RECRUS
Research Newsletter
Volume 1, Issue 8, October 2021, 043 - 059

UPM UNIVERSITI PUTRA MALAYSIA BERILMU BERBAKTI

HPUPM HOSPITAL PENGAJAR UPM

High-Quality Research, True Academics, Real Experts

IN THIS ISSUE

FROM THE EDITOR'S DESK

I am very glad to present to you the very first 'proper' RECRUS Research Newsletter! It is the first one because the preceding 7 issues have brought forth the newsletter earlier than planned in disseminating evidence required and worthy of clarification about the pandemic COVID-19. The name RECRUS stands for **Re**levant-**Cr**edible-**Us**eful. You can learn more about this newsletter on its website here.

In this issue, we publish the appraisals of a cross-sectional study from the first Meta-journal Hour on **Interpreting systematic reviews: are we ready to make our own conclusions?** It comes with a Youtube recording of the session. Every researcher and evidence-based practitioner know that systematic reviews (SRs) are important and informative. They serve as the 'must' have literature in the background of every new research proposal and report, and also contain potentially highest ranked scientific evidence of a topic if the review is undertaken systematically, comprehensively and reported in a timely manner. This paper reported the ability to interpret SRs in healthcare professionals including doctor-to-be medical students. It was reported that only about 30% were able to identify the **most appropriate conclusion (correct direction of effect and strength of evidence)** based on the given trimmed abstracts with a corresponding forest plot on a chosen outcome on 4 SRs on treatment effectiveness. The proportions were lowest in interpreting the strength of evidence compared to the direction of effects across the 4 SRs using just the chi-square tests. However, there are study designs to be taken note of when reading the study paper and making sense of the findings. It was interesting to note that a simple but important research was published in a very reputable journal.

The newsletter would also like to cherish colleagues from HPUPM and Faculty of Medicine and Health Sciences (FMHS) UPM who won competitive research grant in year 2020 and 2021 in different schemes. Do browse the interesting and concise information about their winning research proposals (some may provide more than just the titles in the coming issue). I wish you all success in completing the research and produce useful scientific evidence that would improve clinical practices, health and wellbeing of the nation!

This newsletter will strive to publish articles that will improve knowledge about high-quality research that enhance good research culture to the levels of integrity and vibrancy where relevant, credible and useful research are produced to inform clinical practices, life and living of our patients and people.

eISSN 2805-5004

Unit Penyelidikan Klinikal
Hospital Pengajar Universiti Putra Malaysia
Persiaran Mardi - UPM
43400 Serdang
Selangor Darul Ehsan MALAYSIA

03-9769 9763 / 9762 / 9761 / 9759

cru_hpupm@upm.edu.my

Appraisals in Meta-Journal Hour 1

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First published on 8 October 2021 by Nurul Iman Hafizah, Aazifah Ilham and Boon-How Chew

The Paper: Interpreting systematic reviews: are we ready to make our own conclusions? A cross-sectional study. BMC Med 2011 Mar 30;9:30. doi: 10.1186/1741-7015-9-30.

Why was this study conducted?

Appraisal of clinical evidence is an essential attribute in the practice of evidence-based medicine (EBM) for healthcare practitioners (HCPs). This includes the understanding of the evidence presented without being misled by the authors' conclusions. Despite there have been many efforts to promote the practice of EBM such as workshops and integration of EBM modules during undergraduate studies, it is still unclear on how ready the HCPs in practising EBM independently such as in interpreting clinical evidence in systematic reviews (SRs) which are highest ranked clinical evidence. Thus, this study aimed to assess how well a group of Malaysian hospital practitioners and medical students derived their own conclusions from SRs and to what extent these were influenced by their prior beliefs and the direction of the study results.

How was it done?

This cross-sectional study was conducted by a group of Malaysian clinician-researchers who were reported to be EBM teachers in a private medical school. There were two groups of participants: (1) Hospital HCPs (n=95) including **44 clinicians** and **51 allied health staffs** (AHS) consisted of nurses, pharmacist, nutritionist, physiotherapists and laboratory technicians recruited midway of an EBM course in June 2008, and (2) **Medical students** (n=35) recruited during the final six months of undergraduate medical training in November 2008. The participants were given **four trimmed Cochrane SR abstracts** consisting of background, objective and main results without the authors' conclusions. For each article, the authors highlighted one treatment outcome combination and included the corresponding forest plot with the abstract. Among the four SR abstracts, two chosen SRs demonstrated beneficial intervention ("positive"), and two others did not ("negative"). The four selected SR abstracts were **projected sequentially on a screen** for the HCPs to view, whilst the medical students received **printed copies** of the trimmed SRs to read. **Five minutes** were allocated for participants to read each trimmed SR abstracts. The participants were given an answer sheet and they were required to choose a conclusion from six options comprising different combinations of the **direction of effect** and the **strength of the evidence**:

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A.	It is clearly beneficial and should be recommended as a possible treatment
B.	It is clearly non-beneficial and should not be recommended as a possible treatment
C.	It appears to be beneficial from limited evidence, more studies are needed to confirm the findings
D.	It appears to be non-beneficial from limited evidence, more studies are needed to confirm the findings
E.	There is insufficient evidence to comment on whether this intervention is beneficial or not
F.	I do not understand the results presented

The participants' chosen conclusions were then compared with the authors' predetermined best conclusions. The participants were also asked regarding their **prior beliefs about the intervention**. Cross-tabulations using **chi-square tests** were utilized to compare the differences of the categorical variables in this study.

