

CURRICULUM VITAE, 2023

Tania Wong

Associate Research Scientist

Department of Pediatrics Infectious Diseases
Columbia University Medical Center
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QUALIFICATIONS

- 2016 **Doctor of Philosophy**
Department of Microbiology and Immunology, University of Melbourne, Australia
- 2010 **Bachelor of Science with Honors**
Department of Microbiology and Immunology, University of Melbourne, Australia
- 2009 **Bachelor of Biomedical Science**
Department of Microbiology and Immunology, University of Melbourne, Australia

AWARDS AND HONORS

- 2022 **Travel Award**
International Conference on Gram-Positive Pathogens, USA
- Oberfield Prize in Basic Science**
Best postdoctoral research, Department of Pediatrics, Columbia University, USA
- 2019 **Postdoctoral Research Symposium Award,**
Best poster presentation, Columbia University, USA
- 2013 **Graduate Student Award (finalist),**
Becton Dickinson, Australian Society for Microbiology (ASM), Australia
- 2011-2015 **Graduate Fee Remission Scholarship (~ AUD \$168,000),**
Graduate Research Scholarship (stipend) (~ AUD \$115,000),
University of Melbourne, Australia
- 2007-2010 **Undergraduate Tuition Fee Scholarship (~ AUD \$28,000),**
University of Melbourne, Australia

GRANTS AND FUNDING

- 2022-2026 **Pathway to Independence Award, K99 HL157550** (USD \$994,157),
National Institutes of Health (NHLBI), USA
- 2019-2020 **EpiCURE Pilot & Feasibility Study Program** (USD \$35,000),
Skin Disease Resource-Based Center, Columbia University, USA

PUBLICATIONS

* First author ^ Corresponding author # in preparation or submitted

Original research articles

- 2022 * , ^ [Wong Fok Lung T](#), Charytonowicz D, Beaumont KG, Shah SS, Sridhar SH, Gorrie CL, Mu A, Hofstaedter CE, Varisco D, McConville TH, et al. *Klebsiella pneumoniae* induces host metabolic stress that promotes tolerance to pulmonary infection. *Cell Metab.* 2022;34(5):761-74 e9.
- 2021 Giogha C, Scott NE, [Wong Fok Lung T](#), Pollock GL, Harper M, Goddard-Borger ED, Pearson JS, and Hartland EL. NleB2 from enteropathogenic *Escherichia coli* is a novel arginine-glucose transferase effector. *PLoS Pathog.* 2021;17(6):e1009658.
- Ahn D, Bhushan G, McConville TH, Annavajhala MK, Soni RK, [Wong Fok Lung T](#), Hofstaedter CE, Shah SS, Chong AM, Castano VG, et al. An acquired acyltransferase promotes *Klebsiella pneumoniae* ST258 respiratory infection. *Cell Rep.* 2021;35(9):109196.
- *[Wong Fok Lung T](#), Tomlinson KL, Dach F, Annavajhala MK, Gabryszewski SJ, Groves RA, Driek M, Francoeur NJ, Sridhar SH, Smith ML, et al. *Staphylococcus aureus* induces an itaconate-dominated immunometabolic response that drives biofilm formation. *Nat Commun.* 2021;12(1):1399.
- 2020 Gan J, Scott NE, Newson JPM, Wibawa RR, [Wong Fok Lung T](#), Pollock GL, Ng GZ, van Driel I, Pearson JS, Hartland EL, et al. The *Salmonella* Effector SseK3 Targets Small Rab GTPases. *Front Cell Infect Microbiol.* 2020;10:419.
- Riquelme SA, Liimatta K, [Wong Fok Lung T](#), Fields B, Ahn D, Chen D, Lozano C, Saenz Y, Uhlemann AC, Kahl BC, et al. *Pseudomonas aeruginosa* Utilizes Host-Derived Itaconate to Redirect Its Metabolism to Promote Biofilm Formation. *Cell Metab.* 2020.
- *[Wong Fok Lung T](#), Monk IR, Acker KP, Mu A, Wang N, Riquelme SA, Pires S, Noguera LP, Dach F, Gabryszewski SJ, et al. *Staphylococcus aureus* small colony variants impair host immunity by activating host cell glycolysis and inducing necroptosis. *Nat Microbiol.* 2020;5(1):141-53.
- 2019 *[Wong Fok Lung T](#), Acker KP, West E, Craft J, Narechania A, Smith H, O'Brien K, Moustafa AM, Lauren C, Planet PJ, et al. Strains of *Staphylococcus aureus* that Colonize and Infect Skin Harbor Mutations in Metabolic Genes. *iScience.* 2019;19:281-90.

