

PULSE@UM

UM EHEALTH INITIATIVE

CLINICAL INVESTIGATION CENTRE

TROPICAL INFECTIOUS DISEASES
RESEARCH & EDUCATION CENTRE

ANIMAL EXPERIMENTATION ON
DRUGS & BRAINS

UNRAVELING THE SECRETS OF
SNAKE VENOMS

MEDICAL BIOTECHNOLOGY
LABORATORY: ISO RECOGNITION



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Trimeresurus (Popeia) nebularis, the Cameron Highlands pit viper - beautiful and venomous. Research on venom toxicity and antivenom is in progress at UM.

PROFESSOR DR YVONNE LIM AI LIAN DEPUTY DEAN (RESEARCH)



My warmest greetings to all!

At the beginning of the year, I came across a quote that said "Today, is the first blank page of a 365 page book, so write a good one." The year has certainly drifted by very quickly and this 2nd issue of Pulse@UM highlights the many events that have taken place in the first quarter of 2018.

Our section on "Our People, Our Story" features Professor Dr. Christina Tan Phoay Lay and Professor Dr. Maznah Dahlui who delivered their inaugural lecture in January and March, respectively. Both spoke passionately about their experiences and achievements.

We are very proud of Professor Dr. Ng Kwan Hoong, Department of Biomedical Imaging, for being the first Asian scientist to be honoured with the highest rank and the most prestigious award in Medical Physics – the Marie Skłodowska-Curie Award bestowed by the United Kingdom-based International Organization for Medical Physics (IOMP).

I'd like to also congratulate the Clinical Investigation Centre (CIC), UMMC, for recently being ranked 7th in the Top-10 IQVIA Prime Sites globally. IQVIA is the world's largest contract research organisation (CRO) for clinical research, and this is quite an achievement

This issue of Pulse@UM also serves you with news on various research facilities, initiatives and activities within the faculty. Many may not be aware that our Faculty has one of the leading research teams on snake venom. To entice you to this topic, we have an article called "From Genes to Fangs".

Lastly, we rejoice with the various award recipients and the recognition received by Faculty colleagues and the Silent Mentor Centre, UM. At the rate we are going, I am sure that the 365 page book that we are writing, will be an eventful one.

Keep up the good work!

With best wishes,

Professor Dr Yvonne Lim Ai Lian

OUR PEOPLE OUR STORY

PROFESSOR DR. CHRISTINA TAN PHOAY LAY: OUR BELOVED FAMILY MEDICINE SPECIALIST, MEDICAL EDUCATOR AND LIFE-LONG LEARNER

TAN KAE YI
DEPARTMENT OF MOLECULAR MEDICINE

A family medicine specialist, a medical educator and a life-long learner, these are the various roles that Professor Dr. Christina Tan Phoay Lay are always remembered of in the hearts of her colleagues and students. Professor Tan was originated from Georgetown, and obtained her medical training at the London Hospital Medical College in Whitechapel, United Kingdom.

Professor Tan started her service at the Faculty of Medicine and the University Hospital as a medical lecturer in the Department of Primary Care Medicine. Throughout her academic career, she has always exhibited additional outstanding quality as a medical educator. Back then, teaching expertise was assumed to be part of content expertise. "These early learning experiences as a lecturer demonstrate to me a need for teachers to learn how to teach first," she said. Along the way, she noticed that the old-fashion "teacher-centred" teaching has been gradually replaced by a more "student-centred" learning. Thus, she took initiative to "re-learn" as a student and learn on the desire to provide optimum's care. In a special opportunity, she was awarded an International Fellowship in Medical Education by the U.S.-based Education Commission for Foreign Medical Graduates in 2000 that allowed her to spend 6 months at the University of New Mexico (UNM) in al Albuquerque, New Mexico, which was well known in problem-based learning (PBL) circles. On her return, she pioneered the implementation of PBL in the undergraduate medical curriculum in UM with Professor Dr. Nor Azila Mohd Adnan and Professor Dr. Debra Sim Si Mui, who were equally enthusiastic about medical education. Since then, PBL gained more support and continued to blossom in today's new curriculum of the University of Malaya Medical Programme (UMMP).

Another factor that has been a driver in her desire to learn is to do with assessment. Teaching and learning go hand in hand with assessment. Together with the late Professor Dr. Rokiah Pendek, they were trained for the preparation and conduct

of Objective Structured Clinical Examination (OSCE) at the University of Chicago, and on their return they embarked on developing our OSCEs from scratch. OSCE was then introduced as a component of the final examinations of the undergraduate medical programme (the New Integrated Curriculum, which started in 1998), and the first stationed-OSCE was conducted successfully in 2003.

"Learning how to reflect is a final important ingredient in this recipe for lifelong learning".

- Professor Christina Tan

With her deepening interest in medical education, she received a medical education fellowship with the U.S.-based Foundation for the Advancement of International Medical Education and Research (FAIMER) in 2005-2006. This was a life-changing experience providing her an opportunity to network internationally with health professions educators. Her interest in medical education led to further pursuit of postgraduate qualifications in health professions education culminating in a doctorate.

The elements that have contributed to Professor Tan's self-motivation or desire to learn include the passion to get the best out of her students, wanting to have a sound and fair assessment for them, and having the strength and resilience to pursue further training for better patient care. Lastly, she shared with us this take-home message: "Learning how to reflect is a final important ingredient in this recipe for lifelong learning".

PROFESSOR DR. MAZNAH DAHLUI:

“WOMEN’S EMPOWERMENT: ECONOMIC EVALUATION FOR HEALTH ADVOCACY AND INFORMED POLICY”

TAN KAE YI
DEPARTMENT OF MOLECULAR MEDICINE

Renowned Professor of Health Economics Dr. Maznah Dahlui was the featured guest for an inaugural lecture on 15th March 2018. Professor Dr. Maznah is a Public Health Medicine Specialist at the forefront of serving the Ministry of Health (MOH), Malaysia. She joined University of Malaya in the year 2003. Her specialty is health economics, with a major interest in the economic evaluation of health programs. Throughout her career, she conducted many economic evaluations on the country's health policies and programs, working closely with various ministries in Malaysia. She also has good linkages with international institutions such as the UNFPA, UNESCO, World Bank and WHO, which have led to several consultancy projects centred on the evaluation and monitoring of health programs.

In 2005, the first and most remarkable economic evaluation in her life was conducted for her Ph.D. study. A health intervention to ask for a more cost-effective measure was proposed to the MOH in order to subsidize Desferrioxamine (an iron chelator drug which at that time was expensive for Transfusion-Dependent Thalassemia Patients (TDTP)). After an economic evaluation, the MOH finally decided to consider the findings to justify the listing of the drug in the Blue book. Since then, Desferrioxamine has been available for free for TDTP at all government hospitals.