What was the finding?

Overall, only **30.1%** of participants were able to identify the **most appropriate conclusion (correct direction of effect and strength of evidence)**. More students (48.2%) than practitioners (22.2%) chose the most appropriate conclusions ($P < 0.001$). Looking at the four SRs separately, higher proportions of participants identified the most appropriate conclusions in SR1 and SR3, that is, the **positive SRs** (39.2% and 36.4%, respectively), compared to SR2 and SR4, that is, the negative SRs (25.0% and 20.2%, respectively). Fewer than one-half (47%) correctly identified the direction of effect against their prior beliefs. "Positive" SRs were more likely than "negative" SRs to change the participants' beliefs about the effect of the intervention (RR 1.8, 95% CI 1.3 to 2.6) and "convert" those who were previously unsure by making them choose the appropriate direction of effect (RR 1.9, 95% CI 1.3 to 2.8).

How much can we take out from this research/paper?

Quite a good sample size of participants as a whole and fit the purpose of the hypothesis testing. A proper sample size estimation might be difficult without earlier studies in the similar setting but it could help in gauging a most economical sample size. Except the result on ability to interpret the most appropriate conclusions was stratified according to the different categories of participants, other results will have to be taken as indicating the whole group. On this note, the different approaches of the trimmed SRs in HCPs and medical students could exert differential effect on their performance. This added to the other uncertainties during the application such as discussion among the participants, referencing and Googling for references, etc.

The use of the 4 trimmed abstracts was unreal and its applicability to infer the same skill when reading other SRs is questionable when the full-texts are available. This might have caused the poorer performance on judging the strength of evidence. The same goes to the limit of time in assessing the abstracts. However unreal was the assessment methods, it might be the most feasible and sufficient method in judging the participants ability in interpreting the directions of effect, strengths of evidence and in reading forest plots for the treatment effectiveness. Additionally, the proficiency of participants on the (technical) language of the measures (answer sheet), relevancy of the study or the review topic to the clinical practice of some of the participants might be putting off and reduced their performance due to different backgrounds of practice.

Some of the constructs were not of sufficient clarity in their meaning and timing of measure such as the prior belief of the treatment/intervention effect, 'had seen or heard of the SRs' and 'perceptions of the value of the authors' conclusions'. These might cause them to be subjected to much personal experience of the participants and a poor measure across different participants.

The study was conducted among those who attended EBM workshops and by a mere logical deduction, the proportions of appropriate interpretation among other staffs could be lower as previous exposures and skills of EBM were not being assessed adequately. Another important question this study raises would be how the EBM workshops should be conducted to improve this skill, or what different workshop is needed. These questions will require an experimental study with a control group of people who never attended the EBM workshop or a qualitative study (approach?) to understand those who were skillful and those less skillful in interpreting SRs in order to understand the real reasons and possible causes from where interventions could improve on this. The skills in interpreting other types of clinical evidence are not included in the study [1].

References

1. Munn Z, Stern C, Aromataris E, et al. What kind of systematic review should I conduct? A proposed typology and guidance for systematic reviewers in the medical and health sciences. BMC Med Res Methodol. 2018 Jan 10;18(1):5. doi: 10.1186/s12874-017-046.

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Congrats!

GRANT Winners !!!

FRGS GRANT WINNER 2021

NO	NAME	TITLE	PAGE
1	Dr Zalina Binti Abu Zaid	Explicate the use of the Dietary Inflammatory Index in Malaysian context to facilitate the combined effect of dietary pattern and biomarkers to determine the breast cancer occurence in women.	**48**
2	Dr Nurshahira Binti Sulaiman	Comparative genotyping and outer membrane proteomic analyses of ESBL-producing Klebsiella pneumoniae clinical isolates.	**49**
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GRANT WINNER 2020

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3	Associate Professor Ts. Dr.Mohd Nasir Mohd Desa	Genotypic and genomic characterization of pili-carrying clinical isolates of Streptococcus pneumoniae for elucidating their emergence, dissemination and infection risks.	**59**

Explicate the use of the Dietary Inflammatory Index in Malaysian context to facilitate the combined effect of dietary pattern and biomarkers to determine the breast cancer occurence in women.

- 7 September 2021 – 6 September 2023
- 2 years

Allocation

MYR63,500

What the project aims to achieve?