*Wong Fok Lung T, Gabryszewski SJ, Annavajhala MK, Tomlinson KL, Riquelme SA, Khan IN, Noguera LP, Wickersham M, Zhao A, Muleños AM, et al. Metabolic Adaptation in Methicillin-Resistant *Staphylococcus aureus* Pneumonia. *Am J Respir Cell Mol Biol*. 2019;61(2):185-97.

Newson JPM, Scott NE, Yeuk Wah Chung I, Wong Fok Lung T, Giogha C, Gan J, Wang N, Strugnell RA, Brown NF, Cygler M, et al. *Salmonella* Effectors SseK1 and SseK3 Target Death Domain Proteins in the TNF and TRAIL Signaling Pathways. *Mol Cell Proteomics*. 2019;18(6):1138-56.

Jacquet R, LaBauve AE, Akoolo L, Patel S, Alqarzaee AA, Wong Fok Lung T, Poorey K, Stinear TP, Thomas VC, Meagher RJ, et al. Dual Gene Expression Analysis Identifies Factors Associated with *Staphylococcus aureus* Virulence in Diabetic Mice. *Infect Immun*. 2019;87(5).

2017 Pollock GL, Oates CVL, Giogha C, Wong Fok Lung T, Ong SY, Pearson JS, and Hartland EL. Distinct Roles of the Antiapoptotic Effectors NleB and NleF from Enteropathogenic *Escherichia coli*. *Infect Immun*. 2017;85(4).

Wickersham M, Wachtel S, Wong Fok Lung T, Soong G, Jacquet R, Richardson A, Parker D, and Prince A. Metabolic Stress Drives Keratinocyte Defenses against *Staphylococcus aureus* Infection. *Cell Rep*. 2017;18(11):2742-51.

Creuzburg K, Giogha C, Wong Fok Lung T, Scott NE, Muhlen S, Hartland EL, and Pearson JS. The Type III Effector NleD from Enteropathogenic *Escherichia coli* Differentiates between Host Substrates p38 and JNK. *Infect Immun*. 2017;85(2).

Pearson JS, Giogha C, Muhlen S, Nachbur U, Pham CL, Zhang Y, Hildebrand JM, Oates CV, Wong Fok Lung T, Ingle D, et al. EspL is a bacterial cysteine protease effector that cleaves RHIM proteins to block necroptosis and inflammation. *Nat Microbiol*. 2017;2:16258.

2016 *Wong Fok Lung T, Giogha C, Creuzburg K, Ong SY, Pollock GL, Zhang Y, Fung KY, Pearson JS, and Hartland EL. Mutagenesis and Functional Analysis of the Bacterial Arginine Glycosyltransferase Effector NleB1 from Enteropathogenic *Escherichia coli*. *Infect Immun*. 2016;84(5):1346-60.

2015 Giogha C, Wong Fok Lung T, Muhlen S, Pearson JS, and Hartland EL. Substrate recognition by the zinc metalloprotease effector NleC from enteropathogenic *Escherichia coli*. *Cell Microbiol*. 2015;17(12):1766-78.

Yang Z, Soderholm A, Wong Fok Lung T, Giogha C, Hill MM, Brown NF, Hartland E, and Teasdale RD. SseK3 Is a *Salmonella* Effector That Binds TRIM32 and Modulates the Host's NF-kappaB Signalling Activity. *PLoS One*. 2015;10(9):e0138529.

- 2013 Pearson JS, Giogha C, Ong SY, Kennedy CL, Kelly M, Robinson KS, [Wong Fok Lung T](#), Mansell A, Riedmaier P, Oates CV, et al. A type III effector antagonizes death receptor signalling during bacterial gut infection. *Nature*. 2013;501(7466):247-51.

