

2nd BIENNIAL

MEDICAL & HEALTH SCIENCES CONFERENCE

2019

"HEALTH CARE TRANSFORMATION IN THE
4TH INDUSTRIAL REVOLUTION"

MULTIPURPOSE HALL
UTAR SG. LONG CAMPUS
KUALA LUMPUR SOUTH
MALAYSIA

4-6 JULY
2019

PROGRAMME

UTAR
UNIVERSITI TUNKU ABDUL RAHMAN

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FACULTY OF MEDICINE & HEALTH SCIENCES

2nd BIENNIAL MEDICAL & HEALTH SCIENCES CONFERENCE 2019

PROGRAMME

Day 1 4th July 2019 (Thursday)	
08.00 am	Registration
08.30 am	Welcome Speech Emeritus Professor Dr. Cheong Soon Keng (Dean, FMHS, UTAR)
08.40 am	Keynote address: Challenges in the 4th Industrial Revolution Ir. Professor Academician Dato' Dr. Chuah Hean Teik (President/CEO, UTAR)
09.10 am	Address Dr. Liu Jianjun (President, Chinese Anti-TB Association)
09.20 am	Group Photo Session
09.35 am	Plenary 1: Artificial Intelligence (AI) in Public Health Professor Datuk Dr. Awang Bulgiba Awang Mahmud (UM) <i>Chair: Dato' Seri Dr. Hasan Abdul Rahman</i>
10.20 am	Coffee Break
Symposium 1: Applications of AI in Clinical Medicine (1) <i>Chair: Emeritus Professor Dr. Boo Nem Yun</i> <i>Co-chair: Dr. Tee Yee Kai</i>	
10.40am	Talk 1: Is AI Ready for Prime Time in Medicine? Professor Dr. Ng Kwan Hoong (UM)
11.00 am	Talk 2: AI in Diagnostic and Interventional Radiology Professor Dr. Wah Tze Min (UK)
11.20 am	Talk 3: AI in Histopathology Professor Datuk Dr. Looi Lai Meng (UM)
11.40 am	Talk 4: AI in Ophthalmology Professor Dr. Jenny Deva (UTAR)
12:00 noon	Lunch and Poster Viewing

Symposium 2: Applications of AI in Clinical Medicine (2) <i>Chair: Professor Dr. Ng Teck Han</i> <i>Co-chair: Dr. Teoh Hoon Koon</i>	
01.20 pm	Talk 5: Development of a Time-frequency Transformation Convolutional Neural Network and Its Applications in Cardiology and Sleep Medicine Associate Professor Dr. Lin Che-Wei (Taiwan)
01:40 pm	Talk 6: Fighting Tuberculosis with AI Dr. Yi Li (China)
02:00 pm	Talk 7: Applications of a Fully Automated Molecular Diagnostic System for Clinical Medicine & Public Health Dr. Qimin You (China)
02.20 pm	Talk 8: AI in Gerontechnology Research and Applications Associate Professor Dr. Teh Pei Lee (Monash Malaysia)
02.40 pm	Tea Break
Symposium 3: New Frontiers in Medical Research <i>Chair: Professor Dr. Lim Yang Mooi</i> <i>Co-chair: Associate Professor Dr. Leong Pooi Pooi</i>	
03:10 pm	Talk 9: Whole Genome Sequencing in Perspective: The View from Clinical Microbiology Professor Dr. Yeo Chew Chieng (UniSZA)
03.30 pm	Talk 10: Transmission of Multidrug-Resistant <i>Mycobacterium tuberculosis</i> in China Professor Dr. Qian Gao (China)
03:50 pm	Talk 11: Speeding Up Data Analysis in Medical & Health Sciences Using Graphical Processing Unit (GPU) Dr. Tee Yee Kai (UTAR)
04:10 pm	Talk 12: Blockchain Technology in Medical Practice Dr. Lee Wai Kong (UTAR)

Day 2 5th July 2019 (Friday)	
08.00 am	Breakfast
08:30 am	Plenary 2: The Art of Medicine Dr. Milton Lum Siew Wah (Past-President of MMA) <i>Chair: Professor Dr. MP Deva</i>
Symposium 4: Medical Ethics & Legal Liabilities in the Era of AI <i>Chair: Professor Dr. MP Deva</i> <i>Co-chair: Associate Professor Dr. Thaw Zin</i>	
09:15 am	Talk 13: Ethical Aspects of Human Organ Transplantation in Malaysia Emeritus Professor Datuk Dr. Alex Delilkan (UM)
09:55 am	Talk 14: Ethics and the Law in Clinical Practice Professor Dr. Kulenthran Arumugam (UM)
10:15 am	Talk 15: Ethical Issues in Cell and Gene Therapies Professor Dr. John EJ Rasko (Australia)
10:35 am	Open Forum (convenor: Professor Dr. MP Deva)
10:55 am	Coffee Break
Symposium 5: New Frontiers in Medical Education <i>Chair: Professor Dr. Lam Sau Kuen</i> <i>Co-chair: Professor Dr. Lim Pek Hong</i>	
11:20 am	Talk 16: Gamification in Medical Education: Prospect and Potential Dr. Tan Wee Hoe (UPSI)
11:40 am	Talk 17: Virtual and Augmented Realities: Challenges and Opportunities for Health Science Educators Dr. Carmen Ngie Siew Mun and Dr. Bong Mei Fern (UTAR)
12:10 pm	Talk 18: New Futures in Nursing Education: Envisioning Technology-Enhanced Educational Innovations Professor Dr. Diana Lee Tze Fan (Hong Kong)
12:30 pm	Lunch and Poster Viewing

02:00 pm	Plenary 3: Global Perspective on Cell and Gene Therapies Professor Dr. John EJ Rasko (Australia) <i>Chair: Emeritus Professor Dr. Cheong Soon Keng</i>
Updates on Stem Cell & Cancer Research (CSCR & CCR) <i>Chair: Professor Dr. Alan Ong</i> <i>Co-chair: Dr. Ong Hooi Tin</i>	
2:45 pm	Talk 19: Investigation of Stem-like Property and Stemness Signature in Cancer and Normal Cell Professor Dr. Chiou Shih-Hwa (Taiwan)
3:25 pm	Talk 20: Pre-differentiated Amniotic Fluid Mesenchymal Stem Cells Enhance Lung Alveolar Epithelium Regeneration and Reverse Elastase-Induced Pulmonary Emphysema Professor Dr. Chong Kowit-Yu (Taiwan)
4:05 pm	Talk 21: Lung Tumour Heterogeneity and Targeted Therapy Professor Dr. Chou Yu-Ting (Taiwan)
4.35 pm	Talk 22: Concerns and Confusions in Research Publication in 2019: A Personal View (Fake Reviews, Fake Journals, Retractions, Open Access, Biased Citations ...) Professor Dr. Choo Kong Bung (UTAR)
5.05 pm	Concluding Remarks Emeritus Professor Dr. Cheong Soon Keng
5.10 pm	Award Presentation and Closing Remarks Professor Dr. Yap Sook Fan
5:20 pm	Farewell Hi-Tea

POST-CONFERENCE WORKSHOPS
6 July 2019 (Saturday)

Workshop 1 Tuberculosis Updates (Contribution from CRCDD, UTAR)	
8.30 am	Registration
9.00 am	Talk 1: Towards TB Elimination: The Role of the TB Laboratory in Sabah Dr. Jiloris JFD (Kota Kinabalu Public Health Laboratory)
9.20 am	Talk 2: Luminex Multiplex Platforms: Simplifying Academic and Clinical Research Complexities Dr. Mah Li Yen (Luminex Corporation)
9.40 am	Demonstration: TB Spoligotyping and Resistotyping Using Luminex Platform Ms. Dawn C Paul (Kota Kinabalu Public Health Laboratory)
10.30 am	Coffee Break
11.00 am	Talk 3: Molecular Diagnosis of Tuberculosis and Emerging Drug-Resistant Tuberculosis Dr. Kuan Chee Sian (Neogenix Laboratoire Sdn Bhd)
11.20 am	Talk 4: AI-based Construction of an Autoscanner Dr. Peng Jun (Hunan-Tech New Medical System Co. Ltd., China) (Presented by Mr. Peng Xunkai, Hunan-Tech New Medical System Co. Ltd.)
11.40 am	Video presentation: Automated AFB Staining with Vastly Improved Sensitivity Dr. Peng Jun (Hunan-Tech New Medical System Co. Ltd., China) (Presented by Chen Xi, Hunan-Tech New Medical System Co. Ltd.)
12.15 pm	Lunch

Workshop 2 Health Issues of the Elderly	
8:30 am	Registration
9:00 am	Plenary: Applying the Principle of Traditional Chinese Medicine in Helping the Elderly Lead Healthier lives Professor Dr. Zhu Xiao Shu (Australia) <i>Chair: Professor Dr. Lim Pek Hong</i>
9:45 am	Talk 1: An Innovative Community-based Gerontology Education Programme Professor Dr. Diana Lee Tze Fan (Hong Kong)
10:30 am	Talk 2: Healthy Diet for the Elderly Associate Professor Dr. Yang Zao (UTAR)
11:00 am	Coffee Break
11:30 am	Talk 3: Functional Exercise for Older Persons Dr. Maria Justine (UiTM)
12.15 am	Lunch
1:15 pm	Hands on Activities: <ul style="list-style-type: none"> • Nursing perspective: Lifting and moving the elderly (Simulation ward, 3rd floor, KA block) • Physiotherapy perspective: Exercises for the elderly (Physiotherapy ward, 3rd floor, KA block) • Traditional Chinese Medicine: Tui Na for the elderly (TCM centre, 2nd floor, KA block) (Nursing, Physiotherapy, Traditional Chinese Medicine)
3:30 pm	Group Discussion (Nursing, Physiotherapy, Traditional Chinese Medicine)
4:30 pm	Afternoon Tea

Message from the President

Ir. Professor Academician Dato' Dr. Chuah Hean Teik
Universiti Tunku Abdul Rahman (UTAR)



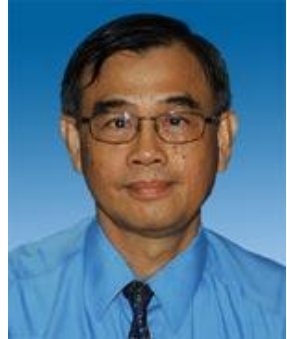
Challenges Faced by the Medical Profession in the Digital Revolution

In this conference, various trends and challenges facing the world with the arrival of the new Digital Revolution, commonly known as the 4th Industrial Revolution, will be discussed. The most often debated global problems related to the evolving industrial revolution include urbanization and inequality in wealth distribution, diminishing clean water, food and energy supplies, global warming and climate change, the aging population and more recent concerns over physical-space and cyber-space security.

The medical profession will not be exempted from the disruption by the new digital revolution. In the 4th Industrial Revolution, Artificial Intelligence coupled with the 5G Technology is expected to enable hitherto unimaginable medical advances with the use of automation, machine-learning, big data analysis and the internet of things in patient care, public health management and advanced research for more rapid and accurate disease screening, diagnosis, and treatment. New technology breakthroughs demand the acquisition of new skill sets, particularly STEM skill sets, in the medical workforce. The medical profession needs to keep abreast with the latest developments in technology. Medical educators have to train future graduates who are armed with strong basic fundamentals of the natural sciences, who can embrace life-long learning and who are ready-to-evolve rather than just ready-to-market.

Message from the Dean

Emeritus Professor Dr. Cheong Soon Keng
Faculty of Medicine and Health Sciences (FMHS)
Universiti Tunku Abdul Rahman



Welcome to the FMHS.

First and foremost, congratulations to the Organising Committee of the 2nd Biennial Medical and Health Sciences Conference of the FMHS, led by Professor Yap Sook Fan, for realising this highly anticipated event. This conference is special to us as this is the first international meeting organised by the Faculty since its establishment on 16 November 2009. It is an opportunity for participants from the UTAR to meet fellow colleagues from other Malaysian institutions as well as speakers and participants from other parts of the World.

The theme of this conference is “Healthcare Transformation in the Fourth Industrial Revolution”. It is timely for us to examine these frontiers as we move into the era of the 4th Industrial Revolution which will touch every aspect of human lives. Healthcare will be increasingly technology driven and dominated by artificial intelligence (AI) and big data analytics. Academics and practitioners in the healthcare industry must rise to the occasion and stay relevant. We must remain the master in exploiting digital technology and its web of activities for the benefits of our clients. Meanwhile we also need to pay attention to the humanistic aspects of technological advancement.

This conference provides a platform for discussion on the applications of AI in clinical medicine as well as medical education, not neglecting the medical ethics and legal liabilities associated with such applications. The issues covered will be of relevance and interest to everyone. It is also an occasion to meet up with old friends and make new ones.

Once again, it gives me great pleasure to warmly welcome you to this conference held in Cheras South, an emerging and thriving location in the south of tropical Kuala Lumpur. My sincere appreciation to all the sponsors as well as the exhibitors for their generous support to make this meeting a successful one.

