

CURRICULUM VITAE

William Michael Oldham, MD, PhD, ATSF

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EDUCATION

- 2001 Bachelor of Science with Honors, Chemistry, University of North Carolina at Chapel Hill (UNC), Chapel Hill, NC
- 2006 Doctor of Philosophy, Pharmacology, Vanderbilt University, Nashville, TN
- 2008 Doctor of Medicine, Vanderbilt University School of Medicine (VUSM), Nashville, TN

POSTGRADUATE TRAINING

- 06/2008-06/2012 Clinical Fellow, Medicine, Harvard Medical School (HMS), Boston, MA
- 06/2008-06/2010 Intern/Resident, Internal Medicine, Massachusetts General Hospital (MGH), Boston, MA
- 07/2010-08/2014 Clinical Fellow, Pulmonary Disease and Critical Care Medicine, MGH, Brigham and Women's Hospital (BWH), Beth-Israel Deaconess Medical Center, Boston, MA
- 07/2012-05/2015 Research Fellow, Medicine, HMS
- 07/2012-05/2015 Research Fellow, Pulmonary and Critical Care Medicine, BWH

POSTGRADUATE HONORS AND AWARDS

- William R. Davie Scholarship, UNC, 1998-2001
- Chancellor's Award for Oratory, UNC, 2001
- Hypercube Scholar Award, UNC, 2001
- Canby Robinson Society Scholar, Vanderbilt, 2001-2008
- Medical Scientist Training Program (MSTP) Training Grant (T32 GM007347) Award, Vanderbilt, 2002-2008
- Microbes and Defense Academic Honor Society, Vanderbilt, 2002
- Keystone Symposium Scholarship, 2006
- Rudolph Kampmeier Prize in Medicine, Vanderbilt, 2008
- Pulmonary and Critical Care Medicine Training Grant (T32 HL007633) Award, BWH, 2012-2015
- Fellows' Track Symposium Travel Award, ATS, 2012
- Chest Challenge Finalist, ACCP, 2012

Grover Conference Young Investigator Award, ATS, 2013

Chair's Research Award, Department of Medicine, BWH, 2016

Fellow, ATS, 2023

Chair's Research Award, Department of Medicine, BWH, 2023

Travel Award, Mass Spectrometry & Advances in the Clinical Lab Annual Conference, 2024

Certificate of Excellence, Pulmonary Vascular Research Institute, 2025

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

2011	Massachusetts Medical License
2025	Rhode Island Medical License
2011	Certification, American Board of Internal Medicine, Internal Medicine
2013	Certification, American Board of Internal Medicine, Pulmonary Disease
2015	Certification, American Board of Internal Medicine, Critical Care Medicine

ACADEMIC APPOINTMENTS

06/2015-05/2017	Instructor of Medicine, HMS
06/2017-05/2025	Assistant Professor of Medicine, HMS
03/2023-	Associate Member, Broad Institute, Cambridge, MA
06/2025-	Associate Professor of Medicine, The Warren Alpert Medical School of Brown University, Providence, RI (pending approval) (Brown)
06/2025-	Director of Research and Innovation, Pulmonary, Critical Care, and Sleep Medicine, Brown

HOSPITAL APPOINTMENTS

05/2011-08/2024	Overnight Intensivist, Pulmonary and Critical Care Medicine, Newton-Wellesley Hospital (NWH), Newton, MA
08/2014-05/2025	Associate Physician, Pulmonary and Critical Care Medicine, BWH
08/2014-05/2025	Inaugural Director, Seahorse Core, BWH
06/2016-05/2025	Consulting Staff, Medical Oncology, Dana-Farber Cancer Institute, Boston, MA
08/2017-05/2025	Staff Physician, Brigham and Women's Faulkner Hospital, Boston, MA
06/2025-	Attending Physician, Pulmonary, Critical Care, and Sleep Medicine, Brown University Health, Providence, RI
06/2025-	Director of Research and Innovation, Pulmonary, Critical Care, and Sleep Medicine, Brown University Health, Providence, RI

OTHER APPOINTMENTS

CONSULTING

Nikang Therapeutics, 2023-2025

AMERICAN THORACIC SOCIETY

Member, Pulmonary Circulation Program Committee, 2017-2020

Member, Pulmonary Circulation Early Career Committee, 2020-2023

Member, Pulmonary Circulation Nominating Committee, 2023

Pulmonary Circulation Representative, Basic Science Core, 2025-

Member, Pulmonary Circulation Executive Committee, 2025-

AMERICAN HEART ASSOCIATION

Scientific Sessions Abstract Reviewer, 2016, 2018-2020

Reviewer, Fellowship Awards – Vascular Endothelial Biology, 2024

Reviewer, Fellowship Awards – Basic Science, 2024

Reviewer, Transformational Project Award – Basic Sciences, 2025

Reviewer, Innovative Projects Award – Basic Cell Science, 2025

PULMONARY VASCULAR RESEARCH INSTITUTE

Member, Planning Committee, 2024 International Meeting, London, UK, 2022-2024

Chair, Planning Committee, 2025 International Meeting, Rio de Janeiro, Brazil, 2024-2025

Member, Planning Committee, 2026 International Meeting, Dublin, Ireland, 2025-2026

OTHER GRANT REVIEW

Member, Pre-Diabetes Peer Review Panel, Peer Reviewed Medical Research Program, Congressionally Directed Medical Research Programs, Department of Defense, 2015

Ad hoc reviewer, Population and Systems Medicine Board, United Kingdom Research and Innovation Medical Research Council, 2023

Ad hoc reviewer, Austrian Science Fund, 2024

Ad hoc reviewer, Translational Health Research Panel, French National Research Agency, 2025

MANUSCRIPT REVIEWER

American Journal of Physiology – Heart and Circulatory Physiology, American Journal of Physiology – Lung Cellular and Molecular Physiology, American Journal of Physiology – Regulatory, Integrative and Comparative Physiology, American Journal of Respiratory Cell and Molecular Biology, American Journal of Respiratory and Critical Care Medicine, Anesthesiology, Annals of the American Thoracic Society, Antioxidants & Redox Signaling, British Medical Journal Open Respiratory Research, Chest, Circulation, Circulation Research, Clinical Mass Spectrometry, Communications Biology, European Journal of Clinical Investigation, FASEB Journal, Free Radical Biology and Medicine, Journal of Clinical Investigation, JCI Insight, Journal of Molecular Medicine, Journal of Pulmonary and Respiratory Medicine, Journal of the American College of Cardiology,

Microvascular Research, ncRNA, Oncogene, Oncotarget, PLOS One, Physiological Reports, Pulmonary Circulation, Scientific Reports

EDITORIAL BOARDS

Scientific Reports, 2019-2024

American Journal of Physiology – Lung Cellular and Molecular Physiology, 2024-

OTHER EDITORIAL ROLES

Forum Editor, Nicotine Adenine Dinucleotides, Antioxidants & Redox Signaling, 2016-2017

Guest Editor, Redox Signaling in Physiology and Pathology (unpublished), Scientific Reports, 2023-2025

HOSPITAL COMMITTEES

BRIGHAM AND WOMEN'S HOSPITAL

Member, Standing Committee on Faculty Recruitment, Pulmonary and Critical Care Medicine, 2014-2016

Member, Brigham Research Institute Research Oversight Committee, 2018-2021

UNIVERSITY COMMITTEES

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE

Founder and Member, MSTP Student Advisory Committee, 2002-2006

Founder and Member, MSTP Physician-Scientist Speaker Series, 2003-2007

Chair, MSTP Physician-Scientist Speaker Series, 2003-2005

Member, MSTP Faculty Advisory Committee, 2004-2006

Member, MSTP Leadership Curriculum Committee, 2005-2006

President, Alpha Omega Alpha Honor Medical Society, VUSM Chapter, 2007-2008

Member, MSTP Responsible Conduct in Research Committee, 2008

MEMBERSHIP IN SOCIETIES

Member, American Society for Biochemistry and Molecular Biology (ASBMB), 2005-2012

