Issue 2/2023

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PRESCRIPTION Latest news and updates from the Faculty of Pharmacy



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EPIDRUGS IN PRECISION MEDICINE, THE PLAUSIBLE WAY FORWARD

It is not only our genes that control how our bodies respond to drugs and cope with disease states, but also by identifying the modifications to our histone proteins that regulate gene expression, we can discover a whole new direction for diagnostic and therapeutic biomarkers and drug targets as well.

In the last two decades, epidrugs have been developed to target the histone-modifying enzymes. It could be defined as small-molecular entities that inhibit epigenome and/or enzymes with epigenetic activity. Many preclinical evidence suggested that targeting epigenetic deregulation is an effective strategy to combat human diseases. However, implementing epidrugs in clinical practice is mainly limited to haematological malignancies.

• Upcoming Events

Epigenetics is the study of how cells control gene activity without affecting the DNA sequence. Several lifestyle factors have been identified that might modify epigenetic patterns, such as physical activity, tobacco smoking, diet, alcohol consumption, obesity, exposure to environmental pollutants, psychological stress, and working on night shifts.

The role of epigenetic modifications in individual drug response is generally less well studied than the role of genetic variations, but epigenetics has a big role to play in the expression of the genes that relate to drug metabolism, transport and receptors, which contribute to drug efficacy and safety.

Epidrugs were originally developed for the three common categories of epigenetic regulators (writers, readers and erasers) where they selectively target marks responsible for epigenetic alterations, consequently improving, treating, or preventing the associated disease state.



While writers are responsible for adding chemical groups to the target protein by transferases; erasers remove them. In addition, epigenetic modifications are recognized by a set of reader domains that are recruited to specific epigenetic marks and act as an effector protein. At present, vorinostat and romidepsin were the first drugs to be approved that influence epigenetic post-translational modification of histone proteins, for refractory cutaneous T-cell lymphoma. Belinostat targets HDAC (histone deacetylase) enzymes, thereby inhibiting tumour cell proliferation, inducing apoptosis, promoting cellular differentiation, and inhibiting angiogenesis. Panobinostat for multiple myeloma based on their HD inhibition.

Also, decitabine, the DNMTs (DNA methyltransferase) inhibitor was approved due to its positive results in patients with haematological malignancies, e.g myelodysplastic syndromes, acute myeloid leukaemia, and chronic myelomonocytic leukaemia. Currently, epidrug development in erasers is undergoing clinical evaluation for efficacy in different cancer settings.

In spite of their potential, there are many obstacles to be addressed for efficient application of epidrugs to treat a range of human cancers. Not only the lack of specificity, failure in solid tumours but also the likely chemoresistance leading to tumour relapse.



However, there are cutting edge approaches in the field of chemical and molecular biology that are running currently to help translate epidrug therapy to clinical practice. Although still in its early stages, the epidrug multitargeting interesting concept, the epigenetic-based synthetic lethality strategies and the use of epidrugs in combination with other therapies are introduced as alternatives for optimising the clinical translation of epigenetic therapy.

Finally, precision medicine, in general, suffers high cost, misinterpretation of genetic and health data, risk of genetic discrimination, access and availability of genetic testing, and a relatively unprepared primary care workforce. If these pitfalls are joined with the epidrugs challenges' such as persistent (or perhaps slowly-reversing) gene expression changes and epigenetic effects, then the situation becomes worse.

INVESTIGATING THE BIOLOGICAL IMPACT OF PHARMACEUTICAL POLLUTANTS EXPOSURE TOWARDS MALAYSIAN POLYCHAETES, MARPHYSA MORIBIDII AND DIOPATRA CLAPAREDII USING NUCLEAR MAGNETIC RESONANCE-BASED METABOLOMICS

There were numerous studies conducted globally and pointed out potential role of polychaete or locally known as "umpun-umpun" in the field of nature conservation, economy and even medical use. The polychaetes construct, ingest particles and irrigating activity is vital for marine ecosystems. The presence of polychaetes and different species in an integrated multi trophic aquaculture can improve efficacy, reduce waste and provide ecosystem services potentially lead to significant economic, social, and ecological benefits. In fact, the polychaetes are commonly used as fish baits. In Malaysia, the selling price of polychaetes can be up to RM1 each and probably higher depending on the size.

