

# PRESCRIPTION

Latest news and updates from the Faculty of Pharmacy



## REVOLUTIONISING PHARMACY THROUGH MACHINE LEARNING: THE PROGRESS AND PERILS

By: Assoc. Prof. Dr. Yuslina Zakaria

Machine learning (ML) is transforming pharmacy, enhancing accuracy in drug discovery, personalised medicine, and patient care. ML, a branch of artificial intelligence (AI), uses algorithms such as neural networks, decision trees, and support vector machines to learn from large datasets and make predictions. In pharmaceutical research, ML accelerates the identification of potential drug candidates, improves design optimisation, and increases research efficiency. Additionally, ML in predictive analytics for pharmacy practice shows promising results, highlighting the need for further research and adoption to improve patient care (1).

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ML significantly impacts pharmacy, offering benefits over conventional statistical techniques. It accelerates drug-target affinity predictions, expediting the selection of suitable drug molecules and streamlining the discovery process. Deep learning, a subset of ML, reduces costs and speeds up research by efficiently analysing complex datasets, predicting bioactivity, and aiding in virtual screening, proving more effective than traditional experiments (2). Additionally, ML can predict drug-drug interactions early, optimising treatment regimens and improving patient outcomes.

A notable example is the discovery of Halicin, an antibiotic identified by an ML model trained on over 100 million molecules (3). The process involved training the model on existing chemical and biological data, enabling it to predict effective compounds against specific targets. Halicin's discovery through deep learning and *in vitro* validation highlights ML's transformative impact on pharmaceutical science, underscoring its role in predicting and validating new drug candidates (4).

Implementing ML in pharmacy, however, faces several challenges. Key issues include data security and privacy, given the sensitive nature of healthcare information. Regulatory and ethical concerns, such as patient consent and data usage, also present significant obstacles. Another significant hurdle is the scarcity of comprehensive, high-quality data essential for accurate ML model training (5). Reliable and diverse datasets are crucial for developing robust ML algorithms for effective analysis and prediction in pharmacy settings. Ensuring data quality, integrity, and relevance throughout ML development is essential for generating meaningful insights (6). The "black box" nature of some ML models hinders interpretability and transparency, causing mistrust among healthcare professionals and patients. While deep learning models can make highly accurate predictions, understanding how they arrive at these predictions is often challenging.

Strategies to mitigate the challenges of implementing ML in pharmacy include strict access controls and robust encryption to enhance data privacy and security. Protecting patient confidentiality, data encryption, and compliance with regulations like HIPAA is vital for handling sensitive healthcare information. Enhancing access to diverse, high-quality datasets through data-sharing collaborations addresses the data quantity problem effectively. To tackle "black box" issues, it is essential to enhance the interpretability and reliability of ML models through collaborative efforts (7). Effective communication within interdisciplinary teams is vital for developing and implementing AI solutions. Clear roles and communication channels,

with cultivating authentic teamwork, significantly enhance collaboration. By promoting data-sharing, ensuring data privacy, and maintaining transparency in ML models, researchers can fully leverage ML's potential to advance drug discovery and healthcare outcomes.

ML in pharmacy addresses numerous challenges and offers significant advantages over traditional methods. Integrating ML with emerging technologies like blockchain and the Internet of Things (IoT) enhances patient care and operational efficiency. IoT devices can collect real-time health data for personalised medical advice, while blockchain ensures secure, transparent medical records. These innovations promise improved patient outcomes and comprehensive healthcare solutions. Utilising ML, IoT, and blockchain can transform pharmacy practice, drive innovation, and tackle industry challenges effectively.

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## About the Author

Assoc. Prof. Dr. Yuslina Zakaria earned her PhD in Bioinformatics from University of New South Wales (UNSW) Australia in 2015. She began her career as an academician since 2006 at Faculty of Pharmacy, UiTM. Her research expertise includes bioinformatics and network pharmacology, big data analytics, text mining, machine learning, and financial technology (FinTech).



## Questions

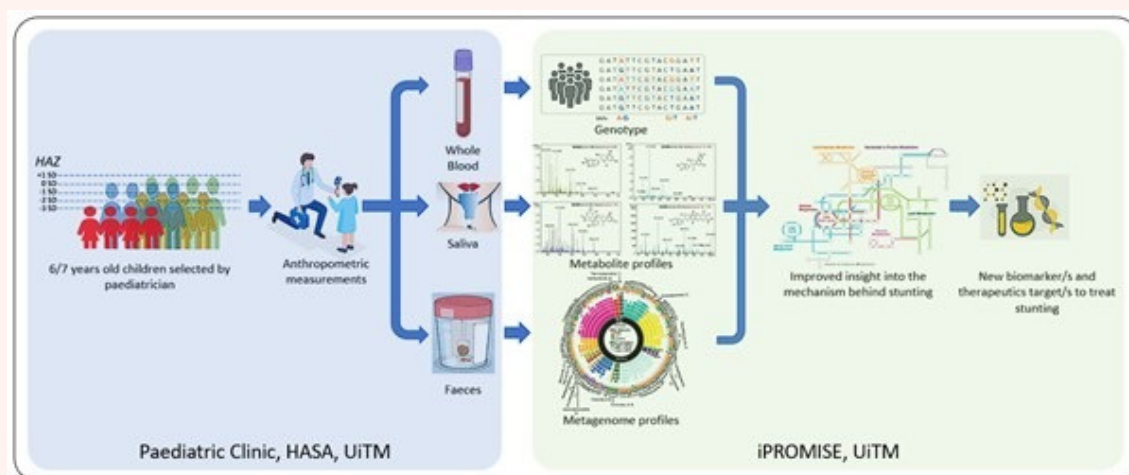
Let's dive deeper into the article and evaluate your comprehension. We have three questions for you here.

