

**CHAN, Ho Wan (Howard) BPharm, RPh(HK), AFHEA**

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## Education

September 2021 – Present

### **PhD Candidate (Drug Delivery), The University of Hong Kong**

Primary supervisor: Prof. Aviva SF Chow, Associate Professor

*Tentative thesis title: "Inhalable Nanoagglomerate Powders for Respiratory Disease Treatment: Rational Development, Characterization, and Continuous Manufacturing"*

- Development of a particle engineering platform technology, amenable to continuous manufacturing, for controlled agglomeration of drug-loaded nanoparticles into inhalable dry powder formulations with good aqueous redispersibility, leading to
  - Two peer-reviewed journal article publications in the *International Journal of Pharmaceutics* as first-author
  - Two invention competition awards
  - Pending patent applications in the U.S. and China
- Published two peer-reviewed review articles as first-author in the field of nanomedicine and pulmonary drug delivery
- Collaborated with other research group members and researchers in the Chinese University of Hong Kong (leading to seven co-author publications)
- Obtained two early-career research grants (primarily aimed at PhD students) independently and assisted primary supervisor in external grant bidding (leading to successful funding of two external grants)
- One-to-one supervision of two final-year undergraduate project students and seven summer research interns

September 2016 – June 2020

### **BPharm (Hons, 1<sup>st</sup> class), The University of Hong Kong (CGPA: 3.91/4.3; top student of the class)**

- Conducted a final-year project on the development of bosentan polymeric nanoparticle formulations for inhaled pulmonary arterial hypertension treatment (awarded the Jacobson Outstanding Award in Research Project and a final grade of A+)

## Professional Qualifications

October 2024

### **Associate Fellowship in Higher Education (AFHEA), Advance HE**

- Awarded in recognition of the attainment of professional standards in teaching and learning in higher education during the teaching of pharmaceutical sciences to undergraduate pharmacy students

July 2021

### **Registered Pharmacist, Pharmacy and Poisons Board of Hong Kong**

## Research Interests

- Particle engineering of inhalable nanoparticle-loaded powder formulations for respiratory disease treatment
- Novel non-*in vivo* approaches in evaluating the efficacy and safety of inhalable therapeutics

## Research Skills

- Nanoparticle and inhalable dry powder formulation design and fabrication – Nanoprecipitation, spray drying and spray (freeze) drying
- Nanoparticle characterization techniques – DLS, TEM, HPLC
- Dry powder characterization techniques – SEM, laser diffraction, NGI, TGA, PXRD, DSC
- *In vitro* cell culture experimental techniques – Basic cell culture maintenance, MTT and resazurin cell viability assay, confocal laser scanning microscopy, flow cytometry, lung cancer organoid culture
- *In vivo* mice experimental techniques – Orthotopic lung cancer model development, endotracheal intubation, intratracheal powder insufflation/liquid installation, *in vivo* bioluminescence live animal imaging (IVIS), blood collection, tissue harvest, and homogenization