Besides, polychaete extract is known to possess medicinal value. *Arenicola marina* blood for example has been extensively studied to be a good substitute for human's blood. The Malaysian exclusive polychaete species, *Marphysa moribidii* extracts exert wound healing properties. Moreover, the *M. moribidii* and *Diopatra claparedii* serve as green technology in producing silver nanoparticles. The silver nanoparticle exhibits significant antibacterial properties.



Diopatra claparedii

Marphysa moribidii

Polychaetes habitat Photos by Mr. Mohd Amir Abd. Aziz

Polychaetes are acknowledged as ecosystem engineers, and their various activities significantly impact sediment biogeochemistry. Several species of polychaetes around the globe have been utilized as an aquatic biomonitoring system to assess the environmental quality of sediment affected by pharmaceutical contamination. In Malaysia, several pharmaceutical active compounds were detected in the aquatic system including caffeine, metformin, paracetamol, diclofenac, amoxicillin and others. The concentration however, varies according to the place of sampling. Pharmaceutical pollution in aquatic systems has been observed especially in areas with high population, high industrial and high agricultural activities. Unfortunately, the release of these pharmaceutical waste is still loosely regulated. Despite the concentration of these compounds being relatively low, its impact towards the ecosystem especially on the marine organism should not be underestimated. Moreover, the magnitude of effect due to the interactions between drugs or substances remain poorly understood.

This project is a collaborative work between researchers in the Universiti Teknologi MARA (UiTM) and Universiti Malaysia Terengganu (UMT). This work is an attempt to see whether these two species (*M. moribidii and D. claparedii*) can be excellent proxies for detecting the impact of pharmaceutical pollutants. In other words, whether the pollutants affect ecosystem functions and services of these two annelids.



Sampling activities at Morib mudflat area, collaborative works UiTM-UMT

TEAM MEMBERS



- 1. Dr. Hisyam Abdul Hamid (UiTM, project leader)
- 2. Dr. Noreen Husain (UiTM)
- 3. Assoc. Prof. Dr. Syed Adnan Ali Shah (UiTM)
- 4. Prof. Dr. Wan Iryani Wan Ismail (UMT)
- 5. Assoc. Prof. Dr. Izwandy Idris (UMT)



POSTGRADUATE STUDENT Ms. Siti Mardhiyah Razali

> **Dr. Hisyam Abdul Hamid** Project Leader, Faculty of Pharmacy, UiTM

"Drug Expert: Notre Espoir"

In response to the call to actively engage in the community services and knowledge transfer events, an educational program named "Drug Expert; Notre Espoir" was successfully organized on 6th January 2023. Officiated by En. Amer Herberd Abdullah (Deputy Rector of Bertam Campus), this program was participated by 39 primary school students accompanied by 3 teachers from the *Kelab SETEM dan Doktor Muda*, SK Kg. To' Bedor.



The term "Notre Espoir" means "Our Hope" in English, which embodies the aim to introduce young students to the field of pharmacy and the responsibilities of pharmacists in maintaining the health and wellbeing of individuals.

The program was designed to be both educational and interactive, with the focus on engaging the students in a comfortable learning environment. Students were provided with a friendly and supportive atmosphere to ensure they had a positive experience throughout the program. During the program, students were introduced to the different career options available in the field of pharmacy and the opportunities for further education and professional development. They were also taken on a tour of the faculty's facilities and were shown various equipment and instruments used by pharmacists in their daily work. In addition, students were also given hands-on experience to prepare ointments and creams, which help them with a deeper understanding on the practical aspect of the pharmacy field.



The Faculty of Pharmacy (Bertam Campus) is committed to promote a high-quality education in the field of pharmacy, and this program served as one of the many initiatives planned towards achieving this goal. The program demonstrated the commitment of the Faculty of Pharmacy toward education and community services. It is hoped that through this program, it would inspire youngsters to pursue a career in the field of pharmacy.