Message from the Chairperson

Professor Dr. Yap Sook Fan
2nd Biennial Medical & Health Sciences
Conference 2019



On behalf of the organising committee, it is my pleasure to welcome all invited speakers, guests and participants to the 2rd Biennial Medical and Health Sciences Conference on “Healthcare Transformation in the 4th Industrial Revolution” organised by the Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman. This conference aims to highlight the role and impact of development and innovations brought about by the convergence of rapid advances in the biological and computer sciences on healthcare across a spectrum of domains.

We have brought together academics and researchers with vast knowledge and experience to share with you their viewpoints and perspectives on a range of topics related to new technologies and their impact on the evolving medical practice, education and research. With the promise of positive changes heralded by these advances, the ethical issues that invariably would follow are also addressed in this conference. It is our hope that our participants will find the sessions useful, interesting and inspiring. We look forward to your active participation in sharing your experience with us.

We wish to express our sincere gratitude to all our speakers, many of whom have come from across the oceans, for taking time off their busy schedules to make this event a reality. Welcome to Malaysia for those of you who are from abroad, and welcome to UTAR our fellow Malaysians. We also wish to thank all our sponsors for their generous support in helping to make this conference a reality.

Finally, my thanks to all members of the organising committee who have been working very hard, over the past one year to prepare for the conference, and who will also need to continue their good work throughout the duration of this conference to bring it to a successful conclusion

Address by the President, Chinese Anti-Tuberculosis Association

Dr. Liu Jianjun
Chinese Anti-Tuberculosis Association



I would like to express my sincere thanks to Universiti Tunku Abdul Rahman (UTAR) for inviting the Chinese Anti-tuberculosis Association (CATA) to participate in the 2nd Biennial Medical & Health Sciences Conference, 2019. I also congratulate the Conference on their successful opening today.

CATA was established in 1933 and has since played an important role in tuberculosis (TB) prevention and control in China. It is a member of the International Union against Tuberculosis and Lung Diseases. Its mission is to carry out domestic and foreign academic exchange, training, and anti-TB health promotion work. It participates in the development of relevant national laws, regulations and technical policies and promotes new technological developments. CATA has nearly 20,000 individual members, 18 TB professional branches, 5 working committees and 1 Youth Executive Council.

After the One Belt and Road Initiative (OBRI) of China was advocated by Chairman Xi Jinping in 2013, it got the attention of the international community. Under the umbrella of the OBRI, the China–Central Asian Forum, China-Pakistan on translational medicine platform and CATA-UTAR cooperation on TB Control were successively established to jointly cope with the challenges of global TB.

On 20th September 2018, CATA and UTAR signed the CATA-UTAR Memorandum of Understanding. In December 2018, a CATA delegation visited UTAR. During the visit, we refreshed our friendship and outlined details for our cooperation. At UTAR's invitation, CATA arranged for more than 20 delegates to attend the UTAR 2nd Biennial Medical and Health Sciences conference. At this conference and the post-conference workshop, experts from China will be making five presentations to share recent progress in scientific research and technology innovations in TB control and prevention in China.

CATA holds a national academic conference once every two years. On April 27-29, 2020, CATA will be organising the national academic conference in Qingdao city of Shandong province. Qingdao city is a very beautiful coastal city which had successfully held the Shanghai Cooperation Organization Qingdao Summit in 2018 and the Global Health Forum of Boao Forum for Asia in 2019.

I sincerely invite you all to attend the conference and share with us your knowledge and experience in cutting edge medical and health research.

This year, China and Malaysia marked the 45th anniversary of the establishment of diplomatic ties. I hope that academic exchange between Malaysia and China will grow deeper, better and stronger.

Lastly, I wish your conference all success with fruitful impact.

Thank you for attention.

PLENARIES

Plenary Speaker 01

Professor Datuk Dr. Awang Bulgiba Awang Mahmud
University of Malaya



The first Malaysian doctor to gain a PhD in Health Informatics, Professor Datuk Dr. Awang Bulgiba Awang Mahmud is also the first public health physician in Malaysia to hold these 4 fellowships simultaneously (FFPH, FPHMM, FAMM, FASc). His PhD was on the use of AI (neural networks) in the diagnosis of ischaemic heart disease.

Professor Awang is President of APACPH-KL, an NGO dedicated to public health, a Council member for the Academy of Sciences Malaysia as well as the Project Director for the National Policy on Science, Technology and Innovation 2021-2030 (NPSTI 2021-2030) that sets the direction for STI in Malaysia until 2030. He was formerly a Deputy Vice Chancellor of the University of Malaya (UM) who played a major role in raising the academic reputation and internationalization of UM.

Professor Awang has published more than 100 Web of Science-indexed journal articles and continues to be engaged actively in research. He is lead author of a book called “Strengthening Academic Career Pathways and Leadership Development” that is used for the University Transformation Programme in Malaysia.

Over the years, Professor Awang has received numerous awards such as the Ma’al Hijrah Award in 2013 and the Eminent Scholar Award in 2018.

Abstract

Artificial Intelligence in Public Health

In 1854, Dr. John Snow was able to deal with a London cholera outbreak using simple maps and relatively simple mathematics but that may no longer be possible in some of today's outbreaks. The advent of cheap air travel and a very globalized economy have led to a very connected world, a very large mobile population and consequently faster spread of diseases. The world therefore needs newer and faster methods of diagnosis and intervention to contain these disease outbreaks. This has led public health agencies to employ artificial intelligence (AI) to deal with the massive amounts of data which are large in volume, high in velocity, of great variety and uncertain veracity. Research into the usage of AI in public health has increased in recent years to keep up with this demand. Although this is a welcome development, the use of AI must be tempered by a human understanding of public health.

Plenary Speaker 02

Dr. Milton Lum Siew Wah
Malaysian Medical Council



Dr. Milton Lum Siew Wah studied at the Royal Military College and graduated from the University of Malaya. He is a Fellow of the Royal College of Obstetricians & Gynaecologists, the Royal Society of Medicine and the Academy of Medicine of Malaysia.

He is currently an elected member of the Malaysian Medical Council; Chairman of the Board of Governors of Perdana University and a member of the Boards of Medical Defence Malaysia and Nanyang Press Foundation.

Dr. Lum had previously served as President and Secretary of the Federation of Private Medical Practitioners Associations of Malaysia; President of the Malaysian Medical Association; President of the Obstetrical and Gynaecological Society of Malaysia; Chairman of the Malaysia Representative Committee of the Royal College of Obstetricians & Gynaecologists; Member of the Council of University Tunku Abdul Rahman, and Advisory Board of the Jeffrey Cheah School of Medicine and Health Sciences of Monash University Malaysia; Chairperson of the Commonwealth Medical Trust; Co-Chairperson of the International Forum on Quality & Safety in Health Care (Asia Pacific); Member of the Executive Board of the International Federation of Gynaecology and Obstetrics; and FIGO Visiting Professor.

He is a reviewer of the International Journal of Gynaecology & Obstetrics and the International Society for Quality in Health Care and is a columnist of the *Star* newspaper and Code blue Galen Centre for Health and Social Policy.

Abstract

The Art of Medicine

Medicine was an Art and a Science until the past six decades when there were phenomenal scientific advances. This was unfortunately not matched with similar attention to the Art of Medicine. The focus on person- and people-centred Medicine in the past two decades is an attempt to restore the patient to a central role in the practice of Medicine.

William Osler, the Father of Modern Medicine, stated “The good physician treats the disease; the great physician treats the patient who has the disease.”

Doctors who practise the Art of Medicine are destined for the Oslerian transformation to that of healer, when they no longer prescribe and dispense therapies but rather embody therapy itself. Medicine then no longer becomes a living for doctors but rather a way of living.

Doctors who have perfected their Art are focused on compassionate care. Their patients believe them, trust them, and their mere presence induces healing.

Plenary Speaker 03

Professor Dr. John EJ Rasko AO
University of Sydney, Australia



Professor Rasko is an Australian pioneer in the application of adult stem cells and genetic therapy. Since 1999 he has directed the Department of Cell and Molecular Therapies at Royal Prince Alfred Hospital and the Gene and Stem Cell Therapy Program at the Centenary Institute, University of Sydney. He is the President (2018-20) of the prominent International Society for Cell & Gene Therapy.

John Rasko is a clinical haematologist, pathologist and scientist with an international reputation in gene and stem cell therapy, experimental haematology and molecular biology. In over 160 publications he has contributed to the understanding of stem cells and blood cell development, gene therapy technologies, cancer causation and treatment, human genetic diseases and molecular biology.

He serves on Hospital, state and national bodies including Chair of GTTAC, Office of the Gene Technology Regulator – responsible for regulating all genetically-modified organisms in Australia - and immediate past Chair of the Advisory Committee on Biologicals, Therapeutic Goods Administration. Contributions to scientific organisations include co-founding (2000) and past-President (2003-5) of the Australasian Gene & Cell Therapy Society; Vice President (2008-12) and President-Elect (2016-18) International Society for Cell & Gene Therapy; Scientific Advisory Committees and Board member for philanthropic foundations; and several Human Research Ethics Committees. He is a founding Fellow of the Australian Academy of Health and Medical Sciences. In 2018, the Board of the ABC honoured him as the sixtieth Boyer Lecturer. He is the recipient of national (RCPA, RACP, ASBMB) and international awards in recognition of his commitment to excellence in medical research, including appointment as an Officer of the Order of Australia.

Abstract

Global Perspective on Cell and Gene Therapies

Over the next five years a possible 900% increase in Gene and Stem Cell Therapy approvals has been forecast. Immunotherapies including checkpoint inhibitors and CAR-T cells have captured the attention of many scientists, physicians and cancer sufferers. The convergence of substantial incremental technical advances towards combined cell and gene therapy has led to improved clinical outcomes in immune deficiencies, haemoglobinopathies, blindness, immunotherapies and other inherited diseases. An audit of cell, tissue and gene products with marketing authorization in 2018 worldwide identified 44 unique products, 37 of them are cell and tissue therapies (84%) and mainly autologous (55%).

The challenge of realising the full potential of genetic understanding has been in overcoming the hurdles of efficient gene therapy. Since the first human clinical trial using gene technology in 1989, there have been nearly 3000 approved clinical trials worldwide. The overwhelming majority of human clinical trials involve short-term gene expression or random integration of a therapeutic gene. Emerging technologies require controlled development in compliance with safety, regulatory and GMP requirements. More precise gene targeting tools were first described in the early 2000s. Targeted gene editing or replacement using Zinc Finger Nucleases or TALENS has been tested in about a dozen clinical trials since 2009. These include attempts to delete the CCR5 protein on T cells (completed 2015+) and therapeutic ZFN-mediated genome editing in mucopolysaccharidosis (recruiting 2016+) and the haemophilias (recruiting 2016+). The pace of clinical development has accelerated over nearly three decades of gene therapy. Within this context, its worth noting that the first ever (controversial) use of CRISPR to delete PD-1 in a lung cancer patient was administered in October 2016.

Highlights in the clinical cell & gene therapy field will be discussed with special reference to haemophilia, thalassemia, graft versus host disease and cancer.

SYMPOSIA

Symposium 1 Speaker 01

Professor Dr. Ng Kwan Hoong
University of Malaya



Professor Dr. Kwan-Hoong is a Senior Professor at the Department of Biomedical Imaging, University of Malaya, Kuala Lumpur, Malaysia, and Adjunct Professor at UTAR. He received his M.Sc. (Medical Physics) from University of Aberdeen and Ph.D. (Medical Physics) from University of Malaya (1995). He is certified by the American Board of Medical Physics (since 1999) and is a Fellow of the Institute of Physics, the International Organization for Medical Physics (IOMP) and the Academy of Sciences Malaysia. In 2013, he was honoured as being one of the top 50 medical physicists in the world by the IOMP and in June 2018, he became the first Malaysian scientist to receive the Marie Sklodowska-Curie Award from the same body.

Professor Ng established the Master of Medical Physics Programme at University of Malaya in 1998 and was responsible for securing the accreditation from the Institute of Physics and Engineering in Medicine, UK in 2002 making it the only programme outside the British Isles to receive such an honour.

His main research contributions are in breast imaging, radiological protection, radiation dosimetry, medical physics education and risk communication and has collaborates widely with international research groups. He has presented over 550 scientific papers and authored or co-authored over 230 papers in peer-reviewed journals, 80 conference proceedings papers, 6 books and 25 book chapters. He is on the editorial and advisory board of more than 12 journals including: Singapore Medical Journal, Journal of Applied Clinical Medical Physics, Journal of Australasian Physical & Engineering Sciences in Medicine, Medical Physics, Biomedical Physics and Engineering Express.

Professor Ng is the Founding President of the South East Asian Federation of Medical Physics (2000-2006) and has been its Emeritus President since 2014. Also in 2014, he founded the ASEAN College of Medical Physics that conducts education and training workshops for medical physicists in the region.

Abstract

Is Artificial Intelligence Ready for Prime Time in Medicine?