To characterize the Dietary Inflammatory Index (DII) on dietary pattern and inflammatory biomarkers in developing the Malaysian Dietary Inflammatory Index (MDII) for breast cancer patients.

Why is it important?

- The DII is a reliable nutritional assessment tool that reflects the standardization of individual intakes to worldwide referent values based on an extensive review of the literature.
- The DII can be used to evaluate the potential of diet-associated inflammatory effects in different populations using a variety of assessment instruments including recalls, records, and food frequency questionnaires (FFQ). Through the use of DII, the quantification of the inflammatory potential of a diet can be identified.
- The DII has proved its potential in the western diets, but not yet conducted in evaluating food inflammation in the Malaysian diets, where dietary intake of the people in Malaysia is different from those in western nations.
- Considering the components of the diet in this region which normally include high intakes of refined carbohydrates as well as saturated fats; and low intake of dietary fiber seem likely to have high inflammatory potentials.
- Given the lack of information, there is a need to determine whether individual diets based on their inflammatory potential effects, as indicated by the DII scores, were associated with breast cancer risk especially in Malaysian context.

INVESTIGATOR:
DR ZALINA BINTI ABU ZAID

Co-investigators:
- Prof Dr Syafinaz Amir Nordin (Dept of Microbiology & Parasitilogist, UPM)
- AP Dr Barakatun Nisak Mohd Yusuf (Dept of Dietetics)
- Dr Lim Poh Ying (Dept of Public Health)
- Dr Suhana Yusak (Inst Kanser Negara)

International Collaborators:
- Prof Dr James R. Hebert (University of South Carolina)
- Dr Nitin Shivappa (University of South Carolina)

How will it be done?

- Breast cancer patients in Institut Kanser Negara will be invited to participate in this study with informed consent based on inclusion and exclusion criteria.
- All data will be collected during a face-to-face interview using structured questionnaire, blood sampling, and direct anthropometric measurement.

Expected output?

- Malaysian Dietary Inflammatory Index (MDII)
- 1 postgraduate student
- 3 publications

Comparative genotyping and outer membrane proteomic analyses of ESBL-producing Klebsiella pneumoniae clinical isolates.

- 7 September 2021 – 6 September 2023
- 2 years

Allocation

MYR113,000

What the project aims to achieve?

The research aims to characterize a collection of ESBL and non-ESBL K. pneumoniae clinical isolates for serotypes, antibiotic resistance, virulence factors and the outer membrane profiles by genotyping and proteomic approaches.

Why is it important?

- The increasing trend reported in ESBL-producing *K. pneumoniae* with serotype K1 and K2 among patients raises serious concern in clinical therapeutics.
- Data on the comparative analysis of the virulence genes as well as proteomic analysis of *K. pneumoniae* clinical isolates may provide valuable information to understand the pathogen virulence factors
- Identify potential targets to design better therapeutics or vaccines for *K. pneumoniae* infections.

How will it be done?

- A cross-sectional study will be carried out in this study to obtain K. pneumoniae isolates from Hospital Sultanah Aminah, Johor Bahru and Hospital Pengajar UPM.
- A total of 174 isolates comprising of 87 ESBL and non-ESBL K. pneumoniae clinical isolates are estimated to be collected for this study.

Expected output?

- This study will provide a base line data on the findings related to the characterization of magA and K2A virulence genes in the ESBL producing *K. pneumoniae* clinical isolates.
- In addition, the study also will provide a surveillance on the antibiotic resistance data which is imperative for proper handling and improve the use of antibiotics in the hospital.

INVESTIGATOR:
DR NURSHAHIRA BINTI SULAIMAN

Co-investigators:

- Associate Professor Dr. Mohd Nasir Bin Mohd Desa (Department of Biomedical Science, FMHS, UPM)
- Associate Professor Dr. Siti Norbaya Binti Masri (Department of Medical Microbiology, FMHS, UPM)
- Dr. Nur Afiza Binti Aziz (Microbiology Unit, Department of Pathology, Hospital Sultanah Aminah, Johor Bahru)

Effect of physiologically relevant alternative carbon sources on cell wall properties and host-pathogen interactions in Candida glabrata.

- 7 September 2021 – 6 September 2024
- 3 years

Allocation

MYR168,400

What the project aims to achieve?

To elucidate host-pathogen interaction based on the cell wall properties of yeast pathogen Candida glabrata affected by various intracellular carbon sources found in human body.

Why is it important?

- Despite alarming trends in fungal diseases, fungi are still underappreciated by both the general public and public health authorities as medically important pathogens.
- The mortality rate of invasive candidiasis caused by opportunistic Candida species is high (50%).
- Increasing practice of antifungal prophylaxis use leads to higher resistance among Candida yeast species.
- Development of antifungals can be challenging and time-consuming, owing to their similar eukaryotic nature to human.

How will it be done?