Reviews

- 2023 #Howden BP, Giuleri SG, [Wong Fok Lung T](#), Baines SL, Sharkey LK, Lee JYH, Hachani A, Monk IR, and Stinear TP. *Staphylococcus aureus* host interactions and adaptation. *Nat. Rev. Microbiol.* 2023.
- 2022 *[Wong Fok Lung T](#), Chan LC, Prince A, Yeaman MR, Archer NK, Aman MJ, and Proctor RA. *Staphylococcus aureus* adaptive evolution: Recent insights on how immune evasion, immunometabolic subversion and host genetics impact vaccine development complex. *Front. Cell. infect. Microbiol.* 2022. (<https://doi.org/10.3389/fcimb.2022.1060810>)
- 2021 ^Tomlinson KL, Prince AS, and [Wong Fok Lung T](#). Immunometabolites Drive Bacterial Adaptation to the Airway. *Front Immunol.* 2021;12:790574.
- 2020 *[Wong Fok Lung T](#), and Prince A. Consequences of Metabolic Interactions during *Staphylococcus aureus* Infection. *Toxins (Basel)*. 2020;12(9).
- *[Wong Fok Lung T](#), Riquelme SA, and Prince A. Pulmonary Pathogens Adapt to Immune Signaling Metabolites in the Airway. *Front Immunol.* 2020;11:385.
- 2016 Pearson JS, Giogha C, [Wong Fok Lung T](#), and Hartland EL. The Genetics of Enteropathogenic *Escherichia coli* Virulence. *Annu Rev Genet.* 2016;50:493-513.
- 2014 *[Wong Fok Lung T](#), Pearson JS, Schuelein R, and Hartland EL. The cell death response to enteropathogenic *Escherichia coli* infection. *Cell Microbiol.* 2014;16(12):1736-45.
- Giogha C, [Wong Fok Lung T](#), Pearson JS, and Hartland EL. Inhibition of death receptor signaling by bacterial gut pathogens. *Cytokine Growth Factor Rev.* 2014;25(2):235-43.

EMPLOYMENT

- 2020-current **Associate Research Scientist**
Research Program of Professor Alice S. Prince
Department of Pediatrics Infectious Diseases, Columbia University, USA
- 2016-2020 **Postdoctoral Research Scientist**
Research Program of Professor Alice S. Prince
Department of Pediatrics Infectious Diseases, Columbia University, USA
- 2016 **Research Assistant**
Research Program of Professor Elizabeth L. Hartland
Department of Microbiology and Immunology, University of Melbourne, Australia
- Graduate Teaching Assistant**

Department of Microbiology and Immunology, University of Melbourne, Australia
Course code MIIM30016

2011-2013 **Graduate Teaching Assistant**
Department of Microbiology and Immunology, University of Melbourne, Australia
Course code MIIM30013

COLLABORATORS

- 2022 **Professor Chu Wang**
Beijing National Laboratory for Molecular Sciences, Peking University, P.R. China
Chemoproteomic profiling
- Dr. Roi Avraham**
Department of Immunology and Regenerative Biology, Weizmann Institute of Science, Israel
Host-pathogen interactions
- 2020-current **Professor Robert Sebra**
Department of Genetics and Genomic Sciences, Mt. Sinai Icahn School of Medicine, USA
Next generation sequencing
- Professor Timothy P. Stinear**
Dr. Claire L. Gorrie
Dr. Abderrahman Hachani
Department of Microbiology and Immunology, University of Melbourne, Australia
Genomics of pathogenic *Staphylococcus aureus* and *Klebsiella pneumoniae*
- 2017-current **Professor Benjamin P. Howden**
Dr. Ian R. Monk
Department of Microbiology and Immunology, University of Melbourne, Australia
Genomics/metabolomics of pathogenic *Staphylococcus aureus* and *Klebsiella pneumoniae*
- Professor Anne-Catrin Uhlemann**
Department of Medicine, Columbia University, USA
Genomics of pathogenic *Staphylococcus aureus* and *Klebsiella pneumoniae*
Microbiome profiling and integrative analyses
- Dr. Andre Mu**
Wellcome Sanger Institute & European Bioinformatics Institute (EMBL-EBI), UK
Genomics/metabolomics of pathogenic *Staphylococcus aureus* and *Klebsiella pneumoniae*
Integrative microbiome analyses

