# MyCRS Young Scientist Symposium 2023

Propelling the Frontier of Innovative Drug Delivery Systems



### 17 - 18 Aug 2023

Taylor's University Lakeside Campus, Malaysia

Organised by:



Co-organised by:



TAYLOR'S | IMPACT LAB Medical Advancement for Better Quality of Life

Message from President of Malaysia Local Chapter of the Controlled Release Society (MyCRS)

#### Dr. Fu Ju Yen



MyCRS is a community dedicated to experts in the field of delivery science in Malaysia. Delivery science is a multi-disciplinary field that requires a concerted effort from biotechnology, chemistry, engineering, regulatory professionals to clinical translation. The breadth of knowledge and the speed of advancement have been the forefront of healthcare industry. Especially in pharmaceutical science, advancement in delivery science makes world-changing impact in enhancing good health and well-being of all. This is evident during the pandemic and even more in the post-pandemic era.

In MyCRS, we take great responsibility in nurturing local talents especially young scientists. This symposium provides an excellent platform for us to meet and create meaningful connections. We look forward to gain insights from great contributions, innovations, and research, at the same time inspiring our youths to pursue and to excel in science and technology.

Looking forward to exciting possibilities and see you at MyCRS Young Scientist Symposium 2023!

Message from Chair of MyCRS Young Scientist Symposium 2023

#### Dr. Goh Choon Fu

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A very warm welcome to all of you to this remarkable gathering - the MyCRS Young Scientist Symposium 2023 on 'Propelling the Frontier of Innovative Drug Delivery Systems'. It is with great pleasure to announce our inaugural collaboration with Taylor's University in co-hosting this captivating event.

In the ever-evolving landscape of drug delivery and pharmaceuticals, the pursuit of innovative drug delivery systems has taken centre stage. The symposium has been meticulously crafted to be a melting pot of ideas, insights, and advancements that are pushing the boundaries of science and technology in drug formulation design. This platform is not just an assembly of experts; it's a testament to our collective commitment to revolutionising the way we design the next generation drug delivery system.

As we convene here, let us remember that the journey of scientific progress is marked by collaboration and the exchange of ideas. This symposium provides a unique opportunity to forge connections, foster collaborations, and initiate conversations that could catalyse groundbreaking discoveries. Each presentation, every conversation, and all the interactions during these days have the potential to shape the landscape of drug delivery for years to come.

I would like to extend my heartfelt gratitude to the Organising Committee from both MyCRS and Taylor's University, the speakers, the panellists and each and every participant who has contributed to making this symposium a reality. More importantly, this event cannot be held successfully with the support from our sponsors including Gaia Science Sdn. Bhd. (Sotax AG), IKA Works (Asia) Sdn Bhd, Dpro Scientific Sdn. Bhd. (C+K Electronic) and Shimadzu Malaysia Sdn. Bhd. Your dedication and passion for advancing drug delivery systems are what make events like this not just a gathering, but a movement towards a brighter future.

So, let us embark on this exciting journey of exploration, learning, and inspiration. May our discussions be insightful, our interactions fruitful, and our shared aspirations drive us towards innovative solutions that will benefit humanity as a whole.

Thank you!

Message from Co-host of MyCRS Young Scientist Symposium 2023 Director, Taylor's Medical Advancement for Better Quality of Life Impact Lab



#### Prof. Dr. Yeong Chai Hong

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With immense pleasure, I extend a warm and hearty welcome to all of you to the MyCRS Young Scientist Symposium 2023, focused on the theme of 'Propelling the Frontier of Innovative Drug Delivery Systems'. This event stands as a testament to our unwavering dedication to scientific progress and collaboration. It's an honor for Taylor's Medical Advancement for Better Quality of Life Impact Lab to co-organise this exceptional symposium with MyCRS.

As we endeavor to achieve the targets outlined in United Nations Sustainable Development Goal (SDGs) No. 3: Health and Well-Being, this symposium takes on the role as a hub for the exchange of ideas, knowledge, and insights that are reshaping the frontiers in drug design and development. What lies before us is more than a gathering of experts; it's a platform that reflects our shared commitment to reshape the landscape of drug delivery for generations to come. On behalf of the Taylor's Medical Advancement for Better Quality of Life Impact Lab, I would like to thank MyCRS for affording us this opportunity to collaborate in pursuit of this goal.