- Part 1: Evaluation of the impact of physiologically relevant alternative carbon sources on cell wall biochemistry and biophysical cell wall properties of C. glabrata.
- Part 2: Evaluation of the impact of physiologically relevant alternative carbon sources on the cell wall perturbing- and antifungal resistance of C. glabrata.
- Part 3: Evaluation of impact of physiologically relevant alternative carbon sources on the immune response and recognition of C. glabrata by the host's immune system (In vivo murine model).

Expected output?

- Various carbon sources affect the properties of Candida glabrata cell wall.

INVESTIGATOR:
ASSOCIATE PROFESSOR DR LESLIE THAN THIAN LUNG

Co-investigators:

- Professor Dr Maha Abdullah (UPM)
- Dr Chew Shu Yih (UPM)

International Co-investigator:

- Professor Dr Michael C. Lorenz
- (The University of Texas Health Science Center at Houston)

Candida glabrata is known to avert the attack by immune cells through immune evasion/immune editing/immune escape strategies by altering its cell wall components leading to widespread disseminated and deep-seated candidiasis.

- By investigating carbon sources that contribute to this cell wall changes i.e., changes in composition, architecture, biophysical properties such as porosity and elasticity, cell volume, adhesion and hydrophobicity, information can be gathered for drug target identification and design.

Elucidation of in vitro model of coagulopathy and cytokine storm: a potential mechanism in severe covid-19.

- 7 September 2021 – 6 September 2023
- 2 years

Allocation

MYR161,000

What the project aims to achieve?

This study aims to identify factors of coagulopathy and cytokine storm and their role in the mechanisms of injury in presence of SARSCoV-2 Spike protein for in vitro assessment of severe COVID-19.

Why is it important?

Coagulopathy and cytokine storm are pathophysiological features of severe COVID-19 caused by SARSCoV-2 infection. These systemic inflammatory response syndromes are exacerbating factors to the acute respiratory distress syndrome (ARDS), which leads to increased risk of vascular damage, multiorgan dysfunction, and eventually death. Although respiratory illness is the dominant clinical manifestation of COVID-19, age and patients with underlying chronic conditions such as cardiovascular disease, hypertension, diabetes mellitus, and obesity enhance vulnerability to this disease. The mechanisms of cytokine storm and coagulopathy in the severe COVID-19 patients with comorbidities are not fully elucidated.

How will it be done?

Plasma from low- and high-risk individuals will be collected and evaluated for the expression of cytokines such as (IL)-1Beta, IL-6, IL-8, and tumor necrosis factor (TNF) and coagulation markers including clotting factors and D-dimers. The effect of these factors will be analyzed for its ability to induce coagulatory and inflammatory features such as increasing membrane permeability, PT, aPTT, fibrinogen, D-dimer, and thrombin in an in vitro co-culture of HUVEC-AT2 cells induced by SARS-CoV-2 Spike protein.

INVESTIGATOR:
DR MASRIANA HASSAN

Co-Investigators:

- Prof. Dr. Maha Abdullah
- Prof. Syafinaz Amin Nordin
- Assoc. Prof. Dr. Chee Hui Yee
- Assoc.Prof. Dr Eusni Rahayu Mohd Tohit
- Dr. Irmi Zarina Ismail

Expected output?

Findings of this study will provide information on pre-existing coagulatory and inflammatory factors that synergize with the effects from the binding of viral Spike protein to endothelial/lung cells to induce similar conditions observed in severe COVID-19 cases. These biomarkers are useful risk factors for early intervention. Understanding the underlying pathogenesis of the disease allows finding targets for a therapeutic cure. The in vitro model can be applied to other diseases with similar coagulopathy and inflammatory defects and also suitable for evaluating potential therapeutic drugs.

Water intake, hydration status and its associated factors among Malaysian adults.

- 7 September 2021 – 6 September 2023
- 2 years

Allocation

MYR107,000

What the project aims to achieve?

To assess fluid intake, to determine hydration status and to identify potential factors contributing to dehydration status among urban and rural adults.

Why is it important?

- Water is important to various health functions in our body and thus we need to maintain good hydration status.
- However, data on hydration status is scarce especially among adults in Malaysia.
- It is important to know various factors that could influence water/fluid intake and hydration status among population which could include sociodemographic background and body weight status.

How will it be done?

- Cross sectional study
- Healthy Malaysian men and women, aged >18 years of age
- Living around Klang Valley
- Weight, height, 24-h self-reported fluid intake, 24h urine

Expected output?

- Postgraduate student (1)
- Publications (2)

INVESTIGATOR:
ASSOCIATE PROFESSOR DR LOH SU

Co-investigators:

- Professor Dr Norhasmah Sulaiman – Faculty of Medicine, UPM
- AP Dr Gan Wan Ying - Faculty of Medicine, UPM
- Dr. Salma Faeza Ahmad Fuzi - Faculty of Medicine, UPM

Efficacy and Safety Outcomes of Advanced Imaging Guided Thrombolysis with Tenecteplase in Management of Acute Ischaemic Stroke: A Randomised Clinical Trial.

