjects (P =0.005, P <0.001). There was a significant positive weak correlation between adiponectin and HDL-C in the overweight group. (r = 0.370, P = 0.004).

Conclusion: Our study supports that adiponectin plays an important role as a marker for obesity related diseases. Adiponectin has a protective role against cardiovascular disease through its strong relationship with HDL-C.

PC03

Serum Interleukin-17 (IL-17) in chronic periodontitis patients

Marina Binti Mubin¹, Erry Mochamad Arief², Siti Lailatul Akmar Zainuddin², Nurul Asma Abdullah³, Basaruddin Ahmad²

¹Periodontics Unit Mentakab, Ministry of Health, 28400 Mentakab, Pahang, ²School of Dental Sciences, ³School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Explorations into the periodontal-medicine relationship have discovered interleukin-17 (IL-17) cytokine as one of the pro-inflammatory mediators that play a crucial role in the initiation and progression of the chronic periodontal disease.

Objectives: This case and control study aimed to compare the serum IL-17 concentration between chronic periodontitis and healthy subjects and to assess the relationship between the IL-17 serum and the clinical periodontal parameters in chronic periodontitis patients.

Methodology: Full-mouth clinical periodontal records together with blood serums were obtained from 28 chronic periodontitis patients and from 27 healthy subjects. The concentration of IL-17 cytokine in serum was measured using ELISA test

Results: Subjects with periodontal disease presented significantly worse clinical parameters ($p < 0.001$) compared to control. The level of serum IL-17 concentration was significantly higher ($p = 0.026$) in chronic periodontitis subjects 3.6 (1.03) pg/mL compared to the control 3.1 (0.70) pg/mL. There was no correlation between the level of IL-17 concentration in the serum and clinical periodontal parameters.

Conclusions: A higher serum IL-17 concentration level in chronic periodontitis patients suggests its potential as a biomarker for periodontitis disease initiation and progression. However, the direct effect of the systemic IL-17 concentration on the severity of local periodontal tissue destruction still needs to be explored further in the future.

PC04

Reflective diary in community palliative care as impactful undergraduate learning

Fahisham Taib¹, Mohd Zarawi Mat Noor², Nik Rizal Mohd Fakri²

¹ Dept of Paediatrics, ² Dept of Medical Education, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Introduction: Reflection is a process of reviewing an experience of practice in order to describe, analyze and evaluate information that lead to critical and analytical self-learning experience. Reflection is important in developing critical thinking, professional development and self-regulation.

Objective: The study aims to explore the used of reflective diary following student's personal encounter with patients who have complex health and psychosocial needs.

Methodology: Semi structured interview was performed during the outreach home visit by the third year undergraduate medical students. This was under the supervision of a community palliative care nurse. The students' learning activity includes discussion on the impact of emotional, psychosocial, spiritual and medical towards patients' quality of life. Guided questioning through qualitative modality was discussed with supervisor at the earlier stage. This is to avoid unnecessary emotional stress for patients and the family as a result of insensitive interview questions. Students were asked to probe on multidimensional issues using explorative learning method and recorded the information in the reflective diary upon completion of house visit. The reflection experience must focus on; (1) What do I see, (2) Internal and external values, (3) Problems/Issues arise, and (4) Recommendations. The reflective diary's information was examined qualitatively to find appropriate theme during the exercise.

Results: Enjoyable learning experiences were reported by all students. All students reported enjoyable learning experiences on dealing with patients with chronic disease has put forth positive intention to perform better as future doctors.

Conclusion: Students' reflective approach in palliative care has enhanced affective experience and learning method. Majority of them concluded their appreciation on the importance of parental love in taking care of terminally ill patients.

PC05

Self-Sampling for cervical cancer screening; the agreement of molecular detection of HPV DNA and the respective cytology findings

Fatma Hariati Mohamad Zaki, Nor Hayati Othman

School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Nearly all cases of epithelial abnormality seen in cervical scrapings are due to HPV infection.

Objective: To determine the agreement of molecular detection of HPV DNA in samples taken by self-sampling for cervical scrapings and the respective cytology findings.

Methodology: Women volunteers were instructed to do self-sampling using Evalyn brush. The samples were placed in preservative and subjected to monolayered cytology for light microscopy and HPV detection by Hybrid Capture 2. The cytology findings and the HPV DNA results were analysed. Cases diagnosed as Atypical Squamous Cell of Undetermined Significance (ASCUS) or higher were considered as 'Abnormal'. On Hybrid Capture 2 assay, all cases which shows the presence of HR-HPV is considered 'Abnormal'. These two 'Abnormal' results were compared. Statistical analyses were conducted using IBM SPSS Statistics 20

Results: A total of 367 women were recruited in the study. All cases had cytological examination done on the samples while only 361 cases had HPV DNA detection done. A total of 59/367 (16.1%) cases showed abnormal cytology and 39/361 (10.6%) cases had HR-HPV detection. 18 cases showed abnormal results both in cytology and hybrid capture. The Kappa value of these results was 0.245 and the *P*-value <0.05. The sensitivity for were 30.5 % for cytology and 46.2% for molecular detection for HPV DNA. The specificity was 91.2% for cytology and 87.0% by molecular detection.

Conclusion: Our results show samples taken by self-sampling had similar sensitivity and specificity both by cytology and molecular detection of HPV. Self-sampling could be the method of choice for cervical cancer screening.

PC06

Factors influencing rapid haematopoietic engraftment in autologous peripheral blood stem cell transplantation for lymphoproliferative disease patients in Hospital Universiti Sains Malaysia

Hafizuddin Mohamed Fauzi¹, Rapiaah Mustaffa¹, Mohd Nazri Hassan¹, Mohd Amiruddin Sidik¹, Rohana Yusof¹, Azlan Hussin²

¹Department of Haematology and Transfusion; ² Department of Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Autologous peripheral blood stem cells transplantation (APBSCT) is a therapeutic option which can be used in various haematological neoplastic disorders. In Hospital Universiti Sains Malaysia (HUSM), APBSCT is used for multiple myeloma and lymphoma as it is associated with substantial advantages and less complication compared to allogenic stem cell transplantation.

Objectives: To identify factors associated with rapid haematopoietic engraftment in lymphoproliferative disease patients undergoing APBSCT.

Methodology: A retrospective data analysis was done on lymphoma and multiple myeloma patients treated with APBSCT at HUSM from 2010 until 2013 (n=40). Eleven factors were analyzed to determine which factor influenced rapid engraftment for platelet and neutrophil. Successful engraftment was defined as ≤ 28 days and rapid engraftment was defined as ≤ 14 days from the start of stem cell infusion. Data were analyzed using Pearson Chi Square/ Fisher's Exact test with *p* < 0.05 indicates statistically significance.

Results: Out of 40 patients, the results showed that 95% patients had successful neutrophil engraftment and 82.5% patients had successful platelet engraftment. From this success groups, the main factor that influenced rapid engraftment for neutrophil is stem cell (CD34+) count while factors that influenced rapid platelet engraftment were (CD34+) count, age and the stage of the disease during diagnosis.

Conclusion: In conclusion, identifying factors that may benefit patients undergoing stem cell transplantation are important and the results obtained can be useful as guidance to clinical hematologists to optimize their management.

PC07

The phenotypes of paraoxonase in Malay type 2 diabetes mellitus patients in Hospital Universiti Sains Malaysia

Hanim Afzan Ibrahim¹, Julia Omar¹, Wan Mohd Izani Wan Mohamed², Mohd Rafi¹ and K.N.S. Sirajudeen¹

¹Department of Chemical Pathology, ²Department of Internal Medicine, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan.