# Unraveling the Mechanisms of Stunting in Malaysian Children: A Metagenomics and Metabolomics Approach

By: Dr. Mohd Nur Fakhruzzaman bin Noorizhab

Stunting, a significant public health concern, affects one in every five children in Malaysia [1]. This prevalence is higher than in some conflict-ridden and underdeveloped countries, such as Palestine and certain African nations [1]. Despite Malaysia's relative prosperity, which ensures better access to nutrition and healthcare, the rates of stunting are alarmingly high [1]. Stunting is characterised by impaired growth and development resulting from chronic malnutrition, and it poses severe health risks, including increased mortality and morbidity [2]. Children who are stunted are more likely to experience long-term cognitive and motor skill deficits, leading to poorer educational outcomes and reduced economic productivity in adulthood [3]. Additionally, stunted children are at a higher risk of developing obesity and related health issues as adults [4,5]. This condition perpetuates a cycle of poor health across generations, as stunted girls often grow into stunted women, who may then give birth to another generation of stunted children. The urgency to address stunting in Malaysia is underscored by the need to understand the specific mechanisms behind it, particularly the roles played by gut microbiota and metabolic processes.

This study aims to fill the current knowledge gap by using advanced metagenomics and metabolomics approaches to investigate the underlying mechanisms of stunting in Malaysian children. The research is guided by three primary hypotheses: that stunting causes alterations in the gut microbiota profiles of children, affects the distribution of functional clusters in the gut microbiota, and results in significant differences in the metabolic profiles of normal and stunted children. To address these hypotheses, the study will focus on answering several key questions: How do the gut microbiome profiles of normal and stunted children differ? Which functional groups in the gut microbiome are affected by stunting? What metabolic changes are associated with stunting in children?



### Appendix A: Study Design Diagram

The research methodology involves using metagenome sequencing to analyse the taxonomy and functional gene clusters in the gut microbiota of stunted children. This technique will provide a comprehensive view of the gut microbiome's composition and its functional capabilities, offering insights into how stunting affects gut health and functionality. The study will also employ metabolomics, a relatively new platform that profiles differential metabolite expressions. Metabolomics will help identify the metabolic pathways disrupted by stunting, shedding light on the specific metabolic challenges faced by stunted children. By profiling these differential metabolites, the study aims to understand how these metabolic disruptions contribute to the delayed and poorer psycho-cognitive performance observed in stunted children.

This research is also highly relevant to government policy, particularly in the context of Malaysia's healthcare sector, which is a key component of the National Key Economic Areas (NKEA). The government aims to grow the healthcare sector to drive Malaysia towards high-income status and global competitiveness. Addressing stunting is essential for achieving these goals, as a healthy population is fundamental to economic growth. High stunting rates among children can impede the country's progress, as stunted children are less likely to reach their full educational and economic potential. By providing a deeper understanding of stunting, this study contributes to the broader goals of improving public health and economic productivity. The insights gained from this research will enable the implementation of precision medicine approaches to prevent and treat stunting, fostering a healthier and more productive future generation in Malaysia.

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# Pharmacy Board of Malaysia Accreditation Visit

By: Mdm Syahida Fathiah Ahmad Kamal

In the realm of higher education, ensuring the quality and standards of academic programs is paramount. This is where accreditation bodies such as the Malaysian Qualifications Agency (MQA) and Pharmacy Board Malaysia (Lembaga Farmasi Malaysia - LFM) play a critical role. An accreditation visit by these bodies is a rigorous process aimed at evaluating and validating the quality of educational programs, ensuring they meet established standards and provide value to students and stakeholders.

The panel team comprising experts from both MQA and LFM have conducted an on-site visit to the Faculty of Pharmacy on 5th to 6th June 2024. The program evaluation visit was led by Associate Professor Dr. Siti Hadijah Shamsudin with the members including Professor Dr. Chua Siew Siang, Dr. Liau Siow Yen and Associate Professor Dr. Malina Jasamai. During this visit, the team evaluated various aspects of the program by conducting interviews with faculty, staff, and students, as well as by inspecting facilities and reviewing teaching materials.



# AREAS OF EVALUATION FOR PROGRAM ACCREDITATION

01

## PROGRAMME DEVELOPMENT AND DELIVERY



Examining the curriculum design, course content, and teaching methodologies to ensure they meet educational standards and industry requirements.

02

## STUDENT ASSESSMENT



Evaluating the methods used to assess student performance, including exam, assignment, and practical assessment, to ensure they effectively measure student learning outcomes.

03

## STUDENT SELECTION AND SUPPORT SERVICES



Reviewing the criteria and processes for student admissions, as well as the support services available to students, such as counseling, academic advising and career services.

04

## ACADEMIC STAFF



Assessing the qualifications, experience, and professional development of faculty members to ensure they can deliver high quality education.

05

## FACILITIES



Inspecting laboratories, libraries, and other educational resources to ensure they are adequate, up-to-date, and conducive to learning.

06

## PROGRAMME MANAGEMENT



Evaluating the administrative and organizational aspects of the programme, including leadership, strategic planning, and resource allocation.

07

## PROGRAMME MONITORING, REVIEW AND CONTINUAL QUALITY IMPROVEMENT



Assessing the mechanisms in place for continuous monitoring, evaluation, and improvement of the program to ensure it remains relevant and effective.

As a conclusion, an accreditation visit by MQA and LFM is a comprehensive process that plays a pivotal role in maintaining and enhancing the quality of higher education in Malaysia. Through rigorous evaluation and continuous improvement, these accreditation bodies help to ensure that educational programs meet high standards, providing students with valuable and credible qualifications. As the landscape of education continues to evolve, the role of accreditation will remain crucial in fostering excellence and ensuring the readiness of graduates for professional success.



# Prospects and Development in the Malaysian Herbal Industry:

## An Enlightening Talk by Dr. Vijayan Ellappan

By: Dr. Siti Alwani Ariffin

On July 3, 2024, an enlightening talk titled "Local Herbal Treasure: Prospects and Development in the Malaysian Herbal Industry" was held at DK 9, Faculty of Pharmacy, UiTM Puncak Alam as part of the Traditional and Complementary Medicine (T&CM) Collaborative Teaching. This insightful session, led by Dr. Vijayan Ellappan, a distinguished herbal medicine practitioner, attracted 65 participants, including students and lecturers. This two-hour talk, from 8:30 to 10:30 AM, aimed at providing comprehensive exposure to local herbs, their benefits, potential applications, and the broader industrial uses and developments in the Malaysian herbal sector.

Dr. Vijayan Ellappan, with his extensive knowledge and experience in herbal medicine, provided the attendees with a deep dive into the current trends and prospects of the herbal industry in Malaysia. He began by discussing the increasing popularity of herbal treatments among Malaysians, highlighting their growing demand due to the natural compatibility of these treatments with the human body. This compatibility, he noted, makes herbal remedies a preferred choice for many seeking alternative therapies.