Artificial intelligence (AI) has become pervasive in our life now. It aims to mimic human cognitive functions. It is making decisions that affect our lives whether we like it or not. It is revolutionising healthcare, spurred by increasing computing power, availability of healthcare data and rapid progress of analytics techniques.

In this talk, I will survey the current status of AI implementations in medicine and discuss its future. AI developments, status and issues in some specialties such as imaging, cardiology and neurology will be illustrated.

The rapid development of AI technology in medicine has generated concerns over how to ensure its safe and ethical use. There is also a need to develop a new regulatory framework that takes into consideration that these AI algorithms are continuously learning and evolving from experience gained in real-world clinical use.

To answer the question, 'Will AI be ready for prime time in medicine?' we need to consider the following:

What do doctors know about the applications and threats of AI?

What is the perception of patients and the public towards AI?

What strategies do governments intend to develop regarding ethical, legal issues?

Will AI doctors replace human physicians?

Will AI ever evolve to supplant human intelligence?

Symposium 1 Speaker 02

Professor Dr. Wah Tze Min

Leeds Teaching Hospitals Trust, United Kingdom



Professor Dr. Wah is a senior consultant interventional radiologist with specialist interest in both imaging and interventional oncology (IO) treatments. Interventional oncology is an emerging clinical discipline and beginning to establish as the 4th pillar of cancer care alongside surgical, radiation and medical oncology. Since 2003, she has led and developed the IO programme at the Leeds Teaching Hospitals Trust (LTHT) using various technologies e.g. radiofrequency (RFA), microwave ablation (MWA), cryoablation (CRYO) and irreversible electroporation (IRE) for a range of cancers such as liver, lung, renal, pancreas, adrenal, spleen etc. Today, Leeds is one of the leading national and international IO centres with reputable clinical outcomes and provides a full complement of innovative technologies such as RFA, MWA, CRYO and IRE for cancer treatment. She is one of the pioneers and leading interventional radiologists in the UK with a vast amount of clinical experience in renal ablative therapy. She has participated in grant funding research and lectured extensively on IO related topic in order to help to promote awareness and providing mentoring schemes to many trainees and consultants in IO on national and international levels since 2003.

In addition, she is a passionate champion for female leadership and love to inspire more women into Interventional Radiology. She has strived to inspire all male and female IRs to help in closing the IR gender gap issue in Europe. She is keen to share the publication on IR Gender Gap work that she has collaborated with CIRSE in 2017 and published in CVIR 2018 titled - ***The Interventional Radiology (IR) Gender Gap: A Prospective Online Survey by the Cardiovascular and Interventional Radiological Society of Europe (CIRSE)*** and the publication can be downloaded at

<https://www.ncbi.nlm.nih.gov/pubmed/29789874>

Abstract

Artificial Intelligence in Diagnostic and Interventional Radiology

This lecture aims to provide an insight into the role of Artificial Intelligence (AI) in the current application and future role for both the diagnostic (DR) and interventional (IR) radiology.

AI, especially the deep machine learning can enhance the workflow in both DR and IR. Historically, in DR practice, radiologists are trained to assess the large volume of radiology images qualitatively for the detection and characterization of diseases as well as assessment of the treatment effect. AI allows automated complex patterns recognition of large volume imaging datasets and the ability to provide quantitative (instead of qualitative) assessment of the imaging characteristics. For example, convolutional neural networks (CNNs) are now being used to classify hepatic masses on ultrasound, CT and MR imaging, this may improve the overall quality of patient care- these models may facilitate workflow improvement and help to identify novel imaging biomarkers for effective diagnosis and staging.

In IR, especially in interventional oncology (IO), AI can improve the quantitative assessment of the cancer detection, case selection and post IO treatment effect. In addition, AI can also improve the image guided targeting of the cancer by using the navigation assistance systems, this can shorten the learning curve especially the novice in interventional radiology and also for better real time monitoring of the ablation margins to ensure the cancer is adequately treated.

The lecture will conclude by discuss the challenges regarding the implementation of AI in diagnostic and interventional radiology, and outlining the potential solutions in overcoming the challenges.

Symposium 1 Speaker 03

Academician Professor Ulung Datuk Dr. Looi Lai Meng
University of Malaya



Academician Datuk Professor Ulung Dr. Looi Lai Meng is Malaysia's inaugural National Distinguished Professor, positioned at the Faculty of Medicine, University of Malaya (UM) in Kuala Lumpur where she holds a concurrent appointment as senior consultant histopathologist at its teaching hospital. She studied medicine at the University of Singapore, trained in Surgical Pathology at UM, Royal Postgraduate Medical School (UK) and Brigham and Woman's Hospital, (USA) and defended her research doctorate at UM. During her long academic career at UM she has chaired the Medical Centre Research Committee, the Medical Research Ethics Committee/ Institutional Review Board, the Hospital Medical Advisory Committee, UM's Committee for External Academic Evaluators (Science) and served on the Malaysian Medical Council. Her research interests encompass amyloidosis, nephropathology, oncopathology and histopathological techniques.

Professor Looi is a Foundation Fellow and Academician of the Academy of Sciences Malaysia. She co-chaired the InterAcademy Medical Panel (now the InterAcademy Partnership for Health) for two elected terms (2010-2016) and current represents ASM on its Executive Committee. During her terms as co-chair, IAMP extended its initiatives into global health, the social determinants of health, urban health, and young physician leadership capacity-building. She is the Founding President of the Malaysian College of Pathologists, and was instrumental in establishing pathology laboratory accreditation in Malaysia, the Pathology Act and several National guidelines on medical laboratory practices. She is Former President of the World Association of Societies of Pathology and Laboratory Medicine (WASPaLM) and was awarded the WASPaLM Gold-Headed Cane for leadership. Her contributions to research, education and medical science have been recognised with several accolades including the National Science Award, ASEAN Outstanding Scientist Award, the Merdeka Award 2016 (Health, Science and Technology category) and an Honorary Professorship at the Chinese Academy of Medical Sciences-Peking Union Medical College.

Abstract

Artificial Intelligence (AI) in Histopathology

Tissue and cellular images are central to histopathology practice. In principle, there are 3 essential components of image handling: (1) processing of tissues into thin sections to allow microscopic viewing of architecture and cellular details, (2) tools to capture microscopic images for study, and (3) the histopathologist who interprets the images and makes a diagnosis.

In histopathology, the beginning of AI was automation for processing and staining of tissues. However, it was the development of the virtual microscope, addressing the second essential component, which was the major enabler of AI in histopathology that paved the way for electronic images (digital pathology, e-slides). Today, advancements in computing power can support Whole Slide Imaging (WSI) that allows navigation through various magnifications on a computer monitor. E-slides also enable digital workflow, digital archives and integration into the e-health record.

Because digital data is highly amenable to analysis, automated image analysis is now addressing the third essential component of histopathology – image interpretation and diagnosis. Currently, this still requires considerable input by histopathologists to annotate cells and tissue components to train machines (machine learning), with the expectation that these machines establish their own patterns to interpret and act on new data. Deep learning, a subset of machine learning, leverages artificial neural networks to determinate its own interpretation or prediction.

Our attempt at using convolutional neural networks (CNNs) for ER Allred scoring of breast cancer has helped us appreciate some of the challenges: the demands of annotating images (machine training), ambiguity in ground-truth definition, textural variability and dimensionality challenges. For AI to succeed, the pathologist has important roles in quality control, machine training, algorithm development and review of generated data and interpretation. Although there is good immediate potential for AI to “value-add” to the histopathology practice, it is more remote and challenging for AI to assume more human qualities for multidisciplinary discussions and clinical decisions.

Symposium 1 Speaker 04

Professor Dr. Jenny Deva
Universiti Tunku Abdul Rahman



Professor Dr. Jenny Parameshvara Deva (nee Ng Gek Pheng) has been a Senior Clinical Professor at UTAR since 2012 where she teaches Ophthalmology to undergraduate medical students. In addition, she is part-time Visiting Consultant to the Persatuan Keratoconus Malaysia Eye Clinic in Klang and the Tun Hussein Onn National Eye Hospital, PJ.

She was a part-time Lecturer in the Dept of Ophthalmology, University of Malaya from 1987 until 2006 and had also worked as a Consultant Ophthalmologist and Refractive Surgeon at various clinics and hospitals including the Ophir Eye Clinic, Klang and the KPJ Selangor Specialist Hospital, Shah Alam.

She graduated from Osmania University, Hyderabad, India under a Colombo Scholarship in 1967 and received ophthalmological training at the Eye Department, General Hospital Johore Baru (GHJB). In 1972, she first went London to pursue her further studies at the Institute of Ophthalmology and the prestigious Moorfields Eye Hospital. Subsequently she travelled to Scotland for even further training at the Eye Department of the Royal Perth Infirmary and Princess Alexandra Eye Pavilion, Edinburgh. She received her Diploma in Ophthalmology from the Royal College of Surgeons, Ireland in 1974.

Since completing her Doctorate in Medicine (MD) with her thesis entitled “Contact Lenses and Giant Papillary Conjunctivitis” in 1994, she has kept herself active in her field of interest of contact lenses, refractive surgery, the cornea and external eye diseases.

Abstract

Artificial Intelligence in Ophthalmology

In Ophthalmology, as in many other branches of medicine, the arrival of AI is revolutionizing our study and management of diseases. Despite reservations about the lack of the invaluable human touch as well as potential legal and ethical issues with the use of AI-based patient management, the advantages of AI are too numerous and obvious to be ignored.

Mega databases have been built with results of world-wide prospective and retrospective studies in ophthalmology practices. These databases provide massive information that lends credibility to evidence-based treatment of sight-threatening diseases such as infections, glaucoma, age-related macular degeneration, newborn retinopathy of prematurity and diabetes mellitus-linked proliferative or non-proliferative retinopathy.

AI innovations have enabled the linking of different imaging techniques such as Fundal photography, Ocular Coherence Tomography (OCT imagery) and Corneal Topography, to get exact and detailed mappings of eye disorders at different levels and different stages of the disease process. With the extensive screening of normal and diseased eyes and the use of machine-learning to integrate and process clinical, familial and public health information, researchers are able to arrive at conclusions of disease patterns and risk factors to inform on best practices, diagnostic approaches and prognostic predictions. Telemedicine and tele-consultations enable consultants practicing in remote parts of any country to get help with their patient management.

In many research projects, results by AI-based programs have been shown to be on par with results achieved by specialists in the respective fields and much better than the performance of junior doctors. Nevertheless, it is still too early for AI to replace the human intelligence that is required to create the perfect machine.

Symposium 2 Speaker 05

Associate Professor Dr. Lin Che-Wei
National Cheng Kung University, Taiwan



Dr. Lin is an Associate Professor at the Department of BioMedical Engineering, National Cheng Kung University, Taiwan. His areas of research include artificial intelligence (AI)-based biomedical signal processing, wearable device design, virtual reality medical-based assistive system design and AI-based surgery assistive system development.

Abstract

Development of a Time-frequency Transformation Convolutional Neural Network and Its Applications in Cardiology and Sleep Medicine

This research develops a novel time-frequency transformation convolutional neural network and applies it on cardiology (arrhythmia and structural heart disease) and sleep medicine for sleep apnea screening. In arrhythmia, this study explores atrial fibrillation, atrial flutter, ventricular premature contraction, and atrial premature contraction. In structural disease, this study explores aortic regurgitation, aortic stenosis, hypertrophic cardiomyopathy and congestive heart failure. For these studies, MEMS microphone are utilised to measure the sound of pulse on the radial artery of the wrist. The Pulse AudioGram (PAG) which is an analog sound signal is converted into digital form, and then transformed into a time frequency representation by continuous wavelet transform. Time frequency representation is the input of classifiers which are subjected to artificial intelligence (convolutional neural network) or machine learning (support vector machine) for cross-validation of the various cardiac conditions. In the sleep medicine application, this presentation proposes a sleep apnea detection algorithm based on time-frequency transformation spectrogram of ECG signal combined with artificial intelligence algorithm. The methods proposed in this study include signal pre-processing, ECG time-frequency transformation, AI-based classification and cross-validation procedures.

Symposium 2 Speaker 06

Dr. Yi Li
JFhealthcare, China



Dr. Yi Li is currently the chief AI scientist at JF Healthcare. He obtained his doctor degree in Computer Science at University of California, Irvine. Dr. Li's research has been focused on Machine Learning and AI in healthcare for a long time. He was the first to apply deep learning in gene expression inference during his PhD program. After finishing his PhD program, Dr. Li joined Baidu Silicon Valley AI Lab and was leading the AI in medical imaging research. He developed a new deep learning algorithm for cancer metastases detection based on digitalized pathology slides, and achieved tumour detection accuracy higher than the previous state-of-the-art. This work has been widely covered by media, including "Business Insider" and "Forbes".

