

He, Mu

- Contact** School of Biomedical Sciences
Li Ka Shing Faculty of Medicine
The University of Hong Kong
21 Sassoon Road
Pokfulam, Hong Kong SAR
Phone: +1 646 508 1177
Email: muhe@hku.hk
- Current Position** The University of Hong Kong, Hong Kong SAR
Li Ka Shing Faculty of Medicine
Assistant Professor, School of Biomedical Sciences, 2021 –
- Education** Weill Graduate School of Medical Sciences of Cornell University, New York, NY
Developmental Biology Program, Sloan Kettering Institute, New York, NY
Ph.D. Molecular Biology, 2014
Cornell University, Ithaca, NY
B.S. Biology with distinction in research, 2007
Concentration: development and genetics
- Research Experience** University of California San Francisco and Howard Hughes Medical Institute, San Francisco, CA
Postdoctoral Fellow, 2014 – present
Advisor: Lily Y. Jan
Developmental Biology Program, Sloan Kettering Institute, New York, NY
Graduate Student, 2008 – 2014
Advisor: Kathryn V. Anderson
Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY
Undergraduate Honors Student, 2006 – 2007
Advisor: Maria Garcia-Garcia
Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY
Undergraduate Research Assistant, 2005 – 2006
Advisor: Ray Wu
- Publication** **He, M**^{*†}, Wu, B^{*}, Ye, W., Le, D. D., Sinclair, A. W., Padovano, V., Chen, Y., Li, K., Sit, R., Tan, M., Caplan, M. J., Neff, N., Jan, Y. N., Darmanis, S[†], Jan, L. Y[†]. (2020) Chloride channels regulate differentiation and barrier functions of the mammalian airway. *eLife* 9:e53085 PMID: 32286221
** co-first authors † co-correspondent authors*
The Tabula Muris consortium et al. (2020) A single-cell transcriptomic atlas characterizes ageing tissues in the mouse. *Nature* 583, 590–595 PMID: 32669714
Ramirez-San Juan, G. R., Mathijssen, A. T. M., **He, M.**, Jan, L. Y., Marshall, W., Prakash, M. (2020) Multi-scale spatial heterogeneity enhances particle clearance in airway ciliary arrays. *Nature Physics*, 16(9):958–964
Li, K., **He, M.**, Simms, J., Gill, M., Ye, W., Jan, Y. N., Jan, L. Y. (2019) TMEM16B regulates anxiety-related behavior and GABAergic neuronal signaling in the central lateral amygdala. *eLife* 8:e47106 PMID: 31482844
Ye, W., Han, T. W., **He, M.**, Jan, Y. N., Jan, L. Y. (2019) Dynamic change of electrostatic field in TMEM16F permeation pathway shifts its ion selectivity. *eLife* 8:e45187 PMID: 31318330
He, M., Ye, W., Wang, W. J., Sison, E. S., Jan, Y. N., Jan, L. Y. (2017) Cytoplasmic Cl⁻ couples membrane remodeling to epithelial morphogenesis. *Proc Natl Acad Sci USA*, 114(52), E11161–E11169. PMCID: PMC5748203
He, M., Agbu, S., Anderson, K. V. (2017) Microtubule Motors Drive Hedgehog Signaling in Primary Cilia. *Trends Cell Biol.* 27, 110–125 PMCID: PMC5258846
He, M., Subramanian, R., Bangs, F., Omelchenko, T., Liem, K. F. Jr., Kapoor, T. M., Anderson, K.V. (2014) The Kinesin-4 protein KIF7 kinesin regulates mammalian Hedgehog signaling by organizing the cilia tip compartment. *Nature Cell Biology* 16, 663–672. PMID: 24952464
Highlighted by Nature Cell Biology, Nature Review Molecular Cell Biology, EMBO

Norris, C.A^{*}, **He, M^{*}**, Kang, L. I., Ding, M. Q., Radder, J. E., Haynes, M. M., Yang, Y., Paranjpe, S., Bowen, W. C., Orr, A., Michalopoulos, G. K., Stolz, D. B., Mars, W. M. (2014) Synthesis of IL-6 by hepatocytes is a normal response to common hepatic stimuli. PLoS ONE 9, e96053. PMID: 24763697

** co-first authors*

Liem, K. F. Jr., Ashe, A., **He, M.**, Satir, P., Moran, J., Beier, D., Wicking, C., Anderson, K.V. (2012) The IFT-A complex regulates Shh signaling through cilia structure and membrane protein trafficking. J. Cell Biol. 197, 789–800 PMID: 22689656