Introduction: Paraoxonase (PON) is an enzyme associated with high-density lipoprotein (HDL). PON is involved in the detoxification of lipid peroxides and play a role in decreasing oxidative stress which are related with the risk for complication in diabetes mellitus type 2(DMT2) patients that is strongly associated with their diabetic control. The ability of PON to protect low density lipoprotein (LDL) against oxidation has been shown to vary between the three polymorphic forms (A, AB, B). PON with phenotype B is less efficient in protecting LDL against oxidation.

Objective: To compare the phenotypes of paraoxonase and the lipid profile of Malay diabetes mellitus type 2 patients with healthy control group.

Methodology: A total of 99 subjects were chosen for three groups such as - healthy control, good control diabetes mellitus (HbA1c ≤6.5%) and poor control diabetes mellitus (HbA1c > 6.5%) (each group n=33). 5 ml of fasting blood was taken from each patient and analysed for salt stimulated paraoxonase, arylesterase activity and lipid profile. The phenotypes assesment for PON can be A, B, AB based on the ratio of salt stimulated paraoxonase activity to the arylesterase activity. The results were expressed by n (%) and mean (sd) which were analyzed using one- way ANOVA.

Results: Majority of subjects were AB phenotype and none of the healthy control subjects with B phenotype. B phenotype was higher in the poor control HbA1c group compared to good control HbA1c group. HDL was significantly higher in AB phenotype (p<0.05) compared to A phenotype in healthy group.

Conclusion: Majority of the Malay subjects has AB phenotype of PON with the presence of B phenotype in DMT2.

PC08

Prevalence and endoscopic finding of *Helicobacter pylori* infection in dyspeptic patients

Hussein Ali Osman¹, Habsah Hasan¹, Rapeah Suppian², Saravanan Arjunan³, Amry Abdul Rahim⁴, Syed Hassan⁵, Dzulkarnaen Zakaria Andee⁵ Noorizan Abdul Majid⁶, Bin- Alwi Zilfalil⁶

¹Department of Medical Microbiology and Parasitology, School of Medical Sciences, ²Department of Biomedical Science, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ³Department of Medicine, Hospital Kuala Lumpur, 50586 Jalan Pahang, Kuala Lumpur, Malaysia; ⁴Department of Medicine, ⁵Department of Surgery, ⁶Department of Paediatrics, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia;

Introduction: *Helicobacter pylori* is one of the most common worldwide human pathogens and is associated with gastritis, peptic ulcer, gastric cancer and gastric mucosa-associated lymphoid tissue lymphoma.

Objectives: To determine the prevalence and endoscopic findings of *H. pylori* infection in dyspeptic patients.

Methodology: This is a cross sectional study conducted between July 2012 to January 2014 among 226 dyspeptic patients at the Endoscopy Unit of Hospital Universiti Sains Malaysia and Hospital Kuala Lumpur. *H. pylori* was investigated by histology, culture and rapid urease test (RUT). Chi-square and Fisher's exact test was used in statistical analysis.

Results: Overall 105 (46.5%) were confirmed *H. pylori* positive. The prevalence of *Helicobacter pylori* among Malay, Indian and Chinese was 42 (40.0%), 37 (35.2%) and 26 (24.8%) respectively. Males have a higher rate (54.3%) of *H. pylori* infection as compared with females (45.7%). The endoscopic findings were non ulcer dyspepsia (gastritis) 78 (74.2%), gastric ulcer 9 (8.6%), duodenal ulcer 5 (4.8%) and normal 13 (12.4%).

Conclusion: This study shows that there is a variation in the prevalence of *H. pylori* infection among different ethnic groups in Malaysia. The majority of *H. pylori* positive patients in our study presented with gastritis during an endoscopy procedure.

PC09

Assessment of periodontal status and saliva among patients with diabetes mellitus type 2: A preliminary study

Izni Iwani Majid, Norsila Abdul Wahab, Haslina Taib

School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Diabetes and periodontal disease are chronic diseases with an established bidirectional relationship. Other symptom associated with diabetes is xerostomia, or a dry mouth sensation. Alteration in salivary flow rate could affect the periodontal tissues in diabetic patients.

Objectives: To observe and evaluate periodontal status and saliva flow rate in controlled diabetic patients.

Methodology: A cross-sectional study was conducted on 25 subjects with controlled diabetes mellitus type 2 (HbA1c <9%) attending Hospital USM Dental Clinic. Plaque index (PI), gingival index (GI) and periodontal pocket depth (PPD) were recorded in all subjects. A chewing gum in its container was first weighed before the session. Subjects then were asked to chew the gum for 2 min and stimulated saliva (plus the chewed gum) was collected. The differences in the weight before and after saliva collection were taken as the quantity of saliva. Flow rate was calculated as the weight per minute. Descriptive statistics was computed and Spearman correlation coefficient was used to determine the relationship between periodontal parameters and quantity of saliva.

Results: The mean (SD) periodontal parameters were as the following: PI 1.48 (SD 0.52), GI 1.59 (SD 1.59) and PPD 2.70mm (SD 0.42) with mean of stimulated salivary flow rate was 1.60mg/min (SD 0.83). There was no significant correlation between periodontal parameters and quantity of saliva ($p < 0.05$).

Conclusion: These preliminary findings demonstrated that subjects with controlled diabetes mellitus have stable periodontal status and normal stimulated salivary flow rate.

PC10

Cognitive impairment and self-management in elderly diabetics in Hospital Universiti Sains Malaysia

Khairunnisa MK, Juwita S, Azidah AK, Norhayati MN

Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.

Introduction: In 2006, prevalence diabetes mellitus in Malaysia is about 14.9 % according to National Health and Morbidity Survey III. Adults aged more than 60 years account more than 20% of all diabetic patients. Type 2 diabetes mellitus (DM) is a risk factor for cognitive impairment and dementia. Diabetes could influence cognitive function directly, that is, through the underlying insulin resistance or increased fluctuations in blood glucose levels; or indirectly, as diabetes leads to microangiopathy of the brain (e.g. status lacunaris capsula interna) and macroangiopathy, increasing the risk for stroke.

Objective: To study the cognitive impairment and self-management in elderly diabetics attending the diabetic clinics in Hospital Universiti Sains Malaysia.

Methods: This is a cross sectional, involving 379 patients Type 2 DM patient, aged more than 60 years attending the Klinik Rawatan Keluarga and KPP Hospital USM. This study utilized Malay version Mini Mental State Examination, Malay version Geriatric Depression Scale (MGDS 14) and Malay version diabetes knowledge questionnaire.

Results: Out of 379 subjects, 15 or 3.96% found to have cognitive impairment. There is significant difference of self-management of diabetes between those having cognitive impairment and those without cognitive impairment. Mean score of Malay version diabetes knowledge questionnaire among cognitive impairment only 9.9 while in no cognitive impairment group much high 13.0 and p -value < 0.05 . From multiple logistic regressions, there is significant association between cognitive impairment and self-management whereas p -value < 0.001 and confidants interval -0.183 (-4.779,-1.413).

Conclusion: The prevalence of cognitive impairment nearly double in comparison to normal elderly people compared to diabetes mellitus patient. Screening of cognitive impairment is necessary in elderly diabetics especially to those having associated factor.

