

Curriculum Vitae

Wong Hoi Leong Xavier, PhD.

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Academic Qualifications

- 2009-2013 **Ph.D. in Biochemistry**, The University of Hong Kong, Hong Kong SAR, CHINA
- 2006-2009 **B.Sc. in Biochemistry & Biotechnology**, The University of Hong Kong, Hong Kong SAR, CHINA

Academic Experience

- 07/2020 – current **Assistant Professor (tenure-track)**, Teaching and Research Division, School of Chinese Medicine, Hong Kong Baptist University
- 11/2016 – 07/2020 **Research Assistant Professor**, Clinical Division, School of Chinese Medicine, Hong Kong Baptist University
- 08/2016 - 11/2016 **Postdoctoral Fellow**, Dr. Li Dak-Sum Research Centre, The University of Hong Kong-Karolinska Institutet Collaboration
- 11/2015 - 03/2016 **Postdoctoral Fellow**, Department of Ophthalmology and Visual Sciences, The Chinese University of Hong Kong
- 10/2013 - 11/2015 **Postdoctoral Fellow**, School of Biomedical Sciences, The University of Hong Kong

Professional Qualifications

- 2014 – current **Registered Medical Laboratory Technologist (Part II)**, Medical Laboratory Technologists Board

Selected publications

1. Guo X, Cao J, Wu J, Huang J, Asthana P, Wong SKK, Gurung S, Zhang Y, Wang S, Kwan HY, Lyu A, Chan KM, Huang JD, Zhou Z, Bian ZX, Yuan S, **Wong HLX**. (2022) Control of SARS-CoV-2 infection by MT1-MMP-mediated shedding of ACE2. *Nature Communications* [Impact factor: 17.694; Rank = 6 out of 73 in MULTIDISCIPLINARY SCIENCES, Q1]
2. Zhai L, Huang C, Ning Z, Zhang Y, Zhuang M, Yang W, Wang X, Zhang EL, Xiao H, Zhao L, Lam YY, Chow CFW, Huang J, Yuan S, Chan KM, Yuan CS, Lau JYN, **Wong HLX⁺ (co-correspondence)**, Bian Z⁺. (2022) *Ruminococcus gnavus* plays a pathogenic role in diarrhea-predominant irritable bowel syndrome by increasing