- 7 September 2021 – 6 September 2023
- 2 years

Allocation

MYR172, 400

What the project aims to achieve?

The main aim of this study is to establish superiority of Intravenous Tenecteplase over intravenous Alteplase given within 9hours of stroke onset that is guided by advanced imaging in terms of clinical and safety outcomes in the treatment of acute ischaemic stroke at Hospital Pengajar UPM (HPUPM)

Why is it important?

- Currently, a recombinant tissue plasminogen activator (rtPA) known as intravenous "Alteplase" is the only thrombolytic agent approved by various drug agencies worldwide.
- A newer alternative thrombolytic therapy that is more efficacious, practical and safer to administer may revolutionize hyperacute stroke treatment. Tenecteplase, a genetically engineered mutant tPA is known to have higher affinity binding to fibrin, greater resistance to inactivation by plasminogen activator inhibitor-1(PAI-1) and less disruption of haemostasis. Tenecteplase has has practical advantages over intravenous alteplase as it allows for a single intravenous bolus administration due to its longer half life.
- Pursuing this clinical study will add further robust data and support the use Tenecteplase as an alternative thrombolytic agent that is both efficacious and safe to be used among AIS patients. This eventually will improvise current national stroke guidelines and revolutionize how local medical community managing acute ischaemic stroke patients.

How will it be done?

- Phase 1: Selection & randomization of stroke patients for thrombolytic therapy as defined by study protocol with either alteplase or Tenecteplase

INVESTIGATOR:
DR JANUDIN BAHARIN

Co-investigators:

- Professor Dr. Hamidon Basri
  Neurology Department, HPUPM
- Professor Dr. Ahmad Sobri Bin Muda
  Radiology Department, HPUPM
- Dr. Abdul Hanif Khan Yusof Khan
  Neurology Department, HPUPM
- Dr. Anna Misya'il Abdul Rashid
  Neurology Department, HPUPM
- Dr. Loh Wei Chao
  Neurology Department, HPUPM

- Phase 2a: Inpatient follow ups for stroke outcome, drug efficacy and drug safety data
- Phase 2b : Outpatient follow ups for stroke outcome, drug efficacy and drug safety data

Expected output?

- Revision and updates on national clinical practice guidelines for management of acute ischaemic stroke
- Two postgrad students
- Two publications

Nanostructured Lipid Carrier for Enhanced Oral Bioavailability of Astaxanthin Potentiates Fractured Bone Healing.

- 7 September 2021 – 6 September 2024
- 3 years

Allocation

MYR198,000

What the project aims to achieve?

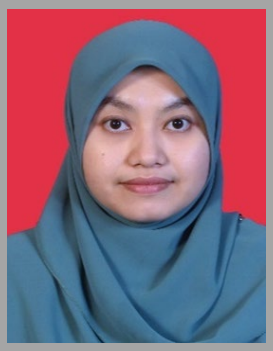
To assess the effect of astaxanthin-loaded NLC in fractured bone healing model in vivo

Why is it important?

- Malaysia is predicted to become a country with the highest increment rate of hip fracture incidence with 3.55 fold change, in 2050.
- The information on post-operative care is still lacking and treatment options to prevent delay or failure in bone healing are still unavailable. The burden of bone fracture to the society and economy is enormous. Therefore, prompted the need of a noble approach to escalate the healing/recovery time as well as promoting bone health to reduce the risk of healing failure and future fractures (recurrence).
- Astaxanthin is a potent antioxidant than vitamin C, β-carotene and 100 times more effective than α-tocopherol. This has made it a good candidate for adjunctive therapy of fractured bone healing. However, oral bioavailability of astaxanthin is low ranging between 10-50%. This highlights the need for development of a suitable delivery system for this powerful compound especially to enhance its oral bioavailability and biodistribution to bone tissues.

How will it be done?

Phase 1: Fabrication and optimisation of astaxanthin-loaded NLC formulation by employing Response Surface Methodology. Subsequently, the optimised formulation of astaxanthin-loaded NLC will be assessed from the aspects of physicochemical and stability. Phase 2: Evaluation of pharmacokinetic properties of astaxanthin-loaded NLC specifically the oral bioavailability enhancement in an animal model. Phase 3: Evaluation of the effectiveness of astaxanthin-loaded NLC and astaxanthin in promoting bone fracture healing in animal model will be evaluated and compared. The structural properties of the newly formed bone following fracture healing will be analysed through bone histomorphometry and µCT scan.



