

DBS Bulletin

December 2019
Issue 10

Bumper Issue



The participants of the ASEAN Emerging Researchers Conference 2020 with Dr. Elizabeth Lee (CEO of Sunway Education Group), Datuk Ir Dr Siti Hamisah binti Tapsir, Secretary General, Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) Malaysia, Dr. Pathom Sawanpanyalert, Deputy Permanent Secretary of the Ministry of Higher Education, Science research and Innovation Thailand, Dr. Mohamad Nor Azman Hassan, Deputy Secretary General (Science, Technology & Innovation) MESTECC Malaysia and Prof. Jane Clarke, President of Wolfson College University of Cambridge.

Foreword by Prof. Abhi



This bumper 2019 edition reflects the magnitude of achievement by our department's staff and students during a rather frantic November and December. From the buzz of a typical academic semester to the various academic, scholastic and fellowship, it has been extremely rewarding both on a personal and professional level. These activities epitomise the dynamic and vibrant academic culture that the department has fostered. I would also take this opportunity to thank all our academic and support staff. Your dedication towards supporting the department's teaching and research interest has been truly outstanding. It is fantastic that our student enrolment and publications are in an upward trajectory and I am certain that we have the talent and tenacity to continue this positive progress. I would also like to take the opportunity to thank Prof Serge, our Dean, Ms Teo Wei Nie, our School Manager and the various school administration staff for their continued support and guidance.

More importantly, I truly believe that our staff-student engagement has also significantly increased in the past few months. We are truly lucky that we have such talented and enthusiastic talent enrolled in our undergraduate and postgraduate programmes. I am very grateful that we never have a problem in getting student volunteers to support our programmes. The proactivity of our students in supporting our research and conference activities has been fantastic. I truly believe that the realisation of the Sunway Biological Society (SBioS) has added so much value towards fostering a stronger staff-student collaborative spirit. I would like to thank Helmi and Zoey for leading these initiatives and Dr. Kavita Reginald and Dr. Chew Jacty for your continuous guidance of the society.

The initiative by the Department and SBioS to have a year-end strategic reflection and fellowship event, themed December to Remember was an overwhelming success. The students successfully created such a festive and merry atmosphere. Besides the fantastic ideas that were shared on how we can strategically enhance the learning experience and professional development opportunities in the department, I was also truly astounded by the amazing musical talent we have amongst our students. I am really glad that we certainly don't have to pay for entertainment during our future events. I am going to engage all of you. 😊

Thank you once again to everyone in the University and beyond for your continuous support to the department. I really hope that the goodwill fostered during the December to Remember event will translate to a 2020 to remember!

Research Publications

1. Lahiri C, Pawar S, Mishra R. Precision medicine and future of cancer treatment. Precision Cancer Medicine. 2019. <http://dx.doi.org/10.21037/pcm.2019.09.01>

Significance of findings: Over the last few decades, there has been a deluge in the production of large-scale biological data mainly due to the advances in high-throughput technology. This has initiated a paradigm shift in the focus of medical research. The ability to investigate molecular changes over the whole genome provides a unique opportunity in the field of translational research. This has also given rise to the concept of precision medicine which provides a strong hope for the development of better diagnostic and therapeutic tools. This is especially relevant to cancer as its incidence is increasing throughout the world. The purpose of this article is to review tools and applications of precision medicine in cancer.

2. Mandary MB, Masomian M, Poh CL. Impact of RNA Virus Evolution on Quasispecies Formation and Virulence. Int J Mol Sci. 2019; 20(18). pii: E46-57. Review. <https://doi.org/10.3390/ijms20184657>

Significance of findings: RNA viruses are known to replicate by low fidelity polymerases and have high mutation rates whereby the resulting virus population tends to exist as a distribution of mutants. In this review, we aim to explore how genetic events such as spontaneous mutations could alter the genomic organization of RNA viruses in such a way that they impact virus replications and plaque morphology. The phenomenon of quasispecies within a viral population is also discussed to reflect virulence and its implications for RNA viruses. An understanding of how such events occur will provide further evidence about whether there are molecular determinants for plaque morphology of RNA viruses or whether different plaque phenotypes arise due to the presence of quasispecies within a population. Ultimately this review gives an insight into whether the intrinsically high error rates due to the low fidelity of RNA polymerases is responsible for the variation in plaque morphology and diversity in virulence. This can be a useful tool in characterizing mechanisms that facilitate virus adaptation and evolution.