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- serotonin biosynthesis. *Cell Host & Microbe* [Impact factor: 31.316; Rank = 4 out of 136 in MICROBIOLOGY, Q1]
3. Guo X, Asthana P, Zhang S, Gurung S, Wong SKK, Fallah S, Chow CFW, Che S, Zhai L, Wang Z, Xin G, Jiang Z, Wu J, Zhang Y, Wu X, Xu K, Lin CY, Kwan HY, Lyu A, Zhou Z, Bian Z, **Wong HLX**. (2022) Regulation of age-associated insulin resistance by MT1-MMP-mediated cleavage of Insulin Receptor. *Nature Communications* 13, 3749 [Impact factor: 17.694; Rank = 6 out of 73 in MULTIDISCIPLINARY SCIENCES, Q1]
 4. Chow CFW, Guo X, Asthana P, Zhang S, Fallah S, Che S, Wang Z, Ge X, Jiang Z, Zhai L, Lin CY, Kwan HY, Huang T, Lyu A, Zhou Z, Bian Z, **Wong HLX** (2022) Body weight regulation via MT1-MMP-mediated cleavage of GFRAL. *Nature Metabolism* 4, 203-212 [Impact factor: 19.865; Rank = 5 out of 146 in ENDOCRINOLOGY & METABOLISM, Q1]
 - ❖ Highlights of the Issue in *Nature Metabolism* - [Central regulation of the anorexigenic receptor GFRAL]
 - ❖ Research Highlights of *Nature Reviews Endocrinology*- [Negative regulator of GDF15 signaling identified]
 - ❖ Editor's choice of *Science Signaling* - [Cutting down in size by not making a cut]
 5. **Wong HLX**, Qin H, Tsang SW, Zuo X, Che S, Chow CFW, Li X, Xiao HT, Zhao L, Huang T, Lin CY, Kwan HY, Yang T, Longo FM, Lyu A, Bian Z (2019) Early life stress disrupts intestinal homeostasis via NGF-TrkA signaling. *Nature Communications* 10(1):1745 [Impact factor: 17.694; Rank = 6 out of 73 in MULTIDISCIPLINARY SCIENCES, Q1]
 6. **Wong HLX**, Jin G, Zhang S, Cao R, Cao Y, Zhou Z (2016) MT1-MMP sheds LYVE-1 on lymphatic endothelial cells and suppresses VEGF-C production to inhibit lymphangiogenesis. *Nature Communications* 7:10824 [Impact factor: 17.694; Rank = 6 out of 73 in MULTIDISCIPLINARY SCIENCES, Q1]
 7. Chan KM*, **Wong HLX*** (*co-first), Jin G, Liu B, Cao R, Cao Y, Lehtl K, Tryggvason K and Zhou Z (2012). MT1-MMP inactivates ADAM9 to regulate FGFR2 signaling in calvarial osteogenesis. *Developmental Cell*, 22(6); 1176-1190 [Impact factor: 13.417; Rank = 1 out of 39 in DEVELOPMENTAL BIOLOGY, Q1]
 - ❖ [recommended in *F1000 Prime*, F1000 factor 8.0]
 8. Guo X, Cheng KW, Gurung S, Huang J, Asthana P, Wu J, Zhang Y, Mahato AK, Saarma M, Ustav M, Kwan HY, Lyu A, Chan KM, Bian ZX, **Wong HLX**. Artesunate treats obesity in non-human primates through GDF15/GFRAL signaling axis. *Nature Communications (under external review)* [Impact factor: 17.694; Rank = 6 out of 73 in MULTIDISCIPLINARY SCIENCES, Q1]

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- Zhai L*, Xiao H*, Lin CY*, **Wong HLX*** (*co-first), Lam YY, Gong M, Wu G, Deng Y, Ning Z, Huang C, Zhang Y, Zhuang M, Yang C, Luo J, Zhang EL, Zhao L, Zhang C, Fang Z, Lau JYN, Jia W, Zhao L, Bian Z. Gut Microbiota-derived Tryptamine Impairs Insulin Sensitivity. *Gastroenterology (under external review)* (preprint in *BioRxiv*) [Impact factor: 33.883; Rank = 3 out of 152 in GASTROENTEROLOGY, Q1]

Other publications

- Asthana P, Guo X, **Wong HLX** (2022) MT1-MMP – A potential drug target for the management of the obesity. *Expert Opinion on Therapeutic Targets* [Impact factor: 6.797]
- Fung TY, Lyaswamy A, Sreenivasmurthy SG, Krishnamoorthi S, Guan XJ, Zhu Z, Su CF, Liu J, Kan Y, Zhang Y, **Wong HLX⁺** (co-correspondence), Li M⁺. (2022) Klotho an Autophagy Stimulator as a Potential Therapeutic Target for Alzheimer's Disease: A Review. *Biomedicines* [Impact factor: 5.225]
- Gong RH, Chen M, Huang C, **Wong HLX**, Kwan HY, Bian Z. (2022) Combination of artesunate and WNT974 induces KRAS protein degradation by upregulating E3 ligase ANACP2 and β -TrCP in the ubiquitin-proteasome pathway. *Cell Communication and Signaling* [Impact factor: 7.919]
- Zhai L, Peng J, Zhuang M, Chang YY, Cheng KW, Ning ZW, Huang T, Lin CY, **Wong HLX**, Lam YY, Tan HY, Xiao HT, Bian Z (2022) Therapeutic effects and mechanisms of Zhen-Wu-Bu-Qi Decoction on dextran sulfate sodium-induced chronic colitis in mice assessed by multi-omics approaches. *Phytomedicine* [Impact factor: 6.137]
- Zhai L, Wu J, Kwan HY, Bian Z, **Wong HLX**. (2021) Gut-Microbial Metabolites, Probiotics and Their Roles in Type 2 Diabetes. *International Journal of Molecular Sciences* [Impact factor: 6.628]
- Chang J, **Wong HLX**, Chen D, Liu Y, Li H, Bian Z. (2021) Potential Role of Traditional Chinese Medicines by Wnt/ β -Catenin Pathway compared with targeted small molecules in colorectal cancer therapy. *Frontiers in Pharmacology* [Impact factor: 6.455]
- Chen MT, Zhong KY, Tan JC, Meng MJ, Liu CM, Chen B, Huang CH, **Wong HLX**, Bian ZX, Su T, Kwan HY. (2021) Baicalein directly binds to toll like receptor 4 and inhibits colorectal cancer growth and metastasis via the TLR4/HIF/VEGF axis. *Clinical and Translational Medicine* [Impact factor: 9.055]
- Hu XJ, Fatima S, Huang T, Chen MT, Gong RH, Ho AHM, **Wong HLX**, Yu RM, Song L, Kwan HY, Bian ZX. (2021) Dihydroartemisinin is potential therapeutics for treating late-stage CRC by targeting the elevated c-Myc. *Cell Death & Disease* [Impact factor: 9.624]
- Hu XJ, Fatima S, Chen MT, Huang CH, Ho AHM, Gong RH, Su T, **Wong HLX**, Bian ZX, Kwan HY. (2021) Toll-like receptor 4 is a master regulator for colorectal cancer

- growth under high-fat diet by programming cancer metabolism. *Cell Death & Disease* 12(8):791 [Impact factor: 9.624]
10. Chen M, Wu HL, Wong TS, Chen B, Gong RH, **Wong HLX**, Xiao H, Bian Z, Kwan HY. (2021) Combination of Wogonin and Artesunate Exhibits Synergistic anti-Hepatocellular Carcinoma Effect by Increasing DNA-Damage-Inducible Alpha, Tumor Necrosis Factor alpha and Tumor Necrosis Factor Receptor-Associated Factor 3-mediated Apoptosis. *Front Pharmacol* 12, 657080, doi:10.3389/fphar.2021.657080 [Impact factor: 6.455]
 11. Li X, Huang T, Xiao HT, Wu PG, Lin C, Ning Z, Zhao L, Kwan HY, Hu XJ, **Wong HLX**, Li XQ, Bian Z (2020) Berberine suppresses colonic inflammation in DSS-induced murine colitis through inhibition of cytosolic phospholipase A2 activity, *Frontiers in Pharmacology* [Impact factor: 6.455]
 12. Qin HY, **Wong HLX**, Zang KH, Li X, Bian Z (2019) Enterochromaffin cell hyperplasia in the gut: Factors, mechanism and therapeutic clues, *Life Sciences*, 116886 [Impact factor: 6.044]
 13. Fatima S, Hu X, Huang C, Zhang W, Cai J, Huang M, Gong RH, Chen M, Ho AHM, Su T, **Wong HLX**, Bian Z, Kwan HY (2019) High-fat diet feeding and palmitic acid increase CRC growth in β 2AR-dependent manner *Cell Death & Disease* 10, 711, [Impact factor: 9.624]
 14. Kwan HY, Liu B, Huang C, Fatima S, Su T, Ho AHM, Han Q, Hu X, Gong RH, Chen M, **Wong HLX**, Bian Z (2019) Signal transducer and activator of transcription-3 (STAT-3) drives the high fat diet-associated prostate cancer growth. *Cell Death & Disease* 10, 637, [Impact factor: 9.624]
 15. Chow CFW, Che S, Qin HY, Kwan HY, Bian Z, **Wong HLX** (2019) From psychology to physicality: How Nerve Growth Factor transduces early life stress into gastrointestinal motility disorders later in life. *Cell Cycle* 18, 1824-1829 [Impact factor: 4.948]
 16. Fatima S, Hu X, Gong RH, Huang C, Chen M, **Wong HLX**, Bian Z, Kwan HY (2019) Palmitic acid is an intracellular signaling molecule involved in disease development. *Cellular and Molecular Life Science* [Impact factor: 10.002]
 17. Zhao L, Huang Y, Lu L, Yang W, Huang T, Lin Z, Lin CY, Kwan HY, **Wong HLX**, Chen Y, Sun S, Xie X, Fang X, Yang H, Wang J, Zhu L, Bian Z (2018) Saturated long-chain fatty acid-producing bacteria contributes to enhanced colonic motility in rats. *Microbiome* 2018;6(1):107 [Impact factor:19.813]
 18. **Wong HLX**, Cao R, Chan KM, Jin G, Cao Y, Zhou Z (2012). When MT1-MMP Meets ADAMs. *Cell Cycle*, 11 [Impact factor: 4.948]
 19. **Wong HLX**, Zhou Z (2012) The Functional Crosstalk between MT1-MMP and ADAMs (2012) *Biochemistry & Analytical Biochemistry* (invited editorial)
 20. Jin G, Zhang F, Chan KM, **Wong HLX**, Liu B, Cheah KSE, Liu X, Mauch C, Liu D, Zhou Z (2011). MT1-MMP cleaves Dll1 to negatively regulate Notch signaling to maintain

normal B-cell development. *EMBO J.*, 30: 2281-2293 [[Impact factor: 14.159](#)]

Research Grants

Externally funded projects:

PI:

1. **Innovation and Technology Support Programme (Mid-stream, theme-based)**, Dissecting the therapeutic role of 3A2 antibody for the treatment of Obesity and Type 2 Diabetes, HKD4,936,216 (in the capacity of PC) (pending) (shortlisted for interview)
2. **Collaborative Research Fund (CRF)**, Identifying circulatory factors regulating age-associated cognitive decline and investigating their therapeutic potential of reversing memory loss during ageing, HKD7,000,000 (in the capacity of PC) (pending) (shortlisted for interview)
3. **Health and Medical Research Fund (HMRF)**, Investigating the role of ADAM9 in the regulation of body weight and food intake, 2021-2024, HKD1,500,000 (ongoing)
4. **Guangdong Natural Science Foundation (General Program)**, To investigate the role of MT1-MMP in the regulation of insulin sensitivity in non-human primate, 2021-2023, RMB100,000 (ongoing)
5. **General Research Fund (GRF)**, To investigate the role of klotho shedding in the ageing process, 2020-2023, HKD1,195,542 (ongoing)
6. **Guangdong Natural Science Foundation (General Program)**, Investigating the influence of gut microbiome on intestinal stem cells in irritable bowel syndrome, 2019-2021, RMB100,000 (ongoing)
7. **General Research Fund (GRF)**, Investigating the role of MT1-MMP in the regulation of insulin sensitivity and the therapeutic potential of MT1-MMP inhibition in Type 2 diabetes mellitus, 2019-2022, HKD1,037,200 (ongoing)
8. **Health and Medical Research Fund (HMRF)**, Exploring the regulatory role of MT1-MMP for body weight and the therapeutic potential of MT1-MMP inhibition in obesity, 2019-2021, HKD1,500,000 (ongoing)
9. **National Natural Science Fund (Young Scientists Fund)**, Investigating the regulatory role for MT1-MMP in the tumor associated macrophages and tumor lymphangiogenesis, 2019-2021, RMB220,000 (ongoing)

Co-I:

1. **Young Collaborative Research Fund (YCRF)**, Mechanistic and therapeutic study on the SARS-CoV-2 reprogramed host tyrosine metabolism and epigenetic regulation, HKD5,000,000 (pending)
2. **Collaborative Research Fund (CRF)**, Longitudinal analysis of gut microbiome and metabolome for the identification of clinical biomarkers for Irritable Bowel Syndrome, HKD10,000,000 (pending)

3. **General Research Fund (GRF)**, Investigating the regulatory role of phenethylamine for serotonin production in the pathogenesis of diarrhea-predominant Irritable Bowel Syndrome, 2022-2024, HKD1,148,982 (ongoing)
4. **Health and Medical Research Fund (HMRF)**, WNT974 and artesunate exhibit synergy in inhibiting colorectal cancer growth by increasing KRAS protein degradation, 2022-2025, HKD1,151,520 (ongoing)
5. **General Research Fund (GRF)**, Gut dysbiosis disrupts stem cell functions via NGF/TrkA signaling pathway in diarrhea-predominant irritable bowel syndrome, 2020-2023, HKD1,195,542 (ongoing)
6. **National Natural Science Fund (General Program)**, MT1-MMP regulates neural stem cells self-renewal and differentiation via Notch signaling, 2013-2016, RMB800,000 (completed)

Internally funded projects:

1. **External Grant Preparation Support Fund for CRF application (HKBU)**, The role of MT1-MMP in age-related impairments in cognitive function, 2021-2022 (ongoing)
2. **Faculty Research Grants II (HKBU)**, Nuclear MT1-MMP suppresses TNF- α /NF- κ B signaling axis in macrophages, 2018-2019, HKD100,000 (completed)
3. **Faculty Research Grants I (HKBU)**, MT1-MMP regulates body weight through GDF15 signaling, 2018-2019, HKD50,000 (completed)
4. **Faculty Research Grants I (HKBU)**, The function of NGF signaling in the maintenance of intestinal stem cells and their differentiations, 2017-2018, HKD50,000 (completed)
5. **Small Project Fund (HKU)**, The Biological Functions of MT1-MMP in Lymphatic Vascular Development, 2015-2016, HKD50,000 (completed)

Presentations at Academic Conferences

1. 跨膜蛋白酶 MT1-MMP 機制研究與藥物研發, 粵港澳中醫藥與免疫疾病研究聯合實驗室 2022 年度學術委員會會議暨學術交流會, Hong Kong 2022
2. Microbiota-Host Interaction: Pathophysiology of Age-related Diseases, **School of Biomedical Science Research Seminar**, The University of Hong Kong, Hong Kong 2022
3. Targeting MT1-MMP: Therapeutic Opportunities in Age-related Diseases **JCC (BMS) Research Seminar**, City University of Hong Kong, Hong Kong 2022
4. Targeting MT1-MMP: Therapeutic Opportunities in Age-related Disease, 香港中藥藥理學會暨香港藥理學家與毒理學家俱樂部 香港科技園“浸大藥谷”創新群體 2022 年聯合線上學術年會, Hong Kong 2019
5. Cleavage of GFRAL by Membrane Type 1-Matrix Metalloproteinase promotes obesity in mice, **HKSEMR 36th Annual Scientific Meeting & Annual General Meeting**, Hong Kong 2019

6. The role of NGF/TrkA signaling in early life stress-induced bowel dysfunctions, **Gordon Research Conference-2019 Neurotrophic Mechanisms in Health and Disease**, United States 2019
7. MT1-MMP cleaves Insulin Receptor to regulate insulin resistance, **52nd Annual Meeting of the Japanese Society of Developmental Biologists**, Japan 2019
8. Early life stress disrupts intestinal homeostasis via NGF/TrkA signaling, **China Gut Festival**, Beijing 2019
9. MT1-MMP regulates body weight via GDF15/GFRAL signaling, **The 2018 World Science Life Conference**, Beijing 2018
10. The role of NGF/TrkA signaling in the regulation of intestinal stem cell, **10th International Heinrich F.C. Behr Symposium on Stem Cells and Cancers**, Germany 2018
11. The role of MT1-MMP in lymphangiogenesis, **Gordon Research Conference**, Italy 2018
12. Early-life adversity disrupts intestinal homeostasis through NGF/TrkA signaling, **Cold Spring Harbor Asia Conference on Stem cells, Aging & Rejuvenation**, China 2017
13. The Importance of MT1-MMP in Lymphatic Development and Metastasis. **FEBS-EMBO 2014 Conference**, France 2014
14. The Functional Crosstalk between MT1-MMP and ADAMs. **2013 Hong Kong Inter-University Biochemistry Postgraduate Symposium**, Hong Kong 2013
15. The Functional Crosstalk between MT1-MMP and ADAMs. **Gordon Research Conference on 'Matrix Metalloproteinases: Crucial Components of Molecular Networks and Disease Pathways'**. Italy, 2013
16. The Regulation of FGF Signaling by MT1-MMP in Calvarial Osteogenesis. **Hong Kong Inter-University Postgraduate Symposium on Life Science**. Hong Kong, 2012
17. The Regulation of FGF Signaling by MT1-MMP in Calvarial Osteogenesis. **Joint Meeting of The 45th Annual Meeting of the Japanese Society for Cell Biology & The 64th Annual Meeting of the Japan Society for Cell Biology.**, Japan, 2012
18. Chan KM, Zhou Z. 2011. The Role of MT1-MMP in FGF Signaling. **Cell Signal-Omics**. Luxembourg, 2011

Teaching Experience

Courses taught

2020- current	HKBU	Course coordinator/ instructor	BMSC1008 (Biomedical Sciences Laboratory) IIS7020 (Doctoral Research Training II) BMSC2025 (Microbiology & Immunology) BMSC3015 (Infectious Diseases and Rheumatic Diseases) PCMD3006 (Pharmacology and Toxicology)
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			PCMD4015 (Management of Pharmaceutical Affairs)
2014-2016	HKU	Teaching Assistant	BIOC3604 (Essential Techniques in Biochemistry and Molecular Biology) BIOC4610 (Advanced Biochemistry)

Postgraduate students supervised

2021-current	HKBU	Mr. Wu Jiayan (Full time PhD student)
2021-current		Mr. Zhang Yijing (Full time PhD student)
2019-current		Mr. Huang Chunhua (Full time PhD student)
2019-current		Mr. Guo Xuanming (Full time PhD student)
2016-2021		Mr. Zhai Lixiang (PhD graduate)
2016-2017		Ms. Zuo Xiao (Exchange master student)

Honors, Awards and Prizes

2022	President's Award for Outstanding Performance in Early Career Researcher
2021	School Performance Award as Young Researcher
2018	Go Everywhere Travel Grant by Bio-Techne
2014	EMBO Travel Award
2014	Asia-Pacific Developmental Biology Network Travel Award
2013	Mary Sun Postgraduate Scholarship
2012	Best Oral Presentation Award at Hong Kong Inter-University Postgraduate Symposium on Life Science
2012	Japanese Society of Developmental Biologists Travel Fellowship
2011	YS & Christabel Lung Postgraduate Scholarship

Memberships on committees

2022-Current	Senate Standing Committee-Teaching Development Grants Panel, HKBU
2022-Current	Member of the HKBU 2028+ Co-creation Project Work Group, HKBU
2021-Current	Animal Research Ethics Panel Member, HKBU
2021-Current	Safety Committee of the School of Chinese Medicine (laboratory teaching), HKBU School of Chinese Medicine
2019-Current	Laboratory Safety and Animal House Committee, HKBU School of Chinese Medicine
2018 – current	Associate member, Hong Kong Society of Endocrinology, Metabolism and Reproduction
2014 – current	Associate member, Japanese Society of Developmental Biologists

Ad hoc Reviewer for journals and research funding

Grant Agencies

1. University of Macau Multi-Year Research Grant-General Research Grant Scheme
2. National Natural Science Foundation of China-Young Scientist Fund

Peer-reviewed Journals

1. Journal of Biological Chemistry
2. Journal of Cell Science
3. Frontier in Pharmacology
4. Journal of Cellular and Molecular Medicine
5. Internal Journal of Molecular Science
6. Pharmaceuticals
7. Metabolites
8. Diabetology
9. Nutrients
10. Cancers