

# DBS Bulletin



Above: DBS faculty, staff and student members at the first Annual General Meeting of the Sunway Biological Society (SBioS).

Below: SBioS executive committee members with their advisors, Dr. Kavita and Dr. Jacty.

# foreword by Prof. Abhi



As we prepare for the next academic year, the department staff have had the opportunity to reflect on their achievements to date as well as identify opportunities on how they can improve the departmental operations and the impact we have on our various stakeholders; especially our dear students. As evident in this month's bulletin, many of our staff have been involved in various activities within as well as outside the university; realising the greater role of an academic centre. Congratulations to Dr. Babu Ramanathan on his award at the international conference in Korea and Dr. Reuben on his active external engagement. These types of contribution and recognition is testament that we have internationally competitive and relevant academic talent at Sunway University. Also, a massive congratulations to Zoey on publishing her first paper. This is a tremendous achievement for an undergraduate and it epitomises the high levels of aptitude of our students in DBS.

We also welcomed the Malaysian Qualification Agency Accreditation Panel who came to assess our PhD in Biology programme. While we await the final decision, it was evident that the panel were really impressed by the facilities and the support we provide for our postgraduate students. They were also impressed by our students' achievements and progress. We also identified areas in which we can improve on to enhance our students' experience as we strive towards producing world-class biological sciences talent that will go on to answer important research questions and shape the world that we live in.

Last week, our dear students officially launched the Sunway Biological Society (SBioS). It is such an exciting chapter in our young departmental history and I am certain, SBioS will foster greater collaboration between our staff and students and greater engagement with external stakeholders. I am grateful to everyone that has made this society a reality. Thank you!

Finally, I would like to wish everyone a very Happy Deepavali! Although steeped in culture and religion, the festival essentially celebrates the triumph of good over evil and knowledge over ignorance; a new beginning and hope. In the age of non-expert 'expert opinions' and alternative facts; coupled with rising anxiety over the unsolved grand challenges, let's work together to realise the hope that science serves humanity.

# Research Publications

1. Amin ZM, Che Ani MA, Tan SW, Yeap SK, Alitheen NB, Syed Najmuddin SUF, Kalyanasundram J, Chan SC, Veerakumarasivam A, Chia SL and Yusoff K. Evaluation of a recombinant Newcastle disease virus expressing human IL12 against human breast cancer. *Sci Rep.* 2019; 9(1):13999.

<https://doi.org/10.1038/s41598-019-50222-z>

**Significance of findings:** The Newcastle disease virus (NDV) strain AF2240 is an avian avulavirus that has been demonstrated to possess oncolytic activity against cancer cells. However, to illicit a greater anti-cancer immune response, it is believed that the incorporation of immunostimulatory genes such as IL12 into a recombinant NDV backbone will enhance its oncolytic effect. In this study, a newly developed recombinant NDV that expresses IL12 (rAF-IL12) was tested for its safety, stability and cytotoxicity. The stability of rAF-IL12 was maintained when passaged in specific pathogen free (SPF) chicken eggs from passage 1 to passage 10; with an HA titer of 29. Based on the results obtained from the MTT cytotoxic assay, rAF-IL12 was determined to be safe as it only induced cytotoxic effects against normal chicken cell lines and human breast cancer cells while sparing normal cells. Significant tumor growth inhibition (52%) was observed in the rAF-IL12-treated mice. The in vivo safety profile of rAF-IL12 was confirmed through histological observation and viral load titer assay. The concentration and presence of the expressed IL12 was quantified and verified via ELISA assay. In summary, rAF-IL12 was proven to be safe, selectively replicating in chicken and cancer cells and was able to maintain its stability throughout several passages; thus enhancing its potential as an anti-breast cancer vaccine.

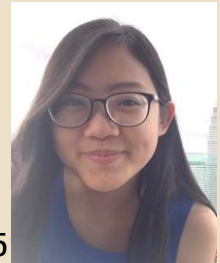
# Student Achievements

BSc Medical Biotechnology student, Zoey Soo May Pheng publishes her work.

Zoey MPS, Khan NA, Siddiqui R.

Leptospirosis: Increasing importance in developing countries.