Ms. Madiiha Mandary
MSc Life Science Candidate

3. Lew SY, Yow YY, Lim LW and Wong KH. Antioxidant-mediated protective role of *Hericium erinaceus* (Bull.: Fr.) Pers. against oxidative damage in fibroblasts from Friedreich's ataxia patient. Food Sci. Technol, ahead of print Epub Dec 13, 2019. <http://dx.doi.org/10.1590/fst.09919>

Significance of findings: Friedreich's ataxia (FRDA) is a progressive neuromuscular disorder caused by substantial decrease of mitochondrial protein frataxin responsible for biogenesis of

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iron-sulphur clusters and protection from oxidative damage. In this study, we investigated the antioxidant activities of a standardized aqueous extract from fruiting bodies of *Hericium erinaceus* mushroom (HESAE) and its protective effects against oxidative damage induced by L-Buthionine sulfoximine (BSO) in fibroblasts derived from FRDA patient. The lactate dehydrogenase-based viability assay showed that FRDA fibroblast was sensitive to 12.5 mM BSO with a reduction of viability to $52.51 \pm 13.92\%$ after 24 h of BSO exposure. Interestingly, co-incubation with 32 mg/mL HESAE increased the viability to $85.35 \pm 3.4\%$. Furthermore, 12.5 mM BSO caused a decrease in the ratio of cellular reduced glutathione (GSH) to oxidised GSH (GSSG) that leads to cell death. Nevertheless, the damage was reduced by co-incubation with 32 mg/mL HESAE. Nuclear fluorescence staining revealed that 12.5 mM BSO induced cell death and the apoptosis was decreased by co-incubation with HESAE. These findings suggest the ability of HESAE in attenuating BSO-mediated cytotoxicity through maintenance of membrane integrity and optimal GSH/GSSG ratio, that are closely linked to its antioxidant activities. Further *in vivo* trials are highly warranted to clarify its potential benefits in management of FRDA.

4. El-Wazzan E, Ghareeb DA and Abdella B. Pre-induction of Hsp70 expression to protect the grooved carpet shell clam, *Ruditapes decussatus*, against *Micrococcus luteus*: A trained immunity strategy. The Egyptian Journal of Aquatic Research (available online 22 Nov 2019). <https://doi.org/10.1016/j.ejar.2019.10.004>

Significance of findings: Bacterial pathogens cause disease-associated mortality in *Ruditapes decussatus*, a model bivalve for aquaculture in Egypt. In this study, it was hypothesized that trained immunity could be achieved to enhance disease resistance against *Micrococcus luteus* by pre-inducing Hsp70 expression. Clams were challenged via a seawater bath with *M. luteus* at various concentrations (2.5×10^4 , 5.0×10^4 , and 7.5×10^4 CFU/ml), gill Hsp70 was quantified using ELISA and infected clams were compared to controls in two experiments (with one 17-day and two 17-day infection periods separated by a 7-day depuration period for recovery, respectively). Infection with *M. luteus* significantly altered Hsp70 expression compared to the control levels. Downregulation occurred at low concentrations and upregulation at the two higher concentrations. When used in the trained immunity trial, Hsp70 upregulation occurred in infected clams during the first infection and persisted during the 7-day recovery. Re-infection led to the increase of Hsp70 levels, which reached maximum values, and enhanced survival. The results confirmed that Hsp70 is involved in the immune response and disease resistance by protecting *R. decussatus* against re-infection with *M. luteus*. These results suggested the use of trained immunity as disease control strategy.



Mr. Bahaeldin Abdella
PhD Biology Candidate

Research Publications

5. Pawar S, Bramhachari PV and Lahiri C. In Silico Approaches for Unearthing Bacterial Quorum-Sensing Inhibitors Against Pathogenic Bacteria. Implication of Quorum Sensing and Biofilm Formation in Medicine, Agriculture and Food Industry (2019) pp 67-83.
https://link.springer.com/chapter/10.1007%2F978-981-32-9409-7_6