With economic evaluation increasingly becoming a tool for advocacy in health care programmes, it can help make informed decisions concerning the efficiency and allocation of resources in the implementation of strategies. It is used to advise care providers and patients on the best available research evidence to enhance their practices. Reasons for employing economic evaluation in health care decision-making are (i) maximisation of benefits from health care spending; (ii) overcoming regional variations in access; (iii) containing costs and managing demand; and (iv) providing bargaining power when dealing with suppliers of healthcare products. With current global needs, her research interest extends to cancer screening, infectious diseases such as HIV and Hepatitis C, health issues of adolescents, and obesity prevention, in which economic evaluations are necessary to improve efficiency of service provision or to measure the value of money utilised on health intervention programs.

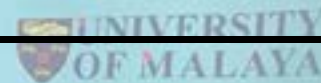
Professor Dr. Maznah has been actively engaging NGOs (such as the Breast Cancer Welfare Society and MAKNA) and communities (the urban poor community and rural populations). International research collaborations have also been initiated with many well-known institutions including the Sanger Institute (University of Cambridge, United Kingdom), Kirby Institute (University of New South Wales, Australia), University of Usmanu Danfodia (Sokoto, Nigeria), and several others. Upon her success, Professor Dr. Maznah was appointed as the Regional Director of the Asia-Pacific Academic Consortium for Public Health (APACPH) in 2013. On top of that, the APACPH Secretariat was successfully relocated to the University of Malaya in 2012 with her holding the post of Secretary until today. That allows her to initiate research collaborations on community obesity prevention with several of the 87 APACPH member institutions.

Her outstanding contributions to public health in such a short span of time contributed significantly to her appointment as the Chair for both “National Clearinghouse for Adolescent Health” and “Technical Advisory Committee of Health Technology Economic Evaluation (TACHTEE)” in Malaysia, as a Fellow of the Public Health Medicine Specialists Association, Malaysia and Distinguished Fellow of the Faculty of Public Health, Royal College of Physicians in the UK. She demonstrated strong leadership capabilities when she was chosen as the head of Department of Social & Preventive Medicine (2011-2016) and Deputy Dean (Infrastructure & Development) of the Faculty of Medicine in 2016.

PROFESSOR DR. NG KWAN HOONG:

FIRST MEDICAL PHYSICIST FROM A DEVELOPING COUNTRY TO RECEIVE THE MARIE SKLODOWSKA-CURIE AWARD FROM THE INTERNATIONAL ORGANIZATION FOR MEDICAL PHYSICS

FADZILAH HANUM MOHD MYDIN
DEPARTMENT OF PRIMARY CARE MEDICINE



Professor Dr Ng Kwan Hoong is the first scientist from a developing country to be honoured to receive the highest rank and the most prestigious award in Medical Physics – the Marie Sklodowska-Curie Award bestowed by the United Kingdom-based International Organization for Medical Physics (IOMP), which represents 25,000 medical physicists worldwide. Medical physics deals with the application of physics and engineering in medicine. Professor Ng will be receiving the award during the World Congress on Medical Physics and Biomedical Engineering that will be held in Prague this coming June.

He has made significant contributions to breast cancer research and is determined to improve early cancer detection and achieve more reliable prediction of cancer risk. He has been leading several international collaborative projects, one of which is with fellow researchers in Singapore to use artificial intelligence techniques in improving the accuracy of diagnosis. He has also published extensively in radiation dosimetry, digital imaging and risk communication. This award, given once in three years, honours medical physicists who have contributed to the education and training of medical physicists, medical residents, medical students and health personnel; achieved excellence in biomedical research; and contributed to the advancement of the profession.

Some of the past eminent recipients of this award include: Prof. John R Cameron from the United State of America (USA) (2000), the inventor of the bone mineral densitometer (for detection of osteoporosis); Prof. Charles Mistretta from USA (2012), the inventor of digital subtraction angiography (the basis for cardiac angiography, interventional procedures); and Prof. Colin Orton, USA (2015) who also applied novel radiobiology concepts in radiotherapy.

He acknowledges this recognition as phenomenal because it shows that scientists from developing nations like Malaysia can also contribute to the well-being of humanity. Besides that, medical physics is a novel field and

profession in this region of the world. Receiving this international recognition is very meaningful for him and others in the medical physics field in Malaysia. Prior to this, in 2013, Professor Ng was also named one of IOMP's top 50 medical physicists in the world.

His pre-eminent achievement in expanding the medical physics field in this nation was the establishment of the University of Malaya Medical Physics Master's program two decades ago. It is the only post-graduate medical physics academic program outside the United Kingdom and Ireland accredited by the UK Institute of Physics and Engineering in Medicine. This program has produced many medical physicists throughout the country and internationally. He has also been actively teaching and training radiologists and clinical oncologists for over two decades. Another excellent contribution Prof Ng made towards the progress of medical physics is the establishment of the ASEAN College of Medical Physics in the year 2014.

Looking back at his career progress earlier, he was among the pioneers of radiation medicine during the early years of his career as an educator and researcher. He also been serving as a consultant and expert for the International Atomic Energy Agency (IAEA); and Fukushima Daiichi Accident Report (2015).

He is also the founding president and president emeritus of the South-East Asian Federation of Organizations for Medical Physics, and co-founder and past-president of the Asia-Oceania Federation of Organizations for Medical Physics. In addition to being a Fellow of the Academy of Science Malaysia, he is also one of the very few non-clinicians to be inducted into the Academy of Medicine Malaysia.

CONNECT THE WORLD

BRIDGING HEALTH AND ICT TO IMPROVE HEALTHCARE: THE UNIVERSITY OF MALAYA EHEALTH INITIATIVE (UMeHI)

NG CHIRK JENN & TEO CHIN HAI
DEPARTMENT OF PRIMARY CARE MEDICINE

The University of Malaya eHealth Initiative (UMeHI) was established in April 2017 and is hosted under the Faculty of Medicine, with the Faculty of Computer Science and Information Technology (FCSIT) as its key partner. The UMeHI aims to use information and communications technology (ICT) to improve healthcare for patients and the community. The UMeHI team, comprising researchers, healthcare professionals, computer scientists and industry representatives, aims to work together to provide effective, sustainable and innovative solutions to address real world healthcare challenges.

The Initiative targets three domains: Research, Education and Clinical Services. Under the Research track, the UMeHI conducts bi-monthly journal clubs to update researchers on current eHealth trends and share ideas. The UMeHI also conducts regular workshops to train researchers in eHealth, such as using software to analyse big data involving machine learning (artificial intelligence).

The Education track focuses on using ICT to deliver accessible and effective training for medical students, postgraduate trainees, and healthcare professionals. In February 2018, the UMeHI conducted a workshop on 'Design and implementation of effective technology-enhanced learning solutions for medical education' which was led by Associate Professor Dr Sunhea Choi, an instructional design expert from the University of Southampton.

The third aim of the UMeHI is to improve clinical service delivery using ICT. The UMeHI works closely with the University of Malaya Medical Centre's (UMMC) IT Department to create a research data management system to support research and improve patient care using the electronic medical record (EMR) system. Additionally, the UMeHI is also developing other tools to enhance clinical service delivery. For instance, a pre-consultation patient agenda system and an evidence retrieval system have been developed to facilitate doctors in finding out their patient's agenda, and to empower clinicians to practise evidence-based medicine.