*Acta Tropica* 2020, 201: 105183. <https://doi.org/10.1016/j.actatropica.2019.105>



**Significance of findings:** Leptospirosis is a zoonotic disease caused by the pathogenic helical spirochetes, *Leptospira*. Symptoms include sudden-onset fever, severe headaches, muscle pain, nausea and chills. Leptospirosis is endemic in developing countries such as Malaysia, India, Sri Lanka, and Brazil where thousands of cases are reported annually. The disease risk factors include the high population of reservoirs, environmental factors, recreational factors, and occupational factors. To end the endemicity of leptospirosis, these factors need to be tackled. The management of leptospirosis needs to be refined. Early diagnosis remains a challenge due to a lack of clinical suspicion among physicians, its non-specific symptoms and a limited availability of rapid point-of-care diagnostic tests. The purpose of this review is to provide insight into the status of leptospirosis in developing countries focusing on the risk factors and to propose methods for the improved management of the disease.

# Department Events

## 1. Inaugural Biological Science Lecture Series - Talk by Asst. Prof. Dr. Hai Dang Nguyen.

Date: 4<sup>th</sup> October 2019

The Department of Biological Sciences kick-started the Biological Lecture Series with a talk by Assistant Professor Dr Hai Dang Nguyen from the University of Minnesota Medical School, USA. Dr. Nguyen, an award-winning scientist in oncology research presented a captivating talk on “Function and Therapeutic Implications of R-loops in Genomic Instability and Cancers”. He later shared his academic experiences as an oncologist and had an interactive session with the audience members.



## 2. Audit of PhD in Biology program by the Malaysian Qualifications Agency (MQA)

Date: 3<sup>rd</sup> and 4<sup>th</sup> October 2019

The PhD in Biology program of the Department of Biological Sciences was audited recently by the Malaysian Qualifications Agency (MQA) as part of the standard national accreditation process. The three auditors that visited Sunway were Prof. Dr. Sreeramanan Subramaniam from Universiti Sains Malaysia, Dr. Leong Pooi Pooi from Universiti Tunku Abdul Rahman and Puan Roslina Abdullah from the Malaysian Qualifications Agency. They spent a total of two days to audit records, inspect university facilities and interview students and faculty members. A special thanks to all those who helped during the preparation for this major event.



# Department Events

## 3. Visit by representatives from Cambodian Higher Education Institutions

Date: 17th October 2019



A delegation of high-level Cambodian office bearers in education, led by the Director General of Higher Education and the Cambodia Development Resource Institute (CDRI) visited Sunway University. Members of the delegation included senior policymakers, university leaders, and researchers. A key objective of the exposure visit was to build and expand networks and cooperation. During this visit, Dr Chen guided the delegation through a tour of the laboratory and teaching facilities of DBS.

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

Speaker: Ng Qi Ron (MSc student, DBS)

Date :1st October 2019 (Tuesday)

Presentation Title: Evaluating for anti-envelope antibodies in patient plasmas infected with human immunodeficiency virus type 1 subtype CRF01\_AE

# DBS members in action

## *Dr. Kavita receives the Collaborative Research Fund: T20 2019*

Congratulations to **Dr. Kavita Reginald** (Sunway University) and Assistant Professor **Dr. Chew Fook Tim** (National University of Singapore) for receiving the Collaborative Research Fund: T20 2019. Their project will investigate the immunological characterization and the Immunoglobulin-E epitopes of a major house dust mite allergen which was recently discovered, Der p 22. The total grant amount awarded was RM 196,010 over a period of two years.

# DBS members in action

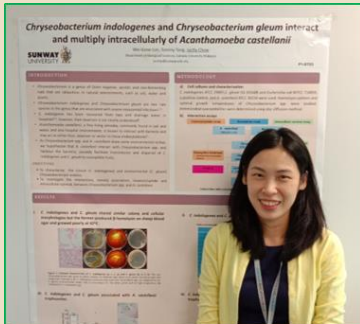
*Prof. Jeff and Dr. Kavita attend national biosafety meetings*



Prof Jeff Tan attended the awareness workshop on Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety. This meeting was held at KL Tower on the 30<sup>th</sup> of September 2019. The Nagoya – Kuala Lumpur Supplementary Protocol has been adopted as a supplementary agreement to the Cartagena Protocol on Biosafety. It aims to contribute towards the conservation and sustainable use of biodiversity by providing international rules and procedures in the field of liability and redress relating to living modified organisms. Following this meeting, Dr Kavita attended the Consultation Workshop for the Provision of the Fourth National Report on the Implementation of Cartagena Protocol on Biosafety (CPB). This workshop was held in Bangi Resort Hotel on the 10<sup>th</sup> of October 2019. During this workshop, the stakeholders collectively responded to questionnaires pertaining to the biosafety related practices (training, education, publication, issues). These responses would be then collated by the members of the Department of Biosafety Malaysia to produce a National-level report.