Significance of finding: The bacterial phenotypic traits of biofilm formation, bioluminescence, swarming motility, and even virulence are highly influenced by the phenomenon of cell density-dependent gene regulation a.k.a. quorum sensing (QS) through which the bacteria communicate within themselves. Essentially, QS is an intracellular signaling system which are different for the different gram characters of bacteria. While gram-negative bacteria use chemical autoinducer molecules like acyl-homoserine lactones (AHLs) for such signaling, the gram-positive bacteria use peptide-based signaling systems. These quorum-sensing peptides (QSPs) can initiate a signaling cascade of events via two-component system or even by direct binding to transcription factors. After the detection of QSPs by bacteria, response regulators or transcriptional factors are activated, which further stimulates change in the target gene expression. Owing to the therapeutic potential of the AHLs and QSPs as drug targets, different in silico approaches were utilized for the identification of inhibitors and their modeling which can help in combating the respective bacterial pathogenicity. Thus, certain group of researchers also developed machine learning tools based on support vector machine (SVM) and hidden Markov models (HMM) for the identification of novel and effective biofilm inhibitory peptides (BIPs), while others used in silico approaches for predicting and designing of antibiofilm peptides using bidirectional recursive neural network (BRNN) and Random Forest (RF) algorithms. Moreover, biological network visualization techniques and analysis enabled the identification of QSPs in different bacteria using related information from the curated databases. To this end, identification of the binding pocket(s), motif search, and other physicochemical properties will help in predicting the three-dimensional structure of such target. Furthermore, ultra-high-throughput screening is another approach which unveils QS inhibitors (QSI) based on the characterization of natural products and screening for naturally occurring enzymes. This review specifically focuses on all such in silico approaches in predicting QSI in different bacterial species. Such in silico QSI predictions and their docking onto QS targets can help to shape a promising future for making newer therapeutic options against different pathogenic bacteria.

6. Chong PS, Poon CH, Fung ML, Guan L, Steinbusch HWM, Chan YS, Lim WL, Lim LW. Distribution of neuronal nitric oxide synthase immunoreactivity in adult male Sprague-Dawley rat brain. Acta Histochemica (2019) 121(8): 151437.
<https://doi.org/10.1016/j.acthis.2019.08.004>

Significance of finding: Neuronal NOS (nNOS) accounts for most of the NO production in the

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nervous system that modulates synaptic transmission and neuroplasticity. Although previous studies have selectively described the localisation of nNOS in specific brain regions, a comprehensive distribution profile of nNOS in the brain is lacking. Here we provided a detailed morphological characterization on the rostro-caudal distribution of neurons and fibres exhibiting positive nNOS-immunoreactivity in adult Sprague-Dawley rat brain. Our results demonstrated that neurons and fibres in the brain regions that exhibited high nNOS immunoreactivity include the olfactory-related areas, intermediate endopiriform nucleus, Islands of Calleja, subfornical organ, ventral lateral geniculate nucleus, parafascicular thalamic nucleus, superior colliculus, lateral terminal nucleus, pedunculopontine tegmental nucleus, periaqueductal gray, dorsal raphe nucleus, supragenual nucleus, nucleus of the trapezoid body, and the cerebellum. Moderate nNOS immunoreactivity was detected in the cerebral cortex, caudate putamen, hippocampus, thalamus, hypothalamus, amygdala, and the spinal cord. Finally, low NOS immunoreactivity were found in the corpus callosum, fornix, globus pallidus, anterior commissure, and the dorsal hippocampal commissure. In conclusion, this study provides a comprehensive view of the morphology and localisation of nNOS immunoreactivity in the brain that would contribute to a better understanding of the role played by nNOS in the brain.

7. Ishak NNM, Jamsari J, Ismail AZ, Tahir MIM, Tiekink ERT, **Veerakumarasivam A**, Ravooof TBSA. Synthesis, characterisation and biological studies of mixed-ligand nickel (II) complexes containing imidazole derivatives and thiosemicarbazide Schiff bases. *Journal of Molecular Structure* (2019) 1198: 126888

Significance of finding: Four new mixed-ligand Ni(II) complexes (1-4) containing imidazole (im) or benzimidazole (bz) and tridentate Schiff bases derived from 2,4-dihydroxybenzaldehyde (24D) and 4-methyl-3-thiosemicarbazide (MT24D) or 4-phenyl-3-thiosemicarbazide (PT24D) were synthesised and characterised using elemental and spectral analysis including FTIR, UV-Vis, ¹H NMR, ¹³C NMR and mass spectrometry for Schiff bases, while the complexes were additionally analysed using ICP-OES, molar conductivity, magnetic susceptibility measurements and single crystal X-Ray diffraction (SXRD) analysis. Magnetic susceptibility indicated a square planar geometry for all the metal complexes while molar conductance values showed that the complexes were non-electrolytes in DMSO. The molecular geometries of the neutral complex molecule in [Ni(MT24D)(bz)](bz). CH₃OH (2'), that is 2 co-crystallised with a 1,3-benzimidazole molecule as a methanol solvate, and in the cation of [Ni(MT24D)(im)]O₂CMe.2H₂O (5), a reaction intermediate for 1, were established by X-ray crystallography. Each featured a trans-N₂O₂ coordination geometry defined by phenoxide-O, imine-N and thiolate-S (2') or thione-S (5) donors as well as the imine-N donors derived from 1,3-benzimidazole (2') or imidazole (5) molecules. Systematic variations in geometric