Member, American Society for Pharmacology and Experimental Therapeutics (ASPET), 2005-2012

Member, Massachusetts Medical Society, 2008-2015

Member, American College of Chest Physicians, 2010-2014

Member, European Respiratory Society, 2011-2015

Member, American Thoracic Society (ATS), 2012-

Member, American Heart Association (AHA), 2013-

Member, Pulmonary Hypertension Association (PHA), 2014-2017

Member, Pulmonary Vascular Research Institute (PVRI), 2014-

PUBLICATIONS LIST

* Co-authorship; †Corresponding; ‡Mentee

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Kwong J, Roudabush FL, Hutton Moore P, Montague M, **Oldham W**, Li Y, Chin LS, Li L. Hrs interacts with SNAP-25 and regulates Ca²⁺-dependent exocytosis. *Journal of Cell Science*. 2000; 113: 2273-2284. PMID 10825299.
2. Preininger AM, Henage LG, **Oldham WM**, Yoon EJ, Hamm HE, Brown HA. Direct modulation of phospholipase D activity by Gβγ. *Molecular Pharmacology*. 2006; 70: 311-318. PMID 16638972.
3. **Oldham WM***, Van Eps N*, Preininger AM, Hubbell WL, Hamm HE. Mechanism of the receptor-catalyzed activation of heterotrimeric G proteins. *Nature Structural & Molecular Biology*. 2006; 13: 772-777. PMID 16892066.

News and Views. Ramachandran S, Cerione RA. How GPCRs hit the switch. *Nature Structural & Molecular Biology*. 2006; 13: 756-757.
4. Van Eps N*, **Oldham WM***, Hamm HE, Hubbell WL. Structural and dynamical changes in an α-subunit of a heterotrimeric G protein along the activation pathway. *Proceedings of the National Academy of Sciences, USA*. 2006; 103: 16194-16199. PMID 17053066.
5. **Oldham WM***, Van Eps N*, Preininger AM, Hubbell WL, Hamm HE. Mapping allosteric connections from the receptor to the nucleotide-binding pocket of heterotrimeric G proteins. *Proceedings of the National Academy of Sciences, USA*. 2007; 104: 7927-7932. PMID 17463080.
6. Preininger AM, Funk MA, **Oldham WM**, Meier SM, Johnston CA, Adhikary S, Kimple AJ, Siderovski DP, Hamm HE, Iverson TM. Helix dipole movement and conformational variability contribute to allosteric GDP release in Gαi subunits. *Biochemistry*. 2009; 48: 2630-2642. PMID 19222191.
7. Jernigan KK, Cselenyi CS, Thorne CA, Hajicek N, **Oldham WM**, Lee LA, Hamm HE, Hepler JR, Kozasa T, Linder ME, Lee E. Gβγ promotes LRP6-mediated β-catenin/TCF signaling by stimulating membrane association and activation of GSK3. *Science Signaling*. 2009; 3: ra37. PMID 20460648.
8. Ciampa EJ, Hunt AA, Arneson KO, Mordes DA, **Oldham WM**, Woo KV, Owens DA, Cannon MD, Dermody TS. A workshop on leadership for MD/PhD students. *Medical Education Online*. 2011; 16: 7075. PMID 21841905.
9. Maron BA, **Oldham WM**, Chan SY, Vargas SO, Arons E, Zhang Y, Loscalzo J, Leopold JA. Upregulation of steroidogenic acute regulatory protein by hypoxia stimulates aldosterone synthesis in pulmonary artery endothelial cells to promote pulmonary vascular fibrosis. *Circulation*. 2014; 130: 168-179. PMID 25001622.
10. Wang RS, **Oldham WM**, Loscalzo J. Network-based association of hypoxia-responsive genes with cardiovascular diseases. *New Journal of Physics*. 2014; 16: 105014. PMID 25530704.
11. **Oldham WM**, Clish CB, Yang Y, Loscalzo J. Hypoxia-mediated increases in L-2-hydroxyglutarate coordinate the metabolic response to reductive stress. *Cell Metabolism*. 2015; 22: 291-303. PMID 26212716.

Preview. Harris AL. A new hydroxyl metabolite of 2-oxoglutarate regulates metabolism in hypoxia. *Cell Metabolism*. 2015; 22: 198-200. PMID 26244928.

Research Highlights. Miura G. Cancer metabolism: Two sides of a coin. *Nature Chemical Biology*. 2015; 11: 632.

12. **Oldham WM**, Lewis GD, Opotowsky AR, Waxman AB, Systrom DM. Unexplained exertional dyspnea caused by low ventricular filling pressures: results of clinical invasive cardiopulmonary exercise testing. *Pulmonary Circulation*. 2016; 6: 55-62. PMID 27162614.
13. Maron BA, Stephens TE, Farrell LA, **Oldham WM**, Loscalzo J, Leopold JA, Lewis GD. Elevated pulmonary arterial and systemic plasma aldosterone levels associate with impaired cardiac reserve capacity during exercise in left ventricular systolic heart failure patients: A pilot study. *Journal of Heart and Lung Transplantation*. 2016; 35: 342-351. PMID 26586488.
14. Bertero T, **Oldham WM**, Cottrill KA, Pisano S, Vanderpool RR, Yu Q, Zhao J, Tai Y, Tang Y, Zhang YY, Rehman S, Sugahara M, Qi Z, Gorcsan J, Vargas SO, Saggar R, Saggar R, Wallace WD, Ross DJ, Haley KJ, Waxman AB, Parikh VN, De Marco T, Hsue PY, Morris A, Simon MA, Norris KA, Gaggioli C, Loscalzo J, Fessel J, Chan SY. Vascular stiffness mechanoactivates YAP/TAZ-dependent glutaminolysis to drive pulmonary hypertension. *Journal of Clinical Investigation*. 2016; 126: 3313-3335. PMID 27548520.
15. **Oldham WM**, Loscalzo J. Quantification of 2-hydroxyglutarate enantiomers by liquid chromatography-mass spectrometry. *Bio-protocol*. 2016; 6: e1908. PMID 28573160.
16. Lam HC‡, Baglini CV, Lope AL, Parkhitko AA, Liu HJ, Alesi N, Malinowska IA, Ebrahimi-Fakhari D, Saffari A, Yu JJ, Pereira A, Khabibullin D, Ogorek B, Nijmeh J, Kavanagh T, Handen A, Chan SY, Asara JM, **Oldham WM**, Diaz-Meco M, Moscat J, Priolo C, Henske EP. p62/SQSTM1 cooperates with hyperactive mTORC1 to regulate glutathione production, maintain mitochondrial integrity and promote tumorigenesis. *Cancer Research*. 2017; 77: 3255-3267. PMID 28512249.
17. Lam HC‡, Liu HJ, Baglini CV, Filippakis H, Alesi N, Mijmeh J, Du H, Lope AL, Cottrill KA, Handen A, Asara JM, Kwiatkowski DJ, Ben-Sahra I, **Oldham WM**, Chan SY, Henske EP. Rapamycin-induced miR-21 promotes mitochondrial homeostasis and adaptation in mTORC1 activated cells. *Oncotarget*. 2017; 8: 64714-64727. PMID 29029388.
18. **Oldham WM***, Oliveira RK*, Wang RS, Opotowsky AR, Rubins DM, Hainer J, Wertheim BM, Alba GA, Choudhary G, Tornoyos A, MacRae CA, Loscalzo J, Leopold JA, Waxman AB, Olschewski H, Kovacs G, Systrom DM, Maron BA. Network analysis to risk stratify patients with exercise intolerance. *Circulation Research*. 2018; 122: 864-876. PMID 29437835.

