

胡嘉麒

WILLIAM WU

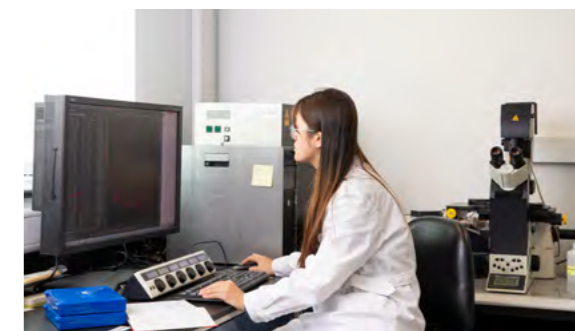


13 NON-CODING RNAs AND CELLULAR SIGNALLING

Research Progress Summary

Cancer – The team led by William Wu discovered that *Streptococcus thermophilus*, a probiotic bacterium depleted in patients with colorectal cancer, can suppress intestinal tumorigenesis in mice. The tumour-suppressive effect of *S. thermophilus* is mediated, at least in part, by the secretion of β -galactosidase. These findings support this probiotic could be a potential prophylactic for preventing colorectal cancer in humans (*Gastroenterology*, 2021).

differentiation and cytokine response may explain the increased incidence of Guillain-Barré syndrome among COVID-19 patients (*Cell proliferation*, 2021).



COVID-19 – Their bioinformatic analysis indicated that augmented T helper 17 cell

Research Awards and Recognitions

Member's Name	Details	
	Award	Organisation
Huarong Chen	Poster of Distinction	Digestive Disease Week 2021, American Gastroenterological Association

Fellowships

Member's Name	Details	
	Fellowship	Organisation
Qing Li	Research Grant Council Postdoctoral Fellowship 2021/2022	Hong Kong Research Grants Council

Academic Editorship

Member's Name	Details	
	Role	Journal
William Wu	Guest Editor	Frontiers in Cell and Developmental Biology
	Associate Editor	Frontiers in Oncology
	Editorial Board Member	Journal of Pharmacy and Pharmacology
Xiaodong Liu	Guest Associate Editor	Frontiers in Molecular Neuroscience
	Review Editor	Frontiers in Pain Research
Huarong Chen	Guest Editor	Diagnostics

Research Progress Summary



Principal Investigator

William WU



Team members

Matthew Chan, Lin Zhang, Xiaodong Liu, Huarong Chen, Idy Ho, Chuan Xie, Qing Li, Xiao Sun, Judeng Zeng, Xiaoting Zhang, Xiansong Wang, Dan Huang, Hung Chan, Zidan Zou, Wenyi Zhu, Tingting Jin, Hongbin Liu, Qian Li, Hao Su, Yingzhi Liu, Yanjun Jiang, Tsui Ping Tam, Dongjiao Chen

Reviewer of Journal / Conference

Member's Name	Details	
	Role	Journal / Conference
William Wu	Peer Reviewer	Gut
		Science Advances
		Theranostics
		Oncogene
Xiaodong Liu	Peer Reviewer	Proceedings of the National Academy of Sciences of the United States of America
Huarong Chen	Peer Reviewer	Molecular Cancer
		Theranostics
		Oncogene
		Frontiers in Immunology

Member's Name	Details	
	Role	Journal / Conference
Huarong Chen	Peer Reviewer	Cells
Lin Zhang	Peer Reviewer	Gut Journal of Pathology
	Reviewer	AGA Abstract Review Committee (Pre-clinical Treatment of Intestinal Inflammation)

Research and Scholarship

Grants and Consultancy

Name	Project Title	Funding Source	Start Date (dd/mm/yyyy)	End Date (dd/mm/yyyy)	Amount (HK\$)
William Wu	Mechanism of VitD3 Targeting Autophagy-lysosomal Pathway Inhibiting <i>C. difficile</i> -related Inflammation	National Natural Science Foundation of China	01/01/2021	31/12/2024	RMB 550,000
	m6A Modification Controls the Autophagic Response to <i>Helicobacter pylori</i> Infection	Research Grants Council – General Research Fund	01/01/2021	31/12/2023	1,195,290
	A Mechanistic Study on the Influence of Cancers on Human Genome Evolution	Shenzhen Science and Technology Programme, Shenzhen Science and Technology Innovation Commission	18/03/2019	31/03/2022	RMB 3,000,000
	A Mechanistic Study of the Therapeutic Effect of Butyrate in Nonalcoholic Steatohepatitis: Involvement of Autophagy	Research Grants Council – General Research Fund	01/01/2019	31/12/2021	971,635
	Molecular Characterization of the Ubiquitin-proteasome System as a Host Defense Mechanism against Intracellular <i>Helicobacter pylori</i> Infection	The TUYF Charitable Trust	01/09/2019	31/08/2022	2,851,800
	Molecular Characterization of the Ubiquitin-proteasome System as a Host Defense Mechanism against Intracellular <i>Helicobacter pylori</i> Infection - RMG01	Research Grants Council – Research Matching Grant	01/06/2020	31/05/2023	1,419,234
	Matthew Chan	Butyrate for the Prevention and Treatment of Chemotherapy-Induced Neuropathic Pain	Project Grant, Australian and New Zealand College of Anaesthetists	01/04/2020	31/03/2021

Name	Project Title	Funding Source	Start Date (dd/mm/yyyy)	End Date (dd/mm/yyyy)	Amount (HK\$)
Lin Zhang	Targeting H3K27me3 by EZH2 Inhibitors in Control of Drug-resistant <i>Helicobacter pylori</i> Colonization	Food and Health Bureau – Health and Medical Research Fund	01/09/2020	31/08/2023	1,494,292
	A Mechanistic Study of the Therapeutic Effect of Butyrate in <i>Helicobacter pylori</i> Colonization and its Associated Gastritis: Involvement of Autophagic-lysosomal Pathway	National Natural Science Foundation of China	01/01/2019	31/12/2022	RMB 580,000
	Effects of Ketamine and Cannabis on Antimicrobial Peptide Expression and Infection Susceptibility	Narcotics Division, Security Bureau – Beat Drugs Fund	01/08/2019	31/07/2022	3,086,761
	Elucidation of the Role of Cathelicidin in Protection against Multi-drug Resistant <i>Acinetobacter baumannii</i> Associated Pneumonia	Food and Health Bureau – Health and Medical Research Fund	20/09/2019	19/09/2022	1,499,800
	Translation Medical Research on Autophagy for <i>Helicobacter pylori</i> Eradication	Shenzhen Science and Technology Programme, Shenzhen Science and Technology Innovation Commission	19/03/2019	18/03/2022	RMB 500,000
Huarong Chen	RNA N6-methyladenosine Methyltransferase-like 3 (METTL3) is a Potential Therapeutic target for Immunotherapy in Colorectal Cancer	Food and Health Bureau – Health and Medical Research Fund	01/09/2021	31/08/2023	1,475,400
Xiaodong Liu	Screening of Botanic Ingredients for the Prevention or Treatment of Gout and the Mechanistic Study	Amway R&D China	28/04/2020	27/04/2023	RMB 600,000
	Screening of Botanic Ingredients for the Prevention or Treatment of Gout and the Mechanistic Study	Research Grants Council – Research Matching Grant	01/09/2020	27/04/2023	277,688.42

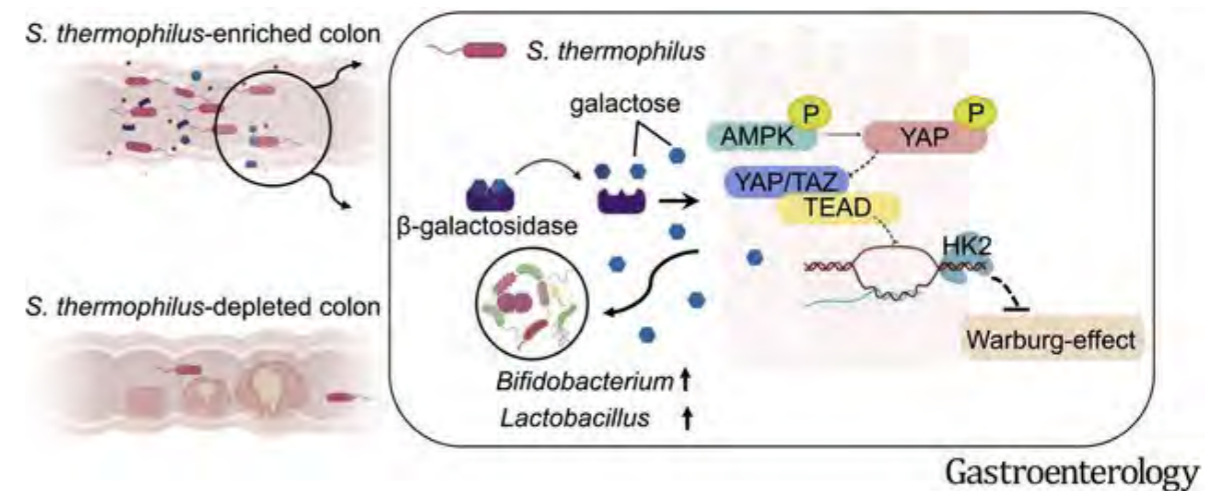
Publications

A. Journal Papers

- Li Q, Hu W, Liu WX, Zhao LY, Huang D, Liu XD, Chan H, Zhang Y, Zeng JD, Coker OO, Kang W, Ng SSM, Zhang L, Wong SH, Gin T, Chan MTV, Wu JL, Yu J, Wu WKK. *Streptococcus thermophilus* Inhibits Colorectal Tumorigenesis through Secreting β -Galactosidase. *Gastroenterology*. 2021;160(4):1179-1193.e14. doi:10.1053/j.gastro.2020.09.003.
- Li Z, Li X, Shen J, Tan H, Rong T, Lin Y, Feng E, Chen Z, Jiao Y, Liu G, Zhang L, Chan MTV, Wu WKK. Bioinformatic analysis of SMN1-ACE/ACE2 interactions hinted at a potential protective effect of spinal muscular atrophy against COVID-19-induced lung injury. *Briefing in Bioinformatics*. 2021;22(2):1291-1296. doi:10.1093/bib/bbaa285.
- Li Z, Huang Z, Li X, Huang C, Shen J, Li S, Zhang L, Wong SH, Chan MTV, Wu WKK. Bioinformatic analyses hinted at augmented T helper 17 cell differentiation and cytokine response as the central mechanism of COVID-19-associated Guillain-Barré syndrome. *Cell Proliferation*. 2021;54(5). doi:10.1111/cpr.13024.
- Yu X, Li L, Chan MTV, Wu WKK. Bioinformatic analyses suggest augmented interleukin-17 signaling as the mechanism of COVID-19-associated herpes zoster. *Environmental Science and Pollution Research*. 2021;28(46):65769-65775. doi:10.1007/s11356-021-15567-x.
- Liu Y, Ling L, Wong SH, Wang MH, Fitzgerald JR, Zou X, Fang S, Liu X, Wang X, Hu W, Chan H, Wang Y, Huang D, Li Q, Wong WT, Choi G, Zou H, Hui DS, Yu J, Tse G, Gin T, Wu WKK, Chan MT, Zhang L. Outcomes of respiratory viral-bacterial co-infection in adult hospitalized patients. *EClinicalMedicine*. 2021;37. doi:10.1016/j.eclinm.2021.100955.
- Ho IHT, Ng LHL, Cheng X, Gin T, Chan CS, Sun W, Xiao L, Zhang L, Chan MTV, Wu WKK, Liu X. Annexin a2 traps mu-opioid receptors in recycling endosomes upon remifentanyl-induced internalization. *Neurobiology of pain*. 2021;10. doi:10.1016/j.ynpai.2021.100071.
- Zhou J, Lee S, Wang X, Li Y, Wu WKK, Liu T, Cao Z, Zeng DD, Leung KSK, Wai AKC, Wong ICK, Cheung BMY, Zhang Q, Tse G. Development of a multivariable prediction model for severe COVID-19 disease: A population-based study from Hong Kong. *NPJ Digital Medicine*. 2021;4(1). doi:10.1038/s41746-021-00433-4.
- Ouyang Y, Zhu Z, Huang L, Zeng C, Zhang L, Wu WKK, Lu N, Xie C. Research trends on clinical helicobacter pylori eradication: A bibliometric analysis from 1983 to 2020. *Helicobacter*. 2021;26(5). doi:10.1111/hel.12835.
- Zhou J, Li H, Chang C, Wu WKK, Wang X, Liu T, Cheung BMY, Zhang Q, Lee S, Tse G. The association between blood pressure variability and hip or vertebral fracture risk: A population-based study. *Bone*. 2021;150. doi:10.1016/j.bone.2021.116015.
- Lau WKW, Ngan LHM, Chan RCH, Wu WKK, Lau BWM. Impact of COVID-19 on pornography use: Evidence from big data analyses. *PLoS One*. 2021;16(12):e0260386. doi:10.1371/journal.pone.0260386.
- Lee S, Zhou J, Wong WT, Liu T, Wu WKK, Wong ICK, Zhang Q, Tse G. Glycemic and lipid variability for predicting complications and mortality in diabetes mellitus using machine learning. *BMC Endocrine Disorders*. 2021;21(1). doi:10.1186/s12902-021-00751-4.
- Chen X, Li Z, Zhang X, Yan J, Ding L, Song Y, Huo Y, Chan MTV, Wu WKK, Lin J. A new robotically assisted system for total knee arthroplasty: A sheep model study. *The International Journal of Medical Robotics and Computer Assisted Surgery*. 2021;17(4). doi:10.1002/rcs.2264.
- Li Z, Zhang X, Ding L, Du K, Yan J, Chan MTV, Wu WKK, Li S. Deep learning approach for guiding three-dimensional computed tomography reconstruction of lower limbs for robotically-assisted total knee arthroplasty. *The International Journal of Medical Robotics and Computer Assisted Surgery*. 2021;17(5):e2300-n/a. doi:10.1002/rcs.2300.
- Ng Y, Lo MCK, Lee K, Xie X, Kwong TNY, Ip M, Zhang L, Yu J, Sung JJY, Wu WKK, Wong SH, Kwok K. Development of an open-access and explainable machine learning prediction system to assess the mortality and recurrence risk factors of clostridioides difficile infection patients. *Advanced Intelligent Systems*. 2021;3(1):2000188. doi:10.1002/aisy.202000188.
- Li Z, Li X, Shen J, Chan MTV, Wu WKK. Miller fisher syndrome associated with COVID-19: An up-to-date systematic review. *Environmental Science and Pollution Research*. 2021;28(17):20939-20944. doi:10.1007/s11356-021-13233-w. (Review)
- Xu D, Ma X, Sun C, Han J, Zhou C, Chan MTV, Wu WKK. Emerging roles of circular RNAs in neuropathic pain. *Cell Proliferation*. 2021;54(12). doi:10.1111/cpr.13139. (Review)
- Li Z, Li X, Xu D, Chen X, Li S, Zhang L, Chan MTV, Wu WKK. An update on the roles of circular RNAs in osteosarcoma. *Cell Proliferation*. 2021;54(1). doi:10.1111/cpr.12936. (Review)
- Kang X, Zhang R, Kwong TN, Lui RN, Wu WKK, Sung JJ, Yu J, Wong SH. Serrated neoplasia in the colorectum: Gut microbiota and molecular pathways. *Gut Microbes*. 2021;13(1):1-12. doi:10.1080/19490976.2020.1863135. (Review)

B. Letter

- Zhou J, Wang X, Lee S, Wu WKK, Cheung BMY, Zhang Q, Tse G. Proton pump inhibitor or famotidine use and severe COVID-19 disease: A propensity score-matched territory-wide study. *Gut*. 2021;70(10):2012-2013. doi:10.1136/gutjnl-2020-323668.



Streptococcus thermophilus is a potential prophylactic for colorectal cancer prevention. The tumour-suppressive effect of *S. thermophilus* is mediated at least by the secretion of β -galactosidase.

Source: Li Q, Hu W, Liu WX, Zhao LY, Huang D, Liu XD, Chan H, Zhang Y, Zeng JD, Coker OO, Kang W, Ng SSM, Zhang L, Wong SH, Gin T, Chan MTV, Wu JL, Yu J, Wu WKK. *Streptococcus thermophilus* Inhibits Colorectal Tumorigenesis through Secreting β -Galactosidase. *Gastroenterology*. 2021;160(4):1179-1193.e14. doi:10.1053/j.gastro.2020.09.003.