The UMeHI is honoured to host the FOM Research Carnival 2018 on 15-19 October 2018. We hope to increase awareness within the communities of FOM and UMMC as well as the public on the potential uses of ICT to improve healthcare through innovation. International eHealth experts will be invited and interesting activities such as a hackathon will be organised during the eHealth Research Festival. So do join us!

The UMeHI is a one-stop centre that shares resources and expertise on eHealth with the main goal of improving patient care. The UMeHI welcomes collaboration across all institutions and disciplines to conduct research, enhance teaching and learning, and innovate healthcare delivery through eHealth.

Please visit our website: <http://ehealth.dicc.um.edu.my> or email: ngcj@um.edu.my for more information.



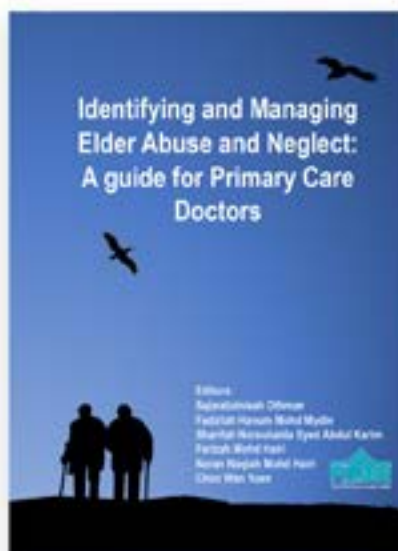
READ TIP



Author:
Rohela Mahmud, Yvonne Lim Ai Lian, Amirah Amir

Publisher: Springer
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Medical Parasitology: A Textbook is the fruit of many years of experience in teaching medical students in the field of parasitology. The study of parasitology is daunting to the uninitiated. This book aims to promote an easy yet comprehensive way of learning this subject. It attempts to simplify the complexity of medical parasitology into parts that are easy to understand, integrating the essential information of parasitic infections. This integration of knowledge will be achieved through reader-friendly illustrations, inclusion of a collection of case reports, samples of test questions and the images of human parasites. Essentially, the book provides a "one-stop learning package" for medical parasitology.



Author:
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Abuse and neglect of older person is an emerging problem in Malaysian society in view of the ageing population. Primary care physicians strategically located in the community have an important role to intervene in elder abuse and neglect. The Prevent Elder Abuse Initiative (PEACE) team has successfully produced a manual to support primary care physicians in identifying and managing elder abuse and neglect. Important aspects that are highlighted in the manual include the introduction of the SASO Model (S for 'having high suspicion of abuse and neglect', A for 'assess holistically'; S for 'ensure safety' and O for 'discuss available options') and a workflow of possible clinical actions to be taken when facing with different situations at primary care level. It is hoped that the manual will become an important guide for primary care physicians in supporting older patients in the community.

RESEARCH SPORTLIGHT

C I C

**CLINICAL INVESTIGATION CENTRE (CIC):
A WORLD-LEADING PRIME SITE FOR CLINICAL
TRIALS IN MALAYSIA**

HASNIZA ZAMAN HURI
CLINICAL INVESTIGATION CENTRE (CIC)

“Being recognised by IQVIA is an important milestone for us as we continue to manage and conduct more and more clinical trials at UMMC. The capabilities of our distinguished scientists, researchers, study teams, processes, and upgraded facilities give us the opportunity to work with some of the world’s biggest and most notable companies. With continuous support from everyone, our international story will continue to grow”.

- Assoc Prof Dr Hasniza Zaman Huri, Director of CIC

The UM Clinical Investigation Centre (CIC) was recently ranked 3rd among the Top-5 IQVIA APAC Prime Sites and 7th in the Top-10 IQVIA Prime Sites globally. IQVIA is the world’s largest contract research organisation (CRO) for clinical research. CIC was named the first prime site in Asia by IQVIA in the year 2010. Since then, we have strived hard to keep our scores high and have successfully renewed this recognition for the 7th consecutive year in 2017.



CIC's TEAM

CIC was recognised as the first centre in Malaysia for the INSPIRE Site Program by Pfizer Inc, the world’s largest research-based pharmaceutical company, in July 2013. This prestigious status was successfully renewed in 2018. INSPIRE – which stands for Investigator Networks, Site Partnerships and Infrastructure for

Research Excellence – is a strategic set of sites that are highly productive, medically relevant, and aligned to Pfizer’s business. In 2016, CIC was named as the first Alliance Partner in Malaysia for PAREXEL, the second largest CRO in the world. In response to this success, the manager of CIC, Miss Krisna Veni Balakrishnan said, “None of this would have been possible without the support from the whole team. Our most important resource is not our money, it is our soul – which is made up of our people who strive hard to ensure the success of CIC. For all these glorious achievements, CIC would like to take this opportunity to express its utmost gratitude to the University Malaya Medical Centre, University of Malaya, investigators, researchers, study coordinators, sponsors, contract research organizations and everybody who has played a role in transforming CIC into a world-renowned centre for clinical investigation”.



Dr Tan Jiunn Liang is examining his patient

Apart from all these achievements CIC has also successfully shifted into new premises which are located in the East Tower of UMMC. This is to accommodate the needs of our users and to meet national and international requirements in order to undertake and conduct clinical trials from Phase I to Phase IV. CIC (Clinical) is well equipped with modern and advanced equipment and facilities for the purpose of conducting clinical trials. Sheer hard work and dedication to delivering excellent value and service to patients, clients, partners, and customers have rewarded CIC today with many achievements and recognitions, and we hope that success continues to follow us for years to come.

AWARDS & RECOGNITIONS

Professor Dr Jamunarani S Vadivelu receives fellowship from Royal College of Pathologists

Professor Dr Jamunarani S Vadivelu from the Department of Microbiology received her FRCPath from the Royal College of Pathologists recently.

Appointment as Member of WHO Technical Working Group: Package of Priority Rehabilitation Intervention

Associate Professor Dr Nazirah Hasnan, Department of Rehabilitation Medicine, Faculty of Medicine has been appointed as a member of the WHO Technical Working Group: Package of Priority Rehabilitation Intervention. Currently, she is the Deputy Director (Clinical) of the University of Malaya Medical Centre.

Appointment as Review Advisor of WHO Working Group on Snakebite Envenoming

Professor Tan Nget Hong from the Department of Molecular Medicine as a Review Advisor of the WHO Working Group on Snakebite Envenoming. This is a wonderful international recognition of the tremendous work that he and his team have done in this area.

Silent Mentor Centre (SMC) of UM recognised for its selfless service - The 4th Tan Kah Kee Award

The Silent Mentor Centre (SMC) of UM was awarded the 4th Tan Kah Kee Award for its contribution towards education/ public service. The Tan Kah Kee Award was established in 2014 with the aim of encouraging and fostering the selfless contributions of individuals and organizations. This is a well-deserved recognition for our academic staff who have passionately taught and inspired medical students throughout the program to become compassionate doctors.