Editor's Pick. *Circulation Research*.

Editorial. Arena R, Ozemek C, Laddu-Patel D, Myers J. Refining the risk prediction of cardiorespiratory fitness with network analysis: A welcome and needed line of inquiry. *Circulation Research*. 2018; 122: 804-806. PMID 29700081.
19. Musri MM, Coll-Bonfill N, Maron BA, Peinado VI, Wang RS, Altirriba J, Blanco I, **Oldham WM**, Tura-Ceide O, Garcia-Lucio J, de la Cruz-Thea B, Meister G, Loscalzo J, Barbera JA. MicroRNA dysregulation in pulmonary arteries from COPD: Relationships with vascular remodeling. *American Journal of Respiratory Cell and Molecular Biology*. 2018; 59: 490-499. PMID 29757677.
20. Samokhin AO, Stephens T, Wertheim BM, Wang RS, Vargas SO, Yung LM, Cao M, Brown M, Arons E, Dieffenbach PB, Fewell JG, Matar M, Bowman FP, Haley KJ, Alba GA, Marino SM, Kumar R, Rosas IO, Waxman AB, **Oldham WM**, Khanna D, Graham BB, Seo S, Gladyshev VN, Yu PB, Fredenburgh LE, Loscalzo J, Leopold JA, Maron BA. NEDD9 targets COL3A1 to promote endothelial fibrosis and pulmonary arterial hypertension. *Science Translational Medicine*. 2018; 10: eaap7294. PMID 29899023.

21. Verwer EE, Kavanagh TR, Mischler WJ, Feng Y, Takahashi K, Wang S, Shoup TM, Neelamegam R, Yang J, Guehl NJ, Ran C, Masefski W, Cui Y, El-Chemaly S, Sadow PM, **Oldham WM**, Kijewski MF, El Fakhri G, Normandin MD, Priolo C. [¹⁸F] Fluorocholine and [¹⁸F] fluoroacetate PET as imaging biomarkers to assess phosphatidylcholine and mitochondrial metabolism in preclinical models of TSC and LAM. *Clinical Cancer Research*. 2018; 24: 5925-5938. PMID 30054282.
22. Yang JS, Hsu JW, Seung-Yeol P, Li J, **Oldham WM**, Beznoussenko GV, Mironov AA, Loscalzo J, Hsu VW. GAPDH inhibits intracellular pathways during starvation for cellular energy homeostasis. *Nature*. 2018; 561: 263-267. PMID 30209366.
23. Bertero T, **Oldham WM**, Grasset EM, Bourget I, Boulter E, Pisano S, Hofman P, Bellvert F, Meneguzzi G, Bulavin DV, Estrach S, Feral CC, Chan SY, Bozec A, Gaggioli C. Tumor-stroma mechanics coordinate amino acid availability to sustain tumor growth and malignancy. *Cell Metabolism*. 2019; 29: 124-140. PMID 30293773.
24. Singh I‡, Oliveira RKF, Naeije R, Rahaghi FN, **Oldham W**, Systrom DM, Waxman AB. Pulmonary vascular distensibility and early pulmonary vascular remodeling in pulmonary hypertension. *Chest*. 2019; 156: 724-732. PMID 31121149.
25. Guarino V, **Oldham WM**, Loscalzo J, Zhang YY. Reaction rate of pyruvate and hydrogen peroxide: assessing antioxidant capacity of pyruvate under biological conditions. *Scientific Reports*. 2019; 9: 19568. PMID 31862934.
26. Sternschein RM‡, **Oldham WM**†. Paradoxical embolization via large pulmonary arteriovenous malformation. *American Journal of Respiratory and Critical Care Medicine*. 2019; 200: 29-30. PMID 31002526.
27. Singh I‡, Oliveira R, Naeije RKF, **Oldham WM**, Faria-Urbina M, Waxman AB, Systrom DM. Systemic vascular distensibility relates to exercise capacity in connective tissue disease. *Rheumatology*. 2021; 60: 1429. PMID 33001175.
28. Mehta AK, Cheney EM, Hartl CA, Pantelidou C, Oliwa M, Castrillon JA, Lin JR, Hurst KE, de Oliveira Taveira M, Johnson NT, **Oldham WM**, Kalocsay M, Berberich MJ, Bostwell SA, Kothari A, Johnson S, Dillon DA, Lipschitz M, Rodig S, Santagata S, Garber JE, Tung N, Yelamos J, Thaxton JE, Mittendorf EA, Sorger PK, Shapiro GI, Guerriero JL. Targeting immunosuppressive macrophages overcomes PARP-inhibitor resistance in BRCA1-associated triple-negative breast cancer. *Nature Cancer*. 2021; 2: 66. PMID 33738458.
29. Maron BA, Wang RS, Shevtsov S, Drakos SG, Arons E, Wever-Pinzon O, Huggins GS, Samokhin AO, **Oldham WM**, Aguib Y, Yacoub MH, Rowin EJ, Maron BJ, Maron MS, Loscalzo J. Individualized interactomes for network-based precision medicine in hypertrophic cardiomyopathy with implications for other clinical pathophenotypes. *Nature Communications*. 2021; 12: 873. PMID 33558530.
30. **Oldham WM**, Hess E, Waldo SW, Humbert M, Choudhary G, Maron BA. Integrating hemodynamics identifies an extreme pulmonary hypertension phenotype. *European Respiratory Journal*. 2021; 58: 2004625. PMID 33833034.
31. Xiao W, **Oldham WM**, Priolo C, Pandey AK, Loscalzo J. Immunometabolic endothelial phenotypes: Integrating inflammation and glucose metabolism. *Circulation Research*. 2021; 129: 9. PMID 33890812.
32. Torrino S, Grasset EM, Audebert S, Belhadj I, Lacoux C, Haynes M, Pisano S, Abelanet S, Brau F, Chan SY, Mari B, **Oldham WM**, Ewald AJ, Bertero T. Mechano-induced cell metabolism promotes microtubule glutamylation to force metastasis. *Cell Metabolism*. 2021; 33: 1342. PMID 34102109.
33. Lee LY‡, **Oldham WM**, He H, Wang R, Mulhern R, Handy DE, Loscalzo J. Inteferon-gamma impairs human coronary artery endothelial glucose metabolism via tryptophan catabolism and activates fatty acid oxidation. *Circulation*. 2021; 144: 1612. PMID 34636650.