INVESTIGATOR:
DR HANIZA HASSAN

Co-investigators:

- Professor Datin Dr Sharida Fakurazi– Faculty of Medicine and Health Sciences, UPM
- Associate Professor Dr Meor Mohd Redzuan Meor Mohd Affandi - Faculty of Pharmacy, UiTM
- Associate Professor Dr Angela Ng Min Hwei- Tissue Engineering Centre, UKM
- Dr. Ekram Alias - Faculty of Medicine, UKM

Industry Co-investigator

- Elite Organic Sdn Bhd

The bone strength will be tested via mechanical testing. Serum bone turnover markers will be measured to assess the bone remodelling in vivo.

Phase 4: Assessment of the effects of astaxanthin-loaded NLC on in vitro osteoblast cell culture (to assess bone mineralisation).

Expected output?

- Positive effects of astaxanthin-loaded NLC on bone fracture healing could suggest that this formulation could be incorporated in the treatment regime as an adjunct or given as supplement for prophylactic treatment.
- 2 Master students.
- 3 High-impact (WoS) journal articles.

Investigation of lithium-mediated neuroprotection in Down syndrome via REST (RE1-silencing transcription factor) restoration.

- 7 September 2021 – 6 September 2023
- 2 years

Allocation

MYR157, 000

What the project aims to achieve?

This study aims to rescue trisomy-linked brain abnormalities and cellular function in Down syndrome (DS) patient-derived induced pluripotent stem cells (iPSCs), via lithium-mediated restoration of RE1-silencing transcription factor (REST) expression.

Why is it important?

- Down Syndrome (DS) is a genetic disorder associated with more than 80 clinical features including intellectual disability, and early onset of Alzheimer's disease
- Recent new look at lithium revealed that it is a versatile drug with promising neuroprotective potential in various neurodegenerative diseases
- Little to no attention was given to the neuroprotective role of lithium in Down syndrome literature
- This study aims to rescue trisomy-linked brain abnormalities and cellular function in patient-derived induced pluripotent stem cells (iPSCs), via lithium-mediated restoration of RE1-silencing transcription factor (REST) expression.

How will it be done?

The study aims to unravel the neuroprotective role of lithium in Down syndrome via REST restoration, to be achieved in 3 phases:
Phase 1 : To investigate the effective concentration of lithium to restore REST expression by 2 to 5 folds in normal disomic-iPSCs
Phase 2 : To investigate the optimised effective dosage of lithium treatment in the restoration of REST expression in trisomic DS-iPSCs.

INVESTIGATOR:
ASSOCIATE PROFESSOR DR CHEAH PIKE SEE

Co-investigators:

- Prof. Dr. Michael Ling King Hwa (UPM)
- Assoc. Prof. Dr. Norshariza Nordin (UPM)
- Prof. Datin Dr. Sharida Fakurazi (UPM)
- Dr. Sandra A/P Maniam (UPM)

Phase 3 : To investigate the neuroprotective property of lithium in rescuing the defective homeostatic mechanism in trisomic DS-iPSCs

Expected output?

This study will determine the neuroprotective property of lithium in rescuing the defective homeostatic mechanism in DS-iPSCs. The creation of new knowledge will shed light on targeted pharmacotherapy to improve neuropathologies in DS brains.

Development of Thermoluminescence Personal Dosimeter Badge using Germanium-doped Silica Optical Fibres (SOFPDB) for Radiation Dose Monitoring

- 02 August 2021 – 01 August 2023
- 2 years
- Prototype Development Research Grant (PRGS) Ministry of Higher Education Malaysia

Allocation

MYR177,465

What the project aims to achieve?

To produce an engineering thermoluminescence personal dosimeter badge using Germanium-doped silica optical fibres (SOFPDB) for radiation dose monitoring

Why is it important?

- More than 26,000 radiation workers in Malaysia wearing a passive radiation dosimeter badge as their personnel dose monitoring system.
- It is to make sure that their annual dose limit of 20mSv/year is not exceeded in order to prevent any deterministic effect and limiting the probability of stochastic effect.
- The current badge are suffered from hygroscopic problems, has a relatively poor spatial resolution (approximately up to a few mm), limited dose range, low sensitivity and expensive.
- The first of its kind worldwide will offer the alternative low-cost passive personnel radiation dosimeter badge Malaysian-made product using Ge-doped optical fibers based on thermoluminescence (TL) principles.

How will it be done?

- Phase 1 is fabricating Germanium-doped optical fiber based on the optimized design parameters (from previous FRGS-2013 grant)
- Phase 2a is constructing a complete dosimetry badge that comprises of enclosure, insert, fabricated germanium-doped optical fibres

INVESTIGATOR: ASSOCIATE PROFESSOR DR NORAMALIZA MOHD NOOR

Co-investigators

- Professor Dr Mohd Adzir Bin Mahdi – Faculty of Engineering, UPM
- Professor Dr Hairul Azhar Bin Abdul Rashid - Faculty of Engineering MMU
- Associate Professor Dr Mohd Hanif Bin Yaacob - Faculty of Engineering, UPM
- Dr. Nizam Bin Tamchek - Faculty of Science, UPM

Industry Co-investigator

- Mr. Ezuwan Bin Othman- Alpyz Sdn Bhd

- Phase 2b is designing the planchet to accommodate fibres for signal readout in a thermoluminescence reader (TLD reader)
- Phase 3 is conducting a trial run of passive radiation monitoring using the fabricated dosimetry badge among radiation workers in hospital and industry
- Hospital (HPUPM) and Industrial Sectors

Expected output?

