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Zhiyu Dai, Ph.D.Business Address: 475 N. 5th Street, BSPB Rm E512, Phoenix, AZ 85004.

Business Phone: 602-827-2982, Cell Phone: 312-792-6813

Email: zhiyudai@arizona.edu

ORCID ID: 0000-0002-2945-7923

EDUCATION

09/2004-06/2008 BS (Biological Science). Shandong University Marine College, Weihai, China.

09/2008-06/2013 PhD (Biochemistry and Molecular Biology). Sun Yat-sen University Zhongshan School of Medicine, Guangzhou, China.

TRAINING

07/2013-07/2017 Postdoctoral Research Associate. Dr. Youyang Zhao's Lab, Department of Pharmacology, and Center for Lung and Vascular Biology. University of Illinois College of Medicine, Chicago, IL, USA

08/2017-10/2017 Postdoctoral Associate. Dr. Youyang Zhao's Lab, Program for Lung and Vascular Biology, Stanley Manne Children's Research Institute, Ann & Robert H. Lurie Children's Hospital of Chicago, and Department of Pediatrics, Northwestern University Feinberg School of Medicine. Chicago, IL, USA.

10/2022 Eureka 13th International Certificate Course in Translational Medicine, Syracuse, Italy

APPOINTMENT

11/2017-06/2019 Research Assistant Professor. Program for Lung and Vascular Biology, Stanley Manne Children's Research Institute, Ann & Robert H. Lurie Children's Hospital of Chicago, and Department of Pediatrics, Northwestern University Feinberg School of Medicine. Chicago, IL, USA

07/2019-present Assistant Professor (Tenure Track) of Medicine, Department of Internal Medicine, Member of Translational Cardiovascular Research Center, Member of BIO5 Institute, Member of Sarver Heart Center, University of Arizona College of Medicine-Phoenix, Phoenix, AZ, USA

07/2022-present Director, Translational Endothelial Research, Department of Internal Medicine, University of Arizona College of Medicine-Phoenix, Phoenix, AZ, USA

EXPERIENCE/SERVICE**NIH Study Sections**

NHLBI, IVPP study section, 2021/10

NIEHS, ZES1 LWJ-D (R1) 2, 2022/05

NSF Ad Hoc review, 2021/10
2022/04**AHA Study Sections**

AHA Career Development Award Basic Cell Sciences Peer Review, 2022/02

AHA Transformational Project Award Cardiology Peer Review, 2022/05

AHA Regenerative Cell Biology- Basic Science Fellowship Committee Peer Reviewer, 2022/11

AHA Career Development Award Basic Cell Sciences Peer Review, 2023/02

AHA Transformational Project Award Cardiology Peer Review, 2023/05

Other Ad Hoc review

Vernieuwingsimpuls Veni 2019 ZonMw, The Netherlands

French National Research Agency (ANR) AAPG 2023, Physiology and physiopathology panel

Fondazione Telethon grant, Ad hoc review, 2023/06

Institutional Committee Activities

2020-present, Clinical Translational Sciences graduate program, member, University of Arizona,
 2020-present, Physiological Sciences GDP, member, University of Arizona,
 2020-present, Institutional Animal Care and Use Committee (IACUC), member, University of Arizona,
 2021-present, Department of Internal Medicine "Science in the Desert" Seminar series host
 Nov 2021, 2022 MD/PhD Admissions candidate interview
 Spring 2022, UArizona Research, Innovation & Impact (RII) Internal Grant Peer Reviewer
 Nov 2022, 2023 MD/PhD Admissions candidate interview
 Sep 2022-present, Division Chief of Pulmonary, Critical Care and Sleep Medicine Search Committee
 Member
 Sep 2022-present, UArizona COMP Banner PEER committee member
 Feb 2023, UArizona College of Medicine Tucson Internal Grant and Award Peer Reviewer
 March 2023, organizer of UArizona Lung Vascular Symposium, Phoenix, AZ
 March 2023-present, Director of Operation Search Committee member, Department of Internal
 Medicine at UACOMP
 April 2023, UArizona College of Medicine Flinn Internship application Ad hoc review and mentor

Society Committee Activities

2019-present, Pulmonary Circulation Assembly, Early Career Committee member, American Thoracic
 Society
 2020 Treasurer, Chinese American Lung Association
 2021 President-elected, Chinese American Lung Association
 Oct 2021, North American Vascular Biology Organization (NAVBO) Vascular Biology 2021 Conference,
 Co-Chair the session titled, "Patterning and Morphogenesis II" and judge for ePosters
 evaluation
 Dec 2021, Arizona Physiology Society, Posters evaluation for trainees in the AzPS annual meeting,
 Midwestern University, Glendale, AZ
 2022, President, Chinese American Lung Association
 2023, Past President, Chinese American Lung Association
 June 2023, AHA Scientific Session abstract review
 June 2023, APS Respiration Section Submit 2024 proposal review
 2023, ATS Pulmonary Circulation Assembly, Early Career Working Group Co-Chair
 2023, ATS Pulmonary Circulation Assembly, Program Committee member
 2023, AHA Scientific Session Poster Professor, Chair, Philadelphia, PA

