



**MONASH**  
University

MALAYSIA

# **MSPP 34th SCIENTIFIC MEETING 2021**



**MALAYSIAN SOCIETY  
OF PHARMACOLOGY  
AND PHYSIOLOGY  
(MSPP)**

**Trailblazing The Translational Research | 15 - 17 July 2021 • Virtual Meeting**

## **Malaysian Society of Pharmacology & Physiology (MSPP) 34<sup>th</sup> Scientific Meeting 2021**

# **MALAYSIAN SOCIETY OF PHARMACOLOGY & PHYSIOLOGY (MSPP) - 34<sup>TH</sup> SCIENTIFIC MEETING 2021**

ISBN: 978-2-88971-008-9

DOI: 10.3389/978-2-88971-008-9

Abstract eBook: Malaysian society of Pharmacology & Physiology (MSPP) - 34<sup>th</sup> Scientific Meeting 2021, Frontiers in Pharmacology, DOI: 10.3389/978-2-88971-008-9.



July 15–17, 2021, Virtual Meeting

The abstracts in this collection have not been subject to any Frontiers peer review or checks, and are not endorsed by Frontiers. They are made available through the Frontiers publishing platform as a service to conference organizers and presenters. The copyright in the individual abstracts is owned by the author of each abstract or his/her employer unless otherwise stated. Each abstract, as well as the collection of abstracts, are published under a Creative Commons CC-BY 4.0 (attribution) licence (<https://creativecommons.org/licenses/by/4.0/>) and may thus be reproduced, translated, adapted and be the subject of derivative works provided the authors and Frontiers are attributed.

For Frontiers' terms and conditions please see <https://www.frontiersin.org/legal/terms-and-conditions>.

## Table of Contents

- 28 Welcome to the 34<sup>th</sup> MSPP Scientific Meeting 2021**
- 29 Programme**
- 33 Gordon H. Williams:** Personalized medicine: The link between people, animals & cells
- 35 Wayne C. Hodgson:** Things that bite and sting: The pharmacological characterization of animal venoms and toxins
- 36 Elizabeth A. Davis:** Developing and incorporating learning resources to facilitate active learning in pharmacology
- 37 Michael Fenech:** Nutrigenomics from laboratory to clinical practice
- 38 Chin Eng, Ong:** Structure-function analysis of cytochrome P450 enzymes: Kinetic and computational modelling for drug clearance prediction
- 40 Wan Amir Nizam Wan Ahmad:** Flavonoids and meta-inflammation in diabetes
- 42 Satirah Zainalabidin:** The action of S-Allylcysteine (SAC) on cardiac remodelling in myocardial injury
- 44 Alan Yiu Wah, Lee:** Exploration of the tumor suppressor function of Semaphorin 5A in brain cancer treatment
- 45 Renu Agarwal, Natasha Najwa binti Nor Arfuzir, Igor Iezhitsa, Puneet Agarwal, Nafeeza Mohd Ismail:** Glaucoma and neuroinflammation: Role of magnesium-based compounds as therapeutic instruments
- 47 Naguib Salleh:** Ion channels in endometrium: Their roles in uterine fluid regulation

- 49 Siti Aminah Muhamad, Sabreena Safuan, Johnson Stanslas, Wan Amir Nizam Wan Ahmad, Nurul Asma Abdullah:** Anti-asthmatic effects of *Lignosus rhinocerotis* (Cooke) ryverdan extract: A potential alternative for allergic asthma management
- 51 Choo Hock, Tan:** Where pharmacology and venomics meet: Towards a comprehensive solution for snakebite envenomation—a priority neglected tropical disease
- 53 Azizah Ugusman:** Role of AMP-activated protein kinase in modulating perivascular adipose tissue function
- 54 Amy Yi Hsan Saik, Wee Sim Choo:** Preliminary toxicity evaluation of novel quercetin 4'-cinnamate on HT29 human colon cancer cells
- 55 Omchit Surien, Siti Fathiah Masre, Ahmad Rohi Ghazali:** Histopathological analysis of Pterostilbene as chemopreventive agent against lung squamous cell carcinoma in mouse model
- 56 Ramya Dewi, Nor Fadilah Rajab, Siti Razila Abdul Razak, Salwati Shuib, Zariyantey Abd Hamid:** Effects of 1,4-BQ on DNA repair pathways and detoxification enzymes targeting hematopoietic stem/progenitor cells of different lineages
- 58 Sheril June Ankasha, Norfilza Mohd Mokhtar, Norhazlina Abdul Wahab, Mohamad Nasir Shafiee:** miR-200c-3p promotes metastasis by binding to 3'-untranslated region of DLC1 in high grade serous ovarian carcinoma
- 59 Harishini Rajaratinam, Nur Syahmina Rasudin, Nurul Asma-Abdullah, Noor Fatmawati Mokhtar, Maya Mazuwin Yahya, Wan Zainira Wan Zain,**

**Tengku Ahmad Damitri Al-Astani, Wan Ezumi Mohd Fuad:**

The influence of breast cancer therapy on the expression of anti-neonatal Nav1.5 (nNav1.5) antibodies in the serum of breast cancer patients

- 61 Amnani Aminuddin, Eng Wee Chua, Chee-Onn Leong, Suzana Makpol, Pei Yuen Ng:** Potential use of a heat shock protein 90 inhibitor, geldanamycin, in combination therapy with cisplatin in oral squamous cell carcinoma
- 63 Abhishek Kashyap, Indrajit Banerjee, Akash Thakur, Vaishali Notwani, Mitanshi Raghuvanshi:** Evaluating experiences of cancer patients: A hospital based qualitative study from Mauritius
- 64 Muhammad Asyaari Zakaria, Nor Fadilah Rajab, Eng Wee Chua, Gayathri Thevi Selvarajah, Siti Fathiah Masre:** Rho-associated kinase (ROCK) signaling pathway activated in response to increased tissue rigidity in lung squamous cell carcinoma (SCC) *in vivo*
- 66 Siti Fathiah Masre, Omchit Surien, Low Fah Jehn, Ahmad Rohi Ghazali:** Antioxidant activity of pterostilbene in lung squamous cell carcinoma *in vivo*
- 67 Shazreen Shaharuddin, Shahrin Niza Abdullah Suhaimi, Cheah Yoke Kqueen, Richard M.C Yu, Fathinul Fikri Ahmad Saad:** The novel molecular imaging markers of 18F-Fluorocholine PET/CT with expression of CD47, miRNA-21 and miRNA-155 in underpinning breast cancer
- 69 Salmah Sedek, Mardhiah Mohammad, Anis Nurashikin Nordin, How Soon Hin:** The effects of different coating substrates on human primary lung cancer cells growth

- 70 George Buss, Cornelia Wilson:** Exploring the cytotoxic mechanisms of pediocin PA-1 towards HeLa and HT29 cells by comparison to known bacteriocins
- 71 Chee Hooi Chung, Satirah Zainalabidin, Mohd Kaisan Mahadi:** Transcutaneous vagus nerve stimulation: Investigation on cholinergic anti-inflammatory pathway in rats with isoprenaline induced myocardial infarction
- 73 Rajasegar Anamalley, Logeswary Rajassageran, Yasaaswini Apparoo, Muhammad Haffiz Jauri, Kamisah Yusof, Nurhanan Mohd Yunos, Satirah Zainalabidin:** The effect of 17 $\beta$ H-neriifolin on the cardiac structure and function in cardiac hypertrophy rat model
- 75 Norbaiyah Mohamed Bakrim, Aida Nur Sharini Mohd Shah, Norlelawati A. Talib, Wan Fatein Wan Omar, Azarisman Shah Mohd Shah, Aszrin Abdullah:** Haptoglobin as a potential biomarker to predict coronary artery disease in young adults with hypertension and prehypertension
- 77 Mohd Sabri Nurul Aiza, Lee Siew Keah, Dharmani Devi Murugan, Ling Wei Chih:** Modulation of endothelial nitric oxide synthase (eNOS) by epigallocatechin gallate (EGCG) for the treatment of vascular dysfunction in angiotensin ii-infused hypertensive mice
- 79 Nur Syahidah Nor Hisam, Azizah Ugusman, Nor Fadilah Rajab, Mohd Faizal Ahmad, Liew Sze Ling, Nur Najmi Mohamad Anuar:** The potency of navitoclax in mediating the viability of human umbilical vein endothelial cells
- 81 Nurellyya Faqhiraah Aziz, Kaisan Mahadi, Dharmani Devi Murugan, Satirah Zainalabidin:** S-Allylcysteine limits cardiovascular injury induced by isoprenaline in ovariectomized rats

- 82 Giribabu Nelli, Naguib Salleh, Eswar Kumar Kilari:** Cardioprotective role of (-)-hydroxycitric acid by attenuating the TLR4/NF- $\kappa$ B/NLRP3 pathway in high fat diet/low dose of streptozotocin-induced diabetic cardiomyopathy in rats
- 83 Sharifah Zamiah Syed Abdul Kadir, Majid Ahmed, Mark T. Nelson, Adam S. Greenstein:** Novel insight into the role of oxidant activation of Protein Kinase G in resistance artery vasodilation
- 85 Siti Zaleha Suki, Ahmad Syadi Mahmood Zuhdi, Abqariyah Yahya, Nur Lisa Zaharan:** Malaysian octogenarians with acute coronary syndrome: Ten-year change in management and outcome
- 87 Hamidah Abu Bakar, William Dunn, Vera Ralevic:** The interaction between sympathetic nerves and perivascular adipose tissue-derived mediators under standard and low oxygen levels
- 88 Yucinda Yee Yan Khor, Siew Keah Lee, Dharmani Devi Murugan, Wei Chih Ling:** Investigation of the vasoprotective mechanism of epigallocatechin-3- gallate (EGCG) in spontaneously hypertensive rats
- 89 Liza Noordin, Afifah Nawi, Wan Amir Nizam Wan Ahmad, Anani Aila Mat Zin:** REM sleep deprivation-induced endothelial dysfunction
- 91 Aslah Nabilah Abdull Sukor, Amilia Aminuddin, Azizah Ugusman, Norfilza Mohd Mokhtar, Mohd Faizal Ahmad, Shahidee Zainal Abidin, Adila A Hamid:** MicroRNA profiling of human umbilical vein endothelial cells (HUVEC) exposed to hypertensive disorders of pregnancy using RNA Sequencing analysis

- 93 Fitri Fareez Ramli, Yusof Kamisah:** The mechanism of clozapine-induced cardiotoxicity on cardiomyocytes: A systematic review
- 95 Kind-Leng Tong, Ahmad Syadi Mahmood Zuhdi, Pooi-Fong Wong:** The role of miR-134-5p in 7-ketocholesterol-induced human aortic endothelial cell dysfunction
- 96 Nur Hasnah Maamor, Ismail J.R. KA Malek, Gordon H Williams, Hoh Boon-Peng, Khalid Yusoff:** Haplotype and diplotype association of human aldosterone synthase (*CYP11B2*) gene polymorphisms to essential hypertension in Malay peninsular Malaysia
- 98 Ahmed Atia:** Disposal practices of unused medication among pharmacists in Libya
- 99 Tarun Kumar Suvvari, Venkata Ramana, Kandi, LV Simhachalam, Kutikuppala, Christos, Tsagkaris, Divya Bala A.M.R, Salibindla, Venkata Narayana Nithish Modala:** Acceptance of covid-19 vaccine among general population of South India – A cross-sectional survey
- 101 Amirul Faez Shamsudin, Imran Ahmad, Sarina Sulong, Wan Nor Ariffin Wan Mansor, Nur Salwani Bakar:** Investigation of the association between genetic polymorphisms and cholesterol-lowering effect of statin among outpatient statin users in hospital USM
- 102 Bedanta Roy, Sara Manzoor, Chow Wai Quan, Sasnitha A/P Ramesh, Godella Pathirage Deshan Bhagya Pathirana, Kirige Don Susan Shenesh Jayasekara:** Physical activity and emotional intelligence: Finding the relationship amongst the university students in Malaysia



- 103 Ishpa Shapiah Abdullah, Li Ling Chaw, David Koh, Zahid Hussain, Asma A'tiyah Abdul Hamid, Long Chiau Ming:** Over-the-counter medicine attitudes and knowledge among university and college students in Brunei Darussalam: Findings from the first national survey
- 105 Indrajit Banerjee, Jared Robinson, Poornasha Mohabeer, Abhishek Kashyap, Ananya Shukla, Brijesh Sathian:** Educational and psychological impact of COVID-19 and lockdown among university medical students in Mauritius
- 106 Hazem Choukaife, Mulham Alfatama:** Alginate micro-beads prepared by dripping/electrospraying methods: A comparative study
- 107 Hafiz Awais Nawaz, Tahir Mehmood Khan, Qandeel Adil, Ali Qais Blebil:** Evaluation of drug-drug interactions among pediatrics in tertiary care hospital: Findings from Pakistan
- 108 Tien-Choon Toh, Ling-Wan Pee, Kai-Chen Goh, Hun-Chuen Gui, Nadzirah Zainordin, Chia-Kuang Lee:** Dengue fever and building constructors in Klang Valley Malaysia
- 110 Fazilah Abdul Hamid, Muhammad Azrai Abu, Abdul Kadir Abdul Karim, Ahmad Mohd Faizal, Nor Haslinda Abd. Aziz, Datu Agasi Mohd Kamal, Mohd Helmy Mokhtar:** Investigating the expression of endometrial receptivity markers in women with polycystic ovary syndrome following progesterone therapy
- 112 Nur Izah Ab Razak, Sufi Firdaus Fakhurrazey, Rahmita Wirza O.K Rahmat:** To improve engagement and understanding of cardiac cycle in teaching and learning: A novel education method using augmented reality

- 113 Nur Najihah Izzati Mat Rani, Xiang Yi Chen, Zahraa M. Al-Zubaidi, Hanisah Azhari, Tzar Mohd Nizam Khaitir, Fhataheya Buang, Geok Chin Tan, Yin Ping Wong, Mazlina Mohd Said, Mohd Cairul Iqbal Mohd Amin:** Elucidating the use of biointerfaces as a nanovehicle as a dual drug delivery strategy against Methicillin-Resistant *Staphylococcus Aureus* (MRSA)
- 115 Padmavathy Kathamuthu Masilamani, Rohith Sharan Sankaran:** Correlation of height and BMI with motor nerve conduction parameters in both arms of young adults
- 116 Khin Cho Aung, Muhammad Hamdi Mahmood, Mar Mar Lwin, Khin Than Yee, Mira Khairunnisa Kamil, Rachel Meni Muyang, Hamsaa Varrthini Mohana Kumar:** Comparison of computer-based Ishihara test versus online D-15 dichotomous test in colour vision screening
- 117 Siti Balqis Adnan, Muhammad Hassan, Marina Yusoff, Nordin Simbak, Atif Amin Baig:** Systematic review of pneumococcal infection, diagnosis, and treatment in Malaysia
- 119 Sohaib Ashraf, Muhammad Ahmad Imran, Larab Kalsoom, Rutaba Akmal, Iqra Farooq, Muhammad Ghufraan, Muhammad Kiwan Akram, Shoaib Ashraf:** Knowledge, attitude, and practice of clinicians about antimicrobial stewardship and resistance among hospitals of Pakistan: A multicenter cross-sectional study
- 121 Nuraina Fatiha Mezlan, Wan Hafizah W Jusof:** Internet gaming disorder: Prevalence and effects on insomnia and psychological distress among young adult gamers in Malaysia
- 122 Chitra Govindaraja:** Model making: Unveiling the art in medicine

- 123 Ching Siang Tan, Nurul Husna Abdul Manaf, Shashidharan Menon, Hanish Singh Jayasingh Chellammal, Shafeeq Mohd Faizal:** Influence of knowledge and attitude in quality of life type 2 diabetes mellitus patients from private specialist hospitals in Malaysia
- 124 Jia Wen Chai, Pit Wei Ng, Yen Loong Lean, Vijay Kotra, Kah Seng Lee, Kai Bin Liew, Long Chiau Ming:** Systematic review on methods of assay for modified release metformin tablets
- 125 Muhammad Nabeel Shahid, Tahir Mahmood Khan, Chin Fen Neoh, Qi Ying Lean, Allah Bukhsh, Mahmathi Karuppannan:** Effectiveness of pharmacological intervention among men with infertility: A systematic review and network meta-analysis
- 127 Maziana Mahamood, Aishah Adam, Mizaton Hazizul Hasan, Anis Siham Zainal Abidin, Mazidah Noordin, Noor Shafina Mohd Nor, Nor Azizah Abu, Norashikin Mohd Ranai:** Effect of vitamin E and vitamin C supplementation on antioxidant enzymes in down syndrome individuals
- 128 Aulliyah Jaweria, Farwa Munir, Atif Amin Baig:** An investigation into awareness and utilization of emotional intelligence in Pakistani universities
- 129 Muhammad Hassan, Muhammad Usman, Mohd Adzim Khalili Bin Rohin, Nordin Bin Simbak, Mohd Khairi Bin Zahri @ Johari, Atif Amin Baig:** MY SPADE: Malaysian tool for *Streptococcus pneumoniae* archives, diagnostics, and evaluation

- 130 Jared Robinson, Indrajit Banerjee, Bhavna Munooosingh, Nidhi Jain, Ramya S Amsadevi, Alexandra Leclezio:** A qualitative study of health professions and medical students' perspective on "Success and its attainment": A study from Mauritius
- 132 Alexandra Leclézio, Indrajit Banerjee, Rajesh Kumar Gupta, Jared Robinson, Lavaanie Gounden, Imam Rafat, Shivani Bedi:** Medical student's perspectives on absenteeism: A cross sectional study from a private medical college in Mauritius
- 134 Mohd Azmani Sahar, Norsham Juliana, Izuddin Fahmy Abu:** Effectiveness of real-time feedback system during Cardiopulmonary Pulmonary Resuscitation (CPR) training on performing Quality CPR
- 136 Muhammad Zulfiqah Sadikan, Nurul Alimah Abdul Nasir, Igor Iezhitsa, Renu Agarwal:** Effect of palm oil-derived tocotrienol-rich fraction on angiogenesis-related gene expression in streptozotocin-induced diabetic retinopathy in rats
- 138 Nurul Hayati Mohamad Zainal, Peter Hoffmann, Astrud Tuck, Vicki L. Clifton:** Salivary proteins proteomic identification is associated with subsequent allergic diseases in childhood
- 140 Rahela Zaman, Md.Ezharul Hoque Chowdhury:** Insulin-loaded inorganic particles in managing hyperglycaemia orally in diabetic rats
- 141 Ifrah Alam Malik, Damayanathi Durairajanayagam, Harbindar Jeet Singh:** Effects of Profertil® on leptin-induced adverse effects on the male reproductive system in Sprague-Dawley rats

- 142 Sumana Mondal, Ankit Awasthi, Monica Gulati, Rajan Kumar, Sukriti Vishwas, Rubiya Khursheed, Kamal Dua, Sachin Kumar Singh:** Development and optimization of nanostructured lipid carriers loaded with quercetin
- 143 Raghdah Hamdan Al Zarzour, Salah Al Shehade, Mohammed Abdullah Alshawsh:** The relationship between non-alcoholic fatty liver disease and alzheimer's disease: A computational molecular network study
- 145 Faheem Mustafa, Farwa Munir, Mubashir Munir, Atif Amin Baig:** Age and gender association of BMI in obese subjects in Pakistan
- 146 Syed Alhafiz Syed Hashim, Isa Naina Mohamed, Norazlina Mohamed:** Ethanol dysregulates bone remodelling protein expression and impairs femur cortical bone quality in alcohol rat model
- 147 Farah Dheyaa, Muhammad Farhan Fuead, Zarina Abdul Latiff, Khairul Najmi Muhammad Nawawi, Raja Affendi Raja Ali, Norfilza Mohd Mokhtar:** Effects of tocotrienol-rich fraction Vitamin E on non-alcoholic fatty liver disease in obese children and adolescents
- 149 Said Moshawih, Nurolaini Kifli, Vijay Kotra, Hui Poh Goh, Amit Nathubai, Bey Hing Goh, Long Chiau Ming:** Anticancer potential of aloe-emodin and its derivatives *in-vitro* and *in-silico* perspectives
- 151 Afza Firzanah, Jagjit Singh Dhaliwal, Said Farooq Saiyid Moshawih, Sachinjeet Kaur Sodhi Dhaliwal, Vijay Kotra, Nurolaini Kifli, Hui Poh Goh, Khang Wen Goh, Kai Bin Liew, Long Chiau Ming:** Chalcones and Their Derivatives: A Bibliometric Analysis

- 152 Aslinda Binti Jamil, Wan Sazrina Dato' Wan Zaid, Ahmad Rashidi bin Mohamed Tahir, Siti Sarah Binti Abdul Fatah:** A study on knowledge, attitude and practice (Kap) regarding diabetes mellitus among rohingya refugees attending imaret mobile clinic
- 154 Siti Zaleha Raduan, Qamar Uddin Ahmed, Abdul Razak Kasmuri, Wan Mohd Azizi Wan Sulaiman, Muhammad Hamdi Mahmood, Muhamad Rusdi Ahmad Rusmili, Md. Abdur Rashid Mia, Mohd Farooq Shaikh:** Phytochemical composition and antioxidant properties on bark of *Litsea garciae*
- 155 Praneetha Palasuberniam, Kae Yi Tan, Choo Hock Tan:** Proteomics, toxicity and cross-neutralization of the venom of samar cobra (*Naja Samarensis*) from the Southern Philippines
- 157 Ahmad Rohi Ghazali, Raveena Vaidheswary Muralitharan, Noorhisham Tan Kofli:** Cytotoxic effects, antioxidant capacity & collagenase content of *bedak sejuk* (cooling powder) made from *Oryza sativa ssp. indica* & *Oryza sativa ssp. japonica* on UVB-induced B164A5 melanoma
- 159 Siti Aminah Muhamad, Sabreena Safuan, Johnson Stanslas, Wan Amir Nizam Wan Ahmad, Nurul Asma Abdullah:** *Lignosus rhinocerotis* Cooke Rywardan reduces allergen-induced airway inflammation, hyperresponsiveness and remodelling in a mouse model of allergic asthma
- 160 You Goh, Jaiprakash Heethal, Abdul Nasir Nurul Alimah, Agarwal Renu, Mohd Ismail Nafeeza, Iezhitsa Igor:** Effect of tocotrienol rich fraction on retinal cell apoptosis in rats with streptozotocin-induced diabetic retinopathy
- 161 Aung Myo Oo, Nasir Mat Nor, Liyana Hazwani Mohd Adnan, Nordin Simbak, Ohn Mar Lwin:** Flavonoids and mechanism of immunomodulation: Apigenin, luteolin and quercetin modulate natural killer cells cytokine secretion

- 162 Salah Al Shehade, Raghdad Hamdan Al Zarzour, Vikneswaran Murugaiyah, Mohammed Abdullah Alshawsh:** Systems pharmacology approach for interpreting the potential therapeutic mechanisms of action of *Orthosiphon aristatus*
- 164 Mohamad Anuar Ahad, Nelson Chear Jeng-Yeou, Lim Gin Keat, Vikneswaran Murugaiyah, Ahmad Tarmizi Che Has, Zurina Hassan:** *Clitoria ternatea* root fraction ameliorates the hippocampal synaptic plasticity in chronic cerebral hypoperfusion rat model
- 166 Ravi Sheshala, Ruzanna Zulkifli, Nur Ain Asyilah Sakinah, Tommy Julianto Bustami Effendi, Wong Tin Wui, Siong Meng Lim, Kalavathy Ramasamy:** Formulation and characterization of chitosan/ $\alpha$ -glycerophosphate thermosensitive *in situ* gels for ocular delivery of lomefloxacin hydrochloride
- 168 Mohd Khairulanwar Bunaim, Kamisah Yusof, Mohd Mustazil Mohd Noor, Fadhlullah Zuhair Japar Sidik, Juliana Abdul Hamid, Norliza Muhammad:** *Centella asiatica* prevents hypertension and protects the heart in chronic nitric oxide deficiency rat model
- 169 Norlinda Abd Rashid, Idris Long:** Mitochondria protective effects of nicotine on hippocampal neurons of rapid eye movement sleep deprivation induced stress in rat model
- 170 Selva Kumar, Nelli Giribabu, Naguib bin Salleh:** Protective effect of *Chlorophytum borivilianum* root extract against hydrogen peroxide ( $H_2O_2$ )-induced oxidative stress on the reproductive system in male mice
- 171 Norodiyah Othman, Mohd Ilham Adenan, Fazlin Mohd Fauzi:** Anti-proliferative and apoptosis induction of acute lymphoblastic leukaemia cells by madecassoside

- 172 Chandra Sekhar Arigela, Nelli Giribabu, Gan Siew Hua, Kuttulebbai Naina Mohamed Salam Sirajudeen, Kumarathevan Krishnan, Nurhanan Binti Abdul Rahman, Pasupuleti Visweswara Rao:** Bitter gourd honey ameliorates hepatic and renal diabetic complications on type 2 diabetes rat models by anti-oxidant, anti-inflammatory, and anti-apoptotic mechanisms
- 174 Meenu Mehta, Keshav Raj Paudel, Philip M Hansbro, Dinesh Kumar Chellappan, Brian G Oliver, Kamal Dua:** Rutin loaded liquid crystalline nanoparticles attenuate oxidative stress in bronchial epithelial cells
- 175 Azlini Ismail, Tuan Ashraf Faiz Tuan Anuar, Izzat Fahimuiddin Mohamed Suffian, Azzmer Azzar Abdul Hamid, Muhammad Nor Omar:** *In vitro* Angiotensin-Converting Enzyme (ACE) inhibition activity of *Syzygium polyanthum* leaves and its inhibition mechanism
- 177 Muhamad N. A Kamarudin, Shalini Sundramurthi Chelliah, Lee Wai Leng, Ishwar Parhar:** Chrysin and lentinan chemosensitize temozolomide in GBM
- 178 Vilaasyini Rajagopal, Shariff Halim, Zamzarina Mohd Kasini, Nur Ezza Fazleen, Vigneswary Thiruselvam, Siti Norliyana Che Mat Zubaidi:** Elucidating the effectiveness of Red Palm Oil (RPO) in preventing oxidative stress level in Polycystic Ovarian Syndrome (PCOS) induced rats
- 179 Suvik Assaw, Andrew Bennett, Victoria Chapman, James Burston, Gareth Hathway:** Anti-inflammatory mechanism of lipid mediator N-palmitoylethanolamide in ameliorating toll like receptor-4 carrageenan induced acute inflammatory pain



- 181 Siti Norliyana Che Mat Zubaidi, Shariff Halim, Zamzarina Mohd Kasini, Nur Ezza Fazleen, Vigneswary Thiruselvam, Vilaasyini Rajagopal:**  
Effectiveness of red palm oil in preventing alzheimer's disease induced in rat
- 182 Rubiya Khursheed, Sachin Kumar Singh, Sheetu, Monica Gulati, Leander Corrie, Kamal Dua, Ankit Awasthi, Sukriti Vishwas:** Giving new birth to synbiotics as pharmaceutical carrier beyond their use as nutraceuticals: Case studies
- 183 Lekha Arumugam, Nur Nadhirah Kamaruddin, Sy Bing Choi, Kanakeswary Karisnan, Irma Izani Mohamad Isa:** *In silico* analysis of *Houttuynia cordata* active compounds against SARS-Cov-2 Mpro and helicase
- 184 Kim Wai Parn, Wei Chih Ling, Jin Han Chin, Siew Keah Lee:**  
Subacute oral toxicity study of epigallocatechin-3-gallate in Spontaneously Hypertensive Rats
- 185 Dinesh Sangarran Ramachandram, Hadzliana Zainal, Vikneswaran Murugaiyah, Balasingam Vicknasingam, Surash Ramanathan:** Variability in pain tolerance after administration of standardized kratom decoction
- 186 Sylviana Sinawat, Rozila Alias, Zuraini Mat Issa, Sharifah Aminah Syed Mohamad, Maimunah Mustakim:** An insight into cholesterol- reducing and Bile Salt Hydrolase (BSH) activity of *Lactobacillus spp.* as a potential probiotic bacteria
- 188 Khim Boon Tee, Luqman Ibrahim, Najihah Mohd Hashim, Mohd Zuwairi Saiman, Zaril Harza Zakaria, Hasniza Zaman Huri:** Metabolomics guided insights on the clinical pharmacology of *Andrographis paniculata* 1000mg in urine samples

- 190 Nur Aqila Syafiqah Binti Salehhuddin, Shirley Gee Hoon Tang, Hooi Chia Tang:** Preliminary *in vitro* assessment of potential probiotic of lactic acid bacteria isolated from local fermented foods & dairy products
- 192 Neelam Iftikhar, Abdullah Ijaz Hussain, Hassaan Anwer Rathore:** Effects of polyphenol-rich traditional herbal teas on obesity and oxidative stress in rats fed a high-fat-sugar diet
- 194 Ayesha Batool, Ariba Javed, Lalarukh Jawed, Quratulain Kargathra, Farina Hanif:** Analyzing single nucleotide polymorphism (Gly >Ser) Of GRIA1 gene in schizophrenia concerning Pakistani population
- 195 Kok-Yong Chin, Nur Vaizura Mohamed, Ima Nirwana Soelaiman:** Emulsified annatto tocotrienol reversed ovariectomised-induced osteoporosis in rats by downregulating sclerostin level
- 196 Saba YouSaf, Mehak Zafar, Muhammad Arbaz Khan, Shahar Bano, Umar Bacha:** Mango seed copper oxide nanoparticles: Preparation and application
- 197 Pei Fen Chuar, Yeek Tat Ng, Sonia Chew Wen Phang, Yan Yi Koay, J-lan Ho, Loon Shin Ho, Nevein Philip Botross Henien, Badariah Ahmad, Khalid Abdul Kadir:** Bioenhanced tocotrienol-rich vitamin E (Tocovid) improves nerve conduction velocity in type 2 diabetes mellitus patients in a phase II double-blind, randomized controlled clinical trial
- 198 Nur Hilwani Ismail, Khairul Osman, Aini Farzana Zulkefli, Mohd Helmy Mokhtar, Siti Fatimah Ibrahim:** Atrophic vaginitis by gelam honey in Sprague Dawley rats: Pilot study of potential apitherapy for managing genitourinary syndrome

- 200 Datu Agasi Mohd Kamal, Siti Fatimah Ibrahim, Mohd Helmy Mokhtar:** A preliminary study of the effects of kelulut honey on ovarian histology in letrozole-induced polycystic ovary syndrome model in rats
- 201 Mizaton Hazizul Hasan, Ahmad Tamim Ghafari, Aisyah hasyila Jahidin, Yuslina Zakaria:** Synergistic anti-inflammatory effect of *Vitex trifolia* leaves hydroalcoholic extract and diclofenac against LPS-induced RAW264.7 cells
- 202 Muhammad Wahizul Haswan Abdul Aziz, Dayang Fredalina Basri, Siti Fathiah Masre, Ahmad Rohi Ghazali:** GC-MS analysis of terpenoids from leaves of *Canarium odontophyllum* Miq. (DABAI)
- 203 Sakiinah Hasan, Roslina Abdul Rahim, Mohd Afzal Alias, Naznin Muhammad, Norzamzila Abdullah, Redzuan Nul Hakim Abdul Razak:** Sperm morphology and testis histological changes in 12% high cholesterol diet administered rats following tualang honey supplementation and diet modifications
- 204 Nur Syakirah Othman, Adila A Hamid, Amilia Aminuddin, Mohd Faizal Ahmad, Azizah Ugusman:** *Polygonum minus* reduces angiotensin converting enzyme and angiotensin II in human umbilical vein endothelial cells
- 205 Mohd Asnizam Asari, Kuttulebbai Naina Mohamed Salam Sirajudeen, Nurul Aiman Mohd Yusof, Mohamad Syabil Ikhwan Mohd Amin:** Protective effects of DHA and tualang honey against oxidative stress induced by chronic stress in rat brain
- 206 Zainol Haida, Jaafar Juju Nakasha, Mansor Hakiman:** Quantification of phenolics content and antioxidant properties of *in vitro* and conventional propagated leaves of *Clinacanthus nutans*

- 207** **Najla' Shakirah Ab Halim, Azizah Ugusman, Amilia Aminuddin, Mohd Heikal Mohd Yunus, Mohd Faizal Ahmad, Nur Najmi Mohamad Anuar, Adila A Hamid:** *Polygonum minus* inhibits tumor necrosis factor- $\alpha$ -induced endothelial cell migration
- 209** **Ooi Kai Shen, Shafieq Haszman, Wong Yon Nie, Emilia Soidin, Nadhirah Hesham, Mohd Fauzi Mh Busra, Mohd Heikal Mohd Yunus:** Physico-chemical characterization of bilayer composite palm tree-based nanocellulose as a potential wound dressing
- 211** **Parvithra Deevi A/P Palanivelu, Nurulumi binti Ahmad:** The effect of curcumin on wound healing
- 212** **Abul Kalam Azad, Farahidah Binti Mohamed:** Total phenolics and flavonoids compositions using FTIR fingerprinting and *in vitro* antioxidant activities of *Cuscuta reflexa*
- 213** **Toqa Yasoob, Allyaa Essam, Rokia Gamal, Raghdah Al Zarzour, Alka Ahuja, Nida'a Wadi:** Aloe vera gel formulation for wound dressing: comparison of different polymers using factorial  $2^3$  design
- 215** **Hawa Nordin Siti, Juriyati Jalil, Ahmad Yusof Asmadi, Yusof Kamisah:** *Parkia speciosa* hassk empty pod mitigates cardiomyocyte hypertrophy by decreasing oxidative stress in H9c2 Cells
- 216** **Kesevan Rajah Kumaran, Habibah Abdul Wahab, Zurina Hassan:** Nootrophic effect of *Syzygium polyanthum* leaves extract in chronic cerebral hypoperfusion rat model via cholinergic restoration: A potential therapeutic agent for dementia

- 217 Amy Suzana Abu Bakar, Norhafiza Razali, Igor Iezhitsa, Noor Fahitah Abu Hanipah, Renu Agarwal:** Effects of *trans*-resveratrol and RU-615 on steroid-treated human trabecular meshwork cells morphology and cytotoxicity
- 218 Mohammad Daniel Shafiq Hassan, Norhafiza Razali, Noor Fahitah Abu Hanipah, Renu Agarwal:** Effects of *trans*-resveratrol on fibronectin expression in dexamethasone-treated human trabecular meshwork cells
- 220 Sohaib Ashraf, Muhammad Ahmad Imran, Larab Kalsoom, Rutaba Akmal, Iqra Farooq, Muhammad Ghufuran, Muhammad Kiwan Akram, Shoaib Ashraf:** Role of honey and *Nigella sativa* against COVID-19 (HNS-COVID-PK): A multi-center placebo-controlled randomized clinical trial in Pakistan
- 222 Mohd Afzal Alias, Roslina Abdul Rahim, Naznin Muhammad, Nor Zamzila Abdullah, Norlelawati A. Talib:** Microarray data analysis to identify differentially expressed genes and biological pathways associated with tualang honey supplementation in nash animal model
- 224 Kar Wei Chin, Win Ning Chen, Kim San Tang, Snezana Agatonovic-Kustrin, Keng Yoon Yeong:** Neuroprotective potential of *Lavandula angustifolia* essential oil
- 226 Nur Syazwana Sahira Abdul Ghani, Faridah Abas, Nurul Shazini Ramli:** Effect of drying methods and ethanol ratios on antioxidant capacity and *in vitro* anti-diabetic activity of *Cynometra cauliflora* fruit

- 228 Sutha Sharminni Krishnan, Ashok Kumar Jeppu, Shariff Halim, Thur Sina Alkesah:** Renal protective effects of *Trigonella foenum-graceum* seeds on morphine withdrawal rats
- 229 Alastair Lundin, Steven Trim, Carol Trim, Cornelia M. Wilson:** *Naja nigricollis* venom extracellular vesicles biological function and interactions
- 230 Vigneswary Thiruselvam, Shariff Halim, Zamzarina Mohd Kasini, Nur Ezza Fazleen, Vilaasyini Rajagopal, Siti Norliyana Che Mat Zubaidi:** Elucidating the effectiveness of Red Palm Oil (RPO) in preventing Polycystic Ovarian Syndrome (PCOS) in rats
- 231 Elvy Suhana Mohd Ramli, Norfarahin Abdullah Sani, Kok-Lun Pang, Kok-Yong Chin:** Palm tocotrienol maintained the proliferation of MC3T3-E1 cells treated with dexamethasone
- 232 Ibrahim Abuga, Shaida Fariza Sulaiman, Ridhwan Abdul Wahab, Mohammad Syaiful Bahari Abdull Rasad:** *In vitro* antibacterial screening and phytochemical profiling of Malaysian traditional plants used for treating diarrhea infection
- 234 Krupavaram Bethala, Nur Nadia Binti Zulkarna'in, Jaasminerjiit H. Kaur, Shashidharan.M, Tan Ching Siang, Bama V.V Menon, Anandarajagopal Kalusalingam, Abdullah Khan:** Evaluation of antipyretic activity of roots extract of *Durio zibethiuns* on Wistar albino rats
- 235 Sui Sien Leong:** Enhancement of *Phaleria macrocarpa* fruit extract on the male fertility tested in rats

- 236 Huma Shahzad, Muhammad Amirul bin Amran, Farzana binti Abdul Razak, Maisarah Afiqah binti Mas'od, Abdishakur Hassan Mohamed, Nelli Giribabu, Naguib Salleh:** Bergenin protects hyperglycaemic induced testicular oxidative stress and revamp steroidogenesis in streptozotocin (STZ) induced type 2 diabetic rats
- 238 Umar Farooq, Shahid Ali Shah, Yousaf Ali, Taous Khan, Rahim Ullah, Naila Raziq, Muhammad Shahid, Md. Sanower Hossain:** Ranuncoside reduced lipopolysaccharide-induced oxidative stress in postnatal mice: An *in vivo* study of neurodegeneration
- 240 Maidul Islam, Md. Sanower Hossain:** Application of medicinal superfood and herb for versatile cancer management: A single-centre study
- 241 Haizat Bin Yamang, Shirley Gee Hoon Tang:** *In vitro* antibacterial and antibiofilm activities of essential oils from aromatic plants against human pathogenic bacteria
- 243 Mahmood Rasool, Absarul Haque, Ayat Mohammed Shorbaji, Peter Natesan Pushparaj, Nabeel Alama, Sajjad Karim, Mohammed Hussein Al-Qahtani:** Identification of a recurrent missense mutation in *SLC2A10* gene in arterial tortuosity syndrome patient in Saudi Arabia by next generation sequencing
- 245 Meena Selvanayagam, Nurul Shazini Ramli, Faridah Abas, Yaya Rukayadi:** Antioxidant properties of hot water extracts from *Crescentia cujete* leaf, bark, and fruit

- 246 Yong Mei Yee, See Ziau Hoe, Yang Mooi Lim, Sau Kuen Lam:** Hypotensive effect of a partially purified fraction of *Gynura procumbens* in Spontaneously Hypertensive Rats
- 247 Sukriti Vishwas, Monica Gulati, Rajan Kumar, Ankit Awasthi, Rubiya Khursheed, Kamal Dua, Sachin Kumar Singh:** Formulation development and characterization of liquisolid tablets of fisetin
- 248 Mohd Aizuddin Mohd Lazaldin, Igor Iezhitsa, Renu Agarwal, Puneet Agarwal, Nor Salmah Bakar, Nafeeza Mohd Ismail:** Brain-derived neurotrophic factor attenuates amyloid beta 1-40 induced retinal injury and visual impairment in sprague dawley rats
- 250 Lidawani Lambuk, Igor Iezhitsa, Renu Agarwal, Puneet Agarwal, Nafeeza Mohd Ismail:** Protective effects of magnesium acetyltaurate against NMDA-induced retinal damage and visual impairment in rats involves suppression of NF- $\kappa$ B, p53 and AP-1 (c-Jun/c-Fos)
- 252 Afiiq Aiman B Abd Ghapor, Nurul Alimah Abdul Nasir, Norhafiza Razali, Igor Iezhitsa, Renu Agarwal:** Effect of *trans*-resveratrol on retinal oxidative stress in rats with NMDA-induced retinal excitotoxicity
- 253 Entesar Yaseen Abdo Qaid, Zuraidah Abdullah, Rahimah Zakaria, Idris Long:** Minocycline ameliorates hippocampal neuronal damage and  $\beta$ -amyloid peptide deposition in LPS-induced alzheimer's disease rat model
- 254 Muhammad Danial Che Ramli, Nurul Alaina Haji Yahya, Amalia Lailanor, Muhamad Alfakri Bin Mat Noh, Junedah Sanus:** Reinnervation of the soleus muscle and extensor digitorum longus (EDL) muscle following sciatic nerve crush injury treated with *Arthrospira platensis*



- 255 Siti Hajar Zabri, Asma Hayati Ahmad, Rahimah Zakaria:**  
Characterization of the reward structural connectivity in female malay adolescents using diffusion magnetic resonance imaging
- 257 Lalarukh Jawed, Farina Hanif, Saima Mahmood Malhi, Ayesha Batool, Ariba Javed, Qurat-ul-Ain Amir:**  
Targeting expression of inflammatory markers in cortex and hippocampus of epileptic mice treated with novel drug combination
- 259 Sherly Deborah George, Archana Rajagopalan, Parasuraman Subramani:** Effect of caloric vestibular stimulation on behavioural changes in chronic mild stress induced rats
- 260 Siti Fatimah Mukhtar, Zul Izhar Mohd Ismail, Asma Hayati Ahmad Jafri Malin Abdullah, Anna Alicia Simok, Nur Asma' Sapiai:** Thalamic probabilistic connectivity with cerebral cortex in spastic cerebral palsy
- 262 Farina Hanif, QuratulAin Amir, Wash Dev Wash Dev:**  
Exonic polymorphisms in dopamine receptor type 2 gene and their association with schizophrenia in Pakistani population: A case control study
- 264 Tee Hann Yih, Renu Agarwal, Norhafiza Razali, Igor Iezhitsa, Nafeeza Mohd Ismail:** Effect of *trans*-resveratrol on glutamate clearance and visual behaviour due to excitotoxic retinal injury in rats
- 265 Kim San Tang, Wesley Zhi Chung See, Rakesh Naidu:** The neuroprotective effect of zinc oxide nanoparticles against paraquat-induced toxicity

- 266 Abbasher Hussien, Ahmed Hassan, Aziza Alrayah, Sanaa Babiker, Sara Elhassan, MohammedNour Ali, Raghda Alawad, Ghassan Mustafa, Amira Omer, Mohamed Ahmed:** Treatment satisfaction and medication adherence among patients with epilepsy at daoud charity clinic
- 268 Wui Fang Chai, Kim San Tang:** Therapeutic potential of cerium oxide nanoparticles in alzheimer's disease
- 269 Nurdarina Ausi Zulkifli, Kuttulebbai Naina Mohamed Salam Sirajudeen, Muzaimi Mustapha, Anani Aila Mat Zin, Hidani Hashim, Suk Peng Tang:** Neuroprotective effect of tualang honey on kainic acid-induced neurodegeneration in the rat lateral septal area: A preliminary finding
- 271 Hidani Hasim, Sirajudeen Kuttulebbai Naina Mohamed Salam, Pasupuleti Visweswara Rao, Sangu Muthuraju, Muzaimi Mustapha, Mohd Asnizam Asari:** The effects of tualang honey and its silver nanoparticles on hippocampal oxidative injury in kainic acid-induced male rat
- 273 Win Ning Chen, Mohd Farooq Shaikh:** Evaluation of anti-convulsant potential of *Orthosiphon stamineus* (Misai Kucing) using an *in vivo* seizure experimental model
- 274 Zakaria Toumi, Mohamad Aris Mohd Moklas, Mohamad Taufik Hidayat Baharuldin, Nurul Huda Mohd Nor:** Effect of pleasure-eating toward saccharin intake on beta-endorphin and dopamine secretion in *in vivo* model
- 275 Md Belal Bin Heyat, Faijan Akhtar, Bibi Nushrina Teelhawod, Syed Jafar Abbas, Ashamo Betelihem Asfaw, Atif Amin Baig:** An automated bruxism patient detection system based on machine learning models using physiological signals

- 277 Norazirah Mat Nayan, Siti Hamimah Sheikh Abd Kadir, Andrean Husin, Rosfaizah Siran:** Effects of prenatal bisphenol a exposure on the NMDA receptor subunits: Association with learning and memory impairment in foetus and adolescent male rat hippocampus
- 279 Kong Kai Sin, Kiran Chanabasappa Nilugal, Nagaraj M Kulkarni, Rajan Ethiraj Ugandar, Santosh Fattepur, Ibrahim Abdulah, Fadli Asmani:** Neuroprotective effect of *Labisia pumila* against aluminium chloride-induced alzheimer's disease in rats: A cognitive, behavioral and histological study
- 281 Nurul Afiedia Binti Roslim, Boon Huat Lim, Chiuan Yee Leow, Candy Chuah:** Transcriptional profiling of alpha-2 Giardin in response to drug treatment in *Giardia intestinalis*
- 282 Nor Amira Syahira Mohd Azmi, Norsham Juliana, Nur Islami Mohd Fahmi Teng, Mohd Azmani Sahar, Nizam Baharom, Izuddin Fahmy Abu:** Factors predicting emotional distress among frontliners during COVID-19 pandemic

## **Welcome to the 34<sup>th</sup> MSPP Scientific Meeting 2021**

The Malaysian Society of Pharmacology and Physiology (MSPP) has been the primary Malaysia learned society of pharmacologists and physiologists for more than 33 years. The Society has been organizing its own Scientific Meetings as a platform for researchers to share their research findings and build networking and collaborations. To date, MSPP is proud to have organized 34 scientific meetings. Due to the pandemic, for the first time the 34th Scientific Meeting of MSPP was held virtually on July 15-17, 2021. The meeting which was organized by Monash University Malaysia together with MSPP in collaboration with several local and private universities in Malaysia had attracted 700 delegates from locally and abroad and received more than 160 abstracts. The scientific programme this year focused on translational research under the theme 'Trailblazing the Translational Research'. The three-day conference provided opportunities for sharing and exchanging evidence-based practices and scientific endeavors among physiologists, pharmacologists, physicians, general practitioners, scientists and allied health professionals.

### **LIST OF ORGANIZERS**

Jeffrey Cheah School of Medicine and Health Science, Monash University Malaysia  
Malaysian Society of Pharmacology and Physiology (MSPP)

# **34<sup>th</sup> MSPP 2021 Programme**

## **“Trailblazing the Translational Research”**

**Day 1: 15<sup>th</sup> July 2021**

### **Programme**

**8.30 am – 9.15 am**

#### **Opening Ceremony**

##### **Speakers**

*Prof. Dr. Nafeeza Hj Mohd Ismail*  
(President, MSPP; International Medical University)

*Prof. Dr. Shajahan Yasin*  
(Head, JCSMHS, Monash University Malaysia)

*Assoc. Prof. Dr. Mohd. Farooq Shaikh*  
(Chair, 34<sup>th</sup> MSPP 2021; Monash University Malaysia)

**9.15 am – 10.00 am**

#### **Keynote Address**

*Prof. Dr. Gordon Harold Williams*  
Professor of Medicine, Harvard Medical School, USA

**Title: Personalized Medicine: The Link  
Between People, Animals and Cells**

**10.00 am – 10.30 am**

#### **Break**

**10.30 am – 11.00 am**

#### **Plenary Lecture 1**

*Prof. Dr. Wayne Hodgson*  
Monash University, Australia

**Title: Things That Bite and Sting: The  
Pharmacological Characterization of  
Animal Venoms and Toxins**

**11.00 am – 12.00 pm**

#### **Sponsored Seminar**

*Labquip Sdn. Bhd*

**12.00 pm – 2.00 pm**

**Lunch Break**

**2.00 pm – 3.00 pm**

**MSPP Young Investigator Award 2021**

**3.00 pm – 3.30 pm**

**Break**

**3.30 pm – 5.30 pm**

**MSPP Annual General Meeting**

**Day 2: 16<sup>th</sup> July 2021**

**9.00 am– 9.30 am**

**Plenary Lecture 2**

*Assoc. Prof. Dr. Elizabeth Davis  
Monash University, Australia*

**Title: Developing and Incorporating  
Learning Resources to Facilitate Active  
Learning in Pharmacology**

**9.30 am – 9.35 am**

**Break**

**9.35 am – 10.00 am**

**Symposium 1: Drug Metabolism Research**

**Invited speaker:**

*Prof. Dr. Ong Chin Eng  
International Medical University*

**Title: Structure-Function Analysis of  
Cytochrome P450 Enzymes: Kinetic and  
Computational Modelling for Drug  
Clearance Prediction**

**Symposium 2: Natural Products and  
Integrative Medicine**

**Invited speaker:**

*Assoc. Prof. Dr. Wan Amir Nizam Wan Ahmad  
Universiti Sains Malaysia*

**Title: Flavonoids and Metainflammation  
in Diabetes**

**10.00 am – 10.15 am**

**Break**

10.15 am – 11.15 am	<b>Finalist 1: Oral presentations</b> <b>Finalist 2: Oral presentations</b>
11.15 am – 11.30 am	<b>Break</b>
11.30 am – 12. 30 pm	<b>Finalist 1: Shortlisted Poster presentations</b> <b>Finalist 2: Shortlisted Poster presentations</b>
12.30 pm – 2.00 pm	<b>Lunch Break</b>
2.30 pm – 2.50 pm	<b>Symposium 3: Cardiovascular Research</b>  <b>Invited speaker:</b> <i>Assoc. Prof. Dr. Satirah Zainalabidin Universiti Kebangsaan Malaysia</i>  <b>Title: The Action of SAC on Cardiac Remodelling in Myocardial Injury</b>  <b>Symposium 4: Cancer Research</b>  <b>Invited speaker:</b> <i>Dr. Alan Yiu Wah Lee</i> <i>Monash University, Malaysia</i>  <b>Title: Exploration of the Tumor Suppressor Function of Semaphorin 5A in Brain Cancer Treatment</b>
2.50 pm – 3.00 pm	<b>Break</b>
3.00 pm – 4.00 pm	<b>Finalist 3: Oral presentations</b> <b>Finalist 4: Oral presentations</b>
4.00 pm – 4.15 pm	<b>Break</b>
4.15 pm – 5.15 pm	<b>Finalist 3: Shortlisted Poster presentations</b> <b>Finalist 4: Shortlisted Poster presentations</b>

**Day 3: 17<sup>th</sup> July 2021**

**9.00 am – 9.30 am**

**Plenary Talk 3:**

*Prof. Dr. Michael Fenech  
University of South Australia, Australia*

**Title: Nutrigenomics from Laboratory to Clinical Practice**

**9.30 am – 9.50 am**

**Symposium 5: Neurological Diseases**

**Invited speaker:**

*Prof. Dr. Renu Agarwal  
International Medical University*

**Title: Glaucoma and Neuroinflammation: Role of Magnesium-Based Compounds as Therapeutic Instruments**

**Symposium 6: Metabolic Diseases**

**Invited speaker:**

*Assoc. Prof. Dr. Naguib Salleh University of Malaya*

**Title: Ion channels in Endometrium: Their Roles in Uterine Fluid Regulation and Embryo Implantation**

**9.50 am – 10:30 am**

**Finalist 5: Oral presentations**

**Finalist 6: Oral presentations**

**10.30 am – 11.30 pm**

**Break**

**11.30 pm – 12.00 pm**

**Awards Presentation**

**Closing ceremony and remarks**



**PNPIM-06****Sperm morphology and testis histological changes in 12% high cholesterol diet administered rats following tualang honey supplementation and diet modifications**

**Sakiinah Hasan<sup>1\*</sup>, Roslina Abdul Rahim<sup>1</sup>, Mohd Afzal Alias<sup>1</sup>,  
Naznin Muhammad<sup>2</sup>, Norzamzila Abdullah<sup>2</sup>,  
Redzuan Nul Hakim Abdul Razak<sup>3</sup>**

<sup>1</sup>Department of Basic Medical Science, Kulliyah of Medicine, International Islamic University Malaysia, Selangor, Malaysia

<sup>2</sup>Department of Pathology and Laboratory Medicine, Kulliyah of Medicine, International Islamic University Malaysia, Selangor, Malaysia

<sup>3</sup>Department of Basic Medical Science, Kulliyah of Nursing, International Islamic University Malaysia, Selangor, Malaysia

\*sakiinahh@gmail.com

Hypercholesterolaemia is recognized as a factor associated with male infertility. However, currently, there is limited therapy available. Tualang honey (TH) is a type of Malaysian polyfloral wild honey produced by the rock bee (*Apis dorsata*) proven to exert both anti-inflammatory and anti-oxidative effects. This study aimed to determine the effects of TH coupled with diet modification on sperm morphology and testis histology of 12% high cholesterol diet (HCD) administered rats. Fifteen rats were fed with HCD for 16 weeks. They were then divided into 3 groups. Group A rats were not treated and continued HCD as control. Group B rats were supplemented with TH (3.0g/kg) and continued HCD, while group C was given TH (3.0g/kg) but was changed to a normal diet for 4 weeks. Group B and C demonstrated significant improvement in sperm morphology compared to group A ( $p < 0.001$ ). Group C (TH and diet modification) showed significant improvement in sperm morphology compared to Group B which was given only TH ( $p < 0.05$ ). However, there is no significant improvement in Johnsen testicular scoring. Diet modification in addition to TH supplementation may further improve male fertility in HCD rats as compared to TH alone. Based on our findings, there is a need to further explore the potential of TH in improving male infertility associated with hypercholesterolaemia.

**Keywords:** High cholesterol diet, Tualang honey, Sperm morphology, Testis histology, Johnsen testicular scoring

# Advantages of publishing in Frontiers



## OPEN ACCESS

Articles are free to read  
for greatest visibility  
and readership



## FAST PUBLICATION

Around 90 days  
from submission  
to decision



## HIGH QUALITY PEER-REVIEW

Rigorous, collaborative,  
and constructive  
peer-review



## TRANSPARENT PEER-REVIEW

Editors and reviewers  
acknowledged by name  
on published articles

## Frontiers

Avenue du Tribunal-Fédéral 34  
1005 Lausanne | Switzerland

Visit us: [www.frontiersin.org](http://www.frontiersin.org)

Contact us: [info@frontiersin.org](mailto:info@frontiersin.org) | +41 21 510 17 00



## REPRODUCIBILITY OF RESEARCH

Support open data  
and methods to enhance  
research reproducibility



## DIGITAL PUBLISHING

Articles designed  
for optimal readership  
across devices



## FOLLOW US

@frontiersin



## IMPACT METRICS

Advanced article metrics  
track visibility across  
digital media



## EXTENSIVE PROMOTION

Marketing  
and promotion  
of impactful research



## LOOP RESEARCH NETWORK

Our network  
increases your  
article's readership