My heartfelt gratitude goes to the Organising Committee, whose tireless efforts from conception to execution have led us to this significant juncture. Equally, my appreciation extends to the speakers, panelists, and all participants - your expertise and enthusiasm breathe life into this symposium. I also wish to extend deep gratitude to our sponsors, including Gaia Science Sdn. Bhd. (Sotax AG), IKA Works (Asia) Sdn Bhd, Dpro Scientific Sdn. Bhd. (C+K Electronic) and Shimadzu Malaysia Sdn. Bhd., whose unwavering support underscores their commitment to enhancing healthcare and humanity.

Finally, I wish each and every one of you a productive and inspiring symposium in our beautiful campus. Please do not hesitate to approach our friendly committee if you require any assistance during the event.

Thank you.



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#### 08.30 Registration

#### 09.00 Welcome session

- Emeritus Prof. Dr. P.T. Thomas (Executive Dean of Faculty of Health & Medical Sciences, Taylor's University)
- Prof. Dr. Mohd Cairul Iqbal bin Mohd Amin (Founder and former president of MyCRS)
- Dr. Goh Choon Fu (Chair of MyCRS Young Scientist Symposium and Vice President of MyCRS)

#### 09.15 Plenary talk I

**Exosomes - bio-inspired nanocarriers for wound and tissue regeneration** 

Assoc. Prof. Dr. Ng Shiow Fern

- 10.00 Young scientist session I
- **10.45** Coffee break + poster session

#### 11.00 Plenary talk II *From plant to topical cream – reality and challenges* Assoc. Prof. Dr. Premrutai Thitilertdecha

- 11.45 Young scientist session II
- **12.30** Lunch break + lunch talk + poster session
- 14.00 MyCRS Young Scientist Award 2023: Sharing session

#### 14.15 Plenary talk III: Enhancing anti-cancer profile of drug-loaded graphene using deep eutectic solvents (DES) Assoc. Prof. Dr. Looi Chung Yeng

- 15.00 Young scientist session III
- **15.45** Coffee break + poster session
- 16.00 Annual general meeting

#### **19.00** Social dinner Available to those who have paid the associated dinner fee



## <sup>O</sup>PROGRAMME SCHEDULE

#### DAY 2 - 18/08/2023

- 09.00 Welcome session
- 09.15 Plenary talk IV

Localised immunomodulation platforms for drug and cell therapeutics Assist. Prof. Dr. Corrine Chua Ying Xuan

**10.00** Coffee break + poster session

#### 10.15 Young scientist forum

## *Thriving in academia and beyond: Mastering time, skills, and well-being*

Prof. Dr. Mohd Cairul Iqbal bin Mohd Amin Prof. Dr Yeong Chai Hong Dr. Sunil Kumar Agarwal Ms. Lim En Ni Ms. Nur Dini Fatini binti Mohammad Faizal

#### **11.15** Closing remarks + award ceremony Dr. Fu Ju Yen (President of MyCRS)

12.00 Lunch break

#### **13.00 IKA factory visitation** Subject to those who have registered for the factory visitation



#### **Executive Committee**

Fu Ju Yen, Malaysian Palm Oil Board Goh Choon Fu, Universiti Sains Malaysia Hazrina binti Abdul Hadi, International Islamic University Malaysia Awis Sukarni bin Mohmad Sabere, International Islamic University Malaysia Izzat Fahimuddin bin Mohamed Suffian, International Islamic University Malaysia Yeong Chai Hong, Taylor's University Tang Yin Quan, Taylor's University Sharina binti Hamzah, Taylor's University

#### Young Scientist Taskforce

Nur Dini Fatini binti Mohammad Faizal, Universiti Kebangsaan Malaysia Wong Li Ching, Universiti Sains Malaysia Nur Atikah binti Asman, Universiti Malaysia Sabah Lee Jing Yi, Universiti Sains Malaysia Sim Yee Shan, Universiti Sains Malaysia Anushri a/p Sambanthan, Universiti Kebangsaan Malaysia Ong Rong Rong, Universiti Sains Malaysia

#### **Scientific Committee**

Alice Chuah Lay Hong, Monash University Malaysia Kiew Lik Voon, Universiti Malaya

#### ● 0 PLENARY SPEAKER I

Assoc. Prof. Dr. Ng Shiow Fern Faculty of Pharmacy Universiti Kebangsaan Malaysia Malaysia



Dr. Ng Shiow Fern received her Ph.D. degree in Pharmaceutical Sciences in 2007 from the University of Strathclyde (Glasgow, UK). She is currently an Associate Professor in National University of Malaysia (Universiti Kebangsaan Malaysia, UKM) Faculty of Pharmacy, and the Chairperson of the Centre for Drug Delivery Technology.