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parameters were correlated with the form of the tridentate ligand, i.e. di-anionic (2') or mono-anionic (5). In the crystal of 2', supramolecular chains were sustained by hydrogen bonding and these were connected into a supramolecular layer by $\pi \dots \pi$ stacking interactions occurring between coordinated benzimidazole rings. In the crystal of 5, hydrogen bonding led to a three-dimensional architecture. The Schiff bases and mixed-ligand Ni(II) complexes were tested for their cytotoxic activity, but all compounds were inactive against the MDA-MB-231 and MCF-7 breast cancer cell lines. Interestingly, the antibacterial analysis of the compounds showed that the PT24D Schiff base, Ni(MT24D)im, Ni(MT24D)bz, and Ni(PT24D)bz complexes had specific and selective activity against *Staphylococcus aureus* (*S. aureus*), *Bacillus subtilis* (*B. subtilis*), *Propionibacterium acne* (*P. acne*) and *Enterobacter aerogenes* (*E. aerogenes*). The DNA binding studies of mixed-ligand Ni(II) complexes against calf thymus DNA revealed that slight hypochromism was observed in the absorption spectra suggesting π - π interactions between the aromatic chromophores and the DNA base pairs where 2 had higher K_b values than 1 thus indicating stronger interactions.

Staff Achievements

Congratulations to Assoc. Prof. Dr. Chandrajit on receiving the Jeffery Cheah Travel Grant 2020.

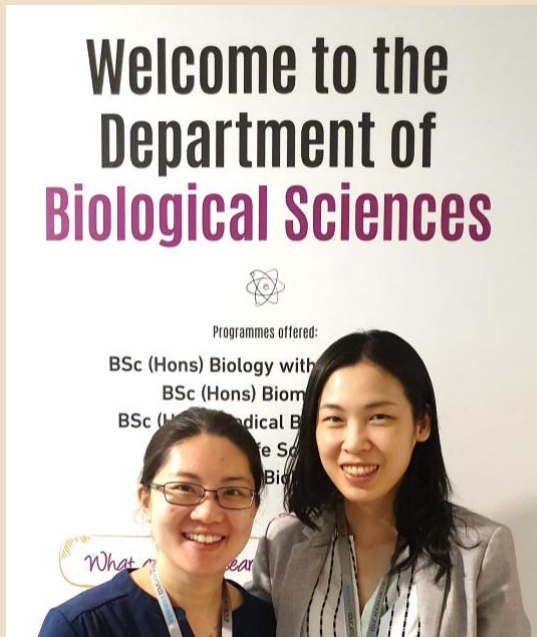
Assoc. Prof. Dr. Chandrajit received the Jeffery Cheah Travel Grant 2020 of USD 9375 USD from Jeffrey Cheah Institute on Southeast Asia for collaborative studies at Harvard University, Cambridge, US between end January - May, 2020. He will be collaborating with researchers from the Dana Farber Cancer Institute, Harvard Medical School to explore the therapeutic potential of South-East Asian herbs against colorectal cancer (CRC) and its plausible prognostic metastasis marker.

Aligning with the 17 global goals for sustainable development of the United Nations, his research is on the establishment of certain culinary plants as novel therapeutics against CRC and its association with a prognostic metastasis marker. Essentially, this is a step forward to understand the real target genes for developing precision cancer medicine leading to global good health.



Staff Achievements

Dr. Audrey Lim and team receives the Long-Term Research Grant Scheme 2019 of RM 2.47 Million!



Dr. Audrey Lim is part of the team led by Dr. Yong Min Hooi (Department of Psychology) who secured RM 2.47 million worth of funding under the Long-Term Research Grant Scheme (LRGS) by the Ministry of Education Malaysia.

Dr. Audrey would be leading the project 'Salivary biomarkers in executive control and well-being in ageing population: A longitudinal study', which is part of the larger research program 'Successful ageing: Evidence-based interventions to delay ageing-related decline', led by Dr Yong Min Hooi.