Abstract

Fighting Tuberculosis with AI

Tuberculosis (TB) has caused more death than HIV/AIDS globally, becoming the world's top infectious disease, since 2015. The World Health Organization (WHO) estimated that 1.8 million people died from TB in 2015, where most of the deaths occurred in developing countries with limited access to radiological expertise. TB is also a major public health problem in China and is the second largest cases in the world after India, causing around 37,000 deaths in 2017 estimated by WHO.

With the tremendous advances in AI, especially deep learning technologies, computer-aided screening based on chest X-ray becomes a new path to fight TB with affordable cost. In this talk, we present how AI technologies for TB screening have been developed, evaluated, and deployed on our cloud-based system at JFhealthcare, serving massive population living in rural China with limited access to radiological expertise. We show technical and clinical lessons we learned during practicing these technologies in Zhangjiakou, a prefecture-level city in China with a population of over four million people.

Symposium 2 Speaker 07

Dr. Qimin You
Zhejiang University, China



Dr. Qimin You first studied medicine in 1982 at the Jiamusi Medical College at Heilongjiang, China, and later at the University of Victoria, Canada for his PhD degree. He did a stint at the University of Pennsylvania, USA as a postdoctoral fellow before returning to China to serve the country. He is now Chairman and CEO of Ustar Biotechnologies in Hangzhou as well as being Professor at the James D. Watson Institute of Genomic Sciences, Zhejiang University and Beijing Genomics Institute.

Dr. You has published widely and is a holder of several patents granted in the USA as well as in China. He has also administered several major grants from China and Canada. He remains an active member of the American Association for the Advancement of Science (AAAS) and the American Society for Microbiology (ASM).

Abstract

Applications of a Fully Automated Molecular Diagnostic System for Clinical Medicine & Public Health

We have developed a fully automated molecular diagnostic platform consisting of a portable instrument and a disposable plastic tube. All reagents, including the enzyme, primers, probes, dNTP for nucleic acid isothermal amplification, nucleic acid extraction and sample preparation, are preloaded in the tube. The users need only to add the specimen. This integrated system combines the sample preparation, nucleic acid extraction and amplification into one step in a closed tube, sample-in, result-out. It is easy to use, and reduces the risk of cross-contamination to a minimum.

We are facing two grand challenges in global health:

1. Advanced diagnostics not available for the poor countries
2. The risk of a global pandemic is growing, but we are not ready for it

Our mission: “Making molecular tests available to anyone, at anywhere!”

This system can be operated by almost anyone with minimum training, and can be used at resource-limited settings.

The portable system is capable of on-the-spot detection and data upload. Combined with cloud & data visualization technologies, this system can be used for monitoring a developing pandemic in real-time, visualization on the screen, and helping the authorities to make critical decisions.

Symposium 2 Speaker 08

Associate Professor Dr. Teh Pei Lee
Monash University Malaysia



Dr. Teh Pei Lee is an Associate Professor and Head of Department (Management) at the School of Business, Monash University Malaysia. She is also the Director of Gerontechnology Laboratory in Monash University Malaysia. She holds the degrees of Bachelor of Information Technology, Master of Management, and a Ph.D. in Management. Her teaching and research interests cover Management Information Systems, Technology Management, Gerontechnology, Innovation and Learning.

Dr. Teh is a recipient of several international and national awards such as the National Outstanding Researcher Award 2019 and the Engagement, Innovation and Impact (EII) Overall Excellence Awards 2018. Her work appears in top-tier journals such as Information & Management and the International Journal of Production Research. Her research has received the backing of local and international public and private institutions, with grants of more than RM3.9 million. Notably, she has served on projects commissioned by the Prime Minister's Office's Economic Planning Unit (EPU) and Ministry of Science, Technology and Innovation (MOSTI).

Dr. Teh is currently the Associate Editor of the Decision Sciences Journal of Innovative Education and International Journal of Electronic Business. She also serves on the editorial board of several international journals such as Journal of Computer Information Systems, Industrial Management & Data Systems, International Journal of Engineering Business Management and International Conference on Cross-Cultural Design. She founded and chaired the Institute of Electrical and Electronics Engineers Technology and Engineering Management Society (IEEE TEMS). She also founded the Gerontechnology Laboratory in Monash University Malaysia, the first of its kind in Malaysia.

Abstract

Artificial Intelligence in Gerontechnology Research and Applications

Monash University Malaysia launched the Gerontechnology Laboratory in 2016, the first of its kind in Malaysia. The aims of the Gerontechnology Laboratory are to translate research into new products, change existing business models and services, and shape public policies to improve the health and well-being of older adults and their caregivers. The Gerontechnology Laboratory is a multidisciplinary research platform that brings together students, researchers, business partners, universities, government and the broader community to lead on research and innovations for older adults within the five domains of human activity: health and self-esteem, housing and daily living, mobility and transport, communication and governance, and work and leisure. This talk will share how Monash University Malaysia builds the gerontechnology hub and develops the Artificial Intelligence (AI) research and applications such as soft robotics and emotionally intelligent robots for the study of gerontechnology in Malaysia.

Symposium 3 Speaker 09

Professor Dr. Yeo Chew Chieng
Universiti Sultan Zainal Abidin (UniZA)



Dr. Yeo Chew Chieng obtained his PhD in Microbiology from the National University of Singapore (NUS) in 1998. He was a Postdoctoral Fellow at the Department of Microbiology, NUS, until 2003 when he joined the Malaysia University of Science and Technology (MUST). He moved back to his hometown of Kuala Terengganu in 2009 and joined the then-newly established Universiti Sultan Zainal Abidin (UniZA) as an Associate Professor. He is now a Professor in Microbiology at the Faculty of Medicine, UniZA. His current research interests are in the molecular biology of bacterial toxin-antitoxin systems and the genomics of multidrug resistant bacterial pathogens.

Abstract

Whole Genome Sequencing in Perspective: The View from Clinical Microbiology

The advent of high-throughput sequencing technologies nearly fifteen years ago (in late 2005) has revolutionised the life sciences in ways that could not be imagined at the turn of the millennium. Obtaining the sequences of microbial genomes is now considered neither very challenging nor prohibitively expensive.

Whole genome sequencing (WGS) has the potential to become a dominant technology in the routine diagnostic microbiology laboratory as it has already been widely reported and accepted in the literature for applications such as isolate identification and characterization, antimicrobial resistance (AMR) profiling and establishing sources of recurrent infections and other epidemiological investigations. Nevertheless, WGS has not been widely adopted in clinical microbiology despite its huge potential. Here, we discuss the current limitations of WGS such as its existing costs, the lack of computational infrastructure in hospitals and training of laboratory staff in bioinformatics. The role of artificial intelligence (AI) in hastening the adoption of WGS in routine clinical microbiology will also be deliberated.

Symposium 3 Speaker 10

Dr. Qian Gao
Fudan University, China



Dr. Gao obtained his Bachelor degree from Southwest Agricultural University, China. He then completed his PhD at the University of Southern California, and started the tuberculosis research from 2000 when he was a postdoctoral fellowship at the School of Medicine, Stanford University.

His research interests are molecular epidemiology of tuberculosis, especially the transmission regularity of this disease in China, genetic diversity and pathogenesis of Beijing genotype strains of *M. tuberculosis* and identification and characterisation of new virulence genes of *M. tuberculosis*.

Abstract

Transmission of Multidrug-Resistant *Mycobacterium tuberculosis* in China

Multidrug-resistant tuberculosis (MDR-TB) is a significant threat to tuberculosis (TB) elimination worldwide. Understanding the transmission pattern of MDR-TB is crucial for its control. We used a genomic epidemiological approach to assess the recent transmission of MDR-TB and found serious ongoing transmission of MDR-TB in the communities. Our research results suggest that efforts to control MDR-TB must develop strategies to reduce the transmission of the disease.

Symposium 3 Speaker 11

Dr. Tee Yee Kai
Universiti Tunku Abdul Rahman



Dr. Tee is an assistant professor at the Lee Kong Chian Faculty of Engineering and Science, Universiti Tunku Abdul Rahman (UTAR), Malaysia. His research interests are in medical and non-medical image/video processing. For the medical image processing research, his work focuses on facilitating the clinical translation of a new magnetic resonance imaging technique, the chemical exchange saturation transfer (CEST) imaging that has been shown to be a better alternative in identifying the tissue at risk after an ischemic stroke. He is also attempting to extend the use of CEST to cancer diagnosis. For the non-medical image/video processing research, he is interested in extracting sound information from negligible object vibrations in imagery. Vibrations in objects due to sound is getting popular in recent years for remote sound acquisition, which has important applications in surveillance and security. His work focuses on analysing and magnifying negligible object vibrations in a video in order to recover any sounds despite not having any audio input which would provide another alternative in sound recording/recovering which is not possible previously. This can be extremely useful for tracking and monitoring potential threats such as those from the extremist activity.

Abstract

Speeding Up Data Analysis in Medical & Health Sciences Using Graphical Processing Unit (GPU)

The use of GPU for image/video rendering is well known but their power for general parallel computation has only recently been explored. Parallel algorithms running on GPUs can often achieve speeds up to many times over central processing unit (CPU). This technology has been applied to many fields such as physics simulations, signal processing, financial modeling, neural networks and many others. In this talk, how GPU can be or has been used in medical and health sciences will be discussed.

Symposium 3 Speaker 12

Associate Professor Dr. Lee Wai Kong
Universiti Tunku Abdul Rahman



Dr. Lee serves as an Associate Professor in the Faculty of Information and Communication Technology, UTAR. His areas of expertise include cryptographic engineering, embedded system design (microcontroller, embedded linux & wince application design), energy harvesting for IOT sensor node, indoor positioning system (human and robots), parallel computing (NVIDIA CUDA) and parallel numerical algorithms

Abstract

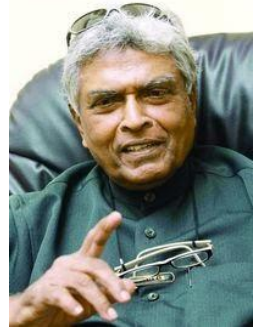
Blockchain Technology in Medical Practice

Electronic Health Records are sensitive data that need to be protected for privacy reasons. However, there are also circumstances that require sharing of medical records across multiple parties (e.g. hospitals and research institutes) for various reasons (e.g. surgery, diagnosis and survey). Hence, it is important to protect the medical health records with sufficient security measures, yet provide flexibility to share among multiple parties.

In this talk, a system (BCMedRec) that allows sharing of medical health records based on Blockchain technology is presented. BCMedRec allows medical officers to request for viewing/editing patients electronic health records. The interactions can be performed through web based GUI or mobile application. Sharing medical data among different parties is also made possible through smart contract. The data transactions (e.g. request, edit and view) are recorded into the Blockchain, which makes it very difficult to be modified. The use of Blockchain protects the integrity of data transactions between different parties. This proof-of-concept prototype shows that Blockchain can enhance the security of existing EHR and encourages information sharing in medical field.

Symposium 4 Speaker 13

Emeritus Professor Dr. Datuk Alex Delilkan
International Medical University



Since 2001, Professor Delilkan has been teaching at the International Medical University. In addition, he is also involved in teaching Medical Ethics in Critical Care and Caring for the Unconscious and the Dying to final year medical students at Mahsa University and Taylors University.

Prior to this, he had served the University of Malaya as an Anaesthesiologist and Head of Department. He was made Emeritus Professor in 2004. He contributes actively to his discipline. Thus, he was Founder President of the Malaysian Association for the Study of Pain (MASP), Malaysian Chapter of the International Association for the Study of Pain (IASP) and past-president of the Medico-Legal Society Malaysia (2001 – 2004). He is a Member of the Malaysian Medical Council (MMC) Ethical Committee and member of the Main Council of the Academy of Medicine of Malaysia.

In his long and illustrious career, he has published widely as research papers as well as books, the latest of which include “Medical Ethics in Critical Care” (Jan 2018) and “The Journey to Establish Medical Ethics in Critical Care” (July 2018)

His current clinical teaching focus is to introduce and establish principles of medical ethics of patient care in Malaysia with ultimate aim of producing caring doctors who would provide Good Standards of Medical Care for all members of the society.

Abstract

Ethical Aspects of Human Organ Transplantation in Malaysia

Ethical issues in organ transplantation relate to

1. Organ donation
2. Organ allocation

Issues relating to live donors (eg in liver transplantation) are regarded as non-maleficent yet can run into issues of mortality and morbidity both physical and psychological.

Moral dilemma of organ allocation to recipients, shortage of organs available for transplantation, commercialisation of organ donation and the consent for and religious beliefs in cadaveric organ donation can pose problems peculiar to the situation in Malaysia.