Her current research interests focus on drug delivery, through the exploitation of delivery of therapeutic agents to acute and chronic wounds. She is also interested in the application of various biopolymers for the retention and delivery of active compounds for a variety of potential wound therapeutic applications.

As of 2022, she has supervised 11 Ph.D. students and 19 Masters students. Research collaborators include local pharmaceutical industries and institutions as well as institutions in South East Asia - Singapore, Thailand, Philippines, and Vietnam. Dr Ng also works very closely with the pharma industry as well as the wound care unit in Kuala Lumpur General Hospital to translate her research output into potential commercial and clinical applications.

Throughout her academic career, she has obtained publication award in top tier Journals (2016-2022), Teaching Innovation Award (2014, 2017, 2020), Outstanding industry collaboration award (2017) from UKM. She is a registered pharmacist and she also serves as the President of the MyCRS, Controlled Release Society the Malaysia Local Chapter from 2018 to 2022.

## PLENARY SPEAKER II

**Assoc. Prof. Dr. Premrutai Thitilertdecha** Faculty of Medicine Siriraj Hospital Mahidol University Thailand



Dr. Premrutai Thitilertdecha obtained her Ph.D. in Pharmacy and Pharmacology from the University of Bath, England, in 2013. She served as a lecturer and a QC/QA manager at the Center of Applied Thai Traditional Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, during 2013-2014 before moving to the Reseach Department at the same university in 2015, where she is currently appointed as an Associate Professor.

Her research interests include natural products, topical drug delivery systems, immunosuppression, and adipose-derived stem cells. Most of her research focuses on developing a topical formulation containing flavonoids with immunosuppressive and anti-inflammatory effects for the replacement of topical corticosteroids.



Assoc. Prof. Dr. Looi Chung Yeng Faculty of Health & Medical Sciences Taylor's University Malaysia



Dr. Looi Chung Yeng obtained his Bachelor of Biomedical Science (Hons) degree from University Putra Malaysia. With Japanese Government scholarship, he furthered his Master and Ph.D. in Tohoku University, Japan. He worked as a post-doc in IDAC, Japan before continuing as research fellow and later senior research fellow in University Malaya. Currently, he is Associate Professor in School of Biosciences, Taylor's University.

His area of specialization is on drug design and development, diabetes, cancer or infection-related immune response. He has published more than 80 papers in indexed journal with a H-index of 41 and total citations of 5899. He also contributed to 2 book chapters and serving as Associate Editor in tier-one journal, BMC Complementary Medicine and Therapies as well as review editor for reputable journals such as Immunology, Treatment and Frontiers in Cancer Research Communications, Translational Oncology. Dr Looi has research collaboration with researchers from Harvard, Texas A&M, NUS, Tufts, Oman, Melbourne University as well as local collaborators in Universiti Malaya, UPM, UTM.

## PLENARY SPEAKER IV

Assist. Prof. Dr. Corrine Chua Ying Xuan Department of Nanomedicine Houston Methodist Research Institute Houston, Texas, USA



Dr. Chua's research is focused exploring localised on immunomodulatory strategies modulate to the immune microenvironment for the treatment and prevention of chronic diseases, with a primary focus on cancer. One arm of her research centers on intratumoral immunotherapy delivery using an implantable nanoseed for cancer treatment. Active efforts are dedicated to investigating the efficacy of sustained local immunotherapy delivery to modulate tumor microenvironment and activate systemic anti-tumor immune responses.

Another research arm entails developing an implantable vaccine platform to serve as an immunostimulatory niche for recruiting and activating immune cells. Example applications of the implantable vaccine platform include cancer prevention and treatment. Murine cancer models of focus include but are not limited to breast cancer, pancreatic cancer, and melanoma. Outside of cancer research, Dr. Chua is developing a 3D printed bioengineered adrenal gland with localized immunosuppression to protect transplanted adrenocortical cells from immune rejection for adrenal insufficiency treatment.

