

# Chaiyaporn Kuwentrail, PhD

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## Academic qualifications

*January 2019-December 2022*

**PhD Biomedical Sciences, The University of Hong Kong**

**Classification:** *Pass (Oral exam grades: Outstanding, Excellent, Very good)*

**Experiences:** Obtained HKPFS candidature. First author of 4 Q1 publications and acquired 1 provision patent for COVID-19 vaccine at Chair Professor Jian-dong Huang's lab.

*September 2017-September 2018*

**MSc Clinical Pharmacology, King's College London**

**Classification:** *Pass with Distinction*

**Experiences:** Supervised clinical trials at Paraxel Phase 1 Unit, Northwick Park Hospital UK. Completed final dissertation project on the impact of monoclonal antibodies over small molecule drugs in the treatment of Crohn's disease.

*September 2014-June 2017*

**BSc Biochemistry, King's College London**

**Classification:** *First class Honors*

**Experiences:** Studied 3 years of Biochemical research. Completed final year gene cloning laboratory project. Won King's Associateship award upon graduation.

## Previous academic positions held

*March 2023-July 2023*

**Senior Research assistant, The University of Hong Kong**

*January 2023-March 2023*

**Student Research assistant, The University of Hong Kong**

*January 2019-December 2022*

**PhD Research Candidate, The University of Hong Kong**

**Experiences:** Performed animal experiments to test various microneedle-based vaccine delivery devices and developed various cancer mRNA treatments.

*June 2018-July 2018*

**Intern at Paraxel Phase 1 Unit, Hammersmith Hospital London**

**Experiences:** Assisted the Management of Phase 1 Clinical Trials during first time in human dosing of novel medications for heart failure.

*July 2016-August 2016*

**Research Intern, Mahidol University and Chulalongkorn University**

**Experiences:** Performed histological staining. Studied frog organ dissections. Investigated site-specific methylation profile on oral cancer gene candidate.

*June 2014-August 2014*

**Medical Intern, Oxford University Hospitals NHS (Churchill and JR Hospitals) and Mahidol Ramathibodi Hospital**

**Experiences:** Engaged with doctors and graduates at various medical wards. Supervised physician meetings. Supervised surgical operations.

## Present academic position

*July 2023-ongoing*

**Post-doctoral fellow, The University of Hong Kong**

**Experiences:** Performed cell-based and animal-based experiments to test various hydrogel-based cancer vaccines and develop novel mRNA vaccine-lipid nanoparticle formulations. Applied for new cancer drug patent with the university of Hong Kong along with new high-impact publication.

## Research work, activities and output

**Research skills:** PCR, Gene-cloning, mRNA synthesis, microneedle synthesis, mice handling, immunohistochemistry, flow cytometry, IVIS in vivo imaging, cell transfection, ELISA, ELISPOT, single-cell RNA seq., CRISPR-Cas9 editing.

## Publication records

1. Jinming Yu, **Chaiyaporn Kuwentrail (Co-First author)**, Hua-rui Gong, Renhao Li, Bao-zhong Zhang, Xuansheng Lin, Xiaolei Wang, Jian-Dong Huang, and Chenjie Xu. Intradermal delivery of mRNA using cryomicroneedles. *Acta Biomater.* 2022 Jun 11:S1742-7061(22)00353-1. PMID: 35697200.  
**(Impact factor: 10, Q1 JCR rank in Engineering, Biomedical (9/96) and in Materials Science, Biomaterials (5/45).**

2. **Chaiyaporn Kuwentrail (First author) et al.** Intradermal delivery of receptor-binding domain of SARS-CoV-2 spike protein with dissolvable microneedles to induce humoral and cellular responses in mice. *Bioeng Transl Med.* 2021; 6:e10202. **(Impact factor: 7.4, Q1 JCR rank in Engineering, Biomedical (18/96)).**
3. **Chaiyaporn Kuwentrail (First author) et al.** Induction of Humoral and Cellular Immunity by Intradermal Delivery of SARS-CoV-2 Nucleocapsid Protein Using Dissolvable Microneedles", *Journal of Immunology Research*, vol. 2021, Article ID 5531220, 8 pages, 2021. **(Impact factor: 4.1, Q2 JCR rank in Immunology (89/161)).**
4. Yu J, **Kuwentrail C (Co-First author)**, Huang JD, Xu C. Carbon-based nanomaterials for viral infection management. *Biomicrofluidics.* 2021 Jan 4;15(1):011501. doi: 10.1063/5.0032427. PMID: 33425089; PMCID: PMC7785324. **(Impact factor: 3.2, Q2 JCR rank in Biophysics (29/70)).**
5. Zhang BZ et al. Mining of epitopes on spike protein of SARS-CoV-2 from COVID-19 patients. *Cell Res.* 2020 Aug;30(8):702-704. **(Acknowledged Contributor)** **(Impact factor: 44.1, Q1 JCR rank in Cell Biology (5/191)).**

#### **Professional qualifications, prizes and awards**

1. Wiley Top cited article (*Bioeng Transl Med.*) 2020-2021 and 2021-2022 (Issued by Wiley · Apr 2023).
2. YS and Christabel Lung Postgraduate Scholarship 2020/2021. (Issued by The University of Hong Kong · Apr 2021)
3. Doctoral Entrance Scholarship for Medical Excellence at University of Hong Kong (Issued by University of Hong Kong · Nov 2018).
4. Hong Kong PhD Fellowship Scheme, University of Hong Kong (Issued by Research Grants Council, Hong Kong · Mar 2018)
5. King's College London Associateship Award (Issued by King's college London · Jul 2017)

#### **Others**

**Patent 1: Anti 2019-Ncov Vaccine.** WO 2021/147025 A1 Patent Application. Application No: 2020073892 Filed: Jan 22, 2020 Published: Jul 29, 2021. Applicants: The Univ of Hong Kong Shenzhen Hospital, Shenzhen Inst of Adv Tech Cas, Univ Beijing Chem Tech, First Affiliated Hospital of Guangzhou Medical Univ. Inventors: Huang Jian-Dong , Zhang Baozhong , Tong Yigang , Zhao Jincun , Dou Ying , Hu Yefan , Hu Jingchu , **Kuwentrail Chaiyaporn**

**Patent 2: Hydrogel-based delivery of cytokines and chemokines for induction of intratumoral tertiary lymphoid structures and augmentation of immune checkpoint blockade (ongoing patent application).** Reference number: IP01397. Applicants: The Univ of Hong Kong. Inventors: Ye Zhou, Huang Jian-Dong, **Kuwentrail Chaiyaporn**, Tang Weilong