HONORS AND AWARDS

2010 Outstanding graduate student and instructor training plan of Sun Yat-Sen University, China
 2011 Ming K. Jeang Award, the 13th Biennial Meeting of the Society of Chinese Bioscientists in
 America, Guangzhou, China
 2012 National Scholarship of Graduate Students, China
 2016 Pulmonary Hypertension Association Scientific Sessions Best Abstract Award (Basic Science),
 Dallas, Texas.
 2016 First place Postdoc Bristow Poster Award, Department of Pharmacology Annual Retreat,
 University of Illinois College of Medicine, Chicago, IL.
 2018 American Thoracic Society International Conference Abstract Scholarship, San Diego, CA.
 2018 Pulmonary Hypertension Association International PH Conference and Scientific Sessions Top
 Abstract (Basic Science), Orlando, FL.
 2018 The XIII USA-China Cardiovascular Symposium Young Investigator Award (First Place),
 Chicago, IL.
 2019 Grover Conference Young Investigator Award
 2021 University of Arizona George H. Davis Fellowship
 2021 Mallinckrodt Grants, Mallinckrodt Foundation, Spring 2021 (UA Award Nominee)

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| 2022 | Chinese-American Lung Association Early Career Investigator Award |
| 2022 | Pew Biomedical Scholars, Pew Foundation, 2023 (UA Award Nominee) |
| 2022 | Fellow of the American Heart Association (FAHA), Council on Cardiopulmonary Critical Care, Perioperative and Resuscitation (3CPR) |
| 2022 | AHA 3CPR The Cournand and Comroe Early Career Investigator Prize finalist |
| 2023 | Chinese-American Lung Association Service Award |

RESEARCH INTERESTS

- To understand the pathogenesis of pulmonary arterial hypertension using novel animal models, integrated pharmacological approaches, genome editing and single cell RNA-sequencing.
- To delineate the mechanisms of right heart failure in patients with pulmonary arterial hypertension.
- To identify therapeutic targets for the treatment of pulmonary arterial hypertension patients.

PARTICIPATION IN PROFESSIONAL SOCIETIES AND EXTRAMURAL ORGANIZATIONS

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| 11/2013- | Member, American Heart Association (AHA) |
| 10/2017- | Member, American Thoracic Society (ATS) |
| 05/2018- | Member, Pulmonary Vascular Research Institute (PVRI) |
| 05/2018- | Member, North American Vascular Biology Organization (NAVBO) |

EDITORIAL AND MANUSCRIPT REVIEW RESPONSIBILITIES

Journal Reviewer: American Journal of Respiratory Critical Care Medicine, Science Advances, JCI Insight, Hypertension, American Journal of Pathology, AJP-Lung Cellular and Molecular Physiology, AJP-Regulatory Integrative and Comparative Physiology, AJP-Heart and Circulatory Physiology, AJP: Cell Physiology, Respiratory Research, Journal of Cardiovascular Pharmacology, American Journal of Hypertension, Respirology, Journal of Vascular Surgery, BMC Pulmonary Medicine, Pediatric Pulmonology, Experimental Lung Research, Canadian Respiratory Journal, Scientific Reports, PLOS ONE, Journal of Cellular and Molecular Medicine, Frontiers in Pharmacology, International Journal of Molecular Science, Cells, Frontiers in Pharmacology, Frontier in Medicine, Gene, Biomedicines, etc.

Peer review record profile: <https://www.webofscience.com/wos/author/record/1537774>

GRANT AWARDS

A. Current

1. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI)
 Title: Novel alveolar mechanisms of hypoxemia in hepatopulmonary syndrome
 ID#: R01HL169509
 Principal Investigator: Michael Fallon/Zhiyu Dai (MPI) (10% effort)
 Direct costs per year: \$496,948
 Total costs for project period: \$3,017,978
 Project period: 09/01/23-06/30/27

2. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI)
 Title: Role of Endothelial SOX17 Deficiency in the Pathogenesis of Pulmonary Hypertension
 ID: R01HL158596-01A1
 Principal Investigator: Zhiyu Dai (10% effort)
 Direct costs per year: \$312,543.00
 Total costs for project period: \$2,398,770
 Project period: 03/20/22-2/28/27

3. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI)
 Title: Fatty acid-binding proteins sustain endothelial glycolysis and arterial programming in pulmonary arterial hypertension