Dr. Mohd Nadzri Mohd Najib, Dr. Siti Syairah Mohd Mutalip Program Coordinator, Faculty of Pharmacy, UiTM Penang

SURVEILLANCE ASSESSMENT MS ISO 17025:2017 BY JABATAN STANDARD MALAYSIA

UiTM Pharmacy Analytical Laboratory (UiPAL) has successfully undergone MS ISO/IEC 17025:2017 surveillance assessment conducted by Jabatan Standard Malaysia (JSM) on 10th February 2023. MS ISO ISO/IEC 17025:2017 emphasizes on the general requirement for the analysis according to the Standard Malaysia to carry out tests and/or calibrations as well as sampling. The assessment is carried out annually to ensure all laboratory activities were carried out according to the standard, thus continuing the MS ISO/IEC 17025 certification for the laboratory.

UiPAL was assessed in two areas; chemical and microbiology which cover the disintegration test, uniformity of weight and microbial contamination testing. The lead assessor, Mr. Pua Hiang from JSM, assisted by his two technical assessors for chemical and microbiology scope, carried out this on-site surveillance assessment of the laboratory's management system, to ascertain that the laboratory has been performing its laboratory activities in accordance with the requirements of MS ISO/IEC 17025:2017 and the Malaysian Laboratory Accreditation Scheme (SAMM).

The assessment team also assessed two new signatories nominated by the laboratory and verified the implementation of the corrective actions taken by the laboratory on the non-conformities raised in the last assessment. The assessment team found that the laboratory management system was generally satisfactorily maintained and the organization structure remained proper with no apparent conflict of interest in its set-up. The quality of the management team also remained the same and the laboratory was able to maintain the effectiveness of its management system appropriate to the current scope of accreditation. The assessment team has also raised eight non-conformities (minor) pertaining to resource, process and Management System requirements.

The laboratory adequately participated in inter-laboratory comparisons (ILCs) for Disintegration and Uniformity of Weight tests, and Microbial Examination of Non-Sterile Products in 2022. The performance of the laboratory in the ILCs was reported to be satisfactory. Two laboratory personnel were observed while performing the tests in the scope and their performance was certified as acceptable. In summary, the assessment team recommended that accreditation of UiPAL be continued for its current scope in chemical and microbiological testing upon satisfactory discharge of the non-conformities raised. UiPAL would like to thank all teams' members for their endless cooperation, support and commitment to making the event successful and the continuation of lab accreditation MS ISO 17025:2017.



Ms. Kathleen J.Jalani, Dr. John Shia Kwong Siew Analytical Laboratory, Faculty of Pharmacy, UiTM

UITM AND VISTAS INKS MOU FOR EDUCATION AND RESEARCH COLLABORATION

On 3rd February 2023, Universiti Teknologi MARA (UiTM) and Vels Institute of Science Technology and Advanced Studies (VISTAS) have signed a memorandum of understanding (MoU) in various fields focusing on collaboration to enhance education and research institutions' quality as well as sharing of information and expertise.

The MoU was signed by UiTM Vice-Chancellor, YBhg. Prof. Datuk Ts. Dr. Hajah Roziah Mohd Janor and VISTAS's Registrar, Dr P. Saravanan. The signing ceremony was attended by representatives from both institutions including, Dr S. Sriman Narayanan, Vice Chancellor of VISTAS, Dr P. Shanmugasundaram, Director of the School of Pharmaceutical Sciences, VISTAS and Prof. Dato' Dr. Abu Bakar Abdul Majeed, Dean Faculty of Pharmacy, UiTM.

According to Prof. Datuk Ts. Dr. Hajah Roziah the collaborative partnership with VISTAS is in line with UiTM vision to be a globally renowned university in science, technology, humanities, and entrepreneurship. "VISTAS is strong in formulation and pharmaceutical industry work. VISTAS's sturdy network with the pharmaceutical industry in India can help UiTM attain wider networking in the future. With this MoU, we hope to collaborate in research endeavours as well as in staff and student attachment and programmes to learn from one another," she said. Prof. Datuk Ts. Dr. Hajah Roziah added that UiTM is truly delighted to celebrate the addition of VISTAS as its valuable partner. VISTAS, an institution ranked 34 in the India Ministry of Education Ranking for pharmacy education with established academic and research reputations, will be a significant opportunity for UiTM to enhance academic growth for greater international connection and networking.