PC11

Preliminary results of laboratory and clinical significance of rare antiphospholipid antibodies in pre-eclampsia patient in Hospital Sultan Ismail Johor Bahru and Hospital Universiti Sains Malaysia Kelantan

Mimi Azreen Abdullah¹, Wan Haslindawani Wan Mahmood¹, Wan Zaidah Abdullah¹, Noor Haslina Mohd Noor¹, Indhira Subbiah², Ahmad Amir Ismail³, Mohd Haslan Hassan³

¹Department of Hematology, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, Kelantan, Malaysia. ²Haematology Unit, Department of Pathology, Hospital Sultanah Aminah, Johor Bahru, Johor. ³Department of Obstetrics and Gynaecology, Hospital Sultan Ismail, Johor Bahru, Johor, Malaysia

Introduction: Pre-eclampsia (PE) continues to cause mortality and morbidity in pregnancy. Antiphospholipid syndrome (APS) is an autoimmune disorder characterized by thrombosis, recurrent fetal loss or placental dysfunction and positive antiphospholipid antibodies (APA). APA is known to induced proinflammatory and prothrombotic mechanisms. Relationship between PE and APA was first suspected due to high rate of PE in women with APS. Anti annexin and anti phosphatidylinositol are the rare APA antibodies which are known to be associated with morbidity in PE patients.

Objective: To investigate the prevalence and association of these APA (anti Annexin V and anti-phosphatidylinositol) in pregnant women with pre-eclampsia (PE) and normal pregnant women in Hospital Universiti Sains Malaysia and Hospital Sultan Ismail, Johor Bahru.

Methods: This study is a comparative cross sectional study of 100 patients from Hospital Universiti Sains Malaysia (HUSM) and Hospital Sultan Ismail (HSIJB) from January 2013 until December 2014. Blood samples from 18 pregnant women with pre-eclampsia and 18 women with normal pregnancy as control were collected and tested for anti Annexin 5 IgG/IgM using ELISA method.

Results: A total of 36 pregnant women were studied. Both cases (50%) and controls (50%) showed negative result for anti Annexin 5 IgG/IgM.

Conclusion: Anti Annexin 5 IgG/IgM is not detected in normal pregnant lady and pre-eclampsia patient. However, this is only preliminary result as total number of sample is not yet reachable and two types of rare antibodies will be tested in this study.

PC12

Effectiveness of community based oral health awareness program conducted by undergraduate students in remote area of Kota Bharu, Malaysia

Mon Mon Tin-Oo, Mohd Zulkarnain Sinor, Azizah Yusoff

School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Malaysia

Introduction: Oral health promotion intervention activities are aimed to improve knowledge, attitude and practice towards oral health among community.

Objectives: To evaluate the effectiveness of a community based oral health awareness activities for residents of Peringat village, Peringat district, Kelantan State, Malaysia through trained undergraduate students.

Methodology: A total of 218 adult residents aged 18 years old and above were selected using simple random sampling method. Base line data was collected by face to face interview using the structured questionnaire. Five days oral health awareness campaign was intervened in November 2012. Intervention was implemented in the form of health talk, exhibition, video show stressed on dental caries, cariogenic diet, dental plaque, gingival disease, use of fluoride, tooth brushing method, use of oral hygiene aids and importance of regular dental visit. Post intervention was evaluated by interviewing the subjects after a time span of 6 weeks using the same questionnaire. Comparisons of knowledge score between pre- and post-intervention were determined using paired *t* test.

Results: The post intervention knowledge scores showed significantly improved ($p < 0.001$). Knowledge on gum bleeding, dental plaque, advantages of fluoride showed increase 69.4% to 89.4%, 38.0% to 82.4%, and 52.8% to 93.1% respectively after intervention. Attitude towards dental visit, two-time tooth brushing and using of mouthwash were also improved. However, flossing practice was still lacking.

Conclusion: A community oral health awareness program conducted by undergraduate students has a positive effect on knowledge of community. Further assessment and sustainability of the good practice should be considered.

PC13

Concomitant alpha thalassemia mutations among HbE beta thalassemia patients

Muhammad Yusri Fauzi, Nur Aisyah Aziz, Rahimah Ahmad, Zubaidah Zakaria

Unit Hematologi, Pusat Penyelidikan Kanser, Institut Penyelidikan Perubatan, 50588 Kuala Lumpur, Malaysia.

Introduction: In Malaysia, haemoglobin E (HbE) is the most common β -globin chain variant among the Malays and Orang Asli of Peninsular Malaysia. The interaction of HbE with β -thalassemia mutations results in diverse spectrum of clinical severity; range from asymptomatic to transfusion-dependent. In addition, the magnitude of alpha-chain excess in the red cell precursors will have an impact on the clinical severity.

Objective(s): To investigate α -thalassemia mutations among HbE/ β -thalassemia patients.

Methodology: A total of 131 HbE/ β -thalassemia cases referred to IMR were screened for the presence of alpha thalassemia mutations. Full blood count (FBC) and haemoglobin analysis findings were reviewed. Multiplex ARMS-PCR and gap-PCR were carried out to confirm the genotype.

Results: Our analysis revealed nine (9; 7%) HbE/ β -thalassemia patients coinherit α -thalassemia mutations of which there are three heterozygotes of $-\alpha^{3.7}$ deletion, three heterozygotes of $-\alpha^{4.2}$ deletion and three Codon 142 (TAA \rightarrow CAA) mutation. The blood transfusion dependency among these patients varies from regular blood transfusion to non-transfusion dependant. Similar variables of blood transfusion dependency can be seen in the HbE/ β -thalassemia patients without α -thalassemia mutations. Thus, we observed that the coexistence of α -thalassemia mutation among HbE/ β -thalassemia patients does not reduce the severity of the transfusion dependency.

Conclusion: Coinheritance of α -thalassemia mutations does not influence the blood transfusion dependency among the HbE/ β -thalassemia patients. Other genetic factors may be present in these HbE/ β -thalassemia patients.

PC14

Screening for macroprolactinemia among hyperprolactinemia patients using Polyethelene Glycol 8000

Noor Azlin Azraini Che Soh¹, Julia Omar¹, Wan Mohd Izani Wan Mohamed², Najib Majdi Yaacob³, Mohamed Rusli Abdullah⁴.

¹Department of Chemical Pathology, ²Department of Internal Medicine, ³Units of Biostatistics and Research Methodology, ⁴Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia.

Introduction: Hyperprolactinaemia (HyperPRL) is the most common hypothalamic-pituitary disorder encountered in clinical endocrinology. A known benign condition that causes hyperPRL is macroprolactinaemia (MacroPRL). MacroPRL is a non-bioactive form of prolactin (PRL) which is composed of monomeric PRL and IgG antibodies. The prevalence of macroPRL is increasing in endocrinology practice. Clinical symptoms could not differentiate between both however differentiating macroPRL and true hyperPRL is important as macroPRL does not require any treatment.

Objective: To determine prevalence of macroPRL among hyperPRL patient in Hospital Universiti Sains Malaysia (HUSM) from 2011 – 2013 using polyethelene glycol (PEG) 8000.

Methodology: A cross sectional study was conducted in 2013 involving patients diagnosed as hyperPRL in HUSM from 2011-2013. The serum was measured for PRL using cobas e411 (sandwich principle) and the same serum was treated with PEG 8000 to differentiate between true hyperPRL and macroPRL. A recovery of less than 40% indicates macroPRL.

Results: A total of 133 patients, 120 (90%) female and 13 (9.8%) male aged between 18 to 68 years old with mean (SD) age of 34.37 (11.75) years old were biochemically diagnosed as hyperPRL. Nine patients (all female) were found to have macroPRL [prevalence=6.8% (95% CI: 2.4%, 11.1%)].

Conclusion: The prevalence of macroPRL detected using PEG 8000 among patients diagnosed as hyperPRL was low. Screening for macroPRL using PEG 8000 showed that majority of patients presented with hyperPRL in HUSM were true hyperprolactinaemia.