Project duration is five years (from 2019 - 2024). Team members for this project also include Dr Yong Min Hooi and Dr Jactty Chew (in picture), Associate Prof Dr Tomoko Soga and Prof Ishwar Parhar (Monash University

Malaysia), Dr Wong Jyh Eiin and Dr Teoh Seong Lin (UKM).

This project aims to understand why some people age successfully and others do not. As it is projected that up to 49.5% of Malaysian seniors will be dependent on the working age group (15-64 years) by 2040, it is pertinent to understand the factors contributing to successful aging, so that these elements could be promoted.

Dr. Ayaz receives the Vice-Chancellor's Research Award 2019

Congratulations to Dr. Ayaz Anwar for being one of the three recipients of the Vice Chancellor's Research Award 2019 He received the Award for Achievement in Research for Early Career Researcher of Sunway University.



Staff Achievements

Congratulations to our DBS faculty members on their promotion and appointment!

Prof. Abhi Veerakumarasivam has been appointed as Head of the Department of Biological Science from January 2020.

Hearty congratulations also to the following faculty members on their promotion.

Staff Name	Promoted Position
Dr. Chandrajit Lahiri	Associate Professor
Dr. Ayaz Anwar	Senior Lecturer
Dr. Chen Jit Ern	Senior Lecturer
Dr. Kavita Reginald	Senior Lecturer

Department Events

1. Student Research Seminar (Work completion seminar prior to the submission of MSc thesis)

Speaker: Lim Wei Gene (MSc student, DBS)

Date : 13th November 2019

Presentation title: Evaluation the interaction and survivability of *Chryseobacterium* species within *Acanthamoeba castellanii* and human macrophage.



Speaker: Noel Jacques Bin Awi (MSc student, DBS)

Date : 10th December 2019

Presentation Title: Investigating the role of KRAS in autophagy in colorectal cancer (CRC) and its implication in overall survival outcome, and the potential use of autophagy marker as CRC biomarker.



Department Events

2. Community cohort sample collection for Allergy research

Dates: 4th - 8th November 2019

Dr. Kavita Reginald from the Department of Biological Sciences organized a community cohort sample collection for allergy research in collaboration with her collaborator's team from the National University of Singapore, and the Sunway Biological Science Society, SBios. This study received overwhelming response from members from Sunway as well as the general community, where over 700 participants were recorded during the study period. For those who were not able to take part in this event, stay tuned for the next community cohort sample collection projected early next year. You may sign-up at this [link](#) to receive information on the up-coming sample collection.



Department Events

3. ASEAN-Emerging Researchers Conference 2019

Dates: 9th - 10th December 2019



The ASEAN Emerging Researchers Conference, a collaborative effort between Sunway University, Wolfson College University of Cambridge, Young Scientists Network-Academy of Sciences Malaysia, Cambridge University Malaysia Society and Thai Young Academy was once again held at Sunway University on the (9th-10th December 2020). More than 550 participants from all 10 ASEAN member states attended the two-day conference with more than 250 papers presented through keynote lecturers, plenary forums, plenary talks, oral and poster presentations. Various workshops such as communication, science policy, professional development, grant writing, academic publishing and various others were also organised to increase the capacity of our emerging researchers. The researchers were also involved in discussions on how to further propel the region's interest in the 6 research areas: Energy Transition, Sustainability and Biodiversity, Smart Cities and Industry, Health and Well Being, Food Security and Social Sciences. During the conference, Sunway Group Founder and Chairman as well as the Chancellor of Sunway University, Tan Sri Dato' Seri Dr. Jeffrey Cheah AO delivered the ASEAN-Jeffrey Cheah lecture. HRH Tunku Ali Redhauddin ibni Tuanku Muhriz, the Tunku Besar of Seri Menanti, Negeri Sembilan who is also a Cambridge alumnus officiated the conference during the University of Cambridge-themed formal hall. The conference is a flagship programme of the ASEAN Young Scientists Network, that is co-chaired by Prof. Abhi Veerakumarasivam.



Department Events

4. DBS Christmas dinner - “A December to Remember”

Date: 13th December 2019



The Department of Biological Sciences, in partnership with the Sunway Biological Sciences society (SBioS) organized a Christmas dinner-cum-year end gathering for all DBS members. This inaugural event was attended by about 80 DBS members. The event commenced with a group discussion to suggest activities that members wished to implement in the coming year 2020. Some of the activities that were suggested included Spirit Week, mental health checks for students and staff, pharmaceutical company visits, and Sports Day. Following a buffet-style dinner, games, talent show, lucky draw and a gift exchange session was held. It was an enjoyable and meaningful evening for the students and staff alike. A big thank you to all SBioS members, students and staff that made this event a huge success!