## YOUNG SCIENTIST FORUM PANELISTS



Prof. Dr. Mohd Cairul Iqbal bin Mohd Amin Faculty of Pharmacy Universiti Kebangsaan Malaysia Malaysia



**Prof. Dr. Yeong Chai Hong** Faculty of Health & Medical Sciences Taylor's University Malaysia



Dr. Sunil Kumar Agarwal Pharmaniaga Berhad Malaysia



Ms. Lim En Ni Alpro Pharmacy Sdn Bhd Malaysia



**Ms. Nur Dini Fatini binti Mohammad Faizal** Faculty of Pharmacy Universiti Kebangsaan Malaysia Malaysia

#### O LIST OF ORAL PRESENTERS

### Session I

MY018	Novel chitosan/alginate polymeric wound dressings containing tocotrienol-rich fraction for enhanced wound healing effects Loo Hooi Leong, Monash University Malaysia
MY020	Innovative lab-on-a-chip technology: Advancing nanoformulation design in dermal drug delivery Wong Li Ching, Universiti Sains Malaysia
MY002	Exosome-mediated delivery of CRISPR/Cas9 as endogenously-loaded ribonucleoprotein (RNP) complex Goh Zher Pin, Universiti Malaya
MY006	LL37 microspheres loaded on activated carbon-chitosan hydrogel: Anti-bacterial and anti-toxin wound dressing for chronic wound infections Lim Bee Yee, Universiti Kebangsaan Malaysia
MY010	Poly-L-glutamic acid as targeted drug carrier of 4-(2- aminoethyl) benzene sulfonyl fluoride (AEBSF) for prevention or attenuation of acute kidney injury Geo Hui Nee, Universiti Malaya

## LIST OF ORAL PRESENTERS

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### Session II

MY015	Membrane-targeting peptides enhancing uptake of ruthenium(II) polypyridyl photosensitisers into clinically relevant bacteria Ng Xiao Ying, International Medical University		
MY016	Alginate-coated gold nanorods as sonosensitising agents for sonodynamic eradication of breast cancer Loke Yean Leng, Universiti Malaya		
MY022	Lyophilised rice starch sponge as a potential buccal delivery system: Impact of plasticisers on the physicochemical characteristics and drug release profiles Lee Jing Yi, Universiti Sains Malaysia		
MY030	Hydroxyethyl cellulose functionalised with maleimide groups as a new excipient with enhanced mucoadhesive properties Fhataheya Buang, University of Reading; Universiti Kebangsaan Malaysia		
MY032	Effect of retinoic acid loaded nanosponge gel-cream formulation vs commercial formulation in animal model Sharifah Shakirah Syed Omar, International Islamic University of Malaysia		

#### o LIST OF ORAL PRESENTERS

### Session III

MY027	Valorising kapok fibres (Ceiba pentandra (L.) Gaertn.) for cellulose hydrogel development in dermal delivery of niacinamide Ong Rong Rong, Universiti Sains Malaysia		
MY037	Formulation of hydrogel patch for anti acne peptide Sumayyah binti Abdul Manan, University Putra Malaysia		
MY043	Optimization, characterization, and cytotoxicity evaluation of tuneable PEGylated liposome co-loaded with doxorubicin hydrochloride and miR-145 mimics against triple breast negative cancer <i>in vitro</i> Ng Chu Xin, Taylor's University		
MY044	Curcumin loaded liposomal gels: Rheological properties and in vitro release Premanarayani Menon, Universiti Kebangsaan Malaysia		
MY046	3D printed hollow microneedles in the treatment of osteoporosis <i>in vivo</i>		

## **LIST OF POSTER PRESENTERS**

P001	Development of catechin loaded nanoemulsion using spontaneous emulsification method	Nabilah binti Hauzin
P002	Theranostic activity of phenylboronic acid-based probe in human colorectal adenocarcinoma HT-29	Ng Min Phin
P003	Elucidating the antiproliferative mechanisms of the bisindole alkaloids angustilongines M and A from <i>Alstonia penangiana</i> in HT-29 Cells	Tan Chun Hoe
P004	Phosphanegold(I) thiolates: Promising gold-based drugs for cancer treatment and antibacterial activity	Yeo Chien Ing
P005	Evaluation of indolenine-barbituric acid zwitterions as potential anticancer drugs: <i>In silico</i> and <i>in vitro</i> studies	Ong Kang Kit
P006	Investigating antioxidative potential of low molecular weight hyaluronic acid esterified with oleic acid	Nur Yasmin Diana
P007	Characterization of cytotoxic proteins from king tuber oyster medicinal mushroom, <i>Pleurotus tuber-regium</i> (Agaricomycetes), sclerotium for human breast MDA-MB-231 cancer cells	Erlina Abdullah
P008	In silico structural modelling of ovarian cancer biomarker HE4 and its molecular docking with DNA aptamers	Nur Nadiah Abdul Rashid
P009	MOFs: Promising drug delivery platforms	Tan Yee Seng
P010	Characterising <i>in vitro</i> kinetics of carrageenan/chitosan polymeric hydrogel nanoparticles encapsulated with capsaicin for cancer therapy	Umar Azhan
P011	Ultrasound-responsive size-tunable ultrasmall nanogold clusters for improved tumour penetration	Goh Sook Jing
P012	Can we deliver mitragynine through the skin?	Sim Yee Shan
P013	Dox- <sup>153</sup> Sm-PHBV micropsheres: An innovative intraarterial chemo- radioembolization agent for unresectable liver cancer treatment	Asseel Hisham Alregib
P014	Lyophilised rice starch sponge as a potential buccal delivery system: Impact of plasticisers on the physicochemical characteristics and drug release profiles	Lee Jing Yi
P015	Diagnostic tumour-homing peptide targeting breast cancer cells	Dhayaalini Bala Gopal
P016	Effect of palm mix carotenes (PMC) against oxidative stress induced age-related macular degeneration (AMD) in human retinal pigment cells	Puvaneswari Meganathan
P017	Influence of extraction parameters on ultrasonic extraction of Sedum lineare Thunb.	Yu Hai Long
P018	Formulation and evaluation of guar gum-based facial serum incorporated with postbiotics extracted from lactic acid bacteria	Ang Ming Xian
P019	TPGS in oral drug delivery: Advantages, limitations, and future perspectives	Wong Chee Ning
P020	Poly(diallyldimethylammonium chloride)-alginate-coated gold nanorods for eradication of <i>Staphylococcus aureus</i> biofilms	Malarmugila Manimaran

