

Peter Pak-Hang CHEUNG
Curriculum Vitae

Present academic positions:

2022 – Current; Assistant Dean (Research), Faculty of Medicine, CUHK

2021 – Current; Assistant Professor, Department of Chemical Pathology, CUHK

Academic qualifications:

2012; Ph.D. in Laboratory Science, School of Public Health, University of Hong Kong

2007; Master of Science, Pathology, Western University, Canada

2005; Bachelor of Science, Life Sciences, Queen's University, Canada

Previous academic positions held:

2018 – 2021; Research Assistant Professor, Department of Chemistry, HKUST

2016 – 2018; Research Assistant Professor, Division of Biomedical Engineering, HKUST

Full Publication List (* denotes corresponding author):

1. Au, W. Y., **Cheung, P.P.H.***, Effectiveness of heterologous and homologous COVID-19 vaccine regimens: a living systematic review with network meta-analysis. *British Medical Journal (BMJ)*, 377: e069989 (2022). [Impact Factor: 93.333]
2. Au, W. Y., Ye, C., Briner S.L., Suarez, G.D., Han, J., Xu, X., Park, J.G., Brindley, M.A., Martinez-Sobrido*, L., **Cheung, P.P.H.***, Systematic comparison between BNT162b2 and CoronaVac in the seroprotection against SARS-CoV-2 Alpha, Beta, Gamma, and Delta variants, *Journal of Infection*, DOI: 10.1016/j.jinf.2022.02.030, (2022) [Impact Factor: 38.637]
3. Suarez, G.D., Suarez D.A., Tang Y.Y.K., Zhang J.-X., Li, J., Nagl, S., **Cheung P.P.H.*** Uncovering Mechanisms of RT-LAMP Colorimetric SARS-CoV-2 Detection to Improve Assay Reliability, *Analytical Methods*, DOI: 10.1039/D1AY01395E, (2022) [Impact Factor: 3.532]
4. W. Y. Au, **P. P. H. Cheung***, Diagnostic performances of common nucleic acid tests for SARS-CoV-2 in hospitals and clinics: a systematic review and meta-analysis. *The Lancet Microbe*, doi:10.1016/S2666-5247(21)00214-7, (2021) [Impact Factor: 86.208]
5. Xu, X., Zhang, L.*, Chu J.T.S., Wang, Y. Chin, A.W.H., Dai, Z., Poon, L.L.M., **Cheung, P.P.-H.***, Huang, X.*. A Novel Mechanism of Enhanced Transcription Activity and Fidelity for Influenza A Viral RNA-dependent RNA Polymerase, *Nucleic Acids Research*, 49 (15), 8796 (2021). [Impact Factor: 19.160]
6. Wang, Y., Yuan, C., Xu, X., Chong, T.H., Zhang, L., **Cheung P.P.H.***, Huang, X.*. The mechanism of action of T-705 as a unique delayed chain terminator on influenza viral polymerase transcription, *Biophysical Chemistry*, 277, 106652, (2021). [Impact Factor: 3.628]
7. Zhang, L., Zhang, D., Wang X., Yuan, X., Li, Y., Jia, X., Gao, X., Yen, Y., **Cheung, P.P.***, Huang, X.*, 1'-Ribose Cyano Substitution Allows Remdesivir to Effectively Inhibit both Nucleotide Addition and Proofreading during SARS-CoV-2 Viral RNA Replication, *Physical Chemistry Chemical Physics*, 23, 5852 (2021). [Impact Factor: 3.945]
8. Choy, K., Wong, A., Kaewpreedee, P., Sia, S., Chen, D., Hui, K., Chu, D., Chan, M., **Cheung, P.**, Huang, X., Peiris, M., Yen, H-L, Remdesivir, lopinavir, emetine, and homoharringtonine inhibit SARS-CoV-2 replication in vitro, *Antiviral Research*, 178: 104786, (2020) [Impact Factor: 10.103]
9. Unarta, I.S., Cao, S., Kubo, S., Wang, W., **Cheung, P.P.H.**, Gao, X., Takada, S., Huang, X.* Role of Bacterial RNA Polymerase Gate Opening Dynamics in DNA Loading and Antibiotics Inhibition Elucidated by quasi-Markov State Model, *Proc. Nat. Acad. Sci. U.S.A.*, 118(17), e2024324118, (2021)
10. Wang, Y., Chong, T.H., Unarta, I.C., Xu, X., Suarez, G.D., Wang, J., Lis, J.T., Huang, X., **Cheung, P.P.***, EmPC-Seq: Accurate RNA-sequencing and Bioinformatics Platform to Map RNA Polymerases and Remove Background Error, *Bio-Protocol*, 11, 4 (2021)
11. Wang, X., Unarta, I.C., **Cheung P.P.H.**, Huang, X.* Elucidating Molecular Mechanisms of Functional Conformational Changes of Proteins via Markov State Models, *Curr. Opin. Struct. Biol.*, 67, 69-77, (2021)
12. **Cheung, P.P.H.**, Jiang, B., Booth, G.T., Chong, T.H., Unarta, I.C., Wang, Y., Suarez, G.D., Wang, J., Lis, J.T., Huang, X., Identifying Transcription Error-Enriched Genomic Loci Using Nuclear Run-On Circular-Sequencing Coupled with Background Error Modeling, *Journal of Molecular Biology*, S0022-2836(20)30284-9, (2020) [Impact Factor: 6.151]
13. Tse, K.M., Xu, J., Xu, L., Sheong, F.K., Wang, S., Chow, H.Y., Gao, X., Li, X., **Cheung, P.P.H.***, Wang, D.*, Zhang, Y.*, Huang, X*. Intrinsic cleavage of RNA polymerase II adopts a nucleobase-independent mechanism assisted by transcript phosphate, *Nature Catalysis*, 2, 228–235 (2019) [Impact Factor: 40.706]