DBS members in action

Participation at ASEAN Sustainable Development Summit 2019

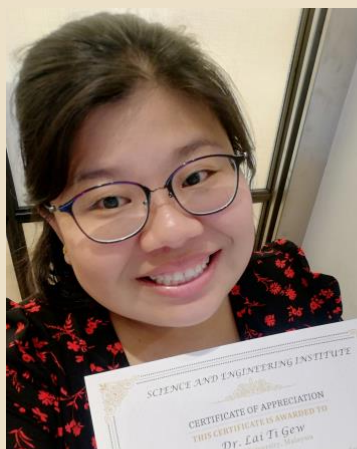


Several DBS members (Dr. Jactty Chew, Dr. Kavita Reginald, Dr. Chen Jit Ern, Prof. Abhi and Assoc. Prof. Dr. Reuben) attended the ASEAN Sustainable Development Summit 2019 held at the Sunway Resort Hotel & Spa on 18th November 2019. This summit aimed to provide a platform and practical framework for ASEAN policymakers. Thematic panel discussions in the areas of urbanization, health, education, inequality and inclusive growth, technological transformations, climate change and responsible corporate action were discussed.



Dr. Chen Jit Ern was invited to speak on the topic of “The Environment and Responsible Corporate Action” as a panelist. Among some of the points he made was that Sunway Group is uniquely equipped to implement environmentally-friendly measures at scale due to the vertical integration of its various business units and critical mass in specific geographic regions such as Bandar Sunway. He also emphasized that some environmental actions may require long-term planning from project beginnings rather than ad-hoc measures, giving the example of Sunway Geo Avenue as a shopping complex designed specifically to not have air-conditioning in their main corridors.

Dr. Jane Gew attends a conference in Kyoto, Japan



Dr. Jane Gew Lai Ti delivered an oral presentation entitled "Mixed Langmuir monolayers of C18 fatty acids: Effect of degree of saturation" at the 8th International Conference on Nanostructures, Nanomaterials and Nanoengineering 2019 (ICNN 2019), in Kyoto, Japan between 11-14 October, 2019. This conference was a great opportunity for Dr. Jane to build networks with other researchers and experts in the similar research area, and also to share her thoughts on recent advances and technological breakthroughs.

DBS members in action

Assoc. Prof. Dr Reuben gives a talk on protected area financing

On 17th October 2019, Assoc. Prof. Dr. Reuben was invited to give a talk on protected area financing in an expert lecture series organised by the Department of Wildlife and National Parks in their headquarters in Cheras. In his talk to over 40 state and national park staff, he shared his experience on how he collaborated with the Terengganu state government to set up the 30,000-hectare Kenyir State Park, which is the first ever state park for the state. He also shared possible funding avenues that other parks can apply to finance the creation and management of protected areas in Malaysia.

A few days after this event, Dr. Reuben paid a courtesy call to the newly appointed state park director, Tengku Mohd Ariffin, at his office in Kuala Terengganu. In that meeting, he updated the director on the various funding sources that Dr. Reuben and his team have been applying to under the 'Kenyir for Life' project. This project aims to develop sustainable financing mechanisms to help manage and expand the Kenyir state park, which serves to protect not just plant and animal life in the forests of Kenyir, but also the lives of people benefiting from a healthy Kenyir watershed. In that meeting, Dr. Reuben requested that the state expedite the formation of the Green Financing Task force, in which three entities will be working together to assess the feasibility of green financing mechanisms such as carbon offsets and payment for watershed services. The three entities are: Sunway University, Rimba and the World Bank Group. At the end of the meeting, Dr. Reuben presented a 'roadmap' of the Kenyir for Life project to the director of the Kenyir State Park.