34. Sauer CM, Gomez J, Botella MR, Ziehr DR, **Oldham WM**, Gavidia G, Rodriguez A, Elbers P, Girbes A, Bodi M, Celi LA. Understanding critically ill sepsis patients with normal serum lactate levels: results from U.S. and European ICU cohorts. *Scientific Reports*. 2021; 11: 20076. PMID 34625640.
 35. He H, Mulhern RM, **Oldham WM**, Xiao W, Lin Y-D, Liao R, Loscalzo J. L-2-Hydroxyglutarate protects against cardiac injury via metabolic remodeling. *Circulation Research*. 2022; 131: 562. PMID 36043417.
 36. Diaz-Cuadros M, Miettinen TP, Sheedy D, Diaz-Garcia CM, Gapon S, Hubaud A, Yellen G, Manalis SR, **Oldham WM**, Pourquie O. Metabolic regulation of species-specific developmental rates. *Nature*. 2023; 613: 550. PMID 36599986.
 37. Wertheim BM, Wang RS, Guillermier C, Hutter CV, **Oldham WM**, Menche J, Steinhauser ML, Maron BA. Proline and glucose metabolic reprogramming supports vascular endothelial and medial biomass in pulmonary arterial hypertension. *JCI Insight*. 2023; e163932. PMID 36626231.
 38. Tamura T, Cheng C, Chen W, Merriam LT, Athar H, Kim YH, Manandhar R, Sheikh MDA, Pinilla-Vira M, Varon J, Hou PC, Lawler PR, **Oldham WM**, Seethala RR, Tesfaigzi Y, Immunology of Cardiac Arrest Network (I-CAN), Weissman AJ, Baron RM, Ichinose F, Berg KM, Bohula EA, Morrow DA, Chen X, Kim EY. Single-cell transcriptomics reveal hyperacute cytokine and immune checkpoint axis in patients with poor neurological outcomes after cardiac arrest. *Med*. 2023; 4: 432. PMID 37257452.
 39. Wang RS, Huang S, Waldo SW, Hess E, Gokhale M, Johnson SW, Zeder K, Choudhary G, Leopold JA, **Oldham WM**, Kovacs G, Freiberg MS, Tedford RJ, Maron BA, Brittain EL. Elevated pulmonary artery compliance is associated with survival in pulmonary hypertension: Results from a novel network medicine analysis. *American Journal of Respiratory and Critical Care Medicine*. 2023; 208: 312. PMID 37276608.
 40. Copeland CA, Olenchok BA, Ziehr D, McGarrity S, Leahy K, Young JD, Loscalzo J, **Oldham WM**†. MYC overrides HIF-1 α to regulate proliferating primary cell metabolism in hypoxia. *eLife*. 2023; 12: e82597. PMID 37428010.
 41. Philip N, Yun X, Pi H, Murray S, Hill Z, Fonticella J, Perez P, Zhang C, Pathmasiri W, Sumner S, Servinsky L, Jiang H, Huetsch J, **Oldham WM**, Visovatti S, Leary PJ, Gharib S, Brittain E, Simpson C, Le A, Shimoda L, Suresh K. Fatty acid metabolism promotes TRPV4 activity in lung microvascular endothelial cells in pulmonary arterial hypertension. *American Journal of Physiology – Lung Cellular and Molecular Physiology*. 2024; 326: L252. PMID 38226418.
- APSselect award winner, *American Physiological Society*.
42. Li G, Huang H, Wu Y, Shu C, Hwang N, Li Q, Zhao R, Lam HC, **Oldham WM**, El-Chemaly S, Agrawal PB, Tian J, Liu X, Perrella MA. Striated preferentially expressed gene deficiency leads to mitochondrial dysfunction in developing cardiomyocytes. *Basic Research in Cardiology*. 2024; 119: 151. PMID 38145999.
 43. Rachedi NS, Tang Y, Tai YY, Zhao J, Chauvet C, Grynblat J, Akoumia KKF, Estephan L, Torrino S, Sbai C, Ait-Mouffok A, Latoche JD, Al Aaraj Y, Brau F, Abelanet S, Clavel S, Zhang Y, Guillermier C, Kumar NVG, Tavakoli S, Mercier O, Risbano MG, Yao ZK, Yang G, Ouerfelli O, Lewis JS, Montani D, Humbert M, Steinhauser ML, Anderson CJ, **Oldham WM**, Perros F, Bertero T, Chan SY. Dietary intake and glutamine-serine metabolism control pathologic vascular stiffness. *Cell Metabolism*. 2024; 36: 1335. PMID 38701775.
 44. Chakraborty A, Bandyopadhyaya A, Singh VK, Kovacic F, Cha S, **Oldham WM**, Tzika AA, Rhame LG. The bacterial quorum-sensing signal 2-aminoacetophenone rewires immune cell bioenergetics through the PGC-1 α /ERR α axis to mediate tolerance to infection. *eLife*. 2024; 13: RP97568. PMID: 39269443.
 45. McGarrity S*‡, Ziehr DR*‡, Austin-Tse CA, Wein MN, Chivukula RR, **Oldham WM**†. Exercise intolerance and low cardiac filling pressures in a woman with a novel eNOS mutation. *Circulation: Genomic and Precision Medicine*. 2024; 17: e004741. PMID: 39328057.

46. Xiao W, Shrimali N, Vigder N, **Oldham WM**, Clish CB, He H, Wong SJ, Wertheim BM, Arons E, Haigis MC, Leopold JA, Loscalzo J. Branched chain alpha-ketoacids aerobically activate HIF1 alpha signalling in vascular cells. *Nature Metabolism*. 2024; 6: 2138. PMID: 39472756.
47. Tamura T*, Cheng C*, Villasenor-Altamirano A*, Yamada K*, Ikeda K*, Hayashida K*, Menon JA, Chen XD, Chung H, Varon J, Chen J, Choi J, Cullen AM, Guo J, Lin X, Olenchock BA, Pinilla-Vera MA, Manandhar R, Sheikh MDA, Hou PC, Lawler PR, **Oldham WM**, Seethala RR, Immunology of Cardiac Arrest Network, Baron RM, Bohula EA, Morrow DA, Blumberg RS, Chen F, Merriam LT, Weissman AJ, Brenner MB, Chen X*, Ichinose F*, Kim EY*. Diverse NKT cells regulate early inflammation and neurological outcomes after cardiac arrest and resuscitation. *Science Translational Medicine*. 2024; 16: eadq5796. PMID: 39630883.
48. Nguyen HN*, Jeong Y*, Kim Y, Kamiya M, Kim Y, Athar H, Castaldi PJ, Hersh CP, Menon JA, Wong J, Chan I, **Oldham WM**, Padera RJ, Sharma NS, Sholl LM, Vivero M, Watts GFM, Knipe RS, Black KE, Hariri LP, Yun JH, Merriam LT, Yuan K, Kim EY, Brenner MB. Leukemia inhibitory factor (LIF) receptor amplifies pathogenic activation of fibroblasts in lung fibrosis. *Proceedings of the National Academy of Sciences, USA*. 2024; 121: e2401899121. PMID: 39636853.
49. Torrino S, **Oldham WM**, Tejedor AR, Burgos IS, Rachedi N, Fraissard K, Chauvet C, Sbai C, O'Hara BP, Abelanet S, Brau F, Clavel S, Collepardo-Guevara R, Espinosa JR, Ben-Sahra I, Bertero T. Mechano-dependent sorbitol accumulation supports biomolecular condensate. *Cell*. 2025; 188: 447. PMID: 39591966.
50. Yang JS, Morris AJ, Kamizaki K, Chen J, Stark J, **Oldham WM**, Nakamura T, Mishima E, Loscalzo J, Minami Y, Conrad M, Henry WS, Hsu VW. ALDH7A1 protects against ferroptosis by generating membrane NADH and regulating FSP1 activity. *Cell*. 2025; 188: 1. PMID: 40233740.
51. Johnson SW*‡, Kwan MC*, Cuddy SAM, Waxman AB, Hariri LP*, **Oldham WM***. Dyspnea and right heart failure in a patient with a history of pneumonectomy. *Chest Pulmonary*. 2025; In press.