PC15

The effect of *Channa striatus* extract on hsCRP and interleukin-6 levels during wound healing in post lower segment caesarean section women

Noorazliyana Shafii¹, Julia Omar¹, Ahmad Ezam Zainan¹, KNS Sirajudeen¹, Azidah Abdul Kadir¹, Saringat Hj Baie², Siti Zubaidah Ab Wahab¹, Rohaizan Yunus¹, Norhayati Mohd Noor¹, N Hazlina N Hussein¹, Asrenee Abd Razak¹, Mohamed Rusli Abdullah¹

¹School of Medical Sciences, ² School of Pharmaceutical Sciences, Universiti Sains Malaysia, Malaysia.

Introduction: Wound healing involves three overlapping phases; inflammation, new tissue formation and tissue remodeling. CRP has been shown to significantly increase in response to local inflammation. hsCRP detects the same CRP molecule but its lower limit of detection is lower. Interleukin 6 (IL-6) is a proinflammatory cytokines that shown to be upregulated in inflammatory phase of healing. *Channa striatus* has been proposed to have anti-inflammatory properties for better healing of the wound.

Objectives: To compare the level of hsCRP and IL-6 in patients receiving *C.striatus* extract and placebo during wound healing of post Lower Segment Caesarean Section women.

Methodology: This was a randomized; double blinded, placebo-controlled study conducted in HUSM. The treatment group consumed 500mg of freeze dried *C.striatus* extract daily while the placebo group consumed 500mg of maltodextrin daily for 6 weeks. Venous blood was taken from each subject postoperatively at day 1, day 3, week 2, week 4 and week 6 and were analysed for hsCRP using Selectra E and IL-6 by Cobas e411. Data analysis were done using SPSS Version 20.

Results: A total of 73 patients were studied, 39 patients consumed *C.striatus* and 34 consumed maltodextrin. The levels of hsCRP and IL-6 in patients who consumed *C.striatus* and placebo were significantly different within group between day 3 and week 2, week 4 and week 6 (p-value < 0.001). However, when compared between the two groups, there were no significant differences in all the weeks.

Conclusion: There was no significant difference in the level of hsCRP and IL-6 between *C.striatus* and placebo group. The level of hsCRP and IL-6 were higher in the early stage of wound healing and reducing in trend at the later stage in both groups.

PC16

Nasopharyngeal carcinoma bio-repository: quality control assessment of frozen tissue specimens collected from hospitals in Malaysia

Norazlin Abdul Aziz¹, Noor Kaslina Mohd Kornain², Subathra Sabaratnam³, Tan Lu Ping¹, Siti Khodijah Hamzah¹, Nor Soleha Mohd Dali¹, Syamilah Sujor¹, Kim Eric Wee Ric¹, Tan Tee Yong⁴, Lum Chee Lun⁵, Pua Kin Choo⁶, Dipak Banarsi Dass⁷, Munirah Ahmad¹, Alan Khoo Soo Beng¹

¹Molecular Pathology Unit, Cancer Research Centre (CaRC), Institute for Medical Research (IMR), Jalan Pahang, 50588 Kuala Lumpur, Malaysia. ²Faculty of Medicine, Universiti Teknologi MARA (UiTM), Jalan Hospital, 47000 Sungai Buloh, Selangor, Malaysia. ³Jefrey Cheah School of Medicine and Health Sciences, Monash University, 80100 Johor Bahru, Malaysia. ⁴Jabatan Otorinolaringologi, Hospital Umum Sarawak, Jalan Hospital, 93586 Kuching, Sarawak, Malaysia. ⁵ Jabatan ENT, Hospital Queen Elizabeth, 88568 Kota Kinabalu, Sabah, Malaysia. ⁶ Jabatan Otorinolaringologi, Hospital Pulau Pinang, Jalan Resideni, 10990 Georgetown, Pulau Pinang, Malaysia. ⁷ Jabatan Otorinolaringologi, Hospital Kuala Lumpur, Jalan Pahang, 50586 Kuala Lumpur, Malaysia.

Introduction: A bio-repository of human tumour tissue is a requisite for cancer research. Hence, it is important that biospecimens collected for bio-repository are subjected to quality control (QC) assessment to ensure that researchers are provided with good quality biological materials.

Objective: To assess the quality of frozen tissue specimens collected from nasopharyngeal carcinoma (NPC) patients from Malaysian hospitals.

Methodology: Tissue specimens of patients diagnosed with NPC were collected from 4 hospitals in Malaysia over the time period of 4 years. These tissue specimens were stored in liquid nitrogen and now subject to QC assessment. Three cryosections were prepared from each frozen tissue specimen and stained following haematoxylin and eosin (H&E) rapid staining method for histopathological evaluation by two pathologists. DNA was also extracted from 9 cryosections of each specimen. The purity and yield of DNA samples were determined using a Nanodrop spectrophotometer.

Results: A total of 140 frozen tissue specimens were selected for QC assessment. The cryosections of these specimens were evaluated by histopathology. In some tumours, cancer cells may be heavily infiltrated with stromal cells and lymphocytes. Our study revealed that there is 77% of tissue specimens with good tissue morphology but only 46% of specimens showed presence of tumour cells in the tissue. The percentage of tumour cells varied from 10% to 90%. Of the specimen with tumour cells, purity of the DNA as assessed by the OD 260/280 ratio was about 1.9 and DNA yield range between 151 ng to 3 ug.

Conclusion: Histological review is critical for confirmation of tissue specimens containing cancer cells. Our QC assessments have provided insights regarding the quality of banked tissue specimens at our institute.

PC17

Nasal colonization of *Staphylococcus aureus* (*S. aureus*) including methicillin resistant *Staphylococcus aureus* (MRSA) among healthy students from a medical school

Norfarid Irfan Mohd Subri, Su Su Hlaing, Nor Amalina Emran

Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, UMS Road, 88400 Kota Kinabalu, Sabah, Malaysia

Introduction: Nasal carriage of *S. aureus* particularly MRSA among students during their clinical practice can be a potential source for the transmission and dissemination of these bacteria in hospital and to the community.

Objective: To determine the prevalence of *S. aureus* including MRSA nasal carriage among healthy students.

Methodology: This is a cross-sectional descriptive study, in which nasal swabs obtained from 453 subjects (medical and nursing students) from Universiti Malaysia Sabah (UMS). Upon *S. aureus* isolated, MRSA was identified by cefoxitin disc diffusion test. The antimicrobial susceptibility of *S. aureus* isolates was examined according to the Clinical and Laboratory Standard Institute guidelines. Then, the results were analyzed statistically using Pearson Chi-square test significance with $p < 0.05$.

Results: The prevalence of *S. aureus* nasal carriage among healthy students was 31% (141 of 453), but no MRSA was isolated. The carriage rate among the medical students was found to be significantly higher than the nursing students ($p = 0.043$). But, the relation between gender, age, clinical exposure and other risk factors was not significant in terms of the carriage rate ($p > 0.05$). All the *S. aureus* isolates were tested for antimicrobial susceptibility, and discovered that penicillin was the highest resistance, followed by tetracycline and low resistance to erythromycin. None of the isolates were resistant to cefoxitin, oxacillin, clindamycin and co-trimoxazole.

Conclusion: Although this study detected 31% nasal carriage of *S. aureus* among healthy students, none of them were Methicillin Resistant *Staphylococcus aureus* (MRSA). It could be due to good infection control practice among the students as well as hospital staffs, and control of usage of antibiotics.