Affiliate of the Young Scientists Network - Academy of Sciences Malaysia (YSN-ASM)

Dr Tan Choo Hock from the Department of Pharmacology has been appointed as an affiliate to the Young Scientists Network - Academy of Sciences Malaysia (YSN-ASM) for a period of three years (until 2021).

TIDREC

TROPICAL INFECTIOUS DISEASES RESEARCH AND EDUCATION CENTRE
 THE LEADING ONE-STOP RESEARCH AND EDUCATION CENTRE
 FOR TROPICAL INFECTIOUS DISEASES IN MALAYSIA

KHOO JING JING, MORVARID AKHAVAN REZAEI,
 MOHD ISKANDAR JEFREE BIN JOHARI, JURAINA
 BINTI ABD. JAMIL & SAZALY BIN ABU BAKAR
 TROPICAL INFECTIOUS DISEASES
 RESEARCH & EDUCATION CENTRE



The Tropical Infectious Diseases Research and Education Centre (TIDREC) was established in 2008 by the University of Malaya as a one-stop research and education centre for the advancement of knowledge in the field of tropical infectious diseases. Currently, TIDREC is a UM Centre of Excellence (UMCoE), with ongoing collaboration with both local and international partners in research projects with potential global impact. The Centre houses the WHO Collaborating Centre for Arbovirus Reference and Research and has been leading research in dengue and other arthropod-borne diseases in Malaysia and the region for the past decade. Some of TIDREC's recent notable activities include:

INDUSTRY AND STAKEHOLDER ENGAGEMENT: VACCINE AND PROTEIN THERAPEUTICS PROCESS DEVELOPMENT (VAKSIN) LUNCHEON TALK

On 30 January 2018, TIDREC successfully organized the VAKSIN Luncheon Talk which gathered officials from institutional partners Baylor College of Medicine (BCM-TCH); Texas Children's Hospital Centre for Vaccine Development, USA; Malaysian government ministries and national regulators; the Ministry of Health and National Pharmaceutical Regulatory Agencies (NPRA); as well as various government and industry

stakeholders and investors including the Malaysian Bioeconomy Corporation (Bioeconomy Corp); Malaysian Investment Development Authority (MIDA); Malaysian Technology Development Corporation (MTDC); US Embassy; Cirrus Ventures Sdn Bhd; Chulia Life Science Sdn Bhd; Accobiotech Sdn Bhd; Malaysian Vaccines and Pharmaceuticals Sdn Bhd; Pharma Niaga Berhad; CCM Pharmaceuticals Sdn Bhd; Mediven Innovation Ventures Sdn Bhd; KPJ Healthcare Berhad; and Sanofi Aventis (Malaysia) Sdn. Bhd. These representatives gathered to discuss the innovations and potential benefits of vaccine manufacturing in Malaysia. VAKSIN is a proposed Centre of Excellence for Vaccine and Protein Therapeutics Process Development to be established between TIDREC and various external vaccine technology partners. VAKSIN will focus on vaccine process development needs, bringing innovation from laboratories directly to vaccine manufacturers. The initiative will address the gap in vaccine development especially focusing on the need for ethical and 'halal' vaccines.

INTERNATIONAL LINKAGES: ESTABLISHMENT OF THE FIRST TICK CELL BIOBANK OUTPOST IN ASIA
TIDREC, together with partners from the Institute of Infection and Global Health (IGH), University of Liverpool, UK, successfully secured funds from the UK Biotechnology and Biological Sciences Research Council under the Global Challenges Research Fund to establish the first Tick Cell Biobank (TCB) outpost in Asia. The TCB in IGH houses and disseminates cell lines from ticks and other arthropods. The TCB's expertise in the generation and maintenance of arthropods is extremely valuable in current and future research on a wide range of vector-borne diseases. The TCB Asia Outpost will be the first of its kind in Asia and one of only three outposts existing globally, the other two being located at the International Livestock Research Institute (ILRI) in Kenya and the Federal Rural University of Rio de Janeiro in Brazil. Established tick cell lines will be maintained in the TCB Asia outpost in TIDREC which will also serve a supplier to the wider research community within Malaysia and the Asia Pacific region. In addition, TIDREC and IGH were awarded the 2017 Newton - Ungku Omar Fund (NUOF) Institutional Links to initiate a bilateral transfer of expertise in the research of Rickettsial diseases in the tropical setting using tick cell lines and to strengthen research ties between the two partner institutions. Activities for promotion and training in the use of TCB resources are expected to commence in late 2018.

COMMUNITY IMPACT: SURVEILLANCE OF MERS-COV INFECTION AMONG MALAYSIAN HAJ PILGRIMS - A MULTI-YEAR PROSPECTIVE COHORT STUDY

Middle East Respiratory Syndrome Coronavirus or MERS-CoV infection has emerged as a potential serious public health threat of global concern. There is a fear that MERS-CoV infection could spread following the Haj pilgrimage which usually sees Malaysians spending at least one month in the Middle East where MERS-CoV is mostly acquired. TIDREC, together with Tabung Haji and the Ministry of Health, is currently conducting a three-year study (2016-2018) funded by the US Naval Medical Research Center-Asia. The study is aimed at evaluating the risk of exposure to the MERS-CoV among Malaysian pilgrims travelling to Saudi Arabia during the Haj. TIDREC researchers have successfully completed the second year of the study with more than 1,800 volunteers among Haj pilgrims participating to date. The third year of the study began in March 2018.

COMMUNITY ENGAGEMENT: FIELD TRIAL OF AN ATTRACTICIDAL MOSQUITO COIL SYSTEM FOR OUTDOOR USE THROUGH COMMUNITY EMPOWERMENT

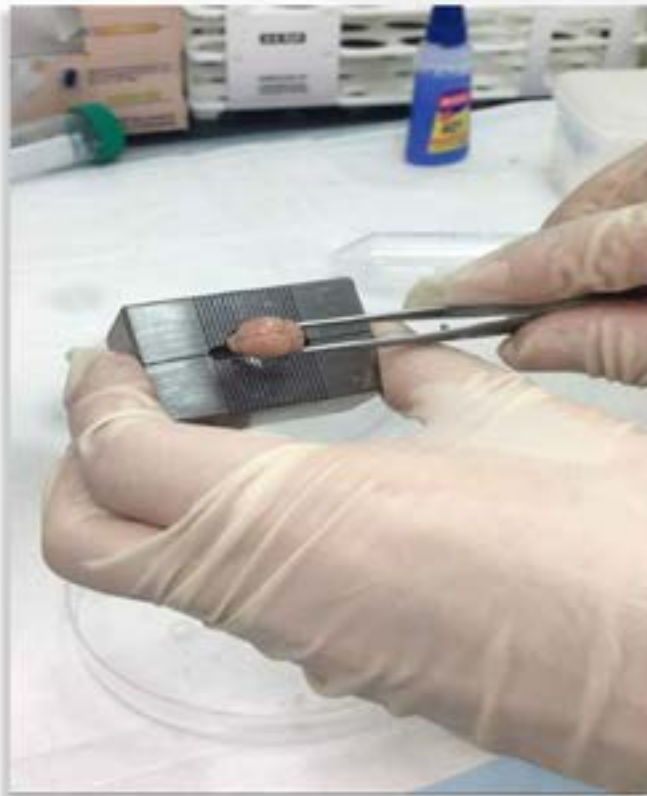
TIDREC has developed and registered an innovative and easily deployable mosquito-control system consisting of an attracticidal mosquito coil for outdoor use named 'Spokojan'. Recently, Spokojan was introduced in a field trial as part of the Communication for Behavioral Impact (COMBI) programme, a community-based effort to control mosquitoes, the vector for dengue transmission. Funded by the Ministry of Science, Technology & Innovation (MOSTI), the community from Jalan Ciku, Taman Kota Masai, Pasir Gudang, Johor, is currently participating in the programme as a COMBI partner. The community received the Spokojan to be incorporated into their regular dengue control efforts. In addition, TIDREC also runs regular workshops on mosquito surveillance methods using ovitraps, which are simple and effective mosquito-trapping equipment. TIDREC researchers have been receiving positive feedback from members of the community for this initiative and we appreciate the opportunity to be involved in the development of new technologies and innovations that could help to improve the health and well-being of the community.