Tuson, M^{*}, **He, M^{*}**, Anderson, K. V. (2011) Protein kinase A acts at the basal body of the primary cilium to prevent Gli2 activation and ventralization of the mouse neural tube. Development. 138(22): 4921-30. PMID: 22007132

** co-first authors; Highlighted by Faculty of 1000 selection*

Capellini, T. D., Vaccari, G., Ferretti, E., Fantini, S., **He, M.**, Pellegrini, M., Quintana, L., Di Giacomo, G., Sharpe, J., Selleri, L. Zappavigna, V. (2010) Scapula development is governed by genetic interactions of Pbx1 with its family members and with Emx2 via their cooperative control of Alx1. Development. 137:2559–2569. PMCID: PMC2927673

Liem, K. F. Jr., **He, M.**, Ocbina, P. J. Anderson, K. V. (2009) Mouse Kif7/Costal2 is a cilia-associated protein that regulates Sonic hedgehog signaling. Proc Natl Acad Sci USA. 106:13377-13382. PMCID: PMC2726420

Highlighted by Current Biology, Faculty of 1000 selection

Invited Talks

2020 Keystone Symposium on Asthma: Making New Discoveries into Better Therapies, Snowbird, USA
“Cilia-Secretory hybrid cells in airway development and disease state”

2020 University of Washington, Seattle, USA
“The molecular cell atlas of mammalian airway in development and disease”

2020 Francis Crick Institute, London, UK
“Building the airway: form to function”

2020 University of Pennsylvania, Philadelphia, USA
“The molecular cell atlas of mammalian airway in development and disease”

2020 The Hospital for Sick Children, Toronto, Canada
“Building the airway: form to function”

2019 School of Medicine, Washington University in St. Louis, St. Louis, USA
“The molecular cell atlas of mammalian airway in development and disease”

2019 Cold Spring Harbor Asia Conference on Cilia and Centrosomes, Suzhou, China
“From one to many: the making of a multiciliated cell”

2019 School of Life Sciences, Tsinghua University, Beijing, China
“From one to many: the making of a multiciliated cell”

2019 FASEB Summer Conference: The Biology of Cilia and Flagella, Aspen, USA
“Building the mammalian airway: from form to function”

2019 EMBL Symposium on The Identity and Evolution of Cell Types, Heidelberg, Germany
“Building the mammalian airway: from form to function”

2018 EMBL Symposium on Tissue Self Organization, Heidelberg, Germany
“Molecular coupling of membrane remodeling and epithelium morphogenesis”

2013 SKI Developmental Colloquium, New York, USA
“KIF7 controls mammalian Shh pathway through control of cilia structure”

2012 ASCB Annual Meeting, San Francisco, USA
“KIF7 controls mammalian Shh pathway through regulation of axonemal microtubule dynamics”

2012 SKI Scientific Colloquium, New York, USA
“Cilia, Centrosomes and Signaling”

2010 BCMB Allied Program Retreat, New York, USA
“Mouse Kif7/Costal2 regulates Sonic hedgehog signaling”

2010 FASEB Summer Conference: The Biology of Cilia and Flagella, Saxtons River, USA

“Mouse KIF7/Costal2 couples the Shh signaling to the primary cilia”

Mentoring & Teaching

2018–2019 Yuzhang Chen, undergraduate research assistant, UC San Francisco; Now PhD student in neuroscience program at University of Pennsylvania

2018–2019 Sherwin Ng, undergraduate research assistant, UC San Francisco; Now MD/PhD student in medical scientist training program at Washington University in St. Louis

2018 Layla Nassar, undergraduate summer student, UC San Francisco; Now PhD student in Department of Biological and Biomedical Sciences at Yale University

2015–2017 Eirish Sison, research technician, UC San Francisco; Now freelance medical writer

2010 Erica Park, high school summer student, Sloan Kettering Institute

2006–2007 teaching assistant, BIOMG 2800, Cornell University

Honors & Awards

2020 Keystone Symposia Future of Science Fund Scholarship

2017–2020 Ruth L. Kirschstein National Research Service Award, National Institute of Health

2012 ASCB Travel Award for Graduate Student, American Society of Cell Biology

2009 Direct Travel Grant from the Company of Biologists, UK

2007 Distinction in Research and High Honors in Biological Sciences, Cornell University

2007 Charitable Trust Research Grant, Cornell University

2006 Interdisciplinary Biomedical Program Summer Scholar, University of Pittsburg School of Medicine

2002 First Prize at China National Biology Olympiad