PC18

The expression of insulin-like growth factor binding protein-related protein 1 (IGFBP-rP1) in breast and ovarian carcinoma patient with and without diabetes mellitus Type 2

Nur Asyilla Che Jalil, Anani Aila Mat Zin, Nor Hayati Othman

Department of Pathology, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, Malaysia.

Introduction: Insulin Like Growth Factor Binding Protein-related Protein1 (IGFBP-rP1) is a member of IGF system that have high affinity to insulin receptor and lead to insulin resistance syndrome in human. This persistence hyperinsulinemia will further increased Insulin Like Growth Factor-1 (IGF-1) that can inhibit apoptosis and increased proliferation of damaged cell that lead to cancer formation.

Objective: To determine the association between Insulin Like Growth Factor Binding Protein-related Protein1 (IGFBP-rP1) expression in breast and ovarian carcinoma with and without diabetes mellitus type 2.

Methodology: A retrospective study where breast and ovarian carcinoma slides with and without Diabetes Mellitus type 2 (DM2) stained with IGFBP-rP1 antibody by immunohistochemistry method. Only breast, ovarian carcinoma that have been diagnosed histologically in Hospital Universiti Sains Malaysia (HUSM) were included in this study. Status of patients known positive for DM2 and known negative for DM2 were retrieved using patient's clinical record. Statistical analysis was performed using SPSS version 20.0. Chi square analysis is used for comparing two proportion and multilogistic regression is used to control for confounding variables and to determined independent effect on clinical characteristics. $p < 0.05$ was taken as statistically significant.

Results: Breast and ovarian carcinoma with known positive for DM2 showed positive expression of IGFBPrP1 with $p < 0.001$ compared to those without. Ovarian carcinoma cases with known positive for DM2 had 5.20 adjusted OR (95% CI) to get positive IGFBP-rP1 expression compared to those known negative for DM2 with $p < 0.001$.

Conclusion: There is a strong association between breast and ovarian carcinoma with known positive for DM2 compared to those known negative for DM2. Furthermore, patients who were known positive for DM2 also had 5.20 adjusted OR (95% CI) to get ovarian carcinoma compared to those known negative for DM2. This result support that chronic hyperinsulinemia indirectly promotes carcinogenesis via Insulin Like Growth Factor (IGF) system. Reduction in diabetes prevalence may reduce cancer incidence.

PC19

Reference interval of enhanced liver fibrosis (ELF) score in healthy multi-ethnic Malaysian population

Nur Karyatee Kassim¹, Farhi Ain Jamaluddin²

¹ School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.

² Department of Pathology, Faculty of Medicine, University Malaya, 59100 Kuala Lumpur, Malaysia.

Introduction: Non-alcoholic fatty liver disease (NAFLD) is one of the commonest causes of liver fibrosis. While liver biopsy remains the gold standard method for the diagnosis and staging of liver fibrosis in NAFLD, it is not without its limitations. The Enhanced Liver Fibrosis (ELF) test is a set of non-invasive direct markers of liver fibrosis composed of tissue inhibitor of metalloproteinase 1 (TIMP-1), amino-terminal propeptide of type III procollagen (PIIINP) and hyaluronic acid (HA). The levels of these markers are then used in an established formula to produce the ELF score which will enable the classification of liver fibrosis in various stages. However, a reference interval for the ELF score meant for the healthy population is yet to be established.

Objective: To determine the reference interval for the ELF score in a healthy multi ethnic population.

Methodology: The ELF score was measured in 178 seemingly healthy blood donors of known gender, age and ethnicity using an ADVIA Centaur XP automated system. The ELF score was calculated using the algorithm combining TIMP-1, PIIINP and HA values.

Results: The 95th percentile reference interval for ELF score for the overall population ranges from 6.05 to 9.65 and was significantly higher for male versus female (7.04-9.85 vs 6.58 - 9.31 respectively). ELF score showed significant age dependent differences ($p < 0.05$). There was no significant difference in ELF score between ethnic groups ($p > 0.05$).

Conclusion: The reference interval of ELF score can help in assessing and identifying people at high risk of liver fibrosis especially NAFLD before they are subjected to liver biopsy. However, factors which may influence the ELF score such as gender, age and probably ethnicity need to be taken into consideration.

PC20

Association of Cervical Smear and Cervical Histology- A 5-Year Retrospective Study in Hospital Universiti Sains Malaysia

Nur Syuhada Mohd Nafis, Anani Aila Mat Zin, Cha Mei Yee, Rachel Lim Fung Wei

Department of Pathology, School of Medical Sciences, Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Pap smear has become a screening tool for cervical cancer for decades in Malaysia. In order to confirm an abnormal results of a pap smear, a histological examination by biopsy usually been done.

Objective: To compare the association of cervical smear and cervical histology results in Hospital USM in 5 years' time.

Methodology: Patients who did both cervical smear and cervical biopsy at Hospital USM from 2008 to 2012 based on random sampling method were identified. Findings for cervical cytology are grouped based from 2001 Bethesda system while the histology findings are grouped based on the levels of intra-epithelial changes of the cervix. Kappa statistic test was used to assess the degree of association between the cervical cytology and cervical histology result. The sensitivity, specificity, positive predictive value, false positive, false negative and concordance rate were also calculated.

Results: The kappa value is 0.22, ($p < 0.0001$), which shows fair association between cytology and histology diagnoses. Overall, the sensitivity, specificity and positive predictive value of using cervical smear to detect cervical changes are 97.2%, 4.3% and 44.3% respectively. The false positive rate is 55.7% with only one false negative case. The overall concordance rate for our study is 31.7%.

Conclusion: The false negative rate of cervical cytology is moderate and only involved CIN I and no CIN2, 3 or higher lesion, thus the cervical cytology is considered a useful and sensitive investigation method in screening cervical cancer.

PC21

Guided imagery relaxation audio as a psychological intervention tool for school-going children

Nurul Shafira Adi¹, Kuay Hue San², Nurul Azzira Md Daip³, Rohani Mohd Shahidi⁴, Azizah Othman¹

¹Department of Pediatrics, ²Department of Psychiatry, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ³School of Psychology and Social Work, Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah, Malaysia. ⁴Hospital Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan.

Introduction: Children experience various challenges during school years that may result in stress. Guided imagery relaxation is one of psychological techniques that could enhance one's coping skills.

Objective: To examine the effectiveness of Guided Imagery Relaxation (GIR) audio sessions, in improving psychological functioning among children.

Methodology: This is a single group pre- and post-quasi-experimental design study. Thirty-six (N = 36) Standard 6 students (Mean Age = 12, 52.8% boys), were subjected to 4 x 7 minutes GIR audio sessions conducted in group setting. The children completed the Rosenberg Self-Esteem Scale, Pediatric Quality of Life Inventory (PedsQL) Scale, Ottawa Mood Scale, and Mood Profile, before and immediately after listening to the final GIR session.

Results: Majority of the respondents is Malay (91.7%) and Muslim. Almost 50% of the parents hold at least a higher secondary education qualification. Results from Ottawa Mood Scale showed that the mean score before and after the GIR has significantly reduced for 5 subscales: feeling of stress, 54.72 to 27.5, ($p < .05$); sadness, 44.72 to 28.89, ($p < .05$); pain, 31.94 to 11.67, ($p < .05$); fear, 46.67 to 26.39, ($p < .05$); and anger, 53.33 to 29.22, ($p < .05$) respectively. The positive feeling profile subscale of Mood Profile showed significant improvement (33.08 to 37.0, $p < .05$) as a post-intervention result. No significant differences between the pre- and post-intervention scores on other measures.