For more information on TIDREC's research and activities, kindly contact us at +603 7967 6670 or tidrec@um.edu.my, or visit TIDREC's website at <http://www.tidrec.com>.



ANIMAL EXPERIMENTATION ON DRUGS AND BRAINS

VIJAYAPANDI PANDY
DEPARTMENT OF PHARMACOLOGY



Common it is to see laboratory animals being tested for drug-induced activities on diseases like cancer, diabetes and hypertension. Relatively uncommon is animal experimentation that incorporates behavioral techniques in the study of neuropharmacology. This is a maturing science in medicine that contributes to our deeper understanding of drug-behaviour interactions. In the Faculty of Medicine, the Behavioural Pharmacology Research Group headed by Assoc. Prof Dr. Vijayapandi Pandey is no less appreciated for their achievements in this niche research area.

The group's primary interest has been on neuropsychopharmacological evaluation of psychoactive natural products for potential clinical effectiveness. This is in line with drug discovery for improved treatment of neuropsychiatric diseases such as depression, anxiety, psychosis, alcohol dependence and drug addiction, which are illnesses on the rise in today's world. The group has been working actively on testing the effect and mechanisms of action of the many neuropharmacological agents and behaviourally active compounds as well as drugs.

At present, this group is working on medicinal plants like *Morinda citrifolia*, *Acorus calamus* and *Mitragyna speciosa*. Some of their findings include discoveries of the central receptor systems involved in anxiolytic- and antidepressant-like activities of *Morinda citrifolia* (noni) fruit extract, and the efficacy as well as mechanism of a compound from *Acorus calamus* (sweet flag) that works against depression-like symptoms in nicotine withdrawal.

The group has also reported antipsychotic-like activity of noni fruit in animal models for the first time. It is exciting to know that this part of the work will move from bench to bedside whereby the antipsychotic activity of *M. citrifolia* fruit may soon be tested in psychiatric patients in collaboration with King's College of London. Similarly, the anticraving property of *M. citrifolia* fruit against heroin, alcohol and methamphetamine dependence has been established in animal models. These findings also be extended to clinical research to treat various kinds of drug addiction. Moreover, the group constantly works to develop and refine behavioural techniques for drug screening and evaluation. One of their innovative products was the development of a new prototype mouse model for drug self administration.

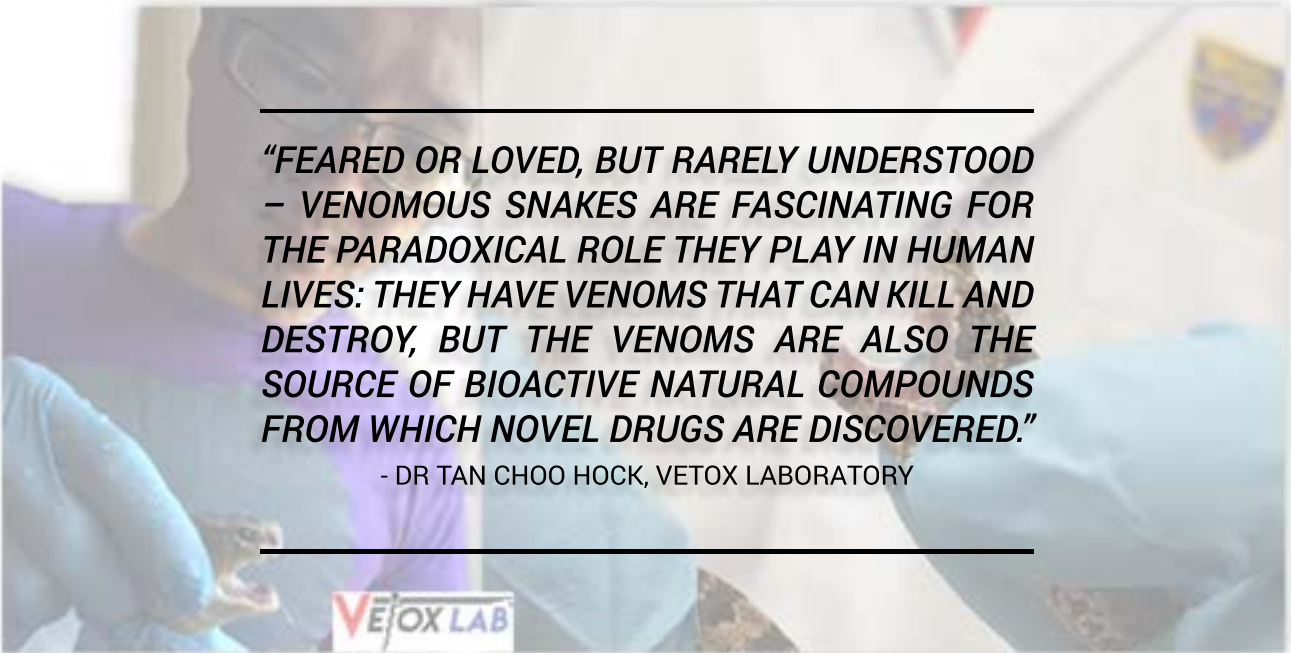
Associate Professor Dr Pandey and his team's research was supported by various research grants such as BKP, PPP, UMRG and HIR-MOHE. He also received an International award - "Mahatma Gandhi Samman" - for his excellent contribution to the field by the NRI Welfare Society in Bangkok, Thailand on 27 May, 2017.

FROM GENES TO FANGS: UNRAVELING THE SECRETS OF SNAKE VENOMS

TAN CHOO HOCK
DEPARTMENT OF PHARMACOLOGY

Snakebite envenomation remains a neglected tropical disease that imposes a tremendous toll of suffering and chronic disability on many poor and marginalized communities. Strategies to overcome this global health issue include the improvement of our knowledge on the diversity and complexity of the “causative” agents – snake venoms. This relies heavily on fundamental research to unravel the different venom properties – the secrets of successful survival of the venomous snakes.