Symposium 4 Speaker 14

Professor Dr. Kulenthran Arumugam
University of Malaya



Professor Kulenthran Arumugam is a Malaysian national born on January 30th 1949. He is married and has two children. He is a doctor by profession having graduated from the University of Singapore Medical School in 1975. He has a happy disposition, has a very good command of English, is a talented speaker, a good lecturer and an intuitive researcher. Above all, he is a gifted teacher. After graduating from the University of Singapore Medical School, he completed his internship at the University Hospital Kuala Lumpur. After serving 2 years as a Lecturer in the Department of Anatomy, University of Malaya he commenced his career in Obstetrics and Gynaecology as a Registrar in the Department of Obstetrics and Gynaecology, University Hospital, Kuala Lumpur. He completed his training as a Registrar in the University of Aberdeen, Scotland for two years before sitting for and passing the Membership Examination to the Royal College of Obstetricians and Gynaecologists, London at its first attempt in January 1982. He was elevated to a Fellow of the Royal College in 1995.

He resumed his Academic and Clinical career as a Lecturer in the Department of Obstetrics and Gynaecology, University of Malaya Medical Centre soon after. He rapidly rose through the ranks and was appointed Associate Professor and Consultant in 1986 and to Professor and Senior Consultant Obstetrician and Gynaecologist in 1991. He was elevated to a Fellow of Academy of Medicine of Malaysia in 2008. In 2003 he found his niche in Clinical Epidemiology having read the Postgraduate Diploma in Epidemiology from the London School of Hygiene. Completing his tenure in the Department of Obstetrics and Gynaecology, he moved to head the Research Development Unit of the Faculty in order to guide the Faculty Staff into Research in the Clinical Sciences and guiding them in the art of medical writing. Because of his expertise in Law, and experience in medico-legal issues, he is sought after speaker on these issues. Because of his vast experience, he was appointed Head, Personal and Professional Development Division of the Medical Faculty. However he continues to keep in touch with Clinical Medicine and with his colleagues in the Clinical Departments

Abstract

Ethics and the Law in Clinical Practice

A simple definition of what is ethical behavior is “to do what is morally right.” This brings on a further problem of what *is* morally right. It is generally accepted that it is that which has been laid down by God, stands to reason and would be chosen by rational human beings. Again, there are problems to this concept. In short, it remains an enigma.

Amongst the many theories of ethics the most acceptable one to me is the utilitarian theory. In a nutshell, it is an action that must promote the best consequences and for the greatest benefit for the greatest number. However, in clinical practice we have to be more specific and precise. To me, the most accepted definition has been by Beauchamp & Childress. It has four components:

- There must be respect for autonomy and self determination
- There must be beneficence: to do good
- There must be non-maleficence ‘*primum non nocere*’
- There must be justice

But who is to decide where there is a conflict? The doctor, the patient or the parents? This is where the law steps in. In particular, the law of Equity.

Historically the Law of Equity developed beside the common law. It is based on maxims that promote justice based on what is morally right i.e. ethical; *he who come to equity must come with clean hands; delay defeats equity* are examples. It provides a remedy where the strict application of the common law gave rise to injustice. Throughout recent history, there has been many an ethical decision in clinical practice in which the courts have stepped in and intervened.

For the rest of the presentation, examples in clinical practice will be given to show the way of judicial thinking in resolving the issue.

Symposium 4 Speaker 15

Professor Dr. John EJ Rasko AO
University of Sydney, Australia



Professor Rasko is an Australian pioneer in the application of adult stem cells and genetic therapy. Since 1999 he has directed the Department of Cell and Molecular Therapies at Royal Prince Alfred Hospital and the Gene and Stem Cell Therapy Program at the Centenary Institute, University of Sydney. He is the President (2018-20) of the prominent International Society for Cell & Gene Therapy.

John Rasko is a clinical haematologist, pathologist and scientist with an international reputation in gene and stem cell therapy, experimental haematology and molecular biology. In over 160 publications he has contributed to the understanding of stem cells and blood cell development, gene therapy technologies, cancer causation and treatment, human genetic diseases and molecular biology.

He serves on Hospital, state and national bodies including Chair of GTTAC, Office of the Gene Technology Regulator – responsible for regulating all genetically-modified organisms in Australia - and immediate past Chair of the Advisory Committee on Biologicals, Therapeutic Goods Administration. Contributions to scientific organisations include co-founding (2000) and past-President (2003-5) of the Australasian Gene & Cell Therapy Society; Vice President (2008-12) and President-Elect (2016-18) International Society for Cell & Gene Therapy; Scientific Advisory Committees and Board member for philanthropic foundations; and several Human Research Ethics Committees. He is a founding Fellow of the Australian Academy of Health and Medical Sciences. In 2018, the Board of the ABC honoured him as the sixtieth Boyer Lecturer. He is the recipient of national (RCPA, RACP, ASBMB) and international awards in recognition of his commitment to excellence in medical research, including appointment as an Officer of the Order of Australia.

Abstract

Ethical issues in Cell and Gene Therapies

In parallel with objectively proven therapies, 'stem cell tourism' has become a billion dollar industry with increasing examples of false claims. Embryonic and induced pluripotent stem cells have been mired in controversy and clinical development has been forestalled. We reported an analysis of the global distribution of more than 400 unique businesses marketing stem cell-based interventions. Many of these online entities promote clinical applications of 'stem cells' beyond present-day standards of care. These data should be of immediate concern to governments and ethicists being lobbied to amend laws governing the manufacture, distribution and clinical use of human cell-based medical products. Unregulated, untested or unsafe stem cell 'therapies' place the field at a difficult crossroad. Blurring the lines that distinguish evidence-based cell therapies from those that are not remains a fundamental public health concern.

Symposium 5 Speaker 16

Associate Professor Dr. Tan Wee Hoe
Universiti Pendidikan Sultan Idris



Dr. Tan's field of specialisation is games in film and animation and thus his research interests are centred on game design and production, game-based learning and learn-based gaming strategies. He is also involved in e-learning technologies and instructional system designing. He applies Sun Tzu's The Art of War principles to his research (academic & commercial), teaching and learning activities.

Abstract

Gamification in Medical Education: Prospect and Potential

The use of games in the medical and health industry offers promising prospects and potentials of improving the quality of our lives in contemporary society. Games have been designed and developed as administration apparatus and devices, strategies of prevention, and means of teaching, learning and assessment. Such game-based practices involve using either leisure or serious games, wherein the potential of games are explored and exploited at four levels of evaluation, i.e. learners' satisfaction, learning effectiveness, on-the-job performance and return on investment. Similar outcomes can also be achieved through the gamification practice in which intended learning outcomes of non-game activities are constructively aligned to structural elements of the game in order to engage the targeted learners. In this sense, instead of acquiring off-the-shelf or bespoke games, medical professionals may introduce core mechanics of gamification, such as badges, levels, leaderboards, progress bar, virtual currency and competition in their lessons or assessment. This presentation shows examples of how the obstacles are cleared for healthcare-related projects when serious game experts cooperate with professionals in medical sciences to design, develop and validate games for medicine.

Symposium 5 Speaker 17a and 17b

Dr. Carmen Nge Siew Mun
Universiti Tunku Abdul Rahman



Dr. Carmen Nge Siew Mun is currently Assistant Professor in the Department of Modern Languages, Faculty of Creative Industries at Universiti Tunku Abdul Rahman (UTAR). She teaches broadly in the subject fields of English, critical thinking, media, Malaysian arts and culture, science fiction, and games design at UTAR. Carmen's research interests are in the areas of the visual and performing arts, and cultural and interdisciplinary studies in the arts. Carmen is also very passionate about teaching and has conducted numerous workshops on Creativity and Innovation in Teaching, Teaching Digital Natives, and Classroom Management. Educational Background: Hood College (USA), BA, English (1994); Simmons College (USA), MA, English (1997); Brandeis University (USA), PhD, English and American Literature (2003).

Dr. Bong Mei Fern
Universiti Tunku Abdul Rahman



Dr. Bong Mei Fern received her Ph.D. in Computing from Universiti Teknologi Malaysia in 2018. After the completion of her Ph.D, she joined Universiti Tunku Abdul Rahman as an assistant professor. Previously, she had experience in working as a temporary teacher in SJK(C) Rahang, general clerk in a multi-roll advertising company, web programmer in Yibon Creative and game developer in Mygo solution. She has published in national and international journals. She is an expert in image processing, online games, multi-player games, virtual reality, augmented reality, sound recognition and education games. She has also published few games in google play.

Abstract

Virtual and Augmented Realities: Challenges and Opportunities for Health Science Educators

This presentation will provide an overview of definitions, taxonomies, and technologies of virtual (VR) and augmented realities (AR) in the context of technology-based educational instruction. It will summarize the key findings of academic research into the opportunities afforded by VR and AR in the field of health science education, as well as the technological and pedagogical challenges they pose. The presentation will also explore three categories of instructional and learning approaches derived from the use of VR and AR: roles, locations and tasks.

Symposium 5 Speaker 18

Professor Dr. Diana TF Lee

The Chinese University of Hong Kong, Hong Kong



Professor Diana Lee is the Professor of Nursing, Director of the Y.K. Pao Foundation Centre for Nursing Excellence in Chronic Illness Care and Deputy Director of the Hong Kong Jockey Club Institute of Aging at the Chinese University of Hong Kong. She is honoured as a Justice of Peace in 2016 by the Hong Kong Special Administrative Region (HKSAR) Government and is a fellow of the American Academy of Nursing and Visiting Professor of various international and national universities.

Professor Lee has researched widely in the areas of elderly health care and chronic illness care. She has obtained over US\$14 million competitive funding for various research and knowledge transfer activities. Most of her research efforts are focused on promoting the care for older people and their caregivers with chronic illnesses, as well as on evaluating new initiatives for improving health care services. In 2007, Professor Lee was honoured with an Excellent Research Award by the Food and Health Bureau of HKSAR Government to recognize the contribution of her research to the development of health care policies and quality elderly care services. Professor Lee has published over 170 refereed papers in high impact factor journals and delivered over 100 keynote/ plenary papers in international, national and local conferences.

Professor Lee has also been appointed by the HKSAR Government as a member of various statutory boards and councils such as the Elderly Commission, Hospital Authority Board, Research Council and Assessment Panels of Public Policy and Strategic Public Policy Research. In Mainland China, Professor Lee has been appointed as a member of the National Committee of the Chinese People's Political Consultative Conference, Dalian City and the Vice Chairman of the Education Committee of the Chinese Nursing Association. Professor Lee is also an advisor of many international and local professional bodies.

Abstract

New Futures in Nursing Education: Envisioning Technology-Enhanced Educational Innovations

Our world is on the brink of a technological revolution that will necessarily transform the way people live, work and relate to one another. Nursing education is of no exception and the use of technology-enhanced pedagogy is more visible than ever before. This presentation discusses this explosion of technology and its impact on nursing education. Commonly used technology-enabled educational platforms in nursing education are introduced and the impact of these new technological educational platforms on nurses' competencies with regard to quality and safety, patient-centred care, teamwork and collaboration are then discussed. The roles of artificial intelligence in nursing education will also be explored.

**STEM CELL & CANCER RESEARCH
UPDATES**

Stem Cell & Cancer Research Updates Speaker 19

Professor Dr. Chiou Shih-Hwa
Taiwan



Professor Dr. Chiou studied medicine at the National Defense Medical College and did his PhD at the National Yang-Ming University, Taiwan before travelling to the USA to gain post-doctoral experience in stem cell research particularly that of retinal stem cell therapy and transplantation.

Back in Taiwan, he joined the National Yang-Ming University as a Professor in 2010 and later in 2016, he was promoted to become the Distinguished Professor at the same institution.

Professor Chiou has won numerous awards and has been invited to chair and be keynote speaker for several international conferences in and around the region.

He has published widely in his field, and to date, he has over 200 papers in high impact journals.

Abstract

Investigation of Stem-like Property and Stemness Signature in Cancer and Normal Cell

A rare of subpopulation of cells with chemo- and/or radio-resistant properties in each malignancy has greater potential of tumour initiation and displays accelerated regrowth after a sublethal treatment. In general agreement that prospectively isolated cells with the ability to self-renew, differentiate into multiple lineages, and initiate tumours that mimic the parent tumour, this subpopulation was termed cancer stem-like cells (CSCs). These fundamental characteristics make the CSCs the prime candidate for tumour maintenance and reoccurrence. Recently, Yamanaka and colleagues demonstrated that induced pluripotent stem (iPS) cells could be generated from mouse embryonic fibroblasts as well as from adult human fibroblasts via the retrovirus-mediated transfection of four transcription factors, i.e., Oct3/4, Sox2, c-Myc, and Klf4. These iPS cells were indistinguishable from embryonic stem (ES) cells in morphology, proliferative abilities, surface antigens, gene expressions, epigenetic status of pluripotent cell-specific genes, and telomerase activity. Herein we investigate the stemness signatures and self-renewing capacity in cancer and normal cell. Meanwhile, the reprogramming related factors will be further discussed in the pluripotent stem cell and iPS cells.

Stem Cell & Cancer Research Updates Speaker 20

Professor Dr. Chong Kowit-Yu
Taiwan



Professor Dr. Chong obtained his PhD in Pharmacology from Southern Illinois University, USA in 1999. He did a stint of research at the University of Pittsburgh and the Magee Women's Research Institute in Pittsburgh before returning to Taiwan to serve at Chang Gung University where he rose through the ranks to his present professorial position. He has won numerous awards and published widely.