The cooperative relationship following the MoU signing is projected to initiate good and sustainable development steps towards UiTM and VISTAS shared vision in providing top-notch education and research quality as well as ensuring high graduate employability. Future collaborative work between VISTAS and UiTM is also expected to address some of the current key global challenges based on the diverse research expertise and interest between the two institutions.



Ms. Zakiah Mohd Noordin, Dr. Siti Syairah Mohd Mutalip Lecturer, Faculty of Pharmacy, UiTM

FACULTY OF PHARMACY -PROMOTION BRIEFING FOR ACADEMIC STAFF

On 9th February 2023, the Faculty of Pharmacy conducted a Promotion Briefing Session for the academic staff at Gallery Room, Level 5, FF1 Building, UiTM Selangor Branch Puncak Alam Campus. The program was attended by more than 40 academic staff and an advisory committee.

This is the second time that the Faculty of Pharmacy's management has organised such a program following the first session conducted in the year 2018/2019. The promotion briefing was given by Mr. Khairul Ezuwan Samsuddin and assisted by two (2) facilitators, Mr. Safawi Mohd Nordin, and Mdm. Nur Madilawani Badri. All of the invited speakers were from the Career Development Division, Registrar Office, Universiti Teknologi MARA.

The briefing started with an introduction to the primary function of the Career Development Division, Registrar Office, UiTM based on the Promotion Guidelines, amendment 2020, and Academic Circular (no. 19, the year 2020) – "Guidelines for the Promotion of Academic Staff through the Clinical Track (Professional Practitioner Sub-track)".

The speaker then explained the condition, criteria, procedures, and scoring methods involved in the promotion process of academic staff which covered the promotion system under the Malaysian Remuneration System and its equivalent position grade in the new remuneration system. All academic staff may apply for promotion using iStaff Portal UiTM and all the evidence must be recorded in the e-Compliance, MyATP. The speaker also discussed the different requirements for promotion between different grades, for instance between Grade 45/46 to Grade 52, Grade 51/52 to Grade 54 (Associate Professor) and Grade 53/54 to Grade Professor (VK7). After that, the speaker also briefed on time-based promotion for pharmacist lecturers (Grade DUF) through career track promotion.

The program has received good feedback from the attendees and it is hoped that the program can be carried out regularly to increase staff's understanding and motivation in enhancing their career development.



Mdm. Azlinda Mohamad Nor, Dr. John Shia Kwong Siew Senior Assistant Registrar, Faculty of Pharmacy, UiTM

KEJOHANAN SUKAN ANTARA FAKULTI (SAF) 2023

The Inter-faculty Sports Tournament (Kejohanan Sukan Antara Fakulti) was conducted on 6th to 22nd January 2023 at UiTM Shah Alam Sports Centre and various locations around the campus. Organised by the Sports Unit, Division of Students Affairs, UiTM Shah Alam, the tournament was participated by 6959 athletes from four uitm campuses namely UiTM Puncak Alam, Puncak Perdana, Dengkil and Sungai Buloh. On this occasion, the Faculty of Pharmacy has sent a total of 318 athletes to compete in 23 sports, including physical and online games.



The program aimed to encourage active participation of students in sports activities, nurturing fit and healthy culture within the campus community and to identify talented students who have the potential to represent the university at higher level tournaments. In addition, the program is in line with the university initiative to support the third Sustainable Development Goal (SDG), which is "Good Health and Well-being". The successful program concluded with a highlight of marching performance by participating contingents including 50 students from the Faculty of Pharmacy during the closing ceremony held on January 21st.



The Faculty of Pharmacy contingent did the faculty proud by finishing among the Top 10 contingents overall with six medals in total - one gold, two silvers, and three bronzes. The outstanding performance is a result of the athletes's hard work and dedication as well as the reflection of the Faculty's commitment in promoting a healthy and active lifestyle among its students.

Overall, the Inter-faculty Sports Tournament (*Kejohanan Sukan Antara Fakulti*) was a success, and has served as an excellent platform for students to showcase their athletic skills while promoting camaraderie and healthy competition among the participating faculties.