# DBS members in action

## Dr. Chew Jactty, Dr. Tommy and Dr. Babu attend a conference in Korea



Three faculty members from DBS, Dr Jactty Chew, Dr Tommy and Dr Babu presented their research at the joint meeting of ICIC (4th International Interscience Conference on Infection and Chemotherapy) & ISAAR (12th International Symposium on Antimicrobial Agents and Resistance) in Gyeongju, Korea from September 26 to 28, 2019.

Dr. Jactty presented a poster entitled “*Chryseobacterium indologenes* and *Chryseobacterium gluem* interact and multiply intracellular in *Acanthamoeba castellanii*”. Dr. Tommy presented a on “Profiling a panel of plasmas infected with human immunodeficiency virus type 1 CRF01\_AE for anti-envelope neutralizing antibodies”. Dr Babu received the outstanding abstract award for his work on “Antiviral activity of small molecules against dengue virus”. This award included a certificate and a cash prize of USD 500.

The conference was attended by approximately 2000 participants, making it one of the largest conferences in the Asia-Pacific region.

## MY-Research Grant Scheme (MY-RGS) workshop



From L-R: Dr. Lee Jen Nie (UMT), Dr. Nulsalwa binti Baharuddin (UMT), Dr. Ng Siew Kit (USM) and Dr. Chen (Sunway University)

Prof Abhi co-led a workshop organised by the Malaysia Research University Network to train and support the top 21 selected research teams competing for the Malaysian Research University Young Researchers Grant Scheme (MY-RGS) from 18<sup>th</sup>-20<sup>th</sup> October 2019. During this workshop, each team of five young researchers were tasked with improving their initial proposal by using their newly acquired knowledge. Dr Chen is a member of one of the shortlisted research teams. He is part of a team that consists of researchers from USM and UMT and their project is on the topic of climate change and marine ecosystems. This highly-competitive grant scheme is a national initiative to improve the competitiveness of young researchers in the country.

# DBS members in action

## ASEAN Ministerial Meeting on Science, Technology and Innovation

As the Co-Chair of the ASEAN Young Scientists Network, Prof Abhi was invited to present his body of work to the 10 ASEAN ministers of science at the ASEAN Ministerial Meeting on Science, Technology and Innovation in Singapore on the 11<sup>th</sup> of October 2018. In tandem, the ASEAN Young Scientists Network was recognised as one of the key Science, Technology and Innovation priorities for ASEAN in 2020. Prof Abhi also shared about the ASEAN Emerging Researchers Conference that Sunway University will be hosting on the 9<sup>th</sup> and 10<sup>th</sup> of December 2019.



## Workshop on biodiversity and its research management in Jakarta



In September, Dr. Reuben was invited to give two talks at a capacity building workshop on biodiversity and its research management in Jakarta. This workshop was organised by the International Network for Government Science Advice (INGSA) Asia, which provides a forum for policy makers, practitioners, national academies, scientific societies, and researchers to share experience, build capacities, and develop theoretical and practical approaches to the use of scientific evidence in informing policy at all levels of government.

Present were over 20 experts who have experience communicating science to governments in Asia, including Tan Sri Zakri, the former national science advisor to the Malaysian Prime Minister. Reuben gave two plenary sessions on “How can researchers catalyse the development and implementation of environmental policies and legislation?”, and “Using persuasion science to influence decision makers to adopt pro-sustainability behaviours”.



# DBS members in action

## Assoc. Prof. Dr. Reuben speaks at the Cooler Earth Sustainability Summit



In October, Reuben and his team were invited by CIMB to have an outreach booth to raise awareness on the importance of biodiversity conservation at their Cooler Earth Sustainability Summit held at Kuala Lumpur Convention Centre. Several promising contacts were made during this huge networking event with NGOs and the industry. Reuben was also invited to a private 5-min pitching session to various foundations in Malaysia, in which Yayasan Hasanah expressed interested in supporting Reuben's project.