Unlocking the secrets of snake venom is, however, not as straightforward as simply cataloging the venom components. The genes, the expression patterns and various modification processes of proteins ultimately influence the composition, immunogenicity and functions of venoms even though the snakes belong to the same species. The variability of snake venom has far-reaching ramification on the clinical presentation of snakebite envenomation, and the effectiveness of treatment. The problem is complex and challenging, but it fuels the passion of our faculty’s snake venom researchers to delve further into the “secrets of snake venom”. The team from the Venom Research and Toxicology Laboratory (VETOX) incorporates advanced molecular technologies with various biochemical, immunological and



***“FEARED OR LOVED, BUT RARELY UNDERSTOOD
– VENOMOUS SNAKES ARE FASCINATING FOR
THE PARADOXICAL ROLE THEY PLAY IN HUMAN
LIVES: THEY HAVE VENOMS THAT CAN KILL AND
DESTROY, BUT THE VENOMS ARE ALSO THE
SOURCE OF BIOACTIVE NATURAL COMPOUNDS
FROM WHICH NOVEL DRUGS ARE DISCOVERED.”***

- DR TAN CHOO HOCK, VETOX LABORATORY

pharmacological assays for comprehensive studies of snake venoms. Having investigated more than 30 snake venoms in the region, the team has established a wealth of snake venom knowledge base essential for the elucidation of envenoming pathophysiology and the design of better treatment strategy. Some fundamental research findings include the genetic makeup and transcriptomics of our local snakes that offer deep insights into the unique sequences and expression of toxins in cobras and pit vipers. Intraspecific venom variability has also been unveiled in a number of species, illustrating how toxin molecules, immunogenicity and neutralization response to antivenom can diverge.

The team also conducts preclinical assessments of different experimental or commercial antivenom products, addressing the safety and efficacy issues pertaining to their practical use. The research has left a direct positive impact on the choice and use of antivenom in countries like Malaysia and Indonesia. Recently, the limiting factor of antivenom efficacy has also been unveiled, thus solving the puzzle of low potency of antivenom in neutralizing the venoms and toxins of certain species. It is hoped that the team’s efforts

will continue to improve snakebite management through the recommendation of a better monitoring system, improved treatment protocol and the production of affordable, high quality “broad-spectrum” antivenoms - pan-regional, poly-specific products that can be used in different areas for a wider coverage.



Besides, Vetox Lab is engaged with the community through knowledge dissemination and information sharing about the science of animal venoms and toxins. A series of talks, workshops and publications about the scientific basis of snakes and venoms are planned for the community to better appreciate the impact of snake venoms on healthcare and biomedical research. The latest aspiration of the team is to venture into the discovery of compounds with therapeutic potential such as anti-coagulant, anti-cancer and anti-inflammatory substances from the precious venoms of our local snake species. At present, the team has established strong collaboration with researchers from local institutes and abroad including Thailand, Indonesia, Sri Lanka, India, Pakistan and Taiwan.



Researchers interested in sharing ideas and working together are always welcome. Within the faculty, the team based in the Vetox Lab led by Dr. Tan Choo Hock from the Department of Pharmacology (contact: tanch@um.edu.my). Other active co-leading researchers include Prof. Debra Sim (Pharmacology), Prof. Tan Nget Hong and Dr. Tan Kae Yi (Molecular Medicine).

More information is available at www.vetoxlab.com, or please contact Dr Tan Choo Hock at tanch@um.edu.my.

INNOVATION

MEDICAL BIOTECHNOLOGY LABORATORY (MBL) TOWARDS INTERNATIONAL RECOGNITION - MS ISO/IEC 17025:2005 ACCREDITATION

THIBASHINI NAIR, PUTERI SHAFINAZ AKMAR
& WAN IZLINA IBRAHIM
MEDICAL BIOTECHNOLOGY LABORATORY (MBL)

The Medical Biotechnology Laboratory (MBL), established in 2005 is one of the laboratories under the umbrella of Central Research Laboratories (CRL), designated as a centralised research facility housing the Faculty's advanced technology and basic equipment for conducting research. MBL offers proteomics & genomics services and training in specialized proteomics & genomics technologies within the University of Malaya as well as for other local universities and research institutions.

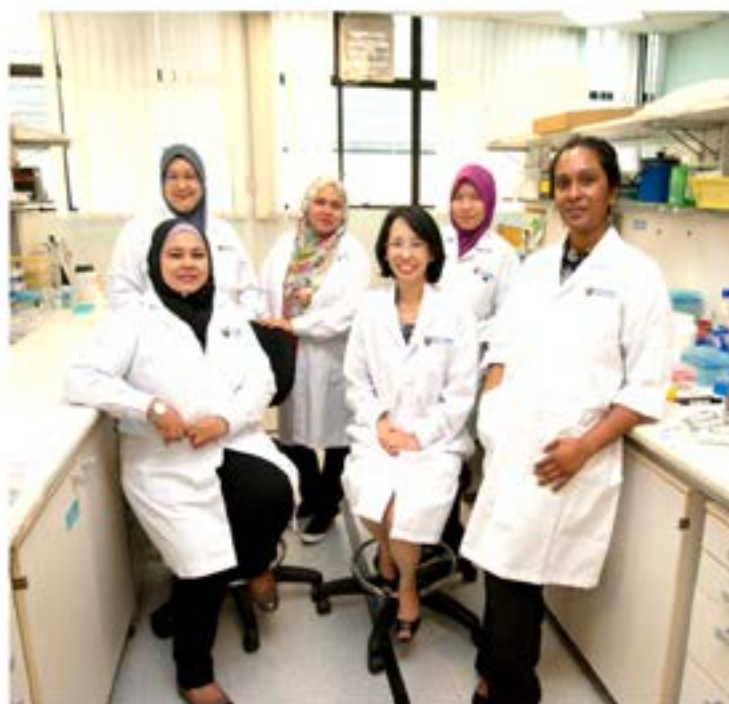
In line with UM's status as Malaysia's premier Research University and one of the leading Research Universities in Asia, MBL strives to provide excellent service in terms of quality of work, timely delivery and professional competency. We started our first step in the accreditation journey together with 14 other laboratories in UM. MBL's ISO team, headed by Assoc. Prof. Dr. Puteri Shafinaz Akmar Abdul Rahman and 5 other team members from both MBL and the UM Centre for Proteomics Research (UMCPR), underwent continuous training, assessment and quality improvement for 4 years as part of the accreditation process. By going through the accreditation processes and regular assessments, MBL successfully developed a quality management system, increased its productivity and raised the technical competence of the lab personnel in cutting-edge proteomics technology. As such, this exercise improved the performance, discipline and sense of professionalism of the staff.

In order to achieve the required high quality service performance, to date, MBL has braved 8 audits among which are Adequacy Audit by SIRIM Sdn. Bhd (30 September 2015), Pre-assessment Audit by SIRIM Sdn. Bhd (19 November 2016) and Compliance Audit by Standard Malaysia (20 June 2017). Although our journey has been a long one, the endeavour has been worth the effort. Medical Biotechnology Laboratory's Protein Identification Service

was awarded MS ISO/IEC 17025:2005 accreditation status on 19 July 2017, making it the only accredited protein identification service provider in the country.