## **LIST OF POSTER PRESENTERS**

P021	Preparation and stability assessment of retinoic acid-loaded nanosponge gel-cream formulation	Sharifah Shakirah Syed Omar
P022	Fabrication of monodisperse mesoporous silica nanoparticles	Fatema Tuz Zohera
P023	Phytochemicals against SARS-CoV-2 target proteins	Hemapriyaa Vijayan
P024	Development of immunoliposomes-loaded favipiravir as a potential drug delivery strategy against severe coronavirus disease (COVID-19)	Nur Dini Fatini Mohammad Faizal
P025	Clinical characteristics and clinical diagnosis of novel coronavirus disease 2019 (COVID-19)	Rathimalar Ayakannu
P026	Bioavailability and tissue distribution of vitamin E tocotrienols after nano- encapsulation	Fu Ju Yen
P027	Personalized breast cancer vaccine: Multi-epitope immunogen encapsulated in biomimetic nanoparticles	Anushri Sambanthan
P028	Temperature-responsive liposomes-loaded remdesivir against SARS-CoV-2: Preliminary study	Nur Adania binti Shaibie
P029	Effect of protein on moisture content and yield of spray dried nanoparticles	Nisanthei Gunasegaran
P030	Identification of 18-amino acids anticancer peptide (ACP) derivative, D18.13 from pardaxin using <i>in silico</i> analysis	Wong Yong Hui
P031	Film to microneedle: A facile way to optimise microneedle formulation for drug delivery to the skin	Liang Yimo
P032	Unlocking the potential of biomass cellulosic hydrogels as carriers of cationic nanoemulsions for dermal drug delivery	Wong Li Ching
P033	Facile synthesis and application of ultrasmall gold nanoparticles as sonosensitisers for sonodynamic eradication of breast cancer	Adilet Beishenaliev
P034	Tumor necrosis factor receptors: The emerging entities for drug target in glaucoma	Muhammad Zulfiqah Sadikan
P035	Alginate/chitosan-based polymeric dressings to deliver tocotrienol-rich fraction (TRF) for wound healing	Loo Hooi Leong
P036	Antifungal evaluation of silver nanoparticles against the biofilms of Candida glabrata	Felicia Luvena Albert



#### Parking



WiFi Access



#### O GENERAL INFORMATION

**Direction to Lecture Theatre 21 & 22** 







MyCRS Young Scientist Symposium 2023 Propelling the Frontier of Innovative Drug Delivery Systems 0 **GENERAL INFORMATION** Floor plan of Lecture Theatre 21 & 22 Poster boards Lecture Theatre 21 & 22 Exit **SCREEN** Exit Registration Exit AV control room Rostrum Entrance



Venue: **Flower Girl Coffee**, A-1-10, Ground Floor Sunway GEO Avenue, Jalan Lagoon Selatan, 47500 Petaling Jaya, Selangor

Date and time: 17 Aug 2023, 7 pm

\*For registered participants and invited guests only

Access to the venue by walking:



## **ACKNOWLEDGEMENTS**

### **Co-organiser:**



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#### **Booth sponsors:**







#### **Other sponsors:**







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