## Prof. Abhi moderates the L'Oréal UNESCO Plenary Forum



Prof Abhi moderated the Plenary Forum “Breaking Barriers for High Impact” in conjunction with the L'Oréal-UNESCO For Women In Science National Fellowship 2019 Award Ceremony on the 17th of October 2019 at W Hotel, Kuala Lumpur. The panel members included YB Isnaraissah Munirah Majilis, Deputy Minister of MESTECC, Prof Datuk Dr Asma Ismail, President of Academy of Sciences Malaysia and two previous winners of the L'Oréal-UNESCO For Women In Science National Award.

# Student activities

## ***Member recruitment drive and promotion of Allergy Study by Sunway Biological Society (SBioS)***



EXCO members of SBioS held a membership recruitment drive on the 15<sup>th</sup> October 2019. At least 60 students signed up on that day. The SBioS members also assisted in the promotion of an Allergy Study which will be held from 4<sup>th</sup> – 8<sup>th</sup> November 2019.

## ***First Annual General Meeting of the Sunway Biological Society (SBioS)***



SBioS held its first AGM on the 24<sup>th</sup> October 2019. The meeting was attended by students from Sunway College and Sunway University, staff and lecturers from DBS, as well as a representative from Student LIFE. The meeting began with the opening ceremony and an introduction to the society by Muhammad Esmirrafil Helmi, the president of the society. Dr. Kavita, the society's principal advisor, and Prof. Abhi, the Interim Head of Department of Biological Sciences, were invited to give a speech during the opening ceremony as well. Additional positions in the executive committee (EXCO), including the head of marketing, head of event management, vice secretary, and vice treasurer, were announced. The president also presented the proposed activities for the years 2019 and 2020. This AGM officially marked the establishment of the society, and we are thankful for all the support from the students, DBS staff members, and Student LIFE.

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

# Upcoming events

## 1. Genetic study on allergic diseases

We are conducting the first community study within Sunway University to understand the prevalence of allergic diseases in Malaysia. This study is done in collaboration with the National University of Singapore. Data obtained from this study will also be used to analyse how genetic factors influence the manifestation of allergic diseases in our local population. Participants will receive a free allergy test (worth RM 300!) when they respond to a questionnaire, and provide biological samples (mouthwash, dead skin cells and blood). Only consenting adult participants (18 years old and above) who are not on allergy medications are eligible to participate.

This study is organized and coordinated by Dr. Kavita Reginald (Department of Biological Science) For more information, e-mail [kavitar@sunway.edu.my](mailto:kavitar@sunway.edu.my)



# Are you Allergic?

A joint research collaboration by



## Not sure? Get a **FREE** allergy test to find out!

Participate\* in a Genetic Study on Acne and Allergic Diseases (SUREC2019/029)

You will be required to do the following:

- ※ Skin test for allergies
- ※ Provide mouthwash sample
- ※ Provide dead skin cells
- ※ Blood sampling
- ※ Complete a questionnaire

**FREE allergy  
test worth  
RM300++!**

**Date:** 4<sup>th</sup> – 8<sup>th</sup> November 2019

**Time:** 9am – 5pm

**Venue:** Art Gallery, Level 1, Sunway University;  
Function Room 2, Level 1 (only on 6th Nov)

For further queries, contact Dr. Kavita Reginald (study coordinator) by e-mail: [kavitar@sunway.edu.my](mailto:kavitar@sunway.edu.my)

\*Must be 18 years old and above, no prior participation, no needle phobia, not under allergy medication currently, able to complete all questions in the survey.

Version 5, 28 Sept 2019

# Upcoming events

## 2. ASEAN Emerging Researchers Conference 2019: Registration and Abstract Submission is Open Now.

The ASEAN Emerging Researchers Conference 2019 will be held once again at Sunway University Malaysia on the 9th & 10th of December. Want to share your research work at the conference? Submit your abstract to us by the 9th of November, 11.59pm! <https://www.asean-erc.com/>

Emerging Researchers Conference 2019 aims to create a platform for researchers from the ASEAN region and the ASEAN research diaspora to drive research excellence in the region. The ASEAN Emerging Researchers Conference is a flagship programme of the ASEAN Young Scientists Network; the official platform for young researchers in the region. The conference is a collaboration between Sunway University, Wolfson College, University of Cambridge, Cambridge University Malaysia Society, Young Scientists Network-Academy of Sciences Malaysia and Thai Young Scientists Academy.