Ms. Syafiqah Saadon, Mr. Muhamad 'Izzuddin Zamery, Dr. John Shia Kwong Siew Society of Pharmacy Students, Faculty of Pharmacy, UiTM



ALUMNI SERIES PHARMACISTS TO PATIENTS: A LITTLE NOTE ON THE APPROPRIATE STORAGE OF MEDICATION

Effective management of medication storage at home is crucial to maintaining a patient's treatment over time. This is based on a previous study, where many consumers of medicines were found to practice improper methods of medication storage at home. For instance, it was discovered that they did not know the appropriate places to store their medications and instead kept them under inappropriate surroundings. They were also reported to be unaware of how the medications' stability and shelf life would be impacted by the improper storage conditions.

Medication storage - Why appropriateness matters?

The surrounding temperature, avoidance of direct heat or sources of heat, protection from direct light, and cool, dry places (somewhere with low humidity) are among the external factors that may influence the appropriateness of medication storage. Here are a few examples on the reported effects of inappropriate medication storage. For instance, raising or extremely lowering the storage temperature has a considerable impact on insulin's potency. In addition, medications in liquid form are also reported to be mostly affected by direct sunlight. The presence of moisture in the environment also could potentially reduce the stability of medicine through the hydrolysis of active substances, and hydrolysis can happen to medications in the forms of solution, suspension, and solid dose.

Medicines whose stability was impacted by an inappropriate storage condition might have poor potency and efficacy. For example, poor blood sugar control in a patient could be partly due to the effect of improper storage of insulin at home. Consequently, the poor control of diabetes might increase the risk of the patient to develop diabetic complications. Another possibility is that an appropriate medication storage could avoid the risks of accidental medication ingestion, where it could be fatal in certain cases, especially when children are involved. Hence, this is why the appropriate medication storage is important!

Appropriate medication storage – How can pharmacists help?

In general, lack of understanding and knowledge often leads to the poor practice of proper medication storage. This is where the pharmacists may offer help by providing the necessary information to the patients when dispensing the drug. The information may include the right way to use, take, transport and store the medicine. Pharmacists also could remind patients to follow the recommended storage conditions as stated on the label of their medications. Simple sentences like "Please store your medicines as recommended on the label" or "Refer to your label for the proper storage condition of your medicines" should be included in the instructions to every patient during dispensing. This practice will not only help deliver information to the patients, but also makes the pharmacists to always be updated with the latest knowledge on medication storage.

ANUGERAH KECEMERLANGAN PENCAPAIAN UITM 2022

- Anugerah Insentif Kecemerlangan
 - Skor i-UiTM 2022 (6♣) 91%

Anugerah Insentif Kecemerlangan - PI Pemberat 4 2022

- *Kategori PI045:* Number of Student Enrolment (International Postgraduate Students).
- Kategori Pl051: Number of High Impact Publications.
- *Kategori PI054:* Number of Indexed Joint Publication with Industry Collaborators.

Anugerah Penjanaan Pendapatan Cemerlang

• PI117: Income Generation for *Kumpulan Wang Amanah* from Education / Training Programmes / Academic Programmes / Competition

CONGRATULATIONS TO JAN 2023 GRANT RECIPIENTS

- Assoc. Prof. Dr. Sadia Sultan | Kolaborasi Entiti Penyelidikan UiTM Grant-KEPU | RM 40 000.00
 - Mechanistic Studies to Understand Metastasis Breast Cancer: Towards the Effects of Microbial Derivatives of Testosterone Propionate on MDA-MB 231 Cell Migration
- Dr. Gurmeet Kaur Surindar Singh | Kolaborasi Entiti Penyelidikan UiTM Grant-KEPU | Rm 40 000.00
 - Exploring the Potential Neuroprotective Properties of Astaxanthin Nanoemulsion in Modulating Brain Insulin Resistance in an Alzheimer's Disease Rat Model
- Dr. Normala Abd Latip | Geran Insentif Penyeliaan-GIP | RM 18 000.00
 Analysis of Endocrine Disrupting Compounds in Human Serum Using Minimal Blood Sample

UPCOMING EVENTS



17th Workshop on Laboratory Rodents, Rats and Mice Care and Use

TLaboratory Animal Facility & Management (LAFAM), Faculty of Pharmacy, UiTM Puncak Alam cordially invites you to participate in our upcoming 17th Rodent Workshop in March 2023!