A significant portion of the talk was dedicated to the ongoing research and innovation within the herbal sector. Dr. Vijayan emphasised the collaborative efforts between Malaysian universities and the pharmaceutical industry in developing new herb-based products. These collaborations aim to explore and harness the medicinal properties of local herbs, paving the way for innovative treatments and applications. He provided insights into some of the groundbreaking research projects currently underway, showcasing the potential of local herbs.

The economic and industrial prospects of the herbal sector were also discussed as a focal point of the talk. There is growing interest from local and international markets in Malaysian herbal products, driven by their unique properties and effectiveness. This interest explains, and presents numerous opportunities for students and professionals to engage in the herbal industry, whether through research, entrepreneurship, or clinical

practice. Dr. Vijayan encouraged the attendees to consider these opportunities, highlighting the rewarding and impactful careers that can be built in this burgeoning field practice.

Throughout the talk, Dr. Vijayan shared case studies and examples of successful applications of local herbs in traditional medicine. These examples not only illustrate the practical benefits of herbal treatments but also demonstrate the potential for integration into modern healthcare practices. He also addressed the challenges faced by the herbal industry, such as regulatory hurdles and the need for standardised practices and discussed potential solutions to overcome these obstacles.

The event concluded with a lively Q&A session, where students and lecturers had the opportunity to engage directly with Dr. Vijayan, asking questions and sharing their thoughts on the topics discussed. This interactive segment further enriched the learning experience, allowing participants to gain deeper insights and clarify their understanding of the subject matter.

In summary, the talk by Dr. Vijayan Ellappan was a resounding success, providing valuable knowledge and inspiration to T&CM students and lecturers. It underscored the importance of local herbs in both traditional and modern medicine and highlighted the promising future of the herbal industry in Malaysia. This activity has undoubtedly enriched the participants' understanding and appreciation of the Malaysian herbal sector, encouraging further exploration and involvement in this dynamic and impactful field. The T&CM team of the Faculty of Pharmacy UiTM Puncak Alam remain committed to organising such educational activities, fostering a deeper knowledge of traditional and complementary medicine among students.



# Empowering Future Pharmacists: CEO Insights

By: Nurul Ain Najwa binti Mohd Azmin, Dr. Aida Azlina Ali

On June 19, 2024, the Faculty of Pharmacy at UiTM Puncak Alam was abuzz with excitement as it hosted the much-anticipated "CEO Insights" programme in collaboration with Pfizer Malaysia Sdn. Bhd. The event, held at DK500, aimed to provide undergraduate pharmacy students with a unique opportunity to engage with leaders in the pharmaceutical industry.



CEO Insights, organised by the Society of Pharmacy Students (SOPHYS) and the Sekretariat Mahasiswa Fakulti Farmasi (SMF), promised to be an inspiring and educational experience. The primary goal of the CEO Insights programme was to empower future pharmacists by offering them unparalleled access to industry leaders, engaging discussions, and practical guidance. The event sought to elevate students' motivation, provide insights into the pharmacy profession, and encourage the development of strategic study skills. By exposing students to the real-life experiences of successful professionals, the initiative aimed to inspire them to achieve their own success.



Keynote speakers for the event included Mr. Ravi Bala Subramaniam, Director of People Experience for Malaysia, Indonesia, Singapore, Vietnam, Brunei, and Pakistan, and Mrs. Yvonne Chew, Director of Customer Facing and Commercial for Malaysia and Brunei. Both speakers shared their personal journeys, life values, and leadership experiences, offering invaluable perspectives to the attendees. Mr. Ravi Bala Subramaniam captivated the audience with his insights into the pharmaceutical

industry's evolving landscape and the importance of resilience and adaptability. His emphasis on the significance of people's experience in fostering a positive work environment resonated with many aspiring pharmacists in attendance. Meanwhile, Mrs. Yvonne Chew shared her expertise in customer engagement and commercial strategies, highlighting the critical role of effective communication and strategic thinking in achieving success in the pharmaceutical field.

The event saw an impressive turnout, with 141 participants, including both students and lecturers. This significant attendance underscored the importance of such initiatives in bridging the gap between academic knowledge and real-world applications. TV Sarawak's coverage of the event further amplified its reach, encouraging more young, aspiring Sarawak to consider applying to further their studies in the Faculty of Pharmacy, UiTM.



# 1ST COSMETIC WORKSHOP:

## *Cosmetic Formulation*

By: Mr. Muhammad 'Izzuddin Zamery

The 1st Cosmetic Workshop on Cosmetic Formulation was enthusiastically organised by the Faculty of Pharmacy, Universiti Teknologi MARA (UiTM) Puncak Alam Campus on June 13 and 14, 2024. The Department of Pharmaceutical Technology hosted this ground-breaking event with the goal of providing faculty and staff with the information and hands-on training needed to develop and produce cosmetic products, particularly detergent and soap. Twenty faculty members from different departments eagerly participated in the session, which was led by Adjunct Professor Dr. Tommy Julianto Bustami Effendi. Famous for his vast experience and expertise in the industry, Dr. Tommy offered valuable insights into the fundamental knowledge of cosmetic ingredients, their functions and recommended compositions.



Both days of the course were filled with educational lectures and practical exercises. After learning the basics of cosmetic ingredients, participants had a thorough workshop on soap formulation procedures on the first day. The hands-on demonstration and formulation of soap during the practical soap-making session was the high point of the day. A lively Q&A session addressing the difficulties in cosmetic manufacture brought the day to a close. The workshop's second day was dedicated to learning about detergent formulation. The fundamental components of detergents and the methods utilised in their formulation were taught to the participants. During the day, there was a hands-on detergent-making workshop where participants could put their knowledge to use in an actual situation.

This programme attempted to improve the faculty staff's professional capabilities in addition to giving them practical experience. The event was in line with the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 9 (Industry, Innovation, and Infrastructure), by introducing the most recent methods and materials utilised in the detergent and cosmetic industries. This occasion represents an important turning point in the Faculty of Pharmacy's mission to encourage professional growth and lifetime learning. It also highlights how crucial innovation is to the development of products and their production, which benefits the pharmaceutical and cosmetic industries.