The banner features a dotted map of Southeast Asia in the background. At the top, logos for TYSA, Sunway University, University of Cambridge, Wolfson College Cambridge, and Young Scientists Network Malaysia are displayed. The central text reads 'ASEAN ERC' in large, bold letters, with 'ASEAN' in red and 'ERC' in blue. Below this, it states 'ASEAN EMERGING RESEARCHERS CONFERENCE 2019' and 'An Official Flagship Programme of the ASEAN Young Scientists Network'. A yellow and black bar contains the slogan 'Energising Leadership: Translating Purpose into Impact'. The bottom right corner specifies the dates '9th-10th December 2019' and the location 'Sunway University, Malaysia'.

**ASEAN ERC**  
ASEAN EMERGING RESEARCHERS CONFERENCE 2019  
An Official Flagship Programme of the ASEAN Young Scientists Network

**Energising Leadership: Translating Purpose into Impact**

9th-10th December 2019  
Sunway University, Malaysia

# Upcoming events

## 3. *International Conference on Contemporary Issues - Manipal International University*

Manipal International University (Nilai) is holding The International Conference on Contemporary Issues (ICCI) - 2020 from the 24<sup>th</sup> to 26<sup>th</sup> March 2020. This conference will be on the contemporary issues in the domains of Business, Engineering, Education, Media and Science.

Quick facts:

Deadline for abstract submission: 30<sup>th</sup> December 2019

Further Details: [icci.conf@miu.edu.my](mailto:icci.conf@miu.edu.my) or

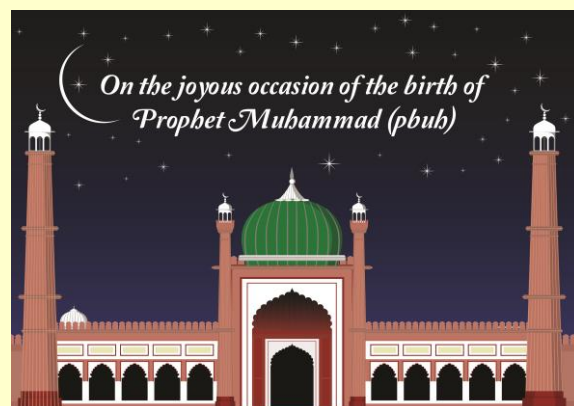
[https://drive.google.com/file/d/1K0MDoW\\_UyIze5ej7rUZSjZMEhTzSBsVi/view?usp=sharing](https://drive.google.com/file/d/1K0MDoW_UyIze5ej7rUZSjZMEhTzSBsVi/view?usp=sharing)

# Postgraduate Student Opportunity

## *Call for MSc student Application*

Dr Chen has an opening for a Masters student that will ideally start in January 2020 (Mar 2020 at the latest), working on the experimental evolution of Symbiodinium algae (zooxanthellae) to adapt to higher temperatures. The context of this research is to study how corals, via their symbiotic zooxanthellae, might be engineered to be more resistant to the more frequent and extreme coral bleaching events caused by rising sea temperatures due to climate change. This project will primarily involve wet lab work on molecular techniques as well as algae and coral aquarium culturing methods, but no planned direct field work (i.e. no planned coral dives and sampling). If a student is interested in diving expeditions, that can be arranged as an additional side project.

There will be no stipend, but the student will be sponsored (i.e. paid-for flights and accommodation) to spend two weeks in the lab of Prof Chris Howe in the University of Cambridge to be trained in molecular biology techniques such as DNA extraction, PCR and plasmid cloning that have been specifically tailored to deal with the complexity of the Symbiodinium genome during the first year of the project.