Conclusion: The GIR audio has potential in inducing positive emotion in children. Future randomized controlled trials are needed to confirm the findings.

PC22

Comparison of uric acid level between good and poor control groups of Type 2 Diabetes Mellitus patients in Hospital Universiti Sains Malaysia

Siti Hajar Umar¹, Zulkarnain Mustapha¹, Mummedy Swammy¹, Abdullah Husam A Shukor²

¹Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. ²Ministry of Health Malaysia.

Introduction: Uric acid (UA) is the end product of purine metabolism in humans. Several studies showed that higher serum UA levels were associated with diabetes mellitus.

Objective: To compare mean of serum UA level between good and poor control groups of Type 2 Diabetes Mellitus (T2DM) patients in Hospital Universiti Sains Malaysia (HUSM).

Methodology: A retrospective record review was conducted involving adult patients who were diagnosed to have T2DM and underwent follow ups in Family Health and Physician Clinics from 1st January 2012 to 31st June 2014. Good controlled of T2DM was defined as single measurement of HbA1c level less than 6.5% or an average of less than 7 % if there were repeated measurements. Study subject was selected using simple random sampling. Serum UA level were measured via uricase method using Architect C8000. Data were entered and analysed using IBM SPSS Statistics 20. Descriptive statistics and Independent t-test were utilized. Level of significance were set at $p < 0.05$.

Results: Seventy-seven (50%) of patients had good glycemic control and another 77 (50%) had poor glycemic control. Majority of them were male (51.9%), Malays (88.3%) and non-smoker (95.5%). The mean of serum UA in good control patients was 348.8 $\mu\text{mol/L}$ (98.56) and 300.7 $\mu\text{mol/L}$ (89.99) in poor control patients ($p = 0.002$, 95% CI 18.06, 78.17).

Conclusions: The mean of serum UA level was significantly higher in good control diabetic patients. Therefore, it is important to monitor serum uric acid level in this particular group of patients for early detection of hyperuricemia to prevent the pro-oxidant effect UA.

PC23

Correlation between serum magnesium with eGFR among good and poor diabetic control

T Salwani T Ismail¹, Aniza MJ¹, Julia Omar¹, Harmy Yusuff²

¹Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan. ²Medical Faculty, Universiti Sultan Zainal Abidin, Gong Badak, Kuala Terengganu, Terengganu, Malaysia.

Introduction: Many studies have reported hypomagnesemia among patient with type 2 diabetes mellitus, influencing disease control and development of complication such as renal impairment. Whether hypomagnesemia in diabetic patient associated with the reduction of renal function as measured by eGFR is still unclear.

Objective(s): To elucidate the correlation between serum magnesium and level of eGFR in good and poor diabetic control patients.

Methodology: A comparative cross sectional study was conducted among 75 good control (HbA1c \leq 7.0%) and 75 poor diabetic control (HbA1c $>$ 7.0%) who attending Out Patient Department Clinic and Medical Specialist Clinic Hospital University Sciences Malaysia (HUSM), Kelantan. Serum magnesium and serum creatinine had been collected within 3 weeks of last HbA1c result. The eGFR is estimated based on MDRD formula.

Results: The proportion of hypomagnesemia among study subjects was 8.6%. The mean \pm SD of serum magnesium in good control was significantly higher than poor diabetic control group (0.94 \pm 0.10 mmol/L vs 0.88 \pm 0.10 mmol/L). There was no significant different with the mean of eGFR between poor and good diabetic control. Among good diabetic control subjects, there was a weak inverse correlation between serum magnesium and eGFR (r=-0.233, P=0.044). However the serum magnesium among poor diabetic control subjects were not correlate with eGFR.

Conclusion: Low level of magnesium in diabetic patient is not associated with reduction of eGFR.

PC24

Serum lipid parameters in patients with a clinical diagnosis of STEMI and NSTEMI in Hospital Universiti Sains Malaysia, Kelantan

Wan Ruhma Wan Hassan¹, Win Mar Kyi¹, Julia Omar¹, Zurkurnai Yusof², Ng Seng Loong², Ahmad Ezam Zainan¹, Norizam Yusof¹, Farzaana Adam³

¹Department of Chemical Pathology, ² Department of Medicine, ³Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Patient with a clinical diagnosis of ST-elevation myocardial infarction (STEMI) is considered more severe than the patient with non-ST-elevation myocardial infarction (NSTEMI). Alterations in lipid parameters are one of the risk factors that may induce atherogenic changes in the arterial wall, thus predisposing to myocardial infarction (MI). Non lipid risk factors for MI include age, sex, smoking, and history of hypertension, diabetes mellitus, ischemic heart disease (IHD) and family history of IHD.

Objective(s): To assess the levels of serum lipids and non-lipid risk factors in patients with MI and to compare the lipid parameters in STEMI and NSTEMI.

Methodology: This cross sectional study was conducted in USM, Health Campus. A total of 98 patients with a clinical diagnosis of MI were selected. The lipid parameters were measured using Architect analyzer (c8000). The mean (SD) of the numerical variables were analyzed using descriptive statistic and independent t-test were used to compare the mean.

Results: Out of 98 patients, 68 (69.4%) were diagnosed as NSTEMI and 30 (30.6%) as STEMI. The mean (SD) concentrations of triglycerides (TG) in STEMI and NSTEMI were 1.87 (1.08) mmol/L and 1.43 (0.84) mmol/L respectively. The mean (SD) concentrations of nonHDL-C were 4.17 (1.72) mmol/L and 3.42 (1.26) mmol/L in STEMI and NSTEMI respectively (both p < 0.05).

Conclusion: TG and non-HDL-C levels were significantly higher in STEMI than NSTEMI. Therefore these parameters could be a risk marker for development of STEMI and management need to be emphasized to reduce the TG and nonHDL-C.

PC25

Self-medication: product recommendation pattern by community pharmacists' for common illnesses

Wan Sazrina Wan Zaid, Haizun Athirah Ismail, Nurul Adilla@Hayat Jamaluddin, Aslinda Jamil, Mariani Ahmad Nizaruddin, Suraiya Abdul Rahman.

Faculty of Pharmacy, Cyberjaya University College of Medical Sciences, 63000 Cyberjaya, Selangor, Malaysia.

Introduction: Self-medication is important part of healthcare; it brings patients towards independence on making decisions about management of minor illnesses.

Objective: To publish the pattern of medication product recommendation pattern by community pharmacist in Selangor for common illnesses.

Methodology: This quantitative, cross sectional study was conducted at all 347 community pharmacies in Selangor using blanket sampling method. The questionnaires were sent by post. Data was analyzed with SPSS for Windows version 17.

Results: 103 community pharmacists responded were: independent pharmacies (70.9%) and chain pharmacies (29.1%); female (62.1%) and male (37.9%); town area (52.4%), suburban (22.3%), city area (19.4%) and rural area (5.8%). The common illnesses which regularly present in community pharmacy include headache, chesty cough, muscle pain, diarrhoea, allergy rhinitis and sleep problem. The top five product suggested as the first line recommendation for headache: Panadol® (49.5%), Brufen® (12.6%), Nurofen® (10.75%), Pontalon® (6.8%) and Actifast® (5.5%); for chesty cough: Bena Expectorant® (61.2%), Benadryl® (7.8%), Uphadyl® (6.8%), Sunex® (5.8%), Hova Expectorant® (2.9%) and Mucosolvan® (2.9%); for muscle pain: Norgesic® (15.5%), Voren® (13.6%), Voltaren® (8.7%) and Remafen® (8.7%), Remethan® (6.8%) and Myoflex® (4.9%); for diarrhea: Imodium® (30.1%), Dhamotil® (20.4%), Colodium® (10.7%), Ultra Carbon® (9.7%), Lomotil® (4.9%) and Vacontil® (4.9%); for allergy rhinitis: Zyrtec® (43.7%), Clarityne® (13.6%), Clarinase® (11.7%), Intazin® (6.8%), Ezedo® (5.8%) and Stada®(Cetirizine) (5.8%); for sleep problems: Atarax® (40.8%), Rilax® (24.3%), Piriton® (4.9%), 21st Centry Herbal®(1.9%), Adezio®(1.9%), Passion Flower (1.9%) and Promethazine® (1.9%) but ten respondents(9.7%) answered no specific recommendation for this condition and three respondents (2.9%) answered refer to GP.