OTHER PEER-REVIEWED PUBLICATIONS

1. **Oldham WM**, Hamm HE. Structural basis of function in heterotrimeric G proteins. *Quarterly Reviews of Biophysics*. 2006; 39: 117-166. PMID 16923326.
2. Holinstat M, **Oldham WM**, Hamm HE. G-protein-coupled receptors: evolving views on physiological signalling: symposium on G-protein-coupled receptors: evolving concepts and new techniques. *EMBO Reports*. 2006; 7: 866-869. PMID 16906127.
3. **Oldham WM**, Hamm HE. How do receptors activate G proteins? *Advances in Protein Chemistry*. 2007; 74: 67-93. PMID 17854655.
4. **Oldham WM**, Hamm HE. Heterotrimeric G protein activation by G protein-coupled receptors. *Nature Reviews Molecular and Cellular Biology*. 2008; 9: 60-71. PMID 18043707.
5. Berry NC, Manyoo A, **Oldham WM**, Stephens TE, Goldstein RH, Waxman AB, Tracy JA, Leary PJ, Leopold JA, Kinlay S, Opatowsky AR, Systrom DM, Maron BA. Protocol for exercise hemodynamic assessment: Performing the invasive cardiopulmonary exercise test in clinical practice. *Pulmonary Circulation*. 2015; 5: 610-618. PMID 26697168.
6. Wang RS, **Oldham WM**, Maron BA, Loscalzo J. Systems biology approaches to redox metabolism in stress and disease states. *Antioxidants & Redox Signaling*. 2018; 29: 953-972. PMID 29121773.
7. **Oldham WM**. LncRNA LnRPT puts the brakes on pulmonary artery smooth muscle cell proliferation. *American Journal of Respiratory Cell and Molecular Biology*. 2018; 58: 138-139. PMID 29388834.
8. Fessel JP, **Oldham WM**†. Pyridine dinucleotides from molecules to man. *Antioxidants & Redox Signaling*. 2018; 28: 180-212. PMID 28635300. PMCID PMC5737636.

9. Fessel JP, **Oldham WM**. Nicotine adenine dinucleotides: the redox currency of the cell. *Antioxidants & Redox Signaling*. 2018; 28: 165-166. PMID 29113451.
10. Kim EY, **Oldham WM**. Innate T cells in the intensive care unit. *Molecular Immunology*. 2019; 105: 213-223. PMID 30554082.
11. **Oldham WM***†, Hemnes AR*, Aldred MA, Barnard J, Brittain EL, Chan SY, Cheng F, Cho MH, Desai AA, Garcia JGN, Geraci MW, Ghiassian SD, Hall KT, Horn EM, Jain M, Kelly RS, Leopold JA, Lindstrom S, Modena BD, Nichols WC, Rhodes CJ, Sun W, Sweatt AJ, Vanderpool RR, Wilkins MR, Wilmot B, Zamanian RT, Fessel JP, Aggarwal NR, Loscalzo J, Xiao L†. NHLBI-CMREF workshop report on pulmonary vascular disease classification: JACC state-of-the-art review. *Journal of the American College of Cardiology*. 2021; 77: 2040. PMID 33888254.
12. Kamiya M, Carter H*, Espinidola MS*, Doyle TJ, Lee JS, Merriam LT, Zhang F, Kawano-Dourado L, Sparks JA, Hogaboam CM, Moore BB, **Oldham WM***†, Kim EY*†. Immune mechanisms in fibrotic interstitial lung disease. *Cell*. 2024; 187: 3506. PMID 38996486.
13. **Oldham WM**. Exploring the molecular signatures of pulmonary vascular lesions. *American Journal of Respiratory and Critical Care Medicine*. 2024; 210: 256-257. PMID 38780073.
14. **Oldham WM**. Targeting cardiac fibrosis with a vaccine against fibroblast activation protein. *Circulation Research*. 2025; 136: 41-43. PMID 39745992.
15. Singh N, **Oldham WM**. Targeting Type-2 Inflammation in Pulmonary Hypertension: Lessons from a Novel Model. *American Journal of Physiology – Lung Cellular and Molecular Physiology*. 2025; 328: L669-L670. PMID: 40192583.

BOOKS AND BOOK CHAPTERS

1. Preininger AM, **Oldham WM**, Hamm HE. Biophysical approaches to the study of G-protein structure and function. In: Fliesler SJ, Kisselev O, editors. *Signal Transduction in the Retina*. New York: CRC Press; 2007. p. 3-32.
2. Fessel JP, **Oldham WM**. Pulmonary hypertension as a metabolic disease. In: Maron BA, Zamanian R, Waxman AB, editors. *Pulmonary Hypertension: Basic Science to Clinical Medicine*. New York: Springer International Publishing; 2015. p. 135-146.
3. **Oldham WM**, Loscalzo J. Pharmacology of Vascular Tone. In: Golan DE, Tashjian AH, Armstrong EJ, editors. *Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy*. 4th ed. Philadelphia: Lippincott, Williams, & Wilkins; 2016. p. 385-402.
4. Wertheim B‡, Maron BA, **Oldham WM**. Pulmonary Hypertension. In: Singh AK, Loscalzo J, editors. *Brigham Intensive Review of Internal Medicine*. 3rd ed. Philadelphia: Elsevier; 2018. p. 906-916.
5. Singh I, **Oldham WM**, Rahaghi FN. Precision medicine in pulmonary hypertension. In: Gomez JL, Himes BE, Kaminski N, editors. *Precision in Pulmonary, Critical Care, and Sleep Medicine*. New York City: Springer; 2020. p. 241-255.
6. Wertheim B, Maron BA, **Oldham WM**. Pulmonary Hypertension. In: Singh AK, Loscalzo J, editors. *Brigham Intensive Review of Internal Medicine*. 4th ed. Philadelphia: Elsevier; 2024. p. 1028-1038.
7. **Oldham WM**. New Agents in Pulmonary Disease. In: Singh AK, Loscalzo J, editors. *Brigham Intensive Review of Internal Medicine*. 4th ed. Philadelphia: Elsevier; 2024. p. 470-476.
8. **Oldham WM**, Loscalzo J. Pharmacology of Vascular Tone. In: Golan DE, Loscalzo J, Namchuk M, editors. *Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy*. 5th ed. Philadelphia: Lippincott, Williams, & Wilkins; In press.

9. **Oldham WM**, Hunninghake GM. Antifibrotic Therapies. In: Golan DE, Loscalzo J, Namchuk M, editors. *Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy*. 5th ed. Philadelphia: Lippincott, Williams, & Wilkins; In press.
10. Washko G, **Oldham WM**. Disturbances of Respiratory Function. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J, Holland S, Langford C, editors. *Harrison's Principles of Internal Medicine*. 22nd ed. McGraw Hill; 2026. In press.
11. Loscalzo J, **Oldham WM**. Exercise Intolerance. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J, Holland S, Langford C, editors. *Harrison's Principles of Internal Medicine*. 22nd ed. McGraw Hill; 2026. In press.

OTHER NON-PEER REVIEWED PUBLICATIONS

1. **Oldham WM**. Mapping Conformational Changes Along the Activation Pathway of the Heterotrimeric G Protein Alpha Subunit with Site-directed Spin-labeling [dissertation]. [Nashville (TN)]: Vanderbilt University; 2006. 265 p.
2. **Oldham WM**, Systrom DM. Cardiopulmonary exercise testing in the evaluation of unexplained dyspnea. *Advances in Pulmonary Hypertension*. 2010; 9: 101-106.