# PG STUDENT PROFILES

Mr. Pang Jun Rui (Casimir)

PhD student (Supervisor: Dr. Yow Yoon Yen)

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## Tell us about your background

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I come from Pekan Nanas, Johor. I studied in my hometown and did my bachelor's degree at MAHSA University. Initially, I wasn't confident enough to pursue a Ph.D. However, when I obtained a first-class honours degree, I was encouraged by my lecturer to further my studies. His words have motivated me until now. My lecturer was a very young Ph. D. graduate, who did a fast track doctorate in University Malaya without going through masters. His achievement motivated me to take a similar path to him. However, the path wasn't easy as I had changed two supervisors before I settled down with my current supervisor. Sunway University was attractive because it offered me a scholarship that has allowed me to sustain my life here alone in Klang Valley. Besides that, the staff and management team are very helpful and take time to listen to our concerns. I joined Sunway University as an M.Sc. student, intending to do a Ph. D. conversion. At that time, this process was not fully in place. I must thank my supervisors and the program leaders of the PhD and MSc programs who assisted me in doing so. Because of that, I am now proudly a Ph. D. student at Sunway University. I am glad not only because of the achievement and prestige I gained from this process, but more importantly, I felt that my voice was heard and acknowledged by the departmental management team.



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## What has been the impact of your research? How do you plan to take it further?

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My research is focused on discovering how the red seaweed, *Gracilaria manilaensis* can benefit neuronal health particularly as an antioxidant, anti-acetylcholinesterase, anti-neuroinflammation, anti-protein aggregation and neurotogenic activities. We have identified positive results for almost all of the activities mentioned. The extracts of *G. manilaensis* are able to stimulate the neurotogenic activity of PC-12Adh cell culture model like nerve growth factor, and it is a strong scavenger of free radicals with a high reducing power. Apart from that, we identified that the extracts can reduce the *in vitro* acetylcholinesterase activity and inhibit nitric oxide production in the neuroinflammatory cell culture model. These results are still preliminary, and we look forward to confirming our findings by isolating the active compound and testing it using a suitable *in vivo* model. In the long run, we hope that compounds from *G. manilaensis* could be harnessed as therapeutic agents for neuronal-related health disorders or be used as a supplement.

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### What do you like about being in Sunway University?

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The research quality by all my lab mates are generally very high. I feel that Sunway University provides me with better facilities and opportunities when compared to other local universities. Besides that, the culture of academic freedom and flexibility also attracted me to stay at Sunway University. I think many would agree with me that Sunway is very generous and often pampers its students with a lot of freebies such as free passport to Sunway Lagoon, free reusable straws, free concerts, etc. Apart from that, I felt that this campus is quite happening and have many events, that even though I spend a large portion of my time in the lab, I don't feel isolated from the society. Sunway University has never stopped surprising me.

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

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I would say that all our concerns or grievances have always been attended to by the department, which I'm grateful for. For example, some years ago we voiced out regarding insufficient fridge space. The department responded to our needs by buying an additional unit. Another time, we had issues regarding a purchasing policy and the department came up with a solution that satisfied both the students as well as the purchasing department. A message to all students – the problems that you face during studying can be solved by proper communication. We have to accept that in our PG life, we do not only learn the knowledge from research, but also other skills such as how to become more resourceful and communicate with the right parties when we encounter a problem.

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### What are your plans after graduation?

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My first plan was to become an academician just like the lecturer in my first degree who inspired me to do a Ph. D. However, I know that the competition is high in this area. I would still attempt for a research job if an opportunity presents itself. As most of us know, the biology-related industry in Malaysia is still developing. Therefore, alternatively, I would like to use the knowledge that I've gained to become an entrepreneur. By this, I hope to contribute back to the biological industry in this country by providing more jobs and opportunities to the next generation in this field.

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### Tell us something unique about yourself

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All lab mates called me "Cash". That's not because I'm really rich. It's just short from my Christian name Casimir.

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### Do you have a message for PG students?

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We encounter many problems while doing research – and this can come from internal or external sources. Don't let these problems stop you from thinking of research solutions! Ideas could pop up suddenly at unexpected moments - when Facebooking, during meals, during your workout, during your bath time – in short, any moment in your life! Embrace all the research problem like a pro and this will really help you to mature throughout the study.

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

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I have stayed up until 5 am to finish all my experiments several times, and that was crazy and against the lab regulations. (Oops)! In the end, I took a few days of leave to recover from that long battle. As it turned out, because I was very tired when working long hours, I made some errors in the experiments and had to repeat some portions of it. I hope other students can learn from my mistakes and plan your experiments well.