Conclusion: The findings suggested that generic drugs are widely recommended by the pharmacist based on the indication of the drugs not the price.

PC26

A study on herpes viruses infection and epilepsy

Wan Zuraida Wan Ab Hamid¹, Siti Nurul 'Ashikin Sabaruddin¹, Fauziah Mohamad Idris², Shalini Bhaskar³, John Tharakan³, Mustaffa Musa¹

¹Department of Immunology, ²Department of Medical Microbiology, ³Department of Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Epilepsy is a disorder of the brain that may relates to the immune mechanisms associated with herpes virus (HSV) infection. Herpes viruses are human pathogens and this virus group is of special interest in relation to complications of the central nervous system (CNS). Viruses may enter the CNS via endothelial cells lining the blood vessels or may enter within lymphocytes and macrophages with subsequent infection of the peripheral neurons.

Objective: This study was conducted to identify association between epilepsy and previous infection of herpes viruses.

Methodology: A cross-sectional study was carried out on 190 subjects with the ethical approval from the Human Ethics Committee of Universiti Sains Malaysia (USM). Blood samples were collected and measured using ELISA kits for antibodies against herpes viruses.

Results: Among all herpes viruses, only CMV IgG showed association with epileptic subjects with p value <0.001 and X^2 value of 186.0 via Pearson Chi-Square test. A high X^2 value results from a smaller p value reflects highly associated factors. However HSV-1 and HSV-2 IgG, and VZV IgG, were not significantly associated with epilepsy. Similarly, Fisher's Exact Test was used for EBV IgG analysis but the result showed no significant association ($p=1.000$).

Conclusion: Our findings revealed that there were significant association between epilepsy disorder and previous CMV infection.

List of Participants

No.	Name	Address	E-mail
1	A.T.M. Emdadul Haque (Dr.)	Universiti Kuala Lumpur-Royal College of Medicine Perak	emdadul@unikl.edu.my
2	Abuzar Mahmoud Abdelrahman Elnager (Mr.)	Department Of Haematology, School Of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia	abuzar.elnager@yahoo.com
3	Ali bin Puteh (Mr.)	Bahagian Sains Kesihatan Bersekutu, KKM, Aras 2, Bangunan Chancery Place, Jalan Diplomatik 2, Presint 15, 62650 Putrajaya.	aliputeh@moh.gov.my
4	Amy Saik Yi Hsan (Ms.)	School of Science, Monash University Sunway Campus, Jalan Lagoon Selatan, 46150 Bandar Sunway, Selangor Darul Ehsan, Malaysia.	amysaik@hotmail.com
5	Anani Aila Mat Zin (Dr.)	Department of Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	ailakb@usm.my
6	Aniza Mohammed Jelani (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	anizamj@usm.my
7	Arefuddin Ahmed (Dr.)	Medical Radiation Programme, School of Health Sciences, USM Health Campus, 16150 Kubang Kerian, Kota Bharu, Kelantan	aref@usm.my
8	Arifin Junior bin Zainal Arifin (Mr.)	Kolej Sains Kesihatan Bersekutu Johor Bahru, Jln Persiaran Kempas Baru, 81200 Johor Bahru, Johor	arifin.j.moh@1govuc.gov.my
9	Azlan Jaafar (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	landental@gmail.com
10	Basheer Lawal (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	mahmoudbasheer@hotmail.co.uk
11	Bathma Dhevi Susibalan (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	sakuntala_29@yahoo.com
12	Chia Boon Hock (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	chiabh@usm.my
13	Erry Mochamad Arief (Assoc. Prof.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	erry@usm.my
14	Ezzeddin Kamil bin Mohamed Hashim (Mr.)	School of Health Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	ezzeddin@usm.my
15	Fadzel Wong Chee Ping (Mr.)	Sport Science Unit, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	fadzel@ums.edu.my
16	Fadzilah bt Mohd Padzil (Ms.)	Dept. of Immunology, School Of Medical Sciences, USM Health Campus, 16150 Kota Bharu	fadzilah_scopio86@yahoo.com.my
17	Fahisham Taib (Dr.)	Dept of Paediatrics, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.	fahisham@usm.my

No.	Name	Address	E-mail
18	Fatma Hariati Binti Mohamad Zaki (Ms.)	Department of Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	fatmahariati@gmail.com
19	Fazura bt Mohd Zain (Dr.)	Klinik Pergigian Dr. Fazura, Jln Bayam, 15200 Kota Bharu.	fadhli@usm.my
20	Ganesh Ramalinggam (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	gane4@hotmail.com
21	Gerard Dunleavy (Mr.)	Brain Research and Information Network, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.	gerard.dunleavyhp@gmail.com
22	Hafizuddin bin Mohamed Fauzi (Dr.)	Department of Haematology and Transfusion, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	hafizuddinm@yahoo.com
23	Hanim Afzan binti Ibrahim (Ms.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	afzankk@usm.my
24	Hany Mohamed Aly Ahmed (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	hany_endodontist@hotmail.com
25	Hussein Ali Osman (Dr.)	Department of Medical Microbiology and Parasitology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	hali2005@yahoo.co.uk
26	Izni Iwani Bt Majid (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	iznimajid@gmail.com
27	Jafar Mohseni (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	jmohseni46@gmail.com
28	Jaya Kumar a/l Murthy (Mr.)	BRAINetwork Center for Neurocognitive Science, School of Health Sciences, USM Health Campus, Kelantan.	jaykumar5453@gmail.com
29	Kabiru Mohammed (Dr.)	Department of Community Medicine, School Of Medical Sciences, USM Health Campus, 16150 Kota Bharu	kmohd1970@yahoo.co.uk
30	Khairunnisa Mohd Khathri (Dr.)	Department of Family Medicine, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	khairunnisakhathri@yahoo.co.uk
31	Khairunnisak binti Mison (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	nis875@gmail.com
32	Khairunnuur Fairuz binti Azman (Ms.)	Department of Physiology, School of Medical Sciences, USM Health Campus, 16150 Kota Bharu.	khairunnuur@gmail.com
33	Liza bt Noordin (Dr.)	Department of Physiology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	lizack@usm.my
34	Manal Abdulrahman Farea (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	ghorafi44@yahoo.com
35	Md. Asiful Islam (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	ayoncx70@yahoo.com