To us, the whole accreditation process is a journey, not just a destination. It is full of learning opportunities, as well as trials and tribulations. Achieving this accreditation marked our Protein Identification Service as technically competent, and able to produce accurate and high standard data. In line with CRL's commitment to helping scientists, we will continue to provide support to the research community towards achieving excellence in research.

For more information on our proteomics facilities, kindly contact us at: 03-7967 7535/6976, or email: proteomics@um.edu.my



From left to right: Assoc. Prof. Dr. Puteri Shafinaz Akmar, Nur Athirah Husin, Nosrihah Ismail, Profesor Yvonne Lim, Jumriah Hiji, Thibashini Nair Sathasivan (Not in picture: Dr Jaime Jacqueline Jayapalan)

ALL ABOUT "ARM": AGEING AND REGENERATION MEDICINE RESEARCH THRUST

TAN MAW PIN (DEPARTMENT OF MEDICINE)

THAMIL SELVEE RAMASAMY (DEPARTMENT OF MOLECULAR MEDICINE)

The Ageing and Regeneration Medicine (ARM) Research Thrust kicked off the year for the Science Café through a display of the collaborative and cross-cutting nature of research in this area at the Faculty of Medicine. The year 2018 shows all the promise of a research revival at the Faculty with news of substantial research funding from the federal budget. After a period of reflection and refinement over recent lean times, we will be coming back stronger and better.

A SCIVAL search revealed that 4166 articles were published in this area in Malaysia since 2012, of which 1169 (28%) were from the University of Malaya. While the number of publications per year has plateaued at just over 700 nationwide and 200 from UM, the quality of research has risen convincingly. About 30% of UM publications in ARM topics were in the top 10% of most cited publications world-wide in 2017 in comparison to 20% of all Malaysian publications. Both UM and Malaysia have improved leaps and bounds since 2012 when the figures were a mere 13% and 9% respectively.

Broadly, research in the ARM thrust falls into four main priority areas: the Ageing Process, Degeneration, Stem Cells and Tissue Engineering (SCaTE), and Rehabilitation.

THE PROCESS

Research on process fell within three main themes: Accelerated Ageing, Frailty, and Instability. Over the past five years, the Ageing and Age-Associated Disorders (AAAD) research group has worked closely with the Centre of Excellence for Research in AIDS (CERiA) and several childhood cancer survivor groups to evaluate accelerated ageing. The Department of Rehabilitation Medicine also expressed clear ambitions to evaluate disability as a model for accelerated ageing. Frailty research saw collaboration between AAAD and the Departments of Molecular Medicine and Public Health, while the flag for Falls (Instability) research was carried collectively by the Departments of Biomedical Imaging, Primary Care, Emergency Medicine, Ophthalmology, Rehabilitation Medicine, Cardiology, and Neurology.

DEGENERATION

Osteoarthritis (OA) research features prominently within the ARM thrust with the National Orthopaedics Centre for Excellence for Research and Learning (NOCERAL) engaging in biomarker discovery, animal models, and mechanobiology research. In addition, cross-cutting collaborations exist between AAAD, Rheumatology, Urology,

Urogynaecology, Nursing, Languages, and Sports Science to evaluate the systemic effects, comorbidities, and social participation in OA. Research into neurodegenerative conditions, particularly Motor Neuron Disease (MND), dementia, and Parkinson's Disease are equally cross-cutting. UM has gained international prominence in the areas of biomarkers, genetics, microbiome performance measures, monitoring, and imaging for these three conditions.

SCaTE

Regenerative Medicine in UM is literally on skates, so much so it has gained the acronym SCaTE. Stem Cell research will see its own UM-based Stem Cell Centre very soon which will look into fundamental research, disease mechanisms, and therapeutic development using healthy human embryonic and mesenchymal stem cells, as well as tumour stem cells. Tissue Engineering helmed by NOCERAL now sees potential for basic science, preclinical and clinical investigations with ISO17025, GLP and GMP facilities. The development of bioactive molecules, and natural and synthetic biomaterials will soon see the engineering of bone, tendon, and cartilage for human therapeutic use.

REHABILITATION

As always, rehabilitation paints a true picture of interdisciplinary research. Research in the prevention of falls and frailty is now well established. In addition, disease control in both MND and dementia is also gaining ground. In the next few years, we hope to explore physical modalities in the potentiation of cellular therapy.

For more information regarding Aging and Regeneration Research Thrust, please contact Professor Dr Tan Maw Pin (mptan@ummc.edu.my) or Research Management Centre (03-79677515)

INFECTIOUS DISEASES AND IMMUNITY RESEARCH THRUST

REENA RAJASURIA (DEPARTMENT OF PHARMACOLOGY)
JAMAL I CHING SAM (DEPARTMENT OF MEDICAL MICROBIOLOGY)

In the second series of the Science Café presentations this year, we heard from members of the infectious diseases and immunity research thrust headed by Prof Jamal I-Ching Sam. The presentation encompassed projects from members of the infectious diseases unit, medical microbiology, immunology and parasitology. Prof Jamal highlighted the key strengths of the thrust which included a variety of disciplines (ID, microbiology, parasitology, social and preventive medicine, pharmacology and entomology) with research projects and expertise covering the complete spectrum from bench to bedside. The thrust members also have good international links and are supported by reasonable physical infrastructure and equipment for research. One of our biggest strengths is our access to hospital patients and community groups which helps make all our work relevant and easily translatable into practice. Prof Jamal also spoke about opportunities to study routinely collected samples from patients or data mining archived microbiology results (isolates/organisms/specimens).

Dr Reena Rajasuriar worked in the field of translational immunology. Her research interest focused on understanding the pathogenesis of immune activation and inflammation in HIV and aging. She highlighted how it was important to study the immune system in tandem with other biological systems (immunology-genetics, immunology-metabolomics and immunology-microbiome) to obtain a greater appreciation of how the immune system is modulated in health and disease.

Dr Wong Won Fen's presentation addressed an intriguing question on how changes in Runx1 signalling may alter the activation state of immune cells and their association with autoimmune disease. She highlighted a range of techniques used in her studies ranging from studies involving knockout mouse to ChIP assays to interrogate the function of Runx1. Her other research interests include receptor recognition of *Helicobacter pylori* infections and the role of chronic inflammation by *Chlamydia trachomatis* in infertile females.

Associate Professor Sharifah Faridah Syed Omar main interests encompass clinical and epidemiological studies related to dengue and hepatitis C. Associate Professor Iskandar Raja Azwa's research interests are in HIV clinical research and sexual health. He has completed a number of HIV-related clinical studies on timing of treatment, HIV resistance and novel diagnostic platforms for HIV testing. He is also embarking in a demonstration project on pre-exposure prophylaxis and a multi-centre study on HIV-HBV co-infection.