DBS members in action

Congratulations to our Alumna, Esther Erin

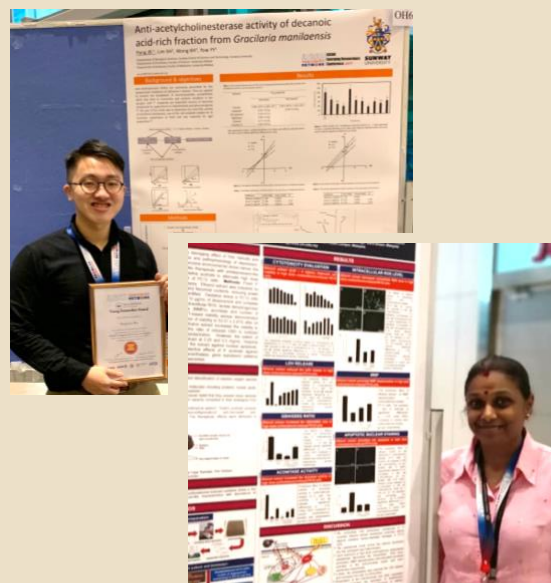


Esther Erin Wong Yan, who recently graduated with First Class Honours in our BSc (Hons) Medical Biotechnology at Sunway University was awarded the “International Life Sciences Institute Young Researcher Award” at the ASEAN Emerging Researchers Conference 2019 for her outstanding presentation of her final year research project “Characterisation of Newcastle Disease Virus-Mediated Oncolysis in Persistently Infected Bladder Cancer Cells” under the supervision of Prof Abhi Veerakumarasivam.

DBS Graduate students win Young Researcher Award

Mr. Pang Jun Rui and Ms. Kogilavani Subermaniam, both PhD candidates under the supervision of Dr Yow Yoon Yen, won the Young Researcher Award for excellence demonstrated during Oral Highlights Presentation at the ASEAN Emerging Researchers Conference.

Jun Rui and Kogilavani presented on “Anti-acetylcholinesterase activity of decanoic acid-rich fraction from *Gracilaria manilaensis*” and “*Padina australis* Protects Corticosterone-Induced Damage in PC12 Cells by Attenuating Oxidative Stress-Mediated ROS Production”, respectively.



DBS members in action

Assoc. Prof. Dr. Reuben - active involvement in anti-poaching activity

Towards the end of October, Assoc. Prof. Dr. Reuben's patrol team (Rimba) assisted the police and wildlife department to help arrest six Cambodian poachers in Kenyir. These poachers were found with an elephant tusk and other wildlife parts. This arrest was announced in a press release issued by the Ministry of Land, Water and Natural Resources, and was covered by several news agencies.

In the local news: <https://www.thesundaily.my/local/six-cambodians-nabbed-for-keeping-wild-animal-parts-KE1512815>



Dr. Jane organizes a field trip to Sunway Pharmacy



On 17th September 2019, Dr. Jane Gew organized a class field trip to Sunway Pharmacy (Sunway Pyramid branch) for 13 students of her Pharmacology and Toxicology (BIO2234) of the BSc (Hons) Biomedicine program. The trip was hosted by Mr. Francis Lau Chee Kern, who is a Pharmacist cum Branch Manager. During this trip, Mr. Francis spoke to the students regarding "over-the-counter drugs vs drugs required prescriptions" which was related to students' assignment. He also shared his experience about his career as a Pharmacist. Dr. Jane believes that the field trip experiences will enhance student learning by reinforcing the lessons learnt in the classroom and engage students to real-world learning.

DBS members in action

Field trip to Mass spectrometry lab

Dr. Jane Gew organized a class field trip for 26 students of her Instrumental analysis course (BIO 2134) of the BSc (Hons) Medical Biotechnology program to liquid chromatography-mass spectrometry (LC-MS/MS) laboratory located at the Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia on 24th October 2019. During this visit, Dr. Syafiq Asnawi Zainal Abidin, the Principal Technical Officer of this laboratory explained "How does mass spectroscopy work", and also shared his PhD experiences on using mass spectrometry to identify potential anti-cancer proteins from snake venom. Field trips such as this enhance the students understanding and grasp of a subject, and also potentially influence students' career choices after graduation.



Dr. Jane's research collaboration in Avignon, France.



Dr. Jane Gew Lai Ti spent 4 weeks in Avignon University, Avignon, France. She was hosted by Prof. Farid Chemat who is the Director of GREEN Extraction Team Green Extraction of Natural Products. During this trip, she delivered a talk to the French research team on the different areas of her research interests. Dr Jane also benefited from being exposed to various methods and techniques of green extractions. This marks a start of a research collaboration between Avignon University and Sunway University.

Please share your updates (publications, events, funding) via [this link](#) by the 25th of each month, to be published in the up-coming bulletin.

Upcoming events

1. Asian Regional Conference on Systems Biology (ARCSB 2020)

Asian Regional Conference on Systems Biology 2020 (ARCSB2020) will be the fifth bi-annual scientific meeting organized by Institute of Systems Biology (INBIOSIS), UKM. The theme of the conference is Inspiring Future Biotechnology with Biological Big Data.