# 19<sup>TH</sup> WORKSHOP ON LABORATORY RODENTS (RATS AND MICE) CARE AND USE 2024

By: Dr Nursakinah Latifi & Dr. Gurmeet Kaur Surindar Singh

On June 11 and 12, 2024, the Laboratory Animal Facility and Management (LAFAM), Faculty of Pharmacy, Universiti Teknologi MARA (UiTM) Puncak Alam hosted the biannual Laboratory Rodents Care and Use Workshop. This workshop featured blended lectures and hands-on practical sessions conducted by well-known experts in the fields of rodent husbandry, management, behaviour, anaesthesia, and postmortem procedures. The workshop was officiated by Dr. John Shia Kwong Siew, the coordinator of LAFAM. Notable speakers at the event included Dr. John Shia Kwong Siew, Associate Professor Dr. Hanish Singh Jayasingh Chellamal, Professor Dr. Mizaton Hazizul Hasan and Dr. Gurmeet Kaur Surindar Singh from the Faculty of Pharmacy, UiTM. The workshop benefited from the continuous presence of the LAFAM Workshop and Income Generation team, ensuring the seamless execution of the event. Additionally, the facilitation role was expertly fulfilled by the LAFAM Assistant Veterinary Officers, led by Dr. Nursakinah Latifi, the Veterinary Officer, contributing to the overall success of the workshop.



The primary aim of this workshop was to emphasise the importance of the care and use of laboratory rodents in scientific research. It sought to equip participants with essential skills for performing fundamental procedures on rodents, including handling and restraint, oral gavage, bleeding techniques, anaesthesia, and euthanasia.

In addition, this workshop also aimed to enhance researchers' understanding of the quality of their research while offering a guide on animal ethics and welfare in scientific research.

A total of 22 participants, including postgraduates and staff from UiTM, as well as individuals from various academic institutions and organisations, participated in the workshop. The attendees were from the Health and Wellness cluster of UiTM, namely the Faculty of Pharmacy, the Faculty of Applied Science, the Faculty of Dentistry, the Faculty of Medicine, and Kompleks Makmal Sains & Agroteknologi UiTM Sabah Campus. Additionally, participants from Universiti Putra Malaysia (UPM), Universiti Malaya (UM), Sunway University, Prima Nexus Sdn. Bhd. and Wan Care Scientific Sdn. Bhd. were also part of the workshop.

The workshop was a success, receiving positive feedback from the attendees. During the closing ceremony, certificates, along with the assessment sheets containing marks and comments, were presented to the participants. Furthermore, specific accolades were awarded to noteworthy participants that were able to successfully withdraw a certain volume of blood from various locations, in addition to recognising the overall best participant. Participate in our upcoming October second installment of the workshop series to discover the latest advancements and best practices in animal care and research. Engage with knowledgeable speakers and practical sessions for a comprehensive learning experience.





# Expert Guidance and Practical Tips on ISO/IEC 17025

By: Dr. Hisyam Abdul Hamid & Dr. Gurmeet Kaur Surindar Singh



The International Organization for Standardisation (ISO) certification is a recognition whereby an organisation is officially acknowledged for its proficiency in performing particular activities in compliance with ISO criteria. To ensure that the company meets the requirements and can provide services or goods consistently and reliably, an independent evaluation by an accrediting authority is required. The UiTM Pharmacy Analytical Unit (UiPAL) is gearing up for the August renewal of its ISO accreditation from Jabatan Standard Malaysia. For UiPAL, securing ISO accreditation is undoubtedly a crucial strategy to increase its visibility to potential clients.

In line with this, UiPAL organised a half-day program on the Awareness of ISO/IEC 17025 sharing session on the June 27, 2024, featuring Dr. Hannis Fadzilah Mohsin a senior lecturer from the Faculty of Pharmacy, UiTM Puncak Alam as the speaker. Dr. Hannis shared her vast experience with the ISO/IEC 17025, having spearheaded the faculty's ISO team for more than a decade. The program aimed to educate the participants on ISO/IEC 17025 and to instill awareness among academicians and laboratory staff regarding the importance of ISO accreditation.



# National Heart Institute College (IJN College) Visits Faculty of Pharmacy, UiTM

By: Ms. Zakiah Mohd Noordin

On June 14, 2024, the Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), had the distinct honour of hosting delegates from the National Heart Institute College (IJN College). The visit took place at the Gallery, FF1 Block, Faculty of Pharmacy, and was attended by representatives from both institutions.

From the Faculty of Pharmacy, the attendees included the Dean, Prof. Dato' Dr. Abu Bakar Abdul Majeed, Dr. Hanis Hanum Zulkifly (Deputy Dean of Academic Affairs), and Heads of Department. Also present were Mdm. Azlinda Mohamad Nor (Senior Assistant Registrar) and Azlinda Mohamad Nor (Senior Assistant Registrar). Representing the National Heart Institute College were Mr. Mohd Izwan Faizal Abu Sujat, Dr. Yusmi Mohd Yunus, Dr. Noreen Ang Azlan, and Mr. Fikri Fauzi.





The primary focus of the discussion was on fostering collaboration in academic expertise and facilities. Both parties expressed keen interest in exploring various avenues for cooperation, aiming to advance the educational and research capabilities of their respective institutions.

This academic collaboration is hoped to enhance the quality of pharmacy education and benefit students and faculty alike. Following the discussion meeting, the IJN College delegates were given a comprehensive tour of the Faculty of Pharmacy's state-of-the-art facilities research. They were particularly impressed by the cutting-edge laboratories and research

centres, which offer immense potential for collaborative projects. The discussions also highlighted opportunities for future collaboration in research expertise and facilities, aiming to leverage the strengths of both institutions for mutual benefit.



The Faculty of Pharmacy, UiTM, is delighted to welcome the delegates from the National Heart Institute College to our campus in Puncak Alam, Selangor. This visit provided an excellent opportunity for both institutions to explore our facilities and discuss various avenues for cooperation. We look forward to forging a strong partnership with IJN College and embarking on various collaborative initiatives aimed at advancing healthcare and pharmaceutical sciences.

This visit marks the beginning of what promises to be a fruitful and dynamic partnership, with both institutions committed to working together to achieve shared goals and aspirations. The Faculty of Pharmacy, UiTM, anticipates many more collaborative efforts in the future, all aimed at enhancing the quality of education and research in the field of pharmacy and healthcare.