## Scholarships and Awards

April 2025	<b>For Our Future Innovation and Technology Scholarship</b> , Greater Bay Area Homeland Youth Community Foundation <u>1 out of 10 awards</u> competed among full-time PhD students in STEM fields in Hong Kong
September 2024	<b>Drug Delivery to the Lungs Conference Career Development Grant 2024</b> Independently wrote and secured an award of additional research funding (GBP5,000) to develop an organoid screening platform for inhalable chemotherapeutics <i>in vitro</i>
April 2024	<b>Silver Medal, 49<sup>th</sup> International Exhibition of Inventions Geneva</b> Awarded for novelty and translational potential of the invention “ <i>Inhale the Future: Embracing the Next Generation of Inhalable Nanomedicine Technologies</i> ”
March 2024	<b>Sir Edward Youde Memorial Fellowship for Postgraduate Research Students 2023/24</b> <u>1 out of 3 awards</u> competed among full-time research postgraduate students in Hong Kong
October 2023	<b>Silver Medal, Jury’s Choice Award, and Canadian Special Award, 8<sup>th</sup> International Invention Innovation Competition in Canada (iCAN 2023)</b> , Toronto International Society of Innovation & Advanced Skills Awarded for novelty and translational potential of the invention “ <i>An Integrated Continuous Manufacturing Platform for Fabricating Inhalable Nanoagglomerate Powder as Next-Generation Respiratory Therapeutics</i> ”
February 2023	<b>Research Postgraduate Student Innovation Award 2022-23</b> , Graduate School, The University of Hong Kong Independently wrote and secured an award of additional research funding (HK\$50,000) to develop an integrated continuous manufacturing platform for fabricating inhalable nanoagglomerate dry powder as next-generation respiratory therapeutics for emerging viral infections
September 2021	<b>Hong Kong PhD Fellowship</b> , Research Grants Council, Hong Kong Awarded the most prestigious complete financial support for PhD studies in Hong Kong (Total of 300 awards per year)
September 2021	<b>HKU Presidential PhD Scholarship</b> , The University of Hong Kong Awarded the most prestigious 4-year complete financial support package for PhD studies at The University of Hong Kong
June 2020	<b>Jacobson Outstanding Award in Research Project</b> , Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China Awarded for the most outstanding laboratory-based final-year research project during studies for the Bachelor of Pharmacy degree
June 2020	<b>Jacobson Prize in Pharmaceutical Science</b> , Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China Awarded for best academic results in pharmaceutical sciences courses during studies for the Bachelor of Pharmacy degree

## Publication Records (#: Equal contribution)

### Peer-reviewed Journal Publications

#### First-author publications

1. **Ho Wan Chan**<sup>#</sup>, Xinyue Zhang<sup>#</sup>, Stephanie Chow, David Chi Leung Lam, Shing Fung Chow. "Inhalable Paclitaxel Nanoagglomerate Dry Powders for Lung Cancer Chemotherapy: Design of Experiments-Guided Development, Characterization and In Vitro Evaluation," *International Journal of Pharmaceutics* 653 (2024):123877. doi:10.1016/j.ijpharm.2024.123877.
2. **Ho Wan Chan**, Hok Wai Lee, Stephanie Chow, David Chi Leung Lam, Shing Fung Chow. "Integrated continuous manufacturing of inhalable remdesivir nanoagglomerate dry powders: design, optimization and therapeutic potential for respiratory viral infections," *International Journal of Pharmaceutics* 644 (2023):123303. doi:10.1016/j.ijpharm.2023.123303.
3. **Ho Wan Chan**, Stephanie Chow, Xinyue Zhang, Philip Chi Lip Kwok, Shing Fung Chow. "Role of Particle Size in Translational Research of Nanomedicines for Successful Drug Delivery: Discrepancies and Inadequacies," *Journal of Pharmaceutical Sciences* 112 (2023):2371-2384. doi:10.1016/j.xphs.2023.07.002.
4. **Ho Wan Chan**, Stephanie Chow, Xinyue Zhang, Yayi Zhao, Henry Hoi Yee Tong, Shing Fung Chow. "Inhalable Nanoparticle-based Dry Powder Formulations for Respiratory Diseases: Challenges and Strategies for Translational Research," *AAPS PharmSciTech* 24 (2023):98. doi:10.1208/s12249-023-02559-y.