His well-funded research interests include stem cell and lung related diseases and multiple drug-resistant cancer cell and drug development.

Abstract

Pre-differentiated Amniotic Fluid Mesenchymal Stem Cells Enhance Lung Alveolar Epithelium Regeneration and Reverse Elastase-Induced Pulmonary Emphysema

Pulmonary emphysema is a major component of chronic obstructive pulmonary disease (COPD). Emphysema progression attributed not only to alveolar structure loss and pulmonary regeneration impairment, but also to excessive inflammatory response, proteolytic and anti-proteolytic activity imbalance, lung epithelial cells apoptosis and abnormal lung remodeling. To ameliorate lung damage with higher efficiency in lung tissue engineering and cell therapy, pre-differentiating graft cells into more restricted cell types before transplantation could enhance their ability to anatomically and functionally integrate into damaged lung. In this study, we aimed to evaluate the regenerative and repair ability of lung alveolar epithelium in emphysema model by using lung epithelial progenitors which pre-differentiated from amniotic fluid mesenchymal stem cells (AFMSCs). An optimal lung epithelial progenitor-like cells (LEPLCs) pre-differentiation condition has been established in eGFP-expressing AFMSCs, which resulted in a yield of approximately 20% lung epithelial progenitors-like cells from AFMSCs in a 7-day period. In porcine pancreatic elastase (PPE)-induced emphysema mice, transplantation of LEPLCs significantly improved regeneration of lung tissues through integrating into the lung alveolar structure, relieved airway inflammation, increased expression of growth factors such as vascular endothelial growth factor (VEGF), and reduced matrix metalloproteinases and lung remodeling factors when compared with mice injected with AFMSCs. Histopathologic examination observed a significant amelioration in DNA damage in alveolar cells, detected by terminal deoxynucleotidyltransferase-mediated dUTP nick end labeling (TUNEL), the mean linear intercept, and the collagen deposition in the LEPLCs transplanted groups. We conclude that transplantation of pre-differentiated AFMSCs showed better regeneration of lung tissue and reverse elastase-induced pulmonary emphysema than AFMSCs.

Stem Cell & Cancer Research Updates Speaker 21

Associate Professor Dr. Chou Yu-Ting
National Tsing Hua University, Taiwan

Dr. Chou obtained his PhD from Case Western Reserve University, USA in 2006 and went to John Hopkins Medical Institution to do his post-doctoral fellowship. When he returned to Taiwan, he first joined the Academia Sinica and then the National Tsing Hua University where he remains today. He has won numerous awards and published widely.



His research interests include identification of effective biomarkers and therapeutic targets for drug discovery and personalized therapy for cancers. His research group is focusing on the understanding of molecular mechanisms of resistance and the reversal of resistance thereof. They are also interested in identifying novel therapeutic targets and designing modalities to fight cancer.

Abstract

Lung Tumor Heterogeneity and Targeted Therapy

Cancer progression has been attributed to tumor heterogeneity. The cross-talk between stem cell factor expression and epigenetic modifications regulates cell differentiation. However, how this cross-talk affects tumor heterogeneity and drug resistance remains elusive.

Here we report that lung cancer cell populations generate phenotypic and oncogenic plasticity by switching on and off stem cell factor *SOX2* and neurotrophic factor *VGF*, via histone modifications to alter proliferative and invasive capabilities and affect targeted therapies. Although tyrosine kinase inhibitors (TKIs) targeting mutated epidermal growth factor receptor (EGFR) in lung tumors have achieved a good response, resistance to TKIs eventually occurs in patients. We observed that EGFR mutations cross-talked with *SOX2* to maintain cell proliferation and barrier properties. TKI selection diminished *SOX2* but enriched *VGF* expression, causing epithelial-to-mesenchymal transition (EMT) with increased migratory and invasive behaviors in TKI-resistant lung cancer cells.

ChIP-seq analysis showed that the activation H3K27ac mark was enriched in differentiated neurons as well as in TKI resistant lung cancer cells, but not in both stem cells and EGFR-TKI sensitive lung cancer cells. We found that *SOX2* expression was downregulated while *VGF* was elevated in TKI-resistant cells. *SOX2* expression supported cell proliferation and barrier properties in EGFR-mutated lung cancer cells, while *VGF* expression promoted TKI resistance and EMT. Lung tumors harbor low *SOX2* expression or high *VGF* expression predicted a poor survival in EGFR-mutated patients. Overall, our findings show how cancer plasticity elicited by the epigenetic modification on *VGF* and *SOX2*, followed by TKI selection, generates distinct oncogenic properties, providing critical insights into lung cancer progression and treatment.

Stem Cell & Cancer Research Updates Speaker 22

Professor Dr. Choo Kong Bung
Universiti Tunku Abdul Rahman



Senior Professor Dr. Choo Kong Bung is a molecular biologist who has published over 110 highly-cited research papers in the past 35 years on regulation of gene expression in cancer and stem cells, and in early embryonic development. Professor Choo obtained his PhD degree in Monash University, Australia, and has worked in Australia and Taiwan before joining UTAR in 2011. He founded the Centre for Stem Cell Research (CSCR) in UTAR, which became the first laboratory in Malaysia to generate and publish in induced pluripotent stem cells (iPSCs). Since stepping down as the chairperson of CSCR at the end of 2017, Professor Choo is now devoting his efforts in teaching scientific writing in various local and overseas universities.

Abstract

Concerns and Confusions in Research Publication in 2019: A Personal View (Fake Reviews, Fake Journals, Retractions, Open Access, Biased Citations ...)

When I started to write a manuscript from scratch, which I have not done for a long while since postgraduate students always wrote up the first draft, I first did a literature review on some keywords. I started to notice some anomalies in the literature, which threw confusions in my mind on how I should cite the references.

(i) I noticed that some journals no longer have impact factors (IF) since 2017. On further investigation, one of the journals retracted 107 papers in 2017, all from the same country, due to fake reviews. (ii) In other journals, retractions are frequent for many other reasons, including questions on images/data and plagiarism. Some papers are under “expression of concern”, not retracted, leaving it up to the scientific community to decide on the merit of the papers. (iii) In most cases, retraction was done many years after the initial publication, and many retracted papers are still being cited years after retraction. (iv) Due to the demand for publication and citation, open access publication through payment is gradually becoming a norm, making research publication a lucrative business. Thus sprouted fake journals and fake conferences. (v) I also noticed that the bulk of citations of some journal papers in specific journals come from researchers of the same country, hinting biased citation rates...

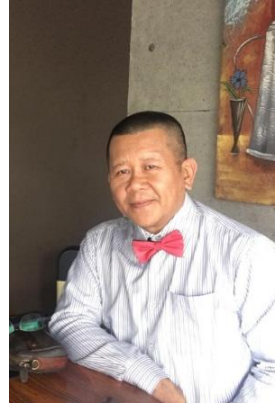
In this talk, I will present evidences, in relation to my own research work, of the issues raised above. It is the aim of this talk to raise awareness and discussion of my concerns in some unhealthy developments in research publication in 2019.

POST-CONFERENCE WORKSHOPS

Workshop 01 Speaker 01

Dr. Jiloris FD

Kota Kinabalu Public Health Laboratory, Ministry of Health



Dr. Jiloris earned his MBBS and MPH from University Malaya, Malaysia in 1987 and 1994 respectively. He was a fellow of the Epidemic Intelligence Programme (EIP), Malaysia from Oct 2002 to April 2003 and was gazetted as a Public Health Specialist in 2003.

Prior to his current position as the Director of the Public Health Laboratory in Kota Kinabalu (MKAKK), Dr. Jiloris accumulated vast experience from his work as the Area Health Officer in Keningau, Kudat, Lahad Datu and Tawau, Sabah (1990-2009); Principal Assistant Director of TB and Leprosy Sabah Health Department (2000 to 2006), Sector Head of TB and Leprosy Control Ministry of Malaysia (2010-2015) and Area Health Officer Kota Kinabalu, Sabah (Aug. 2015-Sept. 2018). Dr. Jiloris contributed significantly to the combating of malaria and tuberculosis in Sabah and the developing and enhancing of tuberculosis and leprosy control programmes in Malaysia. He facilitated the setting up of an online data collection system for surveillance and case holding for TB and Leprosy patients and contacts. He represented Malaysia in many local and international Public Health Conferences as well as WHO organised meetings.

Abstract

Towards TB Elimination: The Role of the TB Laboratory in Sabah

An estimated 10 million people develop tuberculosis annually, with 1.3 million TB-related deaths (2017), and about 1.7 billion estimated to have latent TB infection. Sabah averages at about 13 cases daily and 5 deaths weekly. The difficulty in solving the TB problem is possibly attributed to its close evolution with human hosts. Major initiatives have been set up to combat TB such as the MDG and Stop TB Partnership (2000) and End TB Strategy (2014). SDG, the latest strategy, was launched by the WHO in 2015 targeting 90% reduction of TB deaths and 80% reduction of TB incidence by 2030 with 2015 figures as the baseline. The management and control of TB involves significant costs: time, finance, human resource etc. The current practice is to treat active TB, vaccinate uninfected populations and improve detection methods. However, the plateauing trend of TB due to the steady source of TB from populations with latent TB suggests that better approaches need to be established. Planning, execution and balancing of limited resources effectively and efficiently seem to be key for a successful TB program. The perfect solution however, still remains elusive.

In this talk, the chronology of TB Laboratory services in Sabah will be described to explain how the services have improved TB Management & Control, and to recommend possible measures to address some TB issues in the state. TB work performance data in Sabah from 2012-2018 obtained from TBIS registries, SIMKA and MyTB databases will be presented together with the results of a knowledge, perception and practice (KAP) survey on healthcare workers (HCW) in relation to TB Laboratory Services in Sabah, that was conducted in the 3rd quarter of 2018. Special attention will be directed to the dependence of HCWs on laboratory results for the proper management of TB patients; the improvement in TB reports with the use of more advanced diagnostic technology; contribution from the treatment of latent TB; and the need for close-knit collaboration and coordination between clinicians, laboratory scientists, medical and public health teams.

Workshop 01 Speaker 02

Dr. Mah Li Yen
Luminex Corporation



Dr. Mah is an experienced field application specialist in the area of molecular diagnostics, applied testing, and life science research, especially in the areas of cancer sciences, molecular biology, and immunology. After obtaining her PhD in Cancer Sciences from the Beatson Institute for Cancer Research, University of Glasgow, she has been involved in the development and evaluation of many platforms including qPCR, pyrosequencing, NGS-pre-analytics (for gene expression analysis, pathogen detection, cancer profiling, SNP analysis, and methylation studies), automated/robotic nucleic acid extraction and liquid handling, animal genotyping, cell-based assays, flow cytometry, ELISA, gene manipulation (plasmid DNA and siRNA transfection, adeno- and retro-viral infections), 2D and 3D FISH, immuno-cytochemistry and histochemistry, tissue culture, radiolabelling (32P and 35S) and biostatistics.

She is currently the Field Marketing Scientist, South East Asia for Luminex Corporation, providing sales and technical support for all Luminex diagnostic and clinical research products such as the Luminex cytokine array, Luminex xTAG, xMAP, and multicode technology for the detection of infectious diseases and pharmacogenomics studies.

Abstract

Luminex Multiplex Platforms: Simplifying Academic and Clinical Research Complexities

Multiplexing enables the detection of multiple analytes simultaneously within a single sample volume. One of the most reliable methods for multiplexing is the solution-phase Luminex xMAP[®] Technology, which combines advanced fluidics, optics, and digital signal processing with proprietary microsphere (“bead”) technology. Microscopic beads are coated into many spectrally distinct sets, and each bead set can be coated with protein or nucleic acid to allow the capture of a biological target. Multiple bead sets can be pooled together, allowing the simultaneous capture of up to 50, 100 or 500 analytes from a single sample. xMAP[®] Technology is adaptable to a number of biological assays, including immunoassays, nucleic acid assays, and enzyme activity assays. The xTAG[®] Technology uses a proprietary universal tag system consisting of the Thymine (T), Adenine (A) & Guanine (G) bases that allows easy development and optimization of nucleic acid assays. The sequences have been optimized to minimize cross-hybridization, thus preventing cross-talk in multiplexed nucleic acid assays. Featuring a flexible open-architecture design, xMAP[®] and xTAG[®] Technology can be configured to perform a wide variety of assays quickly, cost-effectively, and accurately.

Workshop 01 Speaker 03

Dr. Kuan Chee Sian
NeoGenix Laboratoire Sdn Bhd



Dr. Kuan obtained his Doctor of Philosophy (PhD) in University of Science Malaysia (USM), specializing in molecular & cell biology. He is the co-founder and Laboratory Director of NeoGenix Laboratoire Sdn Bhd, which is a niche player specializing in molecular infectious diseases, genetic diseases, oncology and R&D in sciences. He has more than 10 years of research experience with more than 20 international publications. Dr. Kuan and his team discovered a new yeast species which was isolated from a dermatitis patient. They also developed an Integrated Fungal Genome Database and Taxonomic Engine to support integration and analysis of mould and yeast species isolated from patients.