Quick facts:

Date: 2nd to 4th March 2020

Venue: Langkawi, Kedah

Deadline for abstracts/proposals: 31st January 2020

Website: <https://arcsb2020.weebly.com/>

2. Statistics Bootcamp in Wildlife Study Design and Data Analysis

DBS will be hosting a statistics workshop for wildlife design and analyses. It is a 2-week long course (3rd -14th Feb) which will be co-led by a Sarawakian native Ngumbang Juat and Mike Meredith, a legendary statistician who has trained many young statisticians and created numerous statistical packages in R program language. Despite its focus on wildlife research, it has great relevance to design and analysis of experiments in other fields in biological sciences such as medicine. This workshop will be co-moderated by Associate Professor Drs. Shyamala and Reuben.

Details of the boot camp syllabus can be found here:

http://www.bcsc.org.my/statsWorkshops/boot_camp.htm



PG STUDENT PROFILES

Mr. Bahaaeldin H. S. Abdella (Bahaa)
PhD student (Supervisor: Dr. Chandrajit Lahiri)

Tell us about your background

I was born and brought up in Alexandria, Egypt. I have been passionate about science since my childhood. I loved reading about the early multidisciplinary scientists and their contributions to modern sciences such as Ibn al-Nafis, Al-Zahrawi, and Hasan Ibn al-Haytham. This inspired me to further my studies in the field of microbiology at Alexandria University. After obtaining my bachelor's and master's degrees in microbiology, I joined the National Institute of Oceanography and Fisheries (NIOF), in Alexandria as an assistant researcher. Here I investigated the interactions between microorganisms and aquatic invertebrates, with a specific focus on shrimps and clams. Later, in 2016 I obtained a faculty position in Kafrelsheikh University, Egypt where my responsibilities included lecturing undergraduate students in Aquatic Microbiology and furthering my research in the same area.

I am convinced that solutions to modern issues can only be solved by multidisciplinary scientists. With this in mind, I started my PhD in Sunway University, where I could use my knowledge and experiences in aquatic sciences, microbiology, computer programming and bioinformatics to find a viable solution to solve the multi-drug resistant microorganism issue.



How do you plan to take your research further?

Being knowledgeable in different scientific areas allows me to view any issue with a different lens. For example, 70% of earth is made up of saltwater in its oceans and seas. These water bodies are a treasure of yet undiscovered resources where we could find answers to the emerging multi-drug resistance pathogen issue. This could be achieved by understanding the immune mechanisms of marine invertebrates on its response to its pathogen. I hope to use this knowledge to contribute towards the development of new marine-inspired drugs against the resistant pathogens. In addition, I am also interested to contribute towards the sector of food supply and security by selecting disease-resistant aquaculture candidates that could be cultured in a sustainable and long-term fashion.

What do you like about being in Sunway University?

I like many aspects in Sunway University. I appreciate that Sunway University provides sufficient space and resources for me to do my research. Also, I appreciate the chance to interact with students from a multi-cultural background, that gives a very international feel to the environment.

If there is one thing that could be improved within the Department, what would it be?

I would recommend a more comprehensive laboratory orientation for the newcomers, especially members that will be research intensive. Some examples would be to provide a walking tour guide around the frequently used department facilities (eg. cold room) and informing about practical issues such as autoclaving and waste collection schedules would be helpful.

What are your plans after graduation?

After my PhD, I plan to apply for a postdoc position, probably in the area of microbiology of aquatic animals. Eventually I plan to return to my home country, and participate in knowledge and passion for science to the students at Kafrelsheikh University. My long-term plan is to obtain a Doctor of Science (DSc) degree.

Tell us something unique about yourself

I have a keen interest in Kung Fu. I have practiced this martial art form actively from the age of 12 to 21. In this time, I have won two medals in national championships. As I am more involved in research these days, Kung Fu has taken a back seat for now.

Do you have a message for PG students?

Yes, I have some inspirational messages to share. Be proactive in every aspect of your life, don't wait for the change. Be the change you want to see in this world. While doing your postgraduate studies, consider learning how to learn, and acquire the philosophy of learning.

Any funny stories / crazy experiences during your time in Sunway University?

Sometime last year I brought up an issue regarding lack of storage space for research materials. A member of the purchasing department told me that "I was the ONLY student who complained" (regarding the space issue). Later, the upper management granted me (and the whole department) more storage space. It happened that I met the same purchasing staff, but this time I was told "Only ONE student complained". I was amused how the same person could say a similar sentence with completely different meanings! The lesson from this incident is don't listen to any destructive messages and don't hesitate to give suggestions to improve your place and your university.