No.	Name	Address	E-mail
36	Mimi Azreen binti Abdullah (Dr.)	Department of Haematology and Transfusion, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	areen81@yahoo.com
37	Mohamad Nor Azmi bin Jamaah (Mr.)	Kolej Sains Kesihatan Bersekutu Johor Bahru, Lot 8173, Jalan Persiaran Kempas Baru, 81200 Johor Bahru	azmi_130307@yahoo.com.my
38	Mohamed Qais bin Abu Bakar (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	qaisfireboltanakantu89@gmail.com
39	Mohd Nazri bin Shafei (Dr.)	Department of Community Medicine, School Of Medical Sciences, USM Health Campus, 16150 Kota Bharu.	drnazri@usm.my
40	Mon Mon Tin Oo (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	drmonmontinoo@usm.my
41	Muhammad Amali bin Kamarudin (Mr.)	Endocrinology Laboratory, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan.	amali@usm.my
42	Muhammad Hassan Yankuzo (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	hyankuzo@yahoo.com
43	Muhammad Nasri Abu Bakar (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	kd_494@yahoo.com
44	Muhammad Yusri Bin Fauzi (Mr.)	Makmal Genetik Molekul, Unit Hematologi, Institut Penyelidikan Perubatan, Jalan Pahang, 50588 Kuala Lumpur	muhammadyusrifauzi@yahoo.com
45	Muhammad Zulkefli Ramlay (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	zull_um@yahoo.com
46	Muzammil Ullah (Prof. Dr.)	Faculty of Dentistry, UiTM, 40450 Shah Alam, Selangor, Malaysia.	muzammil@salam.uitm.edu.my
47	Nafij bin Jamayet (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	drnafij@usm.my
48	Nik Mohd Ariff bin Nik Abdul Malik (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	firasuria@yahoo.com
49	Nik Mohd Yunus bin Mohammad (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	m_kodro@yahoo.com
50	Nik Mohd Zulfikri Bin Mat Zin (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	zulfikrikk@usm.my
51	Nik Nur Sabrina Ishak (Ms.)	Medical Radiation Programme, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan.	nnsabrina.ishak@gmail.com
52	Noor Azlin Azraini bt Che Soh @Yusof (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	noorazlin_acs@hotmail.com
53	Noor Rashidah Saad (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	rashi_5758@yahoo.com

No.	Name	Address	E-mail
54	Noor Suryani Mohd Ashari (Ms.)	Department of Immunology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	suryani@usm.my
55	Noorazliyana binti Shafii (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	nasyana@hotmail.com
56	Norazlin binti Abdul Aziz (Ms.)	Unit Patologi Molekul, Pusat Penyelidikan Kanser, Institut Penyelidikan Perubatan, 50588 Jalan Pahang, W.P. Kuala Lumpur	norazlin@imr.gov.my
57	Norfarid Irfan bin Mohd Subri (Mr.)	Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, UMS Road, 88400 Kota Kinabalu, Sabah.	nfirfan@gmail.com
58	Norhida binti Ramli (Ms.)	BRAINetwork Center for Neurocognitive Science, School of Health Sciences, USM, Kelantan.	n_hida@yahoo.com
59	Norliana Ghazali (Ms.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	noorliana@usm.my
60	Norlizah binti Mat Noh (Ms.)	Kolej Sains Kesihatan Bersekutu Johor Bahru, Jln Persiaran Kempas Baru, 81200 Johor Bahru, Johor	zuliza08@gmail.com
61	Nur Asyilla Che Jalil (Dr.)	Department of Pathology, School of Medical Sciences, USM Health Campus, Universiti Sains Malaysia, Malaysia.	asyilla@usm.my
62	Nur Farrah Dila binti Ismail (Ms.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	nfarahdila@yahoo.com
63	Nur Karyatee Kassim (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	drkaryatee@gmail.com
64	Nur Syuhada Mohd Nafis (Ms.)	Department of Pathology, School of Medical Sciences, Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.	syuhadanafis@gmail.com
65	Nurdayana Haji Abdul Karim (Ms.)	Dept. of Immunology, School Of Medical Sciences, USM Health Campus, 16150 Kota Bharu	yana@usm.my
66	Nurul Hidayat binti Yusoff (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	nurulhidayatjusoff@gmail.com
67	Nurul Shafira Adi (Ms.)	Department of Pediatrics, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia	azeezah@usm.my
68	Rasmaizatul Akma Rosdi (Ms.)	School of Medical Sciences, Universiti Sains Malaysia, USM Health Campus, 16150 Kubang Kerian, Kelantan, MALAYSIA	misssmalllittlefingers@gmail.com
69	Rohaizam bin Japar@Jaafar (Dr.)	Department of ORL-HNS, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	konno_81@yahoo.com
70	Roslina Husaini (Ms.)	Hematology Unit, Institute For Medical Research (IMR), Jalan Pahang, 50588 Kuala Lumpur.	roslina@imr.gov.my
71	Saima Ashraf (Ms.)	BRAINetwork Center for Neurocognitive Science, School of Health Sciences, USM, Kelantan.	saima.ashraf@hotmail.com

No.	Name	Address	E-mail
72	Sarfraz Ahmed (Dr.)	Department of Pathology, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150, Kubang Kerian, Kota Bharu, Kelantan.	sarfraz_114@yahoo.com
73	Sathiya Maran (Ms.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	sathiyamaran@gmail.com
74	Shing Cheng Tan (Mr.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	shingchengtan@gmail.com
75	Siti Aisyah Faten bt Mohamed Sa'dom (Ms.)	Human Genome Centre, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	sitiaisyahfatensadom@gmail.com
76	Siti Hajar Binti Umar (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	u.jaja80@yahoo.com
77	Siti Nur Hasyila bt Muhammad (Ms.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	snhasyila@gmail.com
78	Siti Nurfarhana binti Sabireen (Ms.)	Programme of Biomedicine, School of Health Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	farhanasabireen@yahoo.com
79	Siti Nurnasihah binti Md Hashim (Ms.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	nasihah_ct48@yahoo.com
80	Suhailiza Saharudin (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	a_lieza9@yahoo.com
81	T. Nataraja Moorthy (Assoc. Prof.)	Faculty of Health and Life Sciences, Management and Science University, 40100 Shah Alam, Selangor.	nataraja_moorthy@msu.edu.my
82	Tan Jian Liang (Mr.)	Department of Ophthalmology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.	jianliang_octjl@hotmail.com
83	Tee Jong Huat (Mr.)	Department of Neuroscience, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	teejonghuat@gmail.com
84	Tuan Nadrah Naim bt T. Ismail @ T. Manah (Dr.)	School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	tnadrah@usm.my
85	Tuan Salwani Tuan Ismail (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	tusti@usm.my
86	Umar Zayyanu Usman (Dr.)	Department of Physiology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	zenufatee@yahoo.com
87	Wan Amir Nizam Wan Ahmad (Dr.)	School of Health Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	wanamir@usm.my
88	Wan Ruhma binti Wan Hassan (Dr.)	Department of Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	venice2705@yahoo.com

No.	Name	Address	E-mail
89	Wan Sazrina Wan Zaid (Dr.)	Faculty of Pharmacy, CUCMS, No 3410 Jalan Teknokrat 3, 63000 Cyberjaya, Selangor	wansazrina@cybermed.edu.my
90	Wan Zuraida Wan Ab Hamid (Dr.)	Department of Immunology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.	wzuraida@usm.my
91	Win Mar Kyi (Dr.)	Dept. of Chemical Pathology, School Of Medical Sciences, USM Health Campus, 16150 Kota Bharu	winmar@usm.my
92	Yasrul Izad Abu Bakar (Dr.)	Kampus Kota, UniSZA, Jalan Sultan Mahmud, 20400 Kuala Terengganu, Terengganu Darul Iman.	yasrulizadh@unisza.edu.my
93	Zainal Abidin bin Abd Rahman (Mr.)	Kolej Sains Kesihatan Bersekutu Johor Bahru, Jln Persiaran Kempas Baru, 81200 Johor Bahru, Johor	d_enal@hotmail.com