# PERSONALISED MEDICINE: How Pharmacists Can Play A Role?

By: Ms. Nur Nabihah binti Razak

“One-size-fits-all” – despite how alluring the concept may be, it is a promise that is rarely kept when it comes to medical treatment. More often than not, medicine prescribing and treatments need to be tailored to each patient. The appropriate pharmacotherapy required by each patient differs based on individual characteristics such as age, weight, ethnicity, clinical condition, comorbidities, concomitant drugs as well as genetic profile. Hence, debunking the concept and recognising that one size does not fit all.

Despite the fact that personalised medicine may sound a little intimidating, the concept of personalised medicine is essentially nothing new. The concept can be achieved through both clinical pharmacokinetics and clinical pharmacogenomics. Personalised medicine through clinical pharmacokinetics or therapeutic drug monitoring was introduced in the 1970s and practiced in Malaysia in the 1980s. However, personalised medicine through the implementation of clinical pharmacogenomics is not currently a widespread routine practice in Malaysia. Nonetheless, expertise and testing are currently available in the country including services offered by Zakesy Biotech, a startup company by Integrative Pharmacogenomics Institute (iPROMISE), UiTM Faculty of Pharmacy.

Therapeutic drug monitoring or clinical pharmacokinetics is one of the core components of successful therapies. Personalised medicine through clinical pharmacokinetics primarily relies on the pharmacist for its implementation in clinical practice. Therapeutic drug monitoring goes beyond the measurement of drug levels; it also involves clinical interpretation by pharmacists. With their knowledge of pharmacokinetics, pharmacists can design medication dosing that better meets therapeutic goals, in addition to monitoring side effects.

On the other hand, through the implementation of clinical pharmacogenomics can greatly improve the ability to predict and explain drug responses, as well as adverse drug reactions. Pharmacogenomics involves studying the link between gene variations and how individuals respond to drugs. For example, rare occurrences of life-threatening adverse drug reactions such as Steven-Johnson Syndrome (SJS) and toxic epidermal necrolysis (TEN) were mysterious until pharmacogenomics came into play.

Through pharmacogenomics, it has been discovered that HLA alleles can vary among different human populations and can contribute to drug hypersensitivity. The impact of pharmacogenomics on medication prescribing in clinical practice is indeed significant.

Clinical pharmacokinetics is an important area of personalised medicine services provided by pharmacists. Pharmacists play a key role in interpreting and providing recommendations. With regards to clinical pharmacogenomics, it is essential for more pharmacists to be well-equipped with the necessary skills and knowledge to implement clinical pharmacogenomics into practice. The active involvement of pharmacists is crucial in improving awareness and promoting pharmacogenomic testing, which allow for better tailored treatment for each patient.

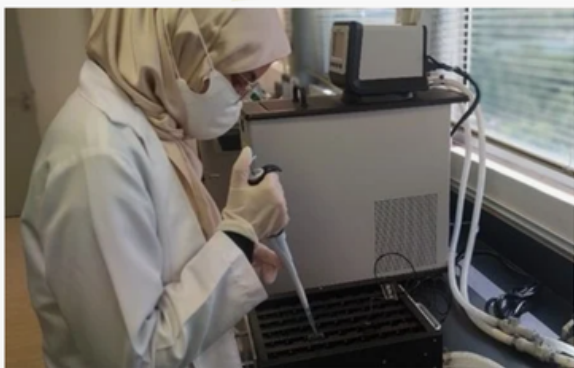
Pharmacists, as personalised medicine experts, hold a promising and bright future. The future of personalised medicine through clinical pharmacogenomics and clinical pharmacokinetics is exciting. It is just a matter of time before the practice of personalised medicine through clinical pharmacogenomics becomes a widespread practice worldwide as well as in Malaysia. The future of clinical pharmacokinetics is evolving, with new drugs being able to be monitored using therapeutic drug monitoring, such as beta-lactams. The best time is now for pharmacists to invest in the knowledge to be advocates and ambassadors of personalised medicine.



# Postgraduate Alumni

## **NUR IZZATI BINTI UMAR ZAMAN**

My name is Nur Izzati binti Umar Zaman, and I recently completed my Doctor of Philosophy (PhD) at Universiti Teknologi MARA (UiTM) Puncak Alam. My PhD research focused on understanding the determinants of executive function performance in university students, specifically the variation in brain-derived neurotrophic factor (BDNF)- tropomyosin receptor kinase B (TrkB) and microRNA (miRNA) regulatory roles. I started my PhD journey in March 2021, and working under Professor Dr. Teh Lay Kek alongside Professor Dr. Mohd Zaki Salleh, Dr. Mohd Nur Fakhruzzaman Noorizhab and Dr. Mohd Salleh Rofiee's guidance has been a profound privilege for me. The knowledge and experience I gained have been instrumental in shaping my PhD journey. I am truly thankful for the support and mentorship provided by the entire research team. Also, I would like to take this opportunity to thank the Integrative Pharmacogenomics Institute (iPROMISE) for having state-of-the-art facilities that facilitated our research endeavors. Special thanks to the Postgraduate Office for the Faculty of Pharmacy for their role in monitoring research progress at the faculty level, providing great support to postgraduate students when needed, and helping students graduate on time. A special thanks to my family and friends for their unwavering support throughout this journey. Thank you, Faculty of Pharmacy for this whole journey!





### **PROF. DR. TEH LAY KEK**

I am delighted to share my journey as Nur Izzati's supervisor during her Doctor of Philosophy at UiTM Puncak Alam. Working closely with her has been both a privilege and a rewarding experience. Throughout her research, Nur Izzati focused on unraveling the determinants of executive function performance in university students, specifically delving into the intricate roles of BDNF-TrKB and miRNA regulation. Her dedication to exploring these complex mechanisms has been evident in the depth and rigor of her work. The Integrative Pharmacogenomics Institute (iPROMISE) provided an invaluable environment for Nur Izzati's research, offering state-of-the-art facilities that facilitated her scientific inquiries. Nur Izzati's journey exemplifies perseverance and academic excellence, qualities that were nurtured by the support of her family and friends. Their steadfast encouragement played a pivotal role in her achievements. As Nur Izzati completes this significant milestone in her academic career, I am confident that her research contributions will continue to make a meaningful impact in the field of Precision Health. It has been a privilege to witness her growth and development throughout her PhD journey, and I look forward to seeing her future contributions to the scientific community.