#### Other publications

1. Xinyue Zhang, **Ho Wan Chan**, Zitong Shao, Qiyun Wang, Stephanie Chow, Shing Fung Chow. "Navigating translational research in nanomedicine: A strategic guide to formulation and manufacturing," *International Journal of Pharmaceutics* 671 (2025):125202. doi:10.1016/j.ijpharm.2025.125202.
2. Xinyue Zhang, Guangpu Su, Zitong Shao, **Ho Wan Chan**, Stephanie Chow, Si Li, Chi Kwan Tsang, Shing Fung Chow. "Rational Development of Fingolimod Nano-embedded Microparticles as Nose-to-Brain Neuroprotective Therapy for Ischemic Stroke," *Drug Delivery and Translational Research* (2024), in press. doi: 10.1007/s13346-024-01721-8.
3. Si Nga Wong<sup>#</sup>, Si Li<sup>#</sup>, Kam-Hung Low, **Ho Wan Chan**, Xinyue Zhang, Stephanie Chow, Bo Hui, Philip C.Y. Chow, Shing Fung Chow. "Development of Favipiravir Dry Powders for Intranasal Delivery: An Integrated Cocrystal and Particle Engineering Approach via Spray Freeze Drying," *International Journal of Pharmaceutics* 653 (2024):123896. doi:10.1016/j.ijpharm.2024.123896.
4. Ping Zeng, Pengfei Zhang, **Ho Wan Chan**, Shing Fung Chow, Jenny Ka Wing Lam, Margaret Ip, Sharon Shui Yee Leung. "Storage stability of lysostaphin solution and its pulmonary delivery," *Drug Delivery and Translational Research* 14 (2024):2433-2443. doi:10.1007/s13346-024-01518-9.
5. Si Nga Wong, Kam-Hung Low, Yi Lam Poon, Xinyue Zhang, **Ho Wan Chan**, Shing Fung Chow. "Synthesis of the first remdesivir cocrystal: design, characterization, and therapeutic potential for pulmonary delivery," *International Journal of Pharmaceutics* 640 (2023):122983. doi:10.1016/j.ijpharm.2023.122983.
6. Jingwen Weng, Zitong Shao, **Ho Wan Chan**, Steve Po Yam Li, Jenny Ka Wing Lam, Chi Kwan Tsang, Shing Fung Chow. "Mediating bio-fate of polymeric cholecalciferol nanoparticles through rational size control," *Biomaterials Advances* 140 (2022):213074. doi:10.1016/j.bioadv.2022.213074.
7. Si Nga Wong, Kam-Hung Low, Jingwen Weng, **Ho Wan Chan**, Shing Fung Chow. "Expanding the solid-state landscape of dexamethasone: a specific sandwich structure in facilitating the formation of kinetically stable cocrystals from mechanochemistry," *CrystEngComm* 24 (2022):5875-5879. doi:10.1039/D2CE00758D.
8. Xinran Zhang, Li Yin Chau, **Ho Wan Chan**, Jingwen Weng, Ka Wai Wong, Shing Fung Chow, Albert Hee Lum Chow. "Physical stability and *in vivo* brain delivery of polymeric ibuprofen nanoparticles fabricated by flash nanoprecipitation," *International Journal of Pharmaceutics* 598 (2021):120224. doi:10.1016/j.ijpharm.2021.120224.

### **Peer-reviewed International Conference Presentations** (\*: Presenting author)

1. **Ho Wan Chan\***, Shing Fung Chow. “Development of redispersible remdesivir nanoagglomerate for inhaled therapy: Box-Behnken Design, optimization and *in vitro* aerosol performance.” Poster presentation in *Controlled Release Society 2022 Annual Meeting and Exposition*. July 2022, Montréal, QC, Canada.
2. **Ho Wan Chan\***, Xinyue Zhang, Shing Fung Chow. “Rational design of paclitaxel-curcumin nanosuspensions as a potential inhaled therapy for non-small cell lung cancer.” Poster presentation in *Controlled Release Society 2022 Annual Meeting and Exposition*. July 2022, Montréal, QC, Canada.
3. Bianfei Xuan, **Ho Wan Chan\***, Po Sang Lo, Richard Lakerveld, Shing Fung Chow. “Development and characterization of Flufenamic acid cocrystals for potential topical delivery.” Poster presentation in *Controlled Release Society 2022 Annual Meeting and Exposition*. July 2022, Montréal, QC, Canada.