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14. Wang, L., Chen, J., Zeng, X., **Cheung, P.P.H.**, Zheng, X., Xie, L., Shi, X., Ren, L., Huang, X., Wang, Y. Mechanistic Insights and Rational Design of a Versatile Surface with Cells/Bacteria Recognition Capability via Orientated Fusion Peptides, *Advanced Science*, 6 (9), 1801827, (2019). [Impact Factor: 17.521]
15. Lei, J., Sheng, G., **Cheung, P.P.H.**, Wang, S., Li, Y., Gao, X., Zhang, Y., Wang, Y., Huang, X. Two symmetric arginine residues play distinct roles in *Thermus thermophilus* Argonaute DNA guide strand-mediated DNA target cleavage. *PNAS*, 116 (3), 845-853, (2019). [Impact Factor: 12.779]
16. Jiang, L., Cao, S., **Cheung, P.P.H.**, Zheng, X., Leung, C.W.T., Peng, Q., Shuai, Z., Tang, B.Z., Yao, S., Huang, X., Real-Time Monitoring of Hydrophobic Aggregation Reveals a Critical Role of Cooperativity in Hydrophobic Effect, *Nature Communications*, 8, 15639, (2017) [Impact Factor: 17.694]
17. Zhang, L., Pardo, F., Unarta, I.C., **Cheung, P.P.H.**, Wang, G., Wang, D., and Huang, X. Elucidation of the Dynamics of Transcription Elongation by RNA Polymerase II using Kinetic Network Models, *Accounts of Chemical Research*, 49 (4), 687–694, (2016) [Impact Factor: 24.466]
18. Zhang, L., Jiang, H., Sheong, F.K., Pardo-Avila, F., **Cheung, P.P.H.**, Huang, X., Constructing Kinetic Network Models to Elucidate Mechanisms of Functional Conformational Changes of Enzymes and their Recognition with Ligands, *Methods in Enzymology.*, 578, 343–371, (2016) [Impact Factor: 1.682]
19. Luk, G.S., Leung, C.Y., Sia, S.F., Choy, K.T., Zhou, J., Ho, C.C., **Cheung, P.P.**, Lee, E.F., Wai, C.K., Li, P.C., et al., Transmission of H7N9 influenza viruses with polymorphism at PB2 residue 627 in chickens and ferrets. *Journal of Virology.*, 89 (19), 9939, (2015) [Impact Factor: 6.549]
20. **Cheung, P.P.**, Rogozin, I.B., Choy, K.T., Ng, H.Y., Peiris, J.S., and Yen, H.L Comparative mutational analyses of influenza A viruses. *RNA* 21, 36, (2015) [Impact Factor: 5.636]
21. **Cheung, P.P.**, Watson, S.J., Choy, K.T., Fun Sia, S., Wong, D.D., Poon, L.L., Kellam, P., Guan, Y., Malik Peiris, J.S., and Yen, H.L. Generation and characterization of influenza A viruses with altered polymerase fidelity. *Nature Communications* 5, 4794, (2014). [Impact Factor: 17.694]
22. Leung, Y.H., Nicholls, J.M., Ho, C.K., Sia, S.F., Mok, C.K., Valkenburg, S.A., **Cheung, P.P.**, Hui, K.P., Chan, R.W., Guan, Y., et al., Highly pathogenic avian influenza A H5N1 and pandemic H1N1 virus infections have different phenotypes in Toll-like receptor 3 knockout mice. *Journal of General Virology* 95, 1870-1879, (2014) [Impact Factor: 5.141]