PUBLICATIONS SUBMITTED OR IN PREPARATION

1. Ziehr DR*‡, Li F‡, Parnell KM, Krah NM, Leahy KJ, Guillermier C, Varon J, Baron RM, Maron BA, Philp NJ, Hariri LP, Kim EY, Steinhauser ML, Knipe RS, Rutter J, **Oldham WM**†. Lactate transport inhibition therapeutically reprograms fibroblast metabolism in experimental pulmonary fibrosis. *bioRxiv*. 2024. doi: 10.1101/2024.04.25.591150.
2. Samokhin AO, Seo HS, Leed A, Hajjii B, Bird GH, McKinney DC, Saha P, Daum J, Moroco JA, Yehl J, Kornfilt D, Sczteniowski A, Petrunak E, Horner S, Kalin JH, Leymarie N, Kaushik VK, Walensky LD, Cole PA, **Oldham WM**, Steinhauser ML, Dhe-Paganon S, Maron BA. Targeting NEDD9-SH3 with a covalent peptide controls endothelial phenotype. *bioRxiv*. 2025. doi: 10.1101/2025.07.10.663547.
3. Li F‡, Vigder N, Ziehr DR, Leahy KJ, **Oldham WM**†. Coordination of alanine synthesis and uptake supports myofibroblasts differentiation in pulmonary fibrosis. *bioRxiv*. 2025. doi: 10.1101/2025.07.23.666333.
4. Kamiya M, Tran M, Gao C, Poli S, Palshika MG, Jeong Y, Kim Y, Menon JA, Black KE, Feghail-Bostwick C, Hariri LP, Knipe RS, Infante RE, Oldham JM, **Oldham WM**, Pugashetti JV, Simmons DP, Shi J, Korsunsky I, Merria LT, Wei KS, Nguyen HN, Kim EY. Targeting the LIF/LIFR autocrine fibroblast circuit in systemic sclerosis. *Submitted*.
5. Jeong Y, Kamiya M, Poli S, Gao C, Rose JA, Athar H, Gavin PG, Koh BH, Kim Y, Menon JA, Black KE, Dellaripa P, Hariri LP, Jonsson AH, Knipe RS, Mentzer SJ, **Oldham WM**, Sholl LM, Simmons DP, Tamura T, Vivero M, Korsunsky I, Frei AP, Lassen KG, Merriam LT, Hunninghake GM, Yun JH, Brenner MB, Wei KS, Nguyen HN, Kim EY. Cross-talk between CXCR4⁺ CRTAM⁺ Granzyme K⁺ CD8⁺ T cells and fibroblasts drives fibrosis in earlier stage, unclassifiable interstitial lung disease. *In preparation*.
6. Singh N, Lawson J, Ragavendran A, Hong J, Mullin CJ, Pereira M, Sherman-Roe A, Jorin AT, Cayton T, Klinger JR, **Oldham WM**, Dai Z, Fallon M, Harrington EO, Liang OD, Umar S, Ventetuolo CE. The liver is an inflammatory mediator of pulmonary arterial hypertension. *In preparation*.

ABSTRACTS

1. **Oldham WM**, Lewis GD, Janocha AJ, Naples R, Pappagianopoulos PP, Waxman AB, Erzurum SC, Systrom DM. Nitric oxide pathway metabolite flux in exercise-induced pulmonary arterial hypertension.

- Poster presented at: American Thoracic Society International Conference; 2012 May 18-23, San Francisco, CA.
2. **Oldham W**, Clish C, Loscalzo J. Metabolic response to hypoxia in human pulmonary vascular cells. Poster discussion session at: American Thoracic Society International Conference; 2014 May 16-21; San Diego, CA.
 3. **Oldham W**, Clish C, Loscalzo J. Hypoxia-mediated accumulation of L-2-hydroxyglutarate mitigates mitochondrial reductant stress in lung fibroblasts. Poster discussion session at: American Thoracic Society International Conference; 2015 May 15-20; Denver, CO.
 4. Copeland C‡, Joseph P‡, Nguyen P, Loscalzo J, **Oldham WM**. Model-dependent effects of taurine supplementation in experimental pulmonary hypertension. Poster discussion session at: American Thoracic Society International Conference; 2019 May 18-22, Dallas, TX.
 5. Singh I, Oliveira RKF, Naeije R, Rahaghi FN, **Oldham WM**, Systrom DM, Waxman AB. Pulmonary vascular distensibility and early pulmonary vascular remodeling in pulmonary hypertension. Poster presented at: American Thoracic Society International Conference; 2019 May 18-22, Dallas, TX.
 6. Mehta AK, Cheney EM, Castrillon JA, Lin JR, de Oliveira Taveira M, Hartl CA, Johnson NT, **Oldham WM**, Kalocsay M, Boswell SA, Sonzogni O, Pantelidou C, Gross BP, Johnson S, Dillon DA, Santagata S, Garber JE, Tung N, Mittendorf EA, Wulf GM, Shapiro GI, Sorger PK, Guerriero JL. PARP inhibition modulates the infiltration, phenotype, and function of tumor-associated macrophages (TAMs) in BRCA-associated breast cancer and can be augmented by harnessing the antitumor potential of TAMs. Poster presented at: AACR Special Conference on Tumor Immunology and Immunotherapy; 2019 November 17-20, Boston, MA.
 7. Guerriero JL, Mehta AK, Cheney EM, Castrillon JA, Lin JR, de Oliveira Taveira M, Sonzogni O, Pantelidou C, Hartl CA, **Oldham WM**, Johnson NT, Boswell SA, Kalocsay M, Berberich MJ, Mei S, Wang D, Johnson S, Gross B, Dillon DA, Lipschitz M, Gjini E, Rodig S, Santagata S, Garber JE, Tung N, Sorger P, Shapiro GI, Wulf GM, Mittendorf EA. PARP inhibition modulates the infiltration, phenotype, and function of tumor-associated macrophages (TAMs) in BRCA-associated breast cancer and can be augmented by harnessing the anti-tumor potential of TAMs. Poster presented at: San Antonio Breast Cancer Symposium; 2019 December 10-14, San Antonio, TX.
 8. Bai Y, **Oldham WM**, Ai X. Utilizing human precision-cut lung slices to study the impact of persistent hypoxia on the contractile responses of small intrapulmonary arterioles. Poster presented at: American Thoracic Society International Conference; 2020 May 15-20, Philadelphia, PA.
 9. Sauer CM, Gomez J, Ruiz Botella M, Ziehr DR, **Oldham WM**, Gavidia G, Rodriguez A, Elbers P, Girbes A, Bodi M, Celi LA. Undersanding critically ill sepsis patients with normal serum lactate levels – results from US and European ICU cohorts. Poster presented at: American Thoracic Society International Conference; 2021 May 14-19, San Diego, CA.
 10. Ziehr DR‡, Leahy KJ, Varon J, Baron RM, Kim E, Knipe RS, **Oldham WM**. Lactate transport inhibition therapeutically reprograms fibroblast metabolism in experimental pulmonary fibrosis. Selected oral abstract presented by David Ziehr: American Thoracic Society International Conference; 2022 May 14-18, San Francisco, CA.
 11. Kheyfets VO, Sweatt AJ, Zhang H, Nemkov T, Aizin M, Heerdt P, Dzieciatkowska M, Stephenson D, LaCroix IS, D'Alessandro A, **Oldham WM**, Hansen KC, Zamanian RT, Stenmark KR. Integrative plasma multi-omics profiling reveals novel mechanisms of pulmonary arterial hypertension. American Thoracic Society International Conference; 2025 May 16-21; San Francisco, CA.
 12. Harder EM, Rose JA, Nardelli P, Pistenmaa CL, Diaz AA, San Jose Estepar R, Nishino M, **Oldham WM**, Cho MH, Silverman EK, Hatabu H, Rahaghi FN, Washko GR, Hunninghake GM, San Jose Estepar R, Putman RK. Evidence for pulmonary vasculopathy on CT in those with interstitial lung abnormalities

within COPDGene. American Thoracic Society International Conference; 2025 May 16-21; San Francisco, CA.

13. Li F†, Vigder N, Ziehr DR, Leahy KJ, **Oldham WM**. Coordination of alanine synthesis and uptake supports myofibroblast differentiation in pulmonary fibrosis. American Thoracic Society International Conference; 2025 May 16-21; San Francisco, CA.
14. Kheyfets VO, Sweatt AJ, Zhang H, Nemkov T, Aizin M, Heerdt PM, Dzieciatkowska M, Stephenson D, LaCrois IS, D'Alessandro A, **Oldham WM**, Hansen KC, Zamanian RT, Stenmark KR. Integrative plasma multi-omics profiling reveals novel mechanisms of pulmonary arterial hypertension. American Thoracic Society International Conference; 2025 May 16-21; San Francisco, CA.
15. Singh N, Volpicelli T, Pi H, Gharib S, Mullin CJ, Pereira M, Jorin AT, Klinger JR, **Oldham W**, Dai Z, Fallon M, Harrington EO, Umar S, Leary PJ, Ventetuolo CE, Liang OD. Liver angiocrine myeloid-derived growth factor protects against endothelial dysfunction in pulmonary arterial hypertension. American Heart Association Scientific Sessions; 2025 November 8-10; New Orleans, LA.
16. Sherman-Roe AE, Sherman-Roe A, Pereira M, Bourjeily G, Zhou Y, Jorin A, Singh N, Oldham WM, Mullin CJ, Klinger JR, Ventetuolo CE. The role of fetal microchimerism in pulmonary arterial hypertension. American Thoracic Society International Conference; 2026 May 17-20; Orlando, FL.