Dr. Kuan has also in-depth experience in diagnostic laboratory & business management. He is the consultant of several diagnostic companies and collaborated with pharmaceutical and diagnostics industries to evaluate more than 30 molecular diagnostic assays. Currently, Dr. Kuan is a Vice President and Ambassador of Business Network International (BNI) Malaysia, which is the world leading referral organization.

Abstract

Molecular Diagnosis of Tuberculosis and Emerging Drug-Resistant Tuberculosis

Tuberculosis (TB) is one of the top 10 causes of death and the highest killer among all infectious diseases. In Malaysia, the total number of TB cases in Malaysia increased by 1.6% to 26,168 in 2017 compared with 25,739 cases in 2016. The most formidable challenge is one-third of the world's population has latent TB infection, which means people have been infected by *Mycobacterium tuberculosis* but produces no symptoms unless it progresses to the active TB disease. Active TB is diagnosed based on the isolation of *Mycobacterium tuberculosis* from clinical samples and microscopic examination. Nucleic acid amplification is an alternative method for identification of both pulmonary and extra-pulmonary TB in clinical samples. Reported data indicate that TB-PCR is highly reliable and useful for rapid detecting *M. tuberculosis* DNA in various specimens.

The diagnosis of latent TB has conventionally relied on tuberculin skin test (TST). The World Health Organization (WHO)'s new 2018 guidelines recommend the use of commercial TB Interferon-Gamma Release Assays (IGRAs) to detect latent TB for at-high risk populations. Three IGRAs have been approved by the U.S. Food and Drug Administration (FDA): a.) T-SPOT TB test (Oxford Immunotec, UK), 3th-generation QuantiFERON-TB Gold In-Tube test (QFT-GIT, Qiagen, Germany), and 4th-generation QuantiFERON-TB Gold Plus (QFT-Plus, Qiagen, Germany). IGRAs demonstrated higher sensitivity and are unaffected by prior BCG vaccination, hence are more specific.

Drug-resistant TB burdened countries face huge obstacles in the rapid diagnosis and control of this infection due to expensive to treat and difficult to cure. Molecular methods such as PCR are one of the molecular diagnostic tools that allow the rapid detection of drug-resistant *M. tuberculosis* strains in clinical samples. In Malaysia, the first case of extensively drug-resistant TB (XDR-TB) was detected in 2013. Our work indicates that the strain belongs to an ancestral-like, non-Beijing clade of East Asia lineage. It harbours both classical and uncommon SNPs that allow it to escape from inhibition by many antibiotics.

Workshop 01 Speaker 04

Dr. Peng Jun
Hunan-Tech New Medical Systems Co. Ltd., China



Dr. Peng Jun is a doctor of medicine who has been engaged in tuberculosis diagnosis research for nearly 20 years. He is the one of the three core inventors of a tuberculosis screening system in the Hunan-Tech New Medical Systems Co. Ltd. and the legal representative of the company. He excels in medical equipment technical innovation and has applied for nearly 40 patents for his company. He is a committee member of the Chinese Anti-Tuberculosis Association.

His talks in this workshop will be presented by Mr. Peng Xunkai and Ms. Chen Xi.

Mr. Peng is the International Business Executive of Hunan-Tech New Medical System Co. Ltd.

Ms. Chen Xi

Ms. Chen, MSc, majored in Microbiology Application, Biology and has worked in infectious diseases diagnosis for more than 10 years. Previously she had collaborated with the WHO organising projects in the evaluation of malaria RDT, HIV RDT PQ, HCV RDT PQ and malaria RDT optimization as a private company representative. She is now responsible for promoting the innovative Tuberculosis Diagnostic Technology in the international market. Her focus is on introducing the sandwich vessel concentration technology to the global public health sector, with the aim of enabling early detection of TB with reliable/rapid/effective and affordable tools and helping towards achieving the End TB goal set by WHO.

Abstract

AI-based Construction of an Autoscanner

(Presented by Mr. Peng Xunkai, Hunan-Tech New Medical System Co. Ltd.)

The application of artificial intelligence can contribute to the public health significantly. Tuberculosis has been recognized as one of the urgent and public health problems in the world, causing enormous losses to human society every year. To find TB earlier is the key loop to achieve the END TB target.

In the past 100 years, we have used conventional microscopy to diagnose TB reliably. Now, artificial intelligence-based computer vision processing technology can help to find TB earlier than ever before.

Through the automatic examining system that is based on the deep learning algorithm, the examiner only needs to put the slide to be tested into the automatic digital microscope, and the system will complete the scanning of the slide and the identification of *Mycobacterium tuberculosis* according to the standards recommended by the WHO. The automatic examining system can be loaded with 5 slides (10 specimens) per batch, and the average single specimen scan time is 5 minutes. No manual participation is required during the scanning process.

After scanning and identification, the system will display the visual field images of all suspected targets and the probability of system judgment for verification by the inspectors. Therefore, the application of artificial intelligence-based algorithm in tuberculosis detection not only greatly saves labor costs, but also reduces the possibility of human factors causing missed detection. This cheap and efficient diagnostic method satisfies the requirements of contemporary tuberculosis prevention and treatment work. It also provides new opportunities for tuberculosis prevention and treatment.

Abstract

Automated AFB Staining with Vastly Improved Sensitivity

(Presented by Chen Xi, Hunan-Tech New Medical System Co. Ltd.)

Tuberculosis is an urgent public health problem in the world. It is curable but many people have no access to the critical diagnostic tools. These critical diagnostic tools are supposed to be reliable, effective, affordable, rapid, safe, and easy to use.

The Sandwich Vessel Concentration Technology has been developed to contribute to better TB care and prevention. It combines the desirable characteristics of critical diagnostic tools.

It is a reliable innovation based on morphological examination.

It is effective, being able to concentrate the acid-fast bacilli in a sample by more than 50 times compared to conventional testing.

It is safe as clinical samples are inactivated before testing.

It is easy to use as both semi-automated and fully automated systems are available.

It is affordable as the cost of testing is far less than the cost of molecular assays.

Workshop 01 Demonstrator

Ms Dawn Carmel Paul
Kota Kinabalu Public Health Laboratory, Ministry of Health



Dawn Carmel Paul is a Science Officer (Microbiology) attached to the Communicable Disease Section of the Kota Kinabalu Public Health Laboratory from May 2008 to the present. Prior to that, she has worked in the Hospital Segamat Pathology Unit in Segamat, Johor (August 2005 to April 2008).

She had previously obtained her BSc and MSc degrees in UKM. She is currently pursuing a PhD in UTAR. Her main area of interest is in tuberculosis laboratory diagnostics with special emphasis of improving the surveillance and diagnostic aspects of MTB as well as in the training of healthcare workers in tuberculosis work in the Ministry of Health, especially in her home state of Sabah.

Dawn's other areas of interests include health economics and rural community empowerment.

Abstract

Luminex Microbead-Based Spoligotyping Assay (Beamedex, France) for *Mycobacterium Tuberculosis* Complex (MTBC)

The TB-SPRINT test is a multiplexed microbead-based spoligotyping technique performed on the Luminex platform. Spoligotyping is based on the presence or absence of 43 unique spacers in the direct repeat (DR) region of the MTBC genome.

In this demonstration, the protocol for spoligotyping using the TB-SPRINT kit (Beamedex, France) will be run through in a simple step by step approach. The conventional nitrocellulose membrane for spoligotyping is replaced by microbeads coupled with specific oligonucleotide capture probes.

The whole procedure includes three steps: DNA extraction, multiplex amplification of the extracted DNA with biotinylated / non-biotinylated primers mix, and the subsequent hybridization of the amplicons with the microbeads. Utilizing LED/Image-based analysis, the results are presented as numerical output on the Luminex platform and are then transferred to MS Excel macro to enable rapid and objective interpretation. Genotyping at a rate of 96 samples in less than 3 hours can be achieved. The test is robust, easy to perform and has high reproducibility.

Workshop 02 Plenary Speaker

Professor Dr. Zhu Xiao Shu
Western Sydney University, Australia



Dr. Xiaoshu Zhu is Associate Dean (International) at the School of Science and Health, Western Sydney University (WSU). She is also Director of the Chinese Medicine Centre which was set up in collaboration with the Beijing University of Chinese Medicine. She leads the Cancer Research Group for the National Institute of Complementary Medicine (NICM), Australia's premier research facility in complementary medicine and oversees the Chinese Medicine Programme as Director. Dr. Zhu has attracted significant amount of research and educational grants from various national and international awarding bodies including the Department of Foreign Affairs and Trade (DFAT) Australia, the National Breast Cancer Foundation (NBCF), the Chinese Medicine Board of Australia, the US National Institutes of Health (NIH) and the China National Nature Science Foundation (CNNS). Her research focus is on cancer and women's health from the Chinese medicine perspective. Through her long term working experience and research collaborations in Australia and overseas, she has built wide research linkages and worked closely and collaboratively with academic and researchers from around the world.

Abstract

Applying the Principle of Traditional Chinese Medicine in Helping the Elderly Lead Healthier Lives

With the number of older adults on the rise, this presentation intends to address issues around factors that affect the older adult through reviewing common physiological and pathology factors around aging process, understanding the challenges from Chinese medicine perspective and recommendations of life styles for older adults based on the Chinese medicine framework.

Workshop 02 Speaker 01

Professor Dr. Diana TF Lee
The Chinese University of Hong Kong, Hong Kong



Professor Diana Lee is the Professor of Nursing, Director of the Y.K. Pao Foundation Centre for Nursing Excellence in Chronic Illness Care and Deputy Director of the Hong Kong Jockey Club Institute of Aging at the Chinese University of Hong Kong. She is honoured as a Justice of Peace in 2016 by the Hong Kong Special Administrative Region (HKSAR) Government and is a fellow of the American Academy of Nursing and Visiting Professor of various international and national universities.

Professor Lee has researched widely in the areas of elderly health care and chronic illness care. She has obtained over US\$14 million competitive funding for various research and knowledge transfer activities. Most of her research efforts are focused on promoting the care for older people and their caregivers with chronic illnesses, as well as on evaluating new initiatives for improving health care services. In 2007, Professor Lee was honoured with an Excellent Research Award by the Food and Health Bureau of HKSAR Government to recognize the contribution of her research to the development of health care policies and quality elderly care services. Professor Lee has published over 170 refereed papers in high impact factor journals and delivered over 100 keynote/ plenary papers in international, national and local conferences.

Professor Lee has also been appointed by the HKSAR Government as a member of various statutory boards and councils such as the Elderly Commission, Hospital Authority Board, Research Council and Assessment Panels of Public Policy and Strategic Public Policy Research. In Mainland China, Professor Lee has been appointed as a member of the National Committee of the Chinese People's Political Consultative Conference, Dalian City and the Vice Chairman of the Education Committee of the Chinese Nursing Association. Professor Lee is also an advisor of many international and local professional bodies.

Abstract

An Innovative Community-Based Gerontological Education Programme

In addressing the challenge of a rapidly aging population, a grant of HK\$73.8 million has been obtained to launch a 5-year territory-wide interdisciplinary training programme (CADENZA Training Programme) in Hong Kong. The Programme aims at providing general and professional education in gerontology for the general public, informal and family caregivers, and professional health care and social workers.

The five thematic courses of the Programme are successful aging and intergenerational solidarity, psychosocial and spiritual care, chronic disease management and end-of-life care, preventive and supportive care for older people with dementia, and community and residential care for older people.

This presentation will introduce the content, implementation and impact of this Programme.

Workshop 02 Speaker 02

Associate Professor Yang Zao
Universiti Tunku Abdul Rahman



Dr. Yang Zao is a Traditional Chinese Medicine (TCM) physician specialising in cancer treatment. He has been engaged the profession for more than 20 years, first in China (1990-2007) and then in Malaysia (2007-2011). In April 2011, he joined Universiti Tunku Abdul Rahman as an Associate Professor and is actively involved in clinical teaching, curriculum development and examination setting for students of TCM. In addition to cancer treatment, Dr. Yang is also involved in Geriatric medicine.

Abstract

Healthy Diet for the Elderly

Food-based nutrition is a main source of physical and spiritual energy and the basis of maintaining healthy growth, development and regular activity. Because the elderly experiences organ degeneration, insufficient energy and nutrition and together with chronic diseases, they need a diet that is able to overcome these issues. Such diets can help strengthen the physical condition, prevent diseases and even control and treat diseases. Therefore, dietary regimens have been viewed as the most basic form of geriatric care. They have also been proven to be highly effective.

Through three thousand years of accumulated experience in the implementation of dietary regimens for the elderly, the main Chinese medicine principles of healthy eating include set meal times (a hearty breakfast, an adequate lunch and a small dinner), food that is plain, soft and warm and in appropriate quantities, chewing carefully and swallowed slowly, maintaining a balanced diet, eating a mix of flavours, adjusting the diet as needed, choosing appropriate foods based on specific body needs/conditions/diseases, taking regular walks, rinsing the mouth and massaging the abdomen gently after meals. These principles, if followed properly, can contribute significantly to elderly health.

Workshop 02 Speaker 03

Dr. Maria Justine
UiTM



Dr. Maria Justine, a physiotherapist by training, graduated from the Institute of Gerontology, Universiti Putra Malaysia with a PhD degree. She worked as a physiotherapist at various government agencies and private hospitals before joining Universiti Teknologi MARA as a lecturer at the Centre for Physiotherapy Studies in 2005. She is now Head of the Centre for Postgraduate Studies and Deputy Dean (Student Affairs) at the Faculty of Health Sciences, UiTM. Her research interests include geriatric rehabilitation and exercise science, focusing on functional fitness, sarcopenia and exercise prescriptions. She has more than 60 publications and one book on case studies in physiotherapy. She is very active as a speaker/facilitator for conferences/workshops all over Malaysia, talking mainly on geriatric rehabilitation.

Abstract

Functional Exercise Training For Older Persons

Although aging is a natural process of life, it brings with it an inevitable progressive decline in the functional fitness that would affect the ability to perform activities of daily living. Exercise has long been established as the best non-pharmacological strategy for maintaining functional fitness. It can be challenging to design exercises for older persons that mimic the basic daily movement patterns of living such standing, sitting, pushing, pulling and rotating their bodies. In this lecture, we will explore the meaning of functional training and some of its basic elements. I will attempt to introduce the principles of training, its benefits and guidelines for designing functional exercises. Simply speaking, functional exercises train the body to move in the ways we move in everyday life safely and efficiently such as carrying groceries, preparing meals and cleaning the house.

**TITLES OF POSTER
PRESENTATIONS**

Group 1
Medical Microbiology

Poster No: **P 01**

Title: The MAB_3542c-Based Phylogenetic Grouping May Be Useful for Subspecies Classification of *Mycobacterium abscessus* Complex

Authors: Ng HF, Thaw Zin, Yap SF & Ngeow YF

Affiliation: *Department of Pre-Clinical Sciences, Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Kajang, Selangor, Malaysia*

Poster No: **P 02**

Title: Prevalence of *Salmonella* Species in Carrots and Cucumbers Collected from Hypermarkets and Wet Market in Kampar, Perak, Malaysia

Authors: Cheow M¹, Tan TY¹, Chen SK¹, Kuan CH² & Saw SH¹

Affiliation: ¹*Department of Biomedical Science, Faculty of Science, Universiti Tunku Abdul Rahman, Jalan Universiti, Bandar Barat, 31900 Kampar Perak;* ²*School of Biosciences, Taylor's University Lakeside Campus, 47500 Subang Jaya Selangor Darul Ehsan*

Poster No: **P 03**

Title: Expression of Genes Affecting Biofilm Formation in *Legionella pneumophila*

Authors: Chay MJ, Alan Ong HK & Ngeow YF

Affiliation: *Faculty of Medicine and Health Sciences, University Tunku Abdul Rahman, Jalan Sungai Long, Bandar Sungai Long, 43000 Kajang, Selangor*

Poster No: **P 04**

Title: Investigation of Upper Respiratory Carriage of Bacterial Pathogens and Their Antibiotic Susceptibility Profile in the Kampar District, Malaysia

Authors: Ong HH¹, Thong LY¹, Lim YE¹, Phoon LQ¹, Chee HP¹, Kavitha S¹, Clarke S² & Eddy Cheah SG¹

Affiliation: ¹*Department of Biological Science, Faculty of Science, Universiti Tunku Abdul Rahman (UTAR), Kampar Campus, 31900 Kampar, Perak, Malaysia,* ²*Faculty of Medicine, University of Southampton, Southampton SO17 1BJ, UK*

Poster No: **P 05**

Title: Multi-locus Sequence Analysis of *Candida albicans* for Strain Differentiation and Correlation with Pathogenicity

Authors: Zain I, Yap SF & Ngeow YF

Affiliation: *Department of Pre-Clinical Sciences, Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Kajang, Selangor, Malaysia*

Poster No: **P 06**

Title: Oncolytic Measles Virus Exhibits Efficient Oncosuppression against Radio- and Chemo-Resistant Nasopharyngeal Carcinoma Cell Line

Authors: Looi HK⁵, Kiew LV⁶, Chang LY⁷, Ngeow YF^{1,3,5} & Ong HT^{1,2,3,4},

Affiliation: ¹*Department of Pre-Clinical Sciences*, ²*Centre for Cancer Research*, ³*Centre for Research on Communicable Diseases*, ⁴*Centre for Stem Cell Research*, ⁵*Faculty of Medicine and Health Sciences, Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Sungai Long Campus, Bandar Sungai Long, 43000 Kajang, Selangor*, ⁶*Department of Pharmacology*, ⁷*Department of Medical Microbiology, Faculty of Medicine, Universiti Malaya, Jalan Universiti, 50603 Kuala Lumpur*

Poster No: **P 07**

Title: Case Study: Repeated Isolations of Acid-Fast Bacilli in a Chronic Lung Infection

Authors: Lee CL¹, Tan OK² & Ngeow YF¹

Affiliations: ¹*Faculty of Medicine and Health Sciences, University Tunku Abdul Rahman, Jalan Sungai Long, Bandar Sungai Long, 43000 Kajang, Selangor*; ²*Physician, Pantai Hospital, Taman Cheras Makmur, 56100 Kuala Lumpur*

Poster No: **P 08**

Title: Quality Assessment of Specimens for Mycobacterial Culture Received at NPHL: An Analysis

Authors: Mahfuzah MA, Zirwatul Adilah A, Noorliza MN, Puvaneswary R, Parvathy SR, Mohd Hatimi T, Khairunnisa R, Mohd Amin K, Wan Mazlina M, Rohayati MN & Khairul Azan H

Affiliation: *National Public Health Laboratory, Ministry of Health, Sungai Buloh, Selangor, Malaysia*

Poster No: **P 09**

Title: Easy Spoligotyping for *Mycobacterium tuberculosis* Complex (MTBC) Utilizing the Luminex Platform

Authors: Paul DC¹, Jiloris FD¹, Richard A², Yap SF³ & Ngeow YF³

Affiliation: ¹*Kota Kinabalu Public Health Laboratory*; ²*FMHS University Malaysia Sabah*, ³*FMHS Universiti Tunku Abdul Rahman*

Poster No: **P 10**

Title: Prevalence of *Legionella spp.* in the Water Supply System of Klang Valley Integrated Transit System

Authors: Wong JL¹, Hor HY², Khor ZW², Sai SA², Tan CC², Wisely Tan WY², Sargit K¹, Yap SF¹ & Ngeow YF¹

Affiliation: ¹*Centre for Research on Communicable Diseases, Faculty of Medicine and Health Sciences, Univerisiti Tunku Abdul Rahman, 43000 Kajang, Selangor*; ²*MBBS Year 2, Faculty of Medicine and Health Sciences, Univerisiti Tunku Abdul Rahman, 43000 Kajang, Selangor*

Group 2
Basic Medical Sciences

Poster No: P 11

Title: Optimization of Polymerase Chain Reaction (PCR) Conditions for Detection of *Listeria monocytogenes* from Food Samples

Authors: Chen SN¹, Yap ML², Kuan CH³, Kuan CS⁴ & Saw SH¹

Affiliation: ¹*Department of Biomedical Science;* ²*Department of Biological Science, Faculty of Science, Universiti Tunku Abdul Rahman (UTAR), Jalan Universiti, Bandar Barat, 31900 Kampar Perak, Malaysia.*³*School of Biosciences, Taylor's University Lakeside Campus, 47500 Subang Jaya, Selangor Darul Ehsan, Malaysia.*⁴*Neogenix Laboratoire Sdn Bhd, C707, Level 7, Block C, Kelana Square, Kelana Jaya, 47301 Petaling Jaya, Selangor, Malaysia*

Poster No: P 12

Title: Oral administration of Epigallocatechin Gallate (EGCG) exerts vasoprotective and antihypertensive effects in angiotensin II-infused hypertensive mice

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Poster No: P 13

Title: Investigation of the effects of angiogenin gene (ANG) and its Amyotrophic Lateral Sclerosis (ALS) mutant over-expression in NSC34 mouse motor-neuron cell line

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Poster No: P 14

Title: Expression and Purification of Zika Capsid Protein

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Poster No: P 15

Title: Leukemic Plasma Cells Masquerading as Hairy Cells Leukemia

Authors: Fann RJ¹, Lee BS¹, Chong SL², Liam CCK², Jameela S² & Cheong SK¹

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Poster No: P 16

Title: *In vitro* Antioxidant Activities and Neuritogenic effect of *Spirulina platensis*

Authors: Ngu EL¹, Ko CL¹, Tan CY¹, Phang SM², Wong KH³ & Yow YY¹

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Poster No: P 17

Title: Enzymatic and Mechanical Extraction of Virgin Coconut Oil

Authors: Soo PP¹, Phuah ET^{1*}, Ali Y¹, Lai OM^{2,3} & Kuan CH⁴

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Poster No: **P 18**

Title: Identification of Medicinal Herbs *Oldenlandia diffusa* and *Odenlandia corymbosa* based on Macroscopic Morphological Characteristics, DNA Barcoding and Metabolite Composition

Authors: Lai MW¹, Chia WL¹, Ling YS³, Lan YM¹, Tam SM⁴, Chung RCK⁵, Haw MF⁶ & Lim YM^{1&2}

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Poster No: **P 19**

Title: Differentiation of Two Pegaga Varieties Based on Macroscopic Morphological Characteristics, DNA and Metabolites

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Poster No: **P 20**

Title: The Influence of Geographical Factors on the Metabolite Distribution of House-Cultivated Edible Bird's Nest in Perlis

Authors: Tong SR¹, Lee TH⁴, Chang YF³, Cheong SK¹ & Lim YM^{1&2}

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Poster No: **P 21**

Title: Effect of Oral Administration of Tocotrienol-Rich Fraction on Vascular Endothelial Growth Factor in Streptozotocin-induced Diabetic Retinopathy in Rats

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Group 3
Public Health, Clinical &
Medical Education

Poster No: **P 22**

Title: A Cross Sectional Study to Evaluate Obesity as Contributing Factor to Postural Instability

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Poster No: **P 23**

Title: Physical Activity Status Among Pre-schoolers in Kajang Requires Attention!

Authors: Tan BC¹, Gan QF², Ong KW¹, Melissa AV¹, Chan LY¹, Yap CS¹, Goh JH¹, Foo CN³, Fong LY² & Leong PP²

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Poster No: P 24

Title: Perception of Medical Students towards a Virtual Learning Environment in Basic Clinical Skills Training on Cardiovascular Examination

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Poster No: P 25

Title: Problem of Polypharmacy and Medication Errors among Institutionalised Elderly Malaysians Residing in Assisted Living Residences

Authors: Thaw Zin, Woo LF, Liew SF, Choo PY, Nadia MH, Leong PP & Yap SF

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Poster No: P 26

Title: Prevalence of Obesity and Overweight among the Youth Population in Northern Peninsular Malaysia

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Poster No: P 27

Title: Prevalence of Sarcopenic Obesity among Community-Dwelling Elderly: A Pilot Study

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Poster No: P 28

Title: Effectiveness of Sprint Interval Training on Anthropometric Measures in Physically Inactive Overweight Adults

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Poster No: P 29

Title: Prevalence of Musculoskeletal Pain among Secondary School Students

Authors: Martin EC, Yee CP & Jabbar MA

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Poster No: P 30

Title: Risk Factors and Work-Related Musculoskeletal Disorders among Dental Students: A Cross Sectional Study

Authors: Manoj AM¹ & Rakshana R²

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Poster No: P 31

Title: Pattern of Semen Fluid Abnormalities in Male Partners of Infertile Couples at a Single Fertility Centre In Malaysia

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Poster No: P 32

Title: Association of Physical Activity, Screen Time and Depression among Adult Population in Kajang

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Poster No: P 33

Title: Occupational Stress Level and Its Associated Factors Among Teaching Staffs from Faculty of Medicine and Health Sciences in Universiti Tunku Abdul Rahman (UTAR) Sg Long Campus – A Cross Sectional Study

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Group 4
Information &
Communication Technology

Poster No: P 34

Title: The Analysis of the Cost Function for Stan Melax in 3D Mesh Simplification

Authors: Chan YC¹, Saw SH², Ewe HT³ & Lee BG⁴

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Poster No: P 35

Title: The Generation of Silhouette Shadows for 2D Images

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Poster No: P 36

Title: Digital Mobile Applications as Alternatives to Tabletop Counters for Manual White Blood Cell (WBC) Differential Count

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Poster No: P 37

Title: A Comparison of Whole Slide Imaging (WSI) Viewer Software

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