23. Yen, H.L., McKimm-Breschkin, J.L., Choy, K.T., Wong, D.D., **Cheung, P.P.**, Zhou, J., Ng, I.H., Zhu, H., Webby, R.J., Guan, Y., et al., Resistance to neuraminidase inhibitors conferred by an R292K mutation in a human influenza virus H7N9 isolate can be masked by a mixed R/K viral population. *mBio* 4, (2013) [Impact Factor: 7.781]
24. Wong, D.D., Choy, K.T., Chan, R.W., Sia, S.F., Chiu, H.P., **Cheung, P.P.**, Chan, M.C., Peiris, J.S., and Yen, H.L, Comparable fitness and transmissibility between oseltamivir-resistant pandemic 2009 and seasonal H1N1 influenza viruses with the H275Y neuraminidase mutation. *Journal of Virology* 86, 10558, (2012) [Impact Factor: 6.549]
25. Yen, H.L., Liang, C.H., Wu, C.Y., Forrest, H.L., Ferguson, A., Choy, K.T., Jones, J., Wong, D.D., **Cheung, P.P.**, Hsu, C.H., et al., Hemagglutinin-neuraminidase balance confers respiratory-droplet transmissibility of the pandemic H1N1 influenza virus in ferrets. *PNAS* 108, 14264, (2011) [Impact Factor: 12.779]
26. **Cheung, P.P.**, Leung, Y.H., Chow, C.K., Ng, C.F., Tsang, C.L., Wu, Y.O., Ma, S.K., Sia, S.F., Guan, Y., and Peiris, J.S., Identifying the species-origin of faecal droppings used for avian influenza virus surveillance in wild-birds. *Journal of Clinical Virology* 46, 90, (2009) [Impact Factor: 14.481]

Grants Support:

Year	Grant	Project Number and Title	PI/PC
30/06/2022- 29/06/2025	Collaborative Research Fund	C6036-21GF: From Structural to Genomic Biology: A Multi-scale Approach Tightly Integrating Structural Biology and Novel Genomics Platform to Quantitatively Analyze the Transcription and its Regulation of SARS-CoV-2 Viral RNA Polymerase	Cheung, Pak Hang Peter, PC
15/07/2018 - 14/07/2022	General Research Fund (GRF)	16302618: Establishment of a parallel platform for the mechanistic studies of function and inhibition of influenza polymerase	Cheung, Pak Hang Peter, PI
01/07/2019 - 30/12/2022	GRF	16301319: Establishment of Highly Accurate Nuclear Run-On RNA Sequencing Platforms to Study the Genome-wide Mechanisms of Transcription and Mutation by Influenza Polymerase	Cheung, Pak Hang Peter, PI

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Academic Awards:

- **Silver Award, HKUST-Sino One Million Dollar Entrepreneurship Competition 2019**
- **Young Scientist Awards, The Hong Kong Institution of Science (HKIS), 2015**
- **Croucher-Butterfield Scholarship, The Croucher Foundation, 2010**