SCHOLARLY WORK PUBLISHED IN OTHER MEDIA

NON-PEER-REVIEWED

1. Mechanical ventilation. BWH COVID-19 Clinical Guidelines. covidprotocols.org

INVITED PRESENTATIONS

REGIONAL

1. Preload failure, Pulmonary Vascular Disease Conference, Department of Medicine, BWH, 2012
2. Metabolism and pulmonary arterial hypertension, Pulmonary Vascular Disease Conference, Department of Medicine, BWH 2015
3. Physiology of the pulmonary circulation, Department of Biology, Curry College, 2016
4. Invited lecturer, Pre-health Enhanced Learning Implemented Through Experience (ELITE) medical career discussion, Curry College, Milton, MA
5. Panelist, Physician-Scientist Recruitment Day, Department of Medicine, BWH, 2016
6. Taurine metabolism in pulmonary vascular disease, Pulmonary Vascular Disease Conference, Department of Medicine, BWH, 2016
7. Reductive stress and pulmonary hypertension, Pulmonary Research Seminar, Tufts Medical Center, 2017
8. Physiology of the pulmonary circulation, Department of Biology, Curry College, 2017
9. Physiology of the pulmonary circulation, Department of Biology, Curry College, 2018
10. Taurine metabolism in pulmonary vascular disease, Pulmonary Vascular Disease Conference, Department of Medicine, BWH, 2018
11. Pulmonary hypertension and metabolism: Beyond the Warburg effect, Pulmonary Grand Rounds, Department of Medicine, BWH, 2018

12. Network-based methods analyzing patients with exercise intolerance, Forum for Advanced Biomedical Computation, Department of Pathology and Precision Medicine, BWH, 2018
13. Taurine signaling in pulmonary hypertension, Cambridge, UK and Harvard Cardiorespiratory Meeting, Department of Medicine, BWH, 2018
14. Physiology of the pulmonary circulation, Department of Biology, Curry College, 2020 (*canceled*)
15. Clinical and scientific update in pulmonary hypertension, Medicine Grand Rounds, Department of Medicine, BWH, 2021
16. L2HGDH as a therapeutic target to prevent ischemia/reperfusion injury, Weekly Leadership Meeting, Center for the Development of Therapeutics, Broad Institute, 2024
17. Mechanosensing signaling pathways drive pulmonary vascular remodeling, Pulmonary Vascular Disease Conference, Department of Medicine, BWH, 2024
18. Panelist, Brookline High School Medical Careers Networking Event, 2024
19. Lactate metabolism in pulmonary fibrosis, Brown Pulmonary Research Conference, Pulmonary, Critical Care, and Sleep Medicine, Brown, 2024
20. Molecular phenotyping in pulmonary vascular disease, Pulmonary Vascular Disease Conference, Department of Medicine, BWH, 2025
21. Taking the bull by the horns: Taurine metabolism in pulmonary hypertension, Cardiac and Vascular Biology Research Seminar, Providence VA Medical Center, Providence, RI, 2025
22. Cyclic AMP and new therapies for pulmonary fibrosis, Chest Conference Series, Pulmonary, Critical Care, and Sleep Medicine, Brown, 2025
23. Rewiring fibrometabolic circuits in the lung, Therapeutic Sciences Seminar Series, Division of Biology and Medicine, Brown, 2025

NATIONAL

24. Structural basis of receptor-dependent G protein activation (selected oral abstract), ASBMB Annual Meeting and Centennial Celebration, San Francisco, CA, 2006
25. Metabolic response to hypoxia in human pulmonary vascular cells (selected oral abstract), ATS Pulmonary Circulation Grover Conference, Sedalia, CO, 2013
26. Pulmonary hypertension and metabolism: Beyond the Warburg effect, Pulmonary Grand Rounds, Stanford University Medical Center, Palo Alto, CA, 2016
27. Pulmonary hypertension and metabolism: Beyond the Warburg effect, Pulmonary Grand Rounds, Vanderbilt University Medical Center, Nashville, TN, 2016
28. Pulmonary hypertension and metabolism: Beyond the Warburg effect, Pulmonary Grand Rounds, University of Texas Southwestern Medical Center, Dallas, TX, 2017
29. Invited discussant, Omics in pulmonary vascular disease, NIH/NHLBI-CMREF Joint Workshop, Washington, DC, 2019
30. Lactate metabolism in pulmonary fibrosis, Visiting Scholar Basic and Translational Research Conference, Pulmonary, Allergy, and Critical Care Medicine Division, University of Pittsburgh, Pittsburgh, PA, 2022
31. Making Metabolites into Medicine: L2HG and Reperfusion Injury, University of Maryland Institute for Health Computing, University of Maryland, North Bethesda, MD, 2025

32. Rewiring fibrometabolic circuits in the lung, Pulmonary Grand Rounds, University of Maryland School of Medicine, Baltimore, MD, 2025

INTERNATIONAL

33. Structural basis of receptor-dependent G protein activation (selected oral abstract), Keystone Symposium: G protein-coupled Receptors: Evolving Concepts and New Techniques, Keystone, CO, 2006
34. L-2-hydroxyglutarate inhibits glycolysis in pulmonary vascular cells (selected oral abstract), AHA Scientific Sessions, Orlando, FL, 2015
35. Poster discussion session moderator, Ballroom blitz: Basic biology, ATS Annual Meeting, San Diego, CA, 2018
36. Mini-symposium moderator, Every cell you break, ATS Annual Meeting, Dallas, TX, 2019
37. Cardiovascular seminar moderator, Clinical controversies in pulmonary hypertension, AHA Scientific Sessions, Philadelphia, PA, 2019
38. Invited speaker, Network approaches to understanding the omics of pulmonary vascular disease, ATS Annual Meeting, Presented virtually, 2020
39. Scientific symposium moderator, Seeing is believing: Novel imaging approaches to the pulmonary vasculature and RV, ATS Annual Meeting, Philadelphia, PA, 2020 (*anceled*)
40. Invited Discussant, How support of early career researchers can reset science in the post-COVID-19 world, ATS Pulmonary Circulation Assembly Virtual Journal Club, 2020 (DEI)
41. Scientific symposium moderator, Aging and Pulmonary Hypertension, AHA Scientific Sessions, Dallas, TX, 2020 (*anceled*)
42. Invited discussant, Mindful mentorship: Curating success for mentees and mentors, ATS Pulmonary Circulation Assembly Virtual Happy Hour, 2021 (DEI)
43. Invited speaker, Approaches to metabolic flux analysis, Pittsburgh International Lung Conference, University of Pittsburgh, Pittsburgh, PA, 2022
44. Symposium moderator, Translational approaches and visualization of disease mechanisms in pulmonary hypertension, ATS Annual Meeting, San Francisco, CA, 2022
45. Metabolic reprogramming under conditions of hypoxia, 15th PVRI Annual World Congress on Pulmonary Vascular Disease, Athens, Greece, 2022
46. Moderator, Autoimmune mechanisms in pulmonary arterial hypertension, PVRI Digital Webinar Series: Breaking Barriers in Pulmonary Hypertension, 2024
47. Mini-symposium moderator, Breath of hope: Decoding lung injury and unlocking treatments, ATS Annual Meeting, San Francisco, CA, 2025