# Congratulations

## PROMOTION AND NEW APPOINTMENT



**MS. IZZATI ABDUL HALIM ZAKI**

Senior Lecturer DUF 52

23 April 2024



**ASSOC. PROF. DR. HASSERI HALIM**

Associate Professor (Pharmacology)

DM 54

5 June 2024



**ASSOC. PROF. DR. YUSLINA ZAKARIA**

Head of Quality Unit & Strategic,  
Faculty of Pharmacy.

16 July 2024



# Congratulations

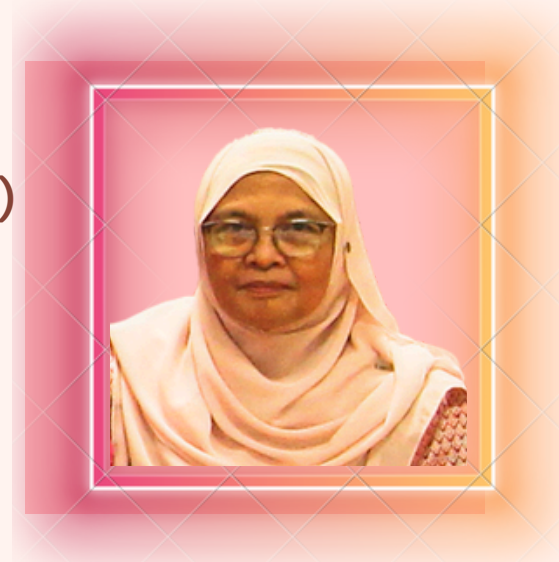
## PhD Conferral

**DR. KAMALIAH MD SAMAN**

**Doctor of Philosophy (Clinical Pharmacy)**

Developing, Testing and Application of a Medication Adherence Tool for Intervention Assessment in A Geriatric Population

11 June 2024



## COLLOQUIUM ON COMMUNITY ENGAGEMENT- SOCIAL INNOVATION RESEARCH 2024 (**CE-SIR COLLOQUIUM 2024**)

Intellectual Property Rights Special Award

**Project Title:**

**Empowering the Community for Quality Use of Medicines**

**Project Leader:**

**Mdm. Nur Sabiha Md Hussin**

# Congratulations

## PROTOTYPE DEVELOPMENT RESEARCH GRANT (PRGS) 2024

PROFESSOR DR. KALAVATHY A/P RAMASAMY



Translating probiotics from Malaysian fermented food into adjuvant therapy: Bridging the gap of safety and lipid lowering efficacy



RM 220,000.00



## GERAN PUTRA BERIMPAK

### Project Title:

Isolation and in-silico prediction of bioactive compounds from *Beackea frutescens* leaves targeted towards eminating breast cancer cells

### Project Leader:

Dr. Sandra Maniam (UPM)

### Members:

1. Prof. Dr. Intan Safinar Ismail (UPM)
2. Dr. Andrew Hung (RMIT University)
3. Dr. Aida Azlina Ali (UiTM)

### Total Amount:

RM 120,000.00

## UCSI RESEARCH EXCELLENCE & INNOVATION GRANT

### Project Title:

Fabrication of Melatonin and Caffeine-loaded Fast-melting Tablets and it's in vivo Evaluation on 5-Fluroracil Induced Oral Mucositis in Animal Model

### Project Leader:

Assist. Prof. Dr. Ashok Kumar Janakiraman (UCSI)

### Members:

1. Assist. Prof. Dr. Kushagra Khanna (UCSI)
2. Dr. Siti Najila Mohd Janib (Malaysian Nuclear Agency)
3. Assoc. Prof Ts. Dr. Liew Kai Bin (Uni. of Cyberjaya)
4. Assoc. Prof. Dr. Hanish Singh Jayasingh Chellamal (UiTM)
5. Assoc. Prof. Dr. N Jawahar (JSS College of Pharmacy, India)

### Total Amount:

RM49,000.00

# Congratulations

## FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS) 2024



### **PROFESSOR DR. KALAVATHY RAMASAMY**

Glia-orchestrated dopaminergic neuroregeneration against Parkinson's disease: mechanistic insights from the 6-OHDA-lesioned adult zebrafish model to its single cell

RM 166,750.00



### **DR. RUZIANISRA BINTI MOHAMED**

Elicitation and Optimisation of Novel Peptide Inhibitors Human Cyclin-dependent kinases 6 (CDK6) Through in-silico and in-vitro Studies

RM 133,800.00



### **MADAM EZLINA BINTI USIR**

Elucidating the relationship between the public's behavioural traits and intention to adopt with the actual use of Telepharmacy Services in Malaysia using structural equation modelling

RM 81,500.00



### **ASSOC. PROF. DR. MOHD SHAHEZWAN ABD WAHAB**

A Community-Pharmacy-Based Fall Prevention Framework Across Continuums of Care Using the Circle of Care Modeling Approach

RM 76,450.00



### **DR. NOR HAYATI BINTI ABU SAMAH**

Biomimetic Advances in Adhesive Technology: Exploring the Role of Tannic Acid and Gelatine in Mussel-Inspired Mucoadhesive Films

RM 157,500.00

# Congratulations

## FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS) 2024



### **DR. MASHANI BINTI MOHAMAD**

Unraveling the immunometabolic role of liver sinusoidal endothelial cells in the pathogenesis of metabolic dysfunction-associated fatty liver disease (MAFLD) via peroxisome proliferator-activated receptors (PPARs) signaling cascade

RM 158,800.00



### **DR. SITI AZMA JUSOH**

Understanding the effect of PCSK9 mutations on the LDL receptor structure, protein-protein interactions and functions in clinically diagnosed Familial Hypercholesterolemia patients

RM 165,780.00



### **ASSOC. PROF. DR. MATHUMALAR LOGANATHAN**

Risk Stratification Modelling of Inappropriate Non-Steroidal Anti-Inflammatory Drugs Use for Osteoarthritis using Artificial Neural Networks and Model Validation in High-Risk Community Dwelling Older Adults

RM 92,050.00



### **ASSOC. PROF. DR. KHURIAH BINTI ABDUL HAMID**

Intranasal Drug Delivery: Unraveling the Transport Mechanisms of Oseltamivir Phosphate-Loaded Chitosan Nanoparticles