- Fully functional prototype of Personal Dosimeter Badge using Germanium-doped Silica Optical Fibres (SOFPDB)
- One patent
- Two publications

The Malaysian GestatiOnal Diabetes and prevention of DiabEteS Study (MYGODDESS)

- 01 January 2020 – 30 June 2022
- 2 years 6 months
- MyPAiR-Noncommunicable Disease Year 2019 Ministry of Education Malaysia
- Medical Research Council UK

Allocation

MYR828,300

What the project aims to achieve?

To develop and test the feasibility of an innovative, culturally appropriate digitalised diabetes prevention intervention (DPI) for women with gestational diabetes mellitus (GDM) in Malaysia.

Why is it important?

- GDM is a challenging health condition to manage for healthcare professionals, patients and family members.
- GDM affects the mothers and foetus, pregnancy and labour.
- Increasing uses of smartphones app, and accessibility and equity to health information and supports it allows.
- Scarcity of local research and locally developed smartphone app for women with GDM and a history of GDM.

How will it be done?

- Workstream 1
  - Study 1a: a systematic review of qualitative methods of randomized controlled trials (RCT) of diabetes prevention interventions (DPI) in women with GDM.
  - Study 1b: a focus group using qualitative methods to identify barriers and facilitators to uptake of DPI
  - Study 1c: a focus group to model the DPI
  - Study 1d: the iterative development of the DPI smartphone app
- Workstream 2 is an exploratory two-arm parallel feasibility RCT, with follow-up 3 months during pregnancy and up to 12 months postpartum.

INVESTIGATOR:
ASSOCIATE PROFESSOR DR CHEW BOON HOW

Co-investigators:
- AP Dr. Barakatun Nisak Mohd Yusoff (Dietetic UPM)
- Dr. Nurul Iftida Basri O&G UPM)
- Dr. Irmi Zarina Ismail (Fam Med UPM)
- Dr. Faezah Hassan (Fam Med UPM)
- Prof. Dr. Ching Siew Mooi (Fam Med UPM)
- Dr. Anisah Baharom (Fam Health UPM)
- Dr. Hanifatiyah Ali (Fam Med UPM)

International Co-investigators
- Prof. Dr. Khalida Ismail (UK PI) (King's College London)
- Dr. Iliatha Papachristou (London School of Hygiene & Tropical Medicine)
- Prof. Dr. Angus Forbes (King's College London)

- HPUPM, Hosp. Putrajaya, KK Seri Kembangan, KK Puchong, KK Putrajaya Precint 9, KK Putrajaya Precint 18, KK Bangi, KK Kajang

Expected output?

- A smartphone app
- Postgraduate students, up to 4
- Publications, about 6

A Simulation Animation of 3D Lung Respiratory System with Augmented Reality as Interactive Medical Learning

- 16 June 2020 - 15 July 2023
- 3 years
- GERAN INSENTIF PENYELIDIKAN UNTUK PENGAJARAN DAN PEMBELAJARAN, UPM

Allocation

MYR198,000

What the project aims to achieve?

To produce an app for teaching and learning on the anatomy and physiology of lungs to students

Why is it important?

- To facilitate the medical lecturers to deliver the information regarding lung function and ventilatory volume more easily and effectively to undergraduate, post graduate students and public.
- The AR of the pulmonary system will be the first ever invention to be used as medical anatomy and physiology teaching and learning in Malaysia especially to be used in online-learning during COVID 19 pandemic.

How will it be done?

The app and physical model will be developed by AR programmer. The study using the app will be done amongst the medical students in UPM.

Expected output?

- 2 Copyrights
- 1 Master student
- 1 Non CIJ, 1 Q1 paper

INVESTIGATOR:
DR AZMAH SA'AT

Co-investigators:

- Dr.Rahmita Wirza O.K. Rahmat
- Dr. Nur Izah Ab Razak
- Dr. Ezamin Abdul Rahim
- Dr. Mas Nida Bt. Mohd Khambari
- Dr. Razif Bin Abas @ Buang

Genotypic and genomic characterization of pili-carrying clinical isolates of Streptococcus pneumoniae for elucidating their emergence, dissemination and infection risks.

- 1 November 2020 - 30 October 2022
- 2 years
- Fundamental Research Grant Scheme (FRGS) Ministry of Higher Education Malaysia

Allocation

MYR 154,400

What the project aims to achieve?