Associate Professor Sasheela Ponnampalavanar's research interests are related to antimicrobial stewardship and hospital acquired infections. Her research projects encompass studying KAP of prescribers, impact and clinical outcome from infections associated with resistant isolates as well as developing training programs and practice guidelines for infection control. Also related to antibiotic use, Dr Helmi Sulaiman's research interests are mainly on optimising beta lactam use for patients in intensive care and his work involves studying how changes in drug levels of antibiotics impact treatment outcomes.

Dr Amirah Amir presented the research opportunities available at the department of parasitology, which include expertise in malaria ranging from *in vitro* and *in vivo* malaria culture, *Anopheles* colonization, artificial mating and *Anopheles* infection. She also highlighted the range of facilities available in the department which include an insectary (infection room and colony maintenance) which is ACL-2 certified. The department also provides services for water testing and a range of diagnostic tests.

For more information regarding Infectious Diseases and Immunity Research Thrust, please contact Professor Jamal I-Ching Sam (jicsam@ummc.edu.my) or Research Management Centre (03-79677515).

CANCER AND DRUG DISCOVERY RESEARCH THRUST SERIES 1: “DRUG DISCOVERY: FROM BENCH TO BEDSIDE”.

TAN CHOO HOCK (DEPARTMENT OF PHARMACOLOGY)
NUR AISHAH MOHD TAIB (DEPARTMENT OF SURGERY)

The March Science Café was themed “Drug Discovery: From Bench to Bedside”. This was the first of three in a series of talks under “Cancer and Drug Discovery Research Thrust”, headed by Professor Dr. Nur Aishah Mohd Taib from the Department of Surgery, Faculty of Medicine.

The session began with an introduction by Professor Nur Aishah about the opportunities, strategies and action plans to strengthen cancer and drug discovery research. Following that, Professor Dr. Mohd Rais Mustafa, Head of the Centre for Natural Products and Drugs Research (CENAR), shared their research on natural compounds that can lead to drugs discovery or green chemistry research. Professor Dr. Chung Lip Yong from the Department of Pharmacy and Professor Dr. Misni bin Misran (Deputy Dean of Research for the Faculty of Science) from the Department of Chemistry subsequently shared with us the use of nanotechnology and chemical synthetic technology to improve anti-cancer drug delivery to target sites for greater efficacy and less toxicity.

Dr. Thamilselvan a/p Ramasamy revealed the basis of stem cell biology in cancer development which would contribute to a better understanding of cancer cell resistance and thus the development of more effective therapeutics. Associate Prof. Dr. Fung subsequently shared the successes of her team in studying the medicinal properties of the tiger milk mushroom, a highly prized medicinal mushroom in Malaysia which has various medicinal properties including anti-cancer characteristics. Assoc. Prof. Dr. Fung Shin Yee from the same department also presented their studies on the medicinal properties of the tiger milk mushroom, in particular its anti-cancer activity. Following that, Professor Dr. Khalijah Awang from the Department of Chemistry, Faculty of Science, shared with us the successes of the Phyto Lab in the search for medicinal compounds from a wide variety of natural products in the region.

From the Department of Surgery, Dr. Retnagowri Rajandram highlighted various basic research studies including the discovery of biomarkers and targets for anti-cancer therapeutics. Ongoing clinical studies and trials on cancer topics were also elaborated by Assoc. Prof. Dr. Yoong Boon Koon, consultant from the hepatobiliary surgery team.

The strengths of the faculty in clinical research were further highlighted. Assoc. Prof. Dr. Marniza binti Saad from the Department of Clinical Oncology showed the various ongoing clinical oncology studies including investigator-initiated trials (IITs) and studies that focused on targeted therapy using monoclonal antibodies. Assoc. Prof. Dr. Pang Yong Kek from the Department of Medicine also shared with us the trials on lung cancer treatment. Certainly, the biomedical imaging team has played a vital role in many cancer-related clinical studies from various aspects, including diagnostics, monitoring and intervention. Prof. Dr. Basri Johan Jeet Bin Abdullah from the Department of Biomedical Imaging has been actively engaged in cancer research using techniques such as magnetic resonance imaging (MRI).

To wrap up what was an intensely fascinating Science Café, Professor Dr. Nur Aishah reiterated the importance of translational research, where fundamental research starting from drug discovery, pharmacokinetics/ pharmacodynamics and drug delivery, should be explored for clinical applicability and further investigated in clinical trials – echoing the theme of the session: “From bench to bedside”.

For more information regarding Cancer and Drug Discovery Research Thrust, please contact Professor Dr. Nur Aishah Mohd Taib (naisha@um.edu.my) or Research Management Centre (03-79677515).

UPCOMING EVENTS

MAY 2018

8 May

Evaluating a Diagnostic or Screening Test in the Health Related Sciences with Statistical Software Demonstration

9-10 May

Critical Appraisals - RCT and Observational Therapeutic Studies Workshop

30-31 May

Hands-on Basic Python Workshop



JUNE 2018

28-29 June

Systematic Review Workshop

JULY 2018

10-11 July

Read papers with Confidence - Critical Appraisal: Diagnostic and Prognostic Papers Workshop

18-19 July

Hands on Basic Statistics using SPSS

26-27 July

Quantitative Methodology Workshop for Health Research

AUGUST 2018

13 August

Hands-on Basic and Advanced REDCap Training

15-16 August

How To Write A Dissertation: Workshop

20 August

E-Procurement Workshop

28-29 August

Managing your References using EndNote

CONFERENCES

NATIONAL BIOMEDICAL SCIENCE SYMPOSIUM

Faculty of Medicine, University of Malaya

13-14 May, 2018: 9am - 5pm

KL NICOTINE ADDICTION CONFERENCE 2018

Petaling Jaya Hilton Hotel

9-11 July, 2018

<https://umconference.um.edu.my/KLNAC2018>

17TH INTERNATIONAL CONFERENCE OF ASIA PACIFIC ASSOCIATION OF SURGICAL TISSUE BANKS (APASTB2018)

Bangi-Putrajaya Hotel, Selangor

27-30 August, 2018

<https://apastb2018.com>

MEDICAL INNOVATION FORUM

University of Malaya

21-22 September, 2018

FOM RESEARCH CARNIVAL

Theme: "e-Health"

Faculty of Medicine, University of Malaya

8-12 October, 2018

Contact 03-79677515 (RMS)

APRU GLOBAL HEALTH CONFERENCE 2018

"Planetary Health: The Next Frontier"

Faculty of Medicine, University of Malaya

28-30 October, 2018

<http://ghc.phintel.tech>

Updating Alumni Information

Hear ye, hear ye all University Malaya,
Faculty of Medicine Alumni !

Make your presence felt and help us reach out by providing you the latest news, invitations, and happenings in and around UM, Faculty of Medicine.

Stay connected by clicking on the link below to update your details.

 <http://gg.gg/FOM-Alumni2018-2Registration>

Alumni are also welcome to invite their fellow classmates to register

Ms.Nurul Erna Dewi Mohd Said

 03-79492107

 www.medicine.um.edu.my

Office of the Dean



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
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