ID#: R01HL162794-01A1
Principal Investigator: Zhiyu Dai (10% effort)
Direct costs per year: \$376,712
Total costs for project period: \$2,226,324
Project period: 04/14/23-3/31/27

4. Agency: The Cardiovascular Medical Research and Education Fund (CMREF)
Title: Arterial Endothelium Programming in Pulmonary Arterial Hypertension
Principal Investigator: Zhiyu Dai (2.5%)
Direct costs per year: \$48,000
Total costs for project period: \$115,200
Project period: 06/01/22-05/31/24

5. Agency: Arizona Biomedical Research Centre
Title: Role of Alveolar Epithelium and Endothelium Interaction in Tobacco Smoke-induced Pulmonary Hypertension associated with Chronic Obstructive Lung Disease
ID#: RFGA2022-01-06
Principal Investigator: Zhiyu Dai (5%)
Total costs for project period: \$225,000
Project period: 01/04/2023 – 01/03/2026

6. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI)
ID#: R01HL134776
Title: Molecular characterization of pulmonary edema: a window to an injured lung
Co-Investigator: Zhiyu Dai (Effort: 1%); Principal Investigator: Vinicio, de Jesus, Perez (Stanford University)
Project period: 04/01/22-3/31/24
Total costs for project period: \$88,896

7. Agency: FUTURRE-Careers@UArizonaCOM, University of Arizona
Title: Lung Endothelium and Extracellular Matrix Interaction in Pulmonary Hypertension
Principal Investigator: Zhiyu Dai
Total costs for project period: \$50,000
Project period: 10/31/22-10/31/23

8. Agency: University of Arizona Department of Internal Medicine College of Medicine-Phoenix
Title: Identification of Lung Endothelium Targeting Peptide
Principal Investigator: Zhiyu Dai/Tim Marlowe
Total costs for project period: \$42,141
Project period: 03/01/23-12/31/25

9. Agency: UArizona's Research, Innovation & Impact and the One Health Research Initiative
Title: Role of Alveolar Epithelium and Endothelium Interaction in Pulmonary Hypertension associated with Chronic Obstructive Lung Disease
Principal Investigator: Zhiyu Dai
Total costs for project period: \$50,000
Project period: 04/01/23-3/31/24

B. Pending

1. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI)
Title: General Capillary to Arterial Endothelial Cell Transition in Pulmonary Arterial Hypertension
ID#: R01HL170096 (**Impact score 25, 8th percentile**)
Principal Investigator: Zhiyu Dai

Direct costs per year: \$481,790
Total costs for project period: \$3,666,316
Project period: 07/01/23-6/30/27

C. Past

1. Agency: American Heart Association, Postdoctoral Fellowship Award
ID#: 15POST25700124

Title: Obligatory role of endothelial PHD2/HIF signaling in the pathogenesis of severe pulmonary hypertension

Principal Investigator: Zhiyu Dai

Direct costs per year: 1st year, \$50,432; 2nd year, \$52,244

Total costs for project period: \$102,676

Project period: 07/01/15-06/30/17

2. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI), Pathway to Independence Award (Parent K99/R00)

ID#: K99HL138278

Title: Role of Smooth Muscle Progenitor Cells in Obliterative Vascular Remodeling and PH

Principal Investigator: Zhiyu Dai

Direct costs per year: \$122,769

Total costs for project period: \$265,182

Project period: 09/01/17-08/31/19

3. Agency: American Thoracic Society (ATS)/Pulmonary Hypertension Association (PHA), The Aldrighetti Research Award for Young Investigators

Title: Endothelial-to-Mesenchymal Transition on Vascular Fibrosis in PAH

Principal Investigator: Zhiyu Dai

Direct costs per year: \$40,000

Total costs for project period: \$80,000

Project period: 01/31/19-01/30/21

4. Agency: Arizona Biomedical Research Center

ID# ADHS18-198871

Title: Diagnostic and Progressive Markers of RV Failure in Pulmonary Arterial Hypertension

Principal Investigator: Zhiyu Dai (Transferred from Rebecca Vanderpool)

Direct costs per year: \$63,425

Total costs for project period: \$70,065

Project period: 10/01/21-3/31/22

5. Agency: University of Arizona RII Core Facilities Pilot Program

Title: Fatty Acid-binding Proteins Control Endothelial Glycolysis and Arterial Programming in Pulmonary Arterial Hypertension

Principal Investigator: Zhiyu Dai

Total costs for project period: \$11,620

Project period: 02/11/22-02/28/23

6. Agency: University of Arizona RII Core Facilities Pilot Program

Title: Role of Endothelial SOX17 Deficiency in the Pathogenesis of Pulmonary Hypertension

Principal Investigator