### **Patents**

1. Shing Fung Chow, **Ho Wan Chan**, Hok Wai Lee. “可吸入团聚纳米颗粒干粉药物组合物、及其制备方法 and 用途”, People’s Republic of China Patent Application No. 202410416898.4, filed on 8 April 2024.
2. Shing Fung Chow, **Ho Wan Chan**, Hok Wai Lee. “Inhalable Agglomerated Nanoparticle Dry Powder Pharmaceutical Compositions, Methods of Making and Use Thereof,” United States Provisional Patent Application No. 63/498,919, filed on 28 April 2023.

### **Leadership Roles and Academic Activities**

September 2023 – March 2024	<b>Chairperson, Student Organizing Committee, 2024 HKU Research Postgraduate Symposium</b> (4 March 2024) <ul style="list-style-type: none"><li>• Led a committee of 12 PhD students across different faculties in hosting a one-day Symposium for presentations by PhD students of the University</li><li>• Successfully invited and coordinated visit logistics for two professors abroad to visit Hong Kong and deliver keynote speeches on-site</li></ul>
May 2023 – August 2024	<b>Abstract Screener, AAPS 2023 &amp; 2024 PharmSci360</b> Screened abstract submissions for poster presentations at <i>AAPS PharmSci360</i>
July 2022 – December 2022	<b>Vice-Chairperson, Student Organizing Committee, 27<sup>th</sup> HKUMed Research Postgraduate Symposium</b> (30 November 2022 – 1 December 2022) <ul style="list-style-type: none"><li>• Co-led a committee of 9 PhD students across different disciplines in the Faculty of Medicine to host a two-day Symposium for PhD students within the Faculty</li><li>• Moderated keynote speeches, career talk, and oral presentation sessions</li></ul>
September 2022 – August 2024	<b>Research Postgraduate Student Representative</b> , Department of Pharmacology and Pharmacy, The University of Hong Kong Coordinated research postgraduate student service duties (e.g., examination invigilation, practical session assistance) on behalf of the Department Office

### **Teaching Experiences**

January 2023 – present	<b>Student Tutor (BPHM2136 Dosage Form Design and BPHM3134 Advanced Drug Delivery), Bachelor of Pharmacy Programme</b> , The University of Hong Kong Delivered tutorials and practical sessions on particle characterization and experimental optimization to Years 2 and 3 undergraduate pharmacy students (~30-35 students per class)
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## Funding Record

1. **“Rational development of Angong Niuhuang Wan as nanoagglomerate nasal powders by nano-in-micro particle engineering for innovative first-aid ischemic stroke therapy”** (Reference number: ITS/379/23; *Recommended for approval*)  
Funding type: Innovation and Technology Support Programme (Seed)  
Funding agency: Innovation and Technology Fund, Innovation and Technology Commission, Hong Kong SAR Government  
Funding amount: HK\$1,038,220  
Capacity: Co-applicant
2. **“*In vitro* NSCLC organoid efficacy screening platform for inhaled chemotherapeutics”**  
Funding type: DDL Career Development Grant  
Funding agency: Drug Delivery to the Lungs Conference, The Aerosol Society  
Funding amount: GBP5,000  
Capacity: Principal Applicant
3. **“Nose-to-brain delivery of combined anti-amyloid- $\beta$  and anti-tau targeted nanotherapy for Alzheimer’s disease: a pilot study”** (Reference number: 21222381)  
Funding type: Health and Medical Research Fund (Seed Grant)  
Funding agency: Health and Medical Research Fund, Health Bureau, Hong Kong SAR Government  
Funding amount: HK\$500,000  
Capacity: Co-applicant
4. **“An Integrated Continuous Manufacturing Platform for Fabricating Inhalable Nanoagglomerate Dry Powder as Next-Generation Respiratory Therapeutics for Emerging Viral Infections”**  
Funding type: Research Postgraduate Student Innovation Award (2022-23) Research Grant  
Funding agency: Leung Kau Kui and Run Run Shaw Research and Teaching Endowment Funds, The University of Hong Kong  
Funding amount: HK\$50,000  
Capacity: Principal Applicant