GRANTS

PAST

1. α -synuclein interacting proteins / Parkinson's Disease Foundation Summer Fellowship / 1999 / principal investigator
2. α -synuclein interacting proteins / Nancy Meyers Anderson Grant and Parkinson's Disease Foundation Summer Fellowship / 2000 / principal investigator

3. Identification of a novel SNAP-25 interacting protein / ASPET Summer Undergraduate Research Fellowship / 2000 / principal investigator
4. Mechanisms of receptor-mediated G-protein activation / PhRMA Foundation Predoctoral Fellowship / 2005-2006 / principal investigator
5. Metabolic flux analysis in pulmonary arterial hypertension / PHA and ATS Foundation / TDC \$80,000 / 2016-2018 / principal investigator
6. Metabolic flux analysis in pulmonary arterial hypertension / RG-415134 / American Lung Association / TDC \$80,000 / 2016-2018 / principal investigator
7. Taurine metabolism in the pathobiology of pulmonary hypertension / Cardiovascular Research and Medical Education Fund / TDC \$80,000 / 2018-2020 / principal investigator
8. mTOR drives post-sepsis immunosuppression / ATS Foundation Unrestricted Grant / 2019-2020 / co-investigator (PI: Kim)
9. Regulation of pulmonary vascular cell redox state by L-2-hydroxyglutarate / K08 HL128802 / NIH NHLBI / TDC \$800,000 / 2016-2021 / principal investigator
10. Network medicine, risk stratification, and pulmonary hypertension / R21 HL145420 / NIH NHLBI / 2019-2021 / co-investigator (PI: Maron)
11. Integrated training in respiratory research / T32 HL007633 / NIH NHLBI / 2019-2025 / faculty (PI: Washko) (DEI)
12. The effect of the endothelial glycocalyx on superoxide dismutase, glutathione peroxidase, and nitric oxide synthase activities during stimulation / Novo Nordisk Foundation Post-doctoral Fellowship Award for Research Abroad / 2020-2024 / mentor (PI: McGarrity) (DEI)
13. Therapeutic potential of lactate transport inhibition in pulmonary arterial hypertension / BWH Brigham Research Institute Fund to Sustain Research Excellence / TDC \$50,000 / 2021-2022 / principal investigator
14. I-CAN: A collaborative research network to discover immunological therapies for cardiac arrest / AHA Transformational Project Award / 2021-2023 / co-investigator (PI: Kim)
15. Role of lactate transporters in pulmonary fibrosis / BWH Brigham Research Institute Fund to Sustain Research Excellence / TDC \$50,000 / 2022-2023 / principal investigator
16. CTA: Cancer reticulotyping consortium / Northpond Laboratories / 2021-2025 / co-investigator (PI: Loscalzo)
17. Quantifying metabolic reprogramming in pulmonary hypertension *in vivo* / BWH Brigham Research Institute Innovation Evergreen Fund / TDC \$100,000 / 2022-2025 / principal investigator
18. Immunometabolic pathways enabled by PARP inhibition in breast cancer / R37 CA269499 / NIH NCI / 2022-2025 / co-investigator (PI: Guerriero)
19. Branched-chain keto-acids and aerobic glycolysis in vascular smooth muscle cells / R01 HL166137 / NIH NHLBI / 2023-2025 / co-investigator (PI: Loscalzo)
20. Research Training in Pulmonary Immunology and Allergy at Massachusetts General Hospital / T32 HL116275 / NIH NHLBI / 2023-2025 / faculty (PI: Luster) (DEI)
21. Lipid-mediated control of acetyl-CoA metabolism in the pathogenesis of NAFLD / R01 DK048873 / NIH NIDDKM / 2024-2025 / co-investigator (PI: Cohen)
22. Development of small molecule L2HGDH inhibitors to treat reperfusion injury / BWH Ignite Seed Grant / TDC \$50,000 / 2024-2025 / principal investigator

23. Endothelial proline utilization in pulmonary arterial hypertension / R03 HL172985 / NIH NHLBI / 2024-2025 / co-investigator (PI: Wertheim)

CURRENT

24. Role of lactate transporters in pulmonary fibrosis / R01 HL167718 / NIH NHLBI / TDC \$2,480,885 / 2023-2028 / principal investigator
25. Endothelial metabolic reprogramming by interferon / K08 HL165047 / NIH NHLBI / 2023-2028 / mentor (PI: Lee) (DEI)
26. Immuno-metabolic regulation of endothelial function by CD70 / AHA Career Development Award / 2024-2027 / mentor (PI: Pandey)
27. Brown Respiratory Research Training Program / T32 HL134625 / NIH NHLBI / 2025-2027 / faculty (PI: Harrington) (DEI)

PENDING

28. Development of small molecule inhibitors of L2HGDH to treat myocardial reperfusion injury / Harrington Scholar-Innovator Award / Harrington Discovery Institute / TDC \$100,000 / 2026-2028 / principal investigator

UNIVERSITY TEACHING, ADVISING AND MENTORING ROLES

HARVARD MEDICAL SCHOOL COURSES

Pulmonary Exam, Introduction to Clinical Medicine, 30 students, 2012

Pulmonary Exam, Patient-Doctor II, 30 students, 2012-2013

Respiratory Pathophysiology, Human Systems, 30 students, 2015

Reintroduction to Clinical Medicine (1 student / year), 2019-2025

MENTEES

Name / Mentored career stage / Mentoring role / Accomplishments / Year

Aliya Gottehrer-Cohen / undergraduate / research advisor / poster presentation ATS 2017 / 2017 (DEI)

Bradley Wertheim, MD / fellow, faculty / research advisor / review chapters, manuscript, grant award / 2016-2025

Hilaire Lam, PhD / fellow, faculty / research advisory committee / multiple first-authored papers / 2016-2022 (DEI)

Philip Joseph, MD / fellow / research advisor / poster presentation ATS 2017 / 2016-2017

Rebecca Sternschein, MD / fellow / research advisor / poster presentation ATS 2018, case report / 2017 (DEI)

Courtney Copeland, PhD / fellow / research advisor / Minority Trainee Development Scholarship ATS 2019, poster presentation, first-author paper / 2017-2020 (DEI)

Inderjit Singh, MD / fellow / research advisor / multiple papers and abstracts / 2017-2020

Sarah McGarrity, PhD / fellow / research advisor / research grant / 2020-2024 (DEI)

David Ziehr, MD / fellow / research advisor / Parker B. Francis grant, Respiratory Disease Young Investigators' Forum third prize for basic science, travel award ATS 2022, abstract award Pittsburgh International Lung Conference 2022, multiple oral abstract presentations / 2022-

Arvind Pandey, MD / fellow, faculty / mentoring committee member / AHA career development award / 2022-

Laurel Lee, MD / fellow, faculty / mentoring committee member / K08 award / 2022-2024 (DEI)

Fei Li, PhD / fellow / research advisor / oral abstract presentation ATS 2025 / 2023-

Shelsey Johnson, MD / fellow / research advisor / case report / 2024 (DEI)

PULMONARY, CRITICAL CARE, AND SLEEP MEDICINE DIVISION AT BROWN

Course director, Fellow Journal Club, 2025-

HOSPITAL TEACHING, ADVISING AND MENTORING ROLES

BRIGHAM AND WOMEN'S HOSPITAL

Pulmonary and Pulmonary Vascular Fellows, Pulmonary Vascular Disease Service Attending, 2015-2025

Pulmonary Fellows, Ambulatory Pulmonary Clinic Preceptor, 2018-2025