> Date : 7th - 8th March 2023 Time : 8.00 am – 5.00 pm Venue : Faculty of Pharmacy, UiTM Puncak Alam

For any further information, please do not hesitate to contact the person-in-charge (PIC):

- Assoc. Prof. Dato' Dr. S. Vellayan (03-3258 4701 / 013-6246918)
- Dr. Nursakinah Latifi (03-3258 4689 / 013-3141553)
- Mr. Mohamad Bashir Yaacob (03-3258 4677 / 4722 / 4633)

Hands-on Workshop: Bioinformatics for Life Sciences & Drug Design 2023

Faculty of Pharmacy, UiTM Puncak Alam cordially invites you to our upcoming Hands-on Workshop: Bioinformatics for Life Sciences and Drug Design. The objective is to provide a learning platform for interested researchers in the structural biology field. The 5-Days workshop consist of 3 main modules, which are protein structure modelling, receptor-ligand docking and molecular dynamics simulation. Participants may choose the workshop package based on their interest. Details of the workshop are as follows:

> Date : 13th -17th March 2023 Venue : Faculty of Pharmacy, UiTM Puncak Alam

For more information and inquiry, please contact Dr Siti Azma Jusoh via email at sitiazma@uitm.edu.my.

Thank you and we look forward to seeing you at the event.



UPCOMING EVENTS



BASIC OF IMAGE PROCESSING AND ANALYSIS WITH IMAGE-J

BASIC OF IMAGE PROCESSING AND ANALYSIS WITH IMAGE-J Imaging Center (IMAGE), Faculty Pharmacy, Universiti Technology MARA Puncak Alam Campus, 42300 Bandar Puncak Alam, Selangor.

Imaging Center (IMAGE) is organizing our first Workshop on Basic of Image Processing And Analysis With Image-J. this workshop is organized with blended lecturers and hands-on practical conducted with well-known experts on images analysis.



Workshop: Basic of Image Processing and Analysis with Image-J

The Imaging Centre Faculty of Pharmacy, UiTM Puncak Alam cordially invites you to our upcoming Workshop: Basic of Image Processing and Analysis with Image-J. Details of the workshop are as follows:

Date : 15 March 2023 (Wednesday) Time : 8.30 am- 1.00 pm Venue: Computer Laboratory 2, Block FF2, Level 5, Faculty of Pharmacy (Registration, lecturers and practical session)

Registration can be made through the link: https://forms.gle/xkyHtGcMWAmmEDwR8

For more information and inquiry, please contact:

- Dr. Zolkapli Eshak (0332584744)
- Mdm. Norhayati Mohd Monzai (0332584703/ 0136348626)

Chromatography and Chromatographic Techniques Workshop

Atta-ur-Rahman Institute for Natural Product Discovery, in collaboration with the Analytical Unit, is organizing a workshop on Chromatography and Chromatographic Techniques. The workshop includes chromatographic instrumentation, quantitative and qualitative methods in chromatography, development of chromatographic methods, both theory and practical. Details of the workshop are as follows:

Date: 15 -16 March 2023 Venue: Level 8 & 9, FF3, UiTM Puncak Alam Register here: https://tinyurl.com/chromatographyAuRIns

For more information on registration types and rates, please visit https://tinyurl.com/chromatographyAuRIns. Should you have any questions, please email to aurins@puncakalam.uitm.edu.my

Thank you and we look forward to seeing you at the event.





RAMADHAN PROMOTION



Ramadhan Mubarak

A time of fasting, reflection, and spiritual growth, Ramadhan is also a time of giving and sharing.

Let's get Ajwah Dates products from Olive House at ADAS Apothecary in celebration of the holy month.

The traditional dish for iftar, Ajwah dates can also be given as Ramadan gifts to friends, family and colleagues.

Don't miss out on our Ramadhan offer and place your order now!



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For further information, please contact us at:

- pharmashoppe@uitm.edu.my
- ③ 03-32584858
- f https://www.facebook.com/adasapothecaryuitm

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Faculty of Pharmacy UiTM



https://pharmacy.uitm.edu.my/



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REACH US

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