Data would enable us to have a clearer picture of genetic makeup and evolutionary dynamic of pneumococcal strains in Malaysia particularly those carrying pili which have yet to be well documented.

Why is it important?

- Pneumococci is one of the major pathogens globally including Malaysia, but very little is known about the pneumococcal pili and the genetic characteristics of the carrying isolates.
- Given the potentially serious implication that the pilus might contribute for disease and transmission activity, it is therefore important to characterize pili gene sequence and the carrying isolates for addressing questions relating to its epidemiology, population, and evolutionary biology.
- The application of recent technology of New Generation Sequencing (NGS) for whole genome sequence (WGS) would present and allow analysis of the whole genetic make-up highlighting the connection between the gene islands including pili gene clusters in a more comprehensive manner, including the genetic organization and any genetic elements or evolution associated with pili.
- Recently, pneumococcal conjugate vaccine (PCV) has been included in the national immunization program (NIP). PCV is targeting limited pneumococcal serotypes known to be mostly prevalent. Therefore, the consequence is known where the prevalent serotypes will be suppressed and replaced with serotypes in the next few years not covered by PCV. For this reason, studies on virulence proteins should be focused to look for future candidate for protein-based vaccines for replacement of the serotypes-based approaches.

INVESTIGATOR:
ASSOCIATE PROFESSOR TS DR MOHD NASIR MOHD DESA

Co-investigators:

- AP Dr. Siti Norbaya Masri (Medic, UPM)
- AP Dr. Niazlin Mohd Taib (Medic, UPM)
- Dr. Nurshahira Sulaiman (Biomedic, UPM)
- Dr. Navindra Kumari
- Palanisamy (Medic, UiTM)
- Dr. Zarizal Suhaili (Animal Science, UNISZA)

How will it be done?

- Characterization of a collection of pneumococcal isolates of both pili-carrying and none-pili-carrying isolates for demographic, serotypes, antibiotic resistance, and genetic background, by means of comparing with the pili gene distribution and phylogenetic sequence analysis, as well as comparative analysis of the whole genomes.
- Overall associations will be statistically illustrated.

Expected output?

- Data on the epidemiological and genetic aspects of pili will provide recommendation on the suitability of pili as a potential vaccine candidate.
- Data will also provide resources for formulating policies on disease prevention and control, as well as future research direction.
- PhD scholar and publications

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CLINICAL RESEARCH UNIT PRESENTS

META-JOURNAL HOUR (MJH)

ARTICLE TITLE

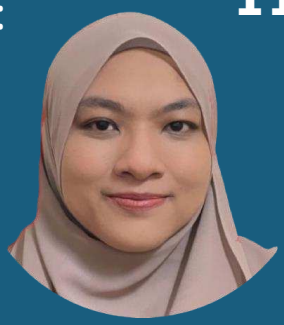
Ultraprocessed Food Consumption and Risk of Type 2 Diabetes Among Participants of the NutriNet-Santé Prospective Cohort

Link to article:
https://doi.org/10.1001/jamainternmed.2019.5942

15TH OCTOBER 2021 | FRIDAY

11.00AM - 12.15PM

By:



Ms. Iman Hafizah
Research Officer, CRU

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COMING SOON!

webinar

Types of Systematic Review

Link to the article

2nd December 2021 | 9.00 am – 1.00 pm | Webex

Cisco webex

Speakers:

Introduction & Conclusion
By: Assoc. Prof. Dr. Chew Boon How

Effectiveness reviews
By: Dr. Muhammad Hibatullah Bin Romli

Experiential (Qualitative) reviews
By: Dr. Aneesa binti Abdul Rashid

Costs/Economic Evaluation reviews
By: Dr. Amilia Afzan binti Mohd Jamil

Prevalence and/or Incidence reviews
By: Assoc. Prof. Dr. Sethu Thakachy Subha

Diagnostic Test Accuracy reviews
By: Dr. Noor Aniah Azmi

Expert opinion/policy reviews
By: Assoc. Prof. Dr. Lee Khuan

Methodological systematic reviews
By: Prof. Dr. Chan Yoke Mun

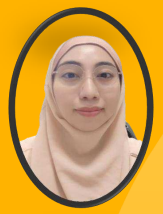
Integrative reviews
By: Dr. Niazlin Mohd Taib

Scoping reviews
By: Dr. Nur Izah Ab Razak

Evidence maps
By: Dr. Sanjiv Rampal Lekhraj Rampal

Rapid reviews
By: Assoc. Prof. Dr. Maizaton Atmadini Abdullah

Umbrella reviews (systematic reviews of reviews
By: Dr. Tan Kit-Aun



1. Prognostic reviews
2. Realist syntheses
3. Mixed methods reviews
By: Dr. Nur Aazifah bt Ilham

1. Etiology and/or Risk reviews
2. Concept analyses
By: Cik Nurul Iman Hafizah Adanan

Organised by: Clinical Research Unit, HPUPM

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