INVITATIONS TO MEETINGS *selected*

- 2022 **Pediatrics Infectious Diseases Division, Columbia University**, New York, USA
Presentation: Understanding how multi-drug resistant *K. pneumoniae* facilitates pulmonary infection through immunometabolic interactions
- Biomedicine Discovery Institute, Monash University**, Melbourne, Australia
Presentation: *K. pneumoniae*-induced host metabolic stress promotes pulmonary infection
- 2019 **Beijing Children's Hospital, Capital Medical University**, Beijing, P.R. China
Presentation: Induction of host glycolysis by *S. aureus* small colony variants promotes necroptosis and persistence
- 2018 **Microbial Pathogenesis Data Club, NYU Langone**, New York, USA
Presentation: *S. aureus* induction of glycolysis promotes necroptosis and persistence

CONFERENCE PRESENTATIONS *selected*

- 2022 **International Conference on Gram-Positive Pathogens**, USA
Oral: Airway immunometabolites impact staphylococcal central metabolism and virulence via post-translational modification of targets
- American Society for Microbiology** annual meeting, USA
Poster: Airway immunometabolites impact staphylococcal central metabolism and virulence via post-translational modifications of targets
- Gordon Research Conference** on Basic and Translational Cellular Metabolism in Immunity, USA
Poster: *K. pneumoniae*-induced host metabolic stress promotes tolerance to pulmonary infection
- 2021 **Keystone Symposia Conference** on Integrating Metabolism and Immunity, USA (*virtual*)
American Thoracic Society annual meeting, USA (*virtual*)
Poster: *Klebsiella pneumoniae* ST258 induces a host metabolic response that promotes bacterial persistence
- 2019 **American Society for Microbiology** annual meeting, USA
Poster: Metabolic consequences of *S. aureus* SCV infection prevent trained immunity
- 2018 **Cell Symposia Conference** on Metabolites as Signaling Molecules, USA
Poster: Metabolic consequences of *S. aureus* infection prevent trained immunity
- Keystone Symposia Conference** on Cell Death, Inflammation and Adaptation to Tissue

Stress, USA

Poster: *S. aureus* induction of glycolysis promotes necroptosis and persistent infection

PROFESSIONAL DEVELOPMENT *selected*

2021-current **Guest Editor**

Journal: Frontiers in Cellular and Infection Microbiology

Topic: Understanding the effect of metabolites and trace minerals on microbes during infection

2019-2022 **Reviewer**

Journals: PLOS Pathogens, Communications Biology, Frontiers in Cellular and Infection Microbiology, Frontiers in Immunology, Veterinary Microbiology, JoVE, Journal of Innate Immunity

2013 **Graduate Student Council Representative (Treasurer)**

Graduate Conference Organizing Committee

Department of Microbiology and Immunology, University of Melbourne, Australia

PROFESSIONAL MEMBERSHIPS

2018- current **American Society for Microbiology**

American Thoracic Society

New York Academy of Sciences

2013-2015 **Australian Society for Microbiology**

SUPERVISION/MENTORSHIP

Laboratory supervision

2022 MD PhD Candidate, Juan Torres

2021-2022 Undergraduate Student (Premed Trainee), Dario Fucich

2019-current PhD Candidate, Andreacarola Urso

2019 MD Research Fellow, Dr. Wei Shi

2018-current PhD Candidate, Blanche Fields

2018 Undergraduate Student (Premed Trainee), Ibrahim Nawaz Khan

2017-2018 MD Research Fellow, Dr. Karen Acker

2017 Undergraduate Student (Premed Trainee), Alison Zhao

REFEREES

Professor Alice S. Prince

Professor, Department of Pediatrics Infectious Diseases, Columbia University, USA
Email: asp7@cumc.columbia.edu

Professor Elizabeth L. Hartland

Professor, Department of Molecular and Translational Sciences, Monash University, Australia
Director and Chief Executive Officer, Hudson Institute of Medical Research, Australia
Chair of the Victorian Chapter of the Association of Australian Medical Research Institutes, Australia
Email: elizabeth.hartland@hudson.org.au

Dr. Jaclyn S. Pearson

Principal Investigator, Hudson Institute of Medical Research, Australia
Email: jaclyn.pearson@hudson.org.au

PERSONAL DEVELOPMENT

Multilingual: English, French, Hakka and Mauritian Creole

Hobbies: Ballroom and Latin dancing, baking, swimming, golf