RM 155,800.00



### **DR. JANATTUL AIN BINTI JAMAL**

Elucidating the Role of Selected microRNAs in Attaining Optimal Pharmacokinetic and Pharmacodynamic (PK/PD) Profiles of Beta-Lactam Antibiotics in Critically Ill Patients with Sepsis

RM 153,800.00

# Congratulations

## CORRESPONDING AUTHORS OF THE MONTH



### **PROF. DR. AHMED MAHMOUD AHMED ALAFIFY**

Knowledge and Attitudes Regarding Depression Among a Sample of Iraqi Non-Psychiatric Nurses: A Cross-Sectional Study  
Unveiling dynamics of nitrogen content and selected nitrogen heterocycles in thrombin inhibitors: a ceteris paribus approach  
**WoS Q1/Q2**



### **ASSOC. PROF. DR. SYED ADNAN ALI SHAH**

Novel acyl hydrazide derivatives of polyhydroquinoline as potent anti-diabetic and anti-glycating agents: Synthesis, in vitro  $\alpha$ -amylase,  $\alpha$ -glucosidase inhibition and anti-glycating activity with molecular docking insights  
**WoS Q1/Q2**



### **DR. NUR SYAMIMI ARIFFIN**

The potential of carbonic anhydrase enzymes as a novel target for anti-cancer treatment  
**WoS Q1/Q2**



### **PROFESSOR DR. KALAVATHY RAMASAMY**

Predictive value of the World falls guidelines algorithm within the AGELESS-MELoR cohort  
**WoS Q1/Q2**



### **ASSOC. PROF. DR. MATHUMALAR LOGANATHAN**

Knowledge and Attitudes Regarding Depression Among a Sample of Iraqi Non-Psychiatric Nurses: A Cross-Sectional Study  
**WoS Q1/Q2**

# Congratulations

## CORRESPONDING AUTHORS OF THE MONTH



**ASSOC. PROF. DR. MOHD SHAHEZWAN ABD WAHAB**

Antidepressant adherence among outpatients with major depressive disorder

**WoS Q3/Q4**



**DR. HANIS HANUM ZULKIFLY**

ChatGPT's Success in the Board-Certified Pharmacotherapy Specialist (BCPS) Exam

**WoS Q3/Q4**



**DR. AZWANDI AHMAD**

Emotional Intelligence and Its Relationship with Vaccination Knowledge and Preventive Behaviours Among Medical and Non-Medical Undergraduate Students in UiTM Cawangan Selangor

**Scopus-indexed**



**DR. HASSERI HALIM**

LCMS Analysis, Antioxidant, Anti-Proliferative and Antimicrobial Activities of Combined Papaya, Honeydew and Mango Fruit Peel Extract

**Scopus-indexed**

# UPCOMING EVENTS

**25** TAHUN 1999-2024  
UITM SELANGOR UNIVERSITY

UNIVERSITI TEKNOLOGI MARA

Fakulti Farmasi

## ASEPTIC DISPENSING COURSE 2024 (ADC-UITM 2024)

- Recent updates
- Hands-on training on aseptic techniques
- Open to all healthcare providers (doctors, pharmacists, dietitians, nurses, others), academicians and students

**Elevate your skill now!**

**3 AUGUST 2024**

Faculty of Pharmacy  
UiTM Selangor Branch,  
Puncak Alam Campus,  
Selangor, Malaysia

**REGISTER HERE:**

CPD points A3 for pharmacists

Attractive fees: **RM 230/pax**

**STUDENT FEES is now RM50!**

Organised by,  
Department of Clinical Pharmacy  
Faculty of Pharmacy  
UITM

# UPCOMING EVENTS

LECTURES AND PRACTICAL SESSIONS


## 20TH WORKSHOP ON LABORATORY RODENTS (RATS AND MICE) CARE AND USE 2024

8-9 OCTOBER 2024 | 8:00 AM - 5:00 PM



**Registration Fee**  
**RM400 (UITM); RM600 (Others);  
 USD180 (International)**  
\*Group discount - RM500/participant for more than  
 FIVE (5) from the same Institution

**REGISTRATION**    **PROGRAM DETAILS**

**LABORATORY ANIMAL FACILITY  
 AND MANAGEMENT (LAFAM),  
 FACULTY OF PHARMACY,  
 UNIVERSITI TEKNOLOGI MARA,  
 PUNCAK ALAM.**

**FOR MORE INFORMATION:**  
Ms Nur Halina Mustafa (03-3258-4664)  
 Mrs. Nurul Aini Baharom (03-3258-4722)  
 nurhalina@uitm.edu.my, ain6964@uitm.edu.my

**Speakers**  
 Dr. John Shia Kwong Siew  
 Dr. Gurmeet Kaur Surindar Singh  
 AP. Dr. Hanish Singh Jayasingh Chelliammal  
 Prof. Dr. Mizaton Hazizul Hasan

**Course Content**

- Animal Models for Research and Genetics of Animal Models – Considerations in Animal Experiments
- Sample Size in Animal Research
- Management and Care of Laboratory Rats & Mice
- Enrichment – Effective Behavior Management
- Health Monitoring of Rats and Mice
- Bleeding Techniques, Anaesthesia & Euthanasia
- The Animal Welfare Act 2015 & MyCode 2019
- Animal Ethics Application: Do's and Don'ts



Kindly find the attached poster for detailed information regarding the workshop.

We would appreciate it if you could disseminate the information regarding this workshop to friends, students, staff and colleagues. For any further information, please contact the person-in-charge (PIC) :

1. Ms. Nur Halina Mustafa (nurhalina@uitm.edu.my, 03-32584664)
2. Mrs. Nurul Aini Baharom (aini6964@uitm.edu.my, 03-3258 4722)

Thank you and we look forward to your participation.



# CHOLESTROL

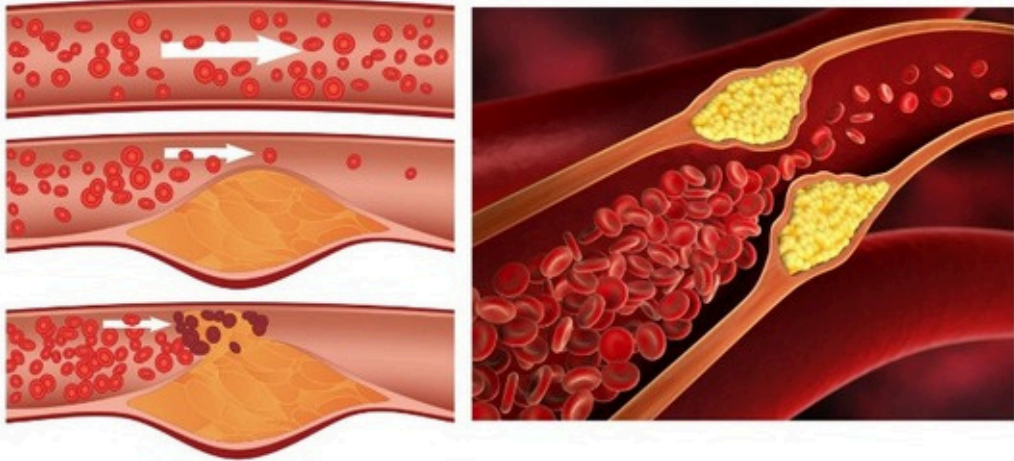
A risk factor of heart attack and stroke



## HIGH Cholestrol



Extra cholestrol can build up in your body. Having too much in your blood stream can increase the risk of a heart attack or stroke



Cholestrol Test is **NOW AVAILABLE** at ADAS Apothecary Kedai Farmasi UiTM!

### COME OVER!

Check your blood cholestrol level with us!

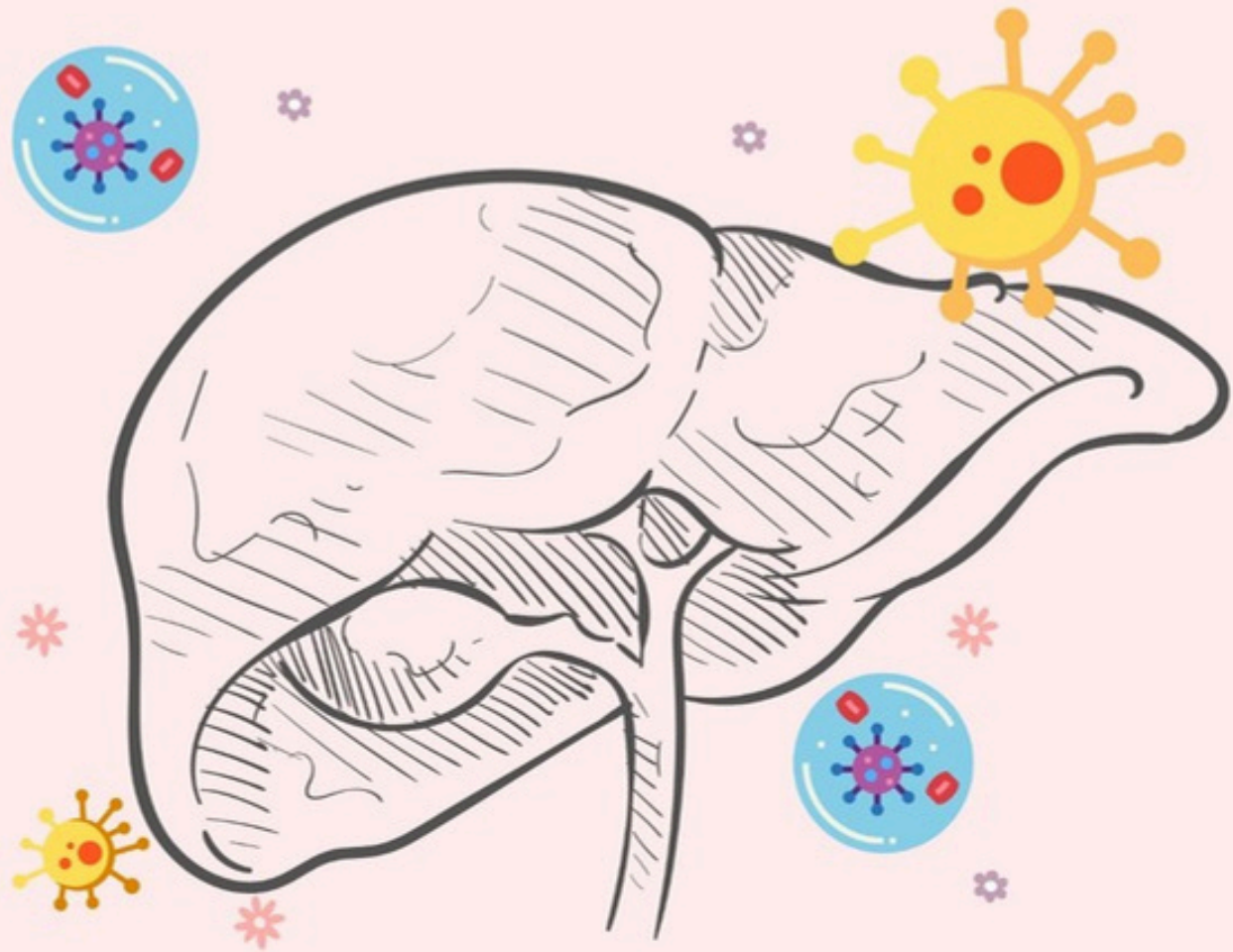
For any inquiries, feel free to reach us :



**BILIK KOPERASI 2, ARAS 4, PLAZA SATELIT B, UITM PUNCAK ALAM**

**Emel: [pharmashoppe@uitm.edu.my](mailto:pharmashoppe@uitm.edu.my)**

**Tiktok: [adas\\_kedaifarmasiuitm](https://www.tiktok.com/@adas_kedaifarmasiuitm)**



**HEPATITIS B AND C ARE THE MOST  
COMMON INFECTIONS AND RESULT IN 1.3  
MILLION DEATHS AND 2.2 MILLION NEW  
INFECTIONS PER YEAR  
(WHO)**

*World Hepatitis Month  
Get vaccinated!*

By: Mdm. Nur Sabiha Md Hussin

# PRESCRIPTION

Latest news and updates from the Faculty of Pharmacy



## NEWSLETTER EDITORIAL TEAM

**Editorial Advisor:**

Prof. Dato' Dr. Abu Bakar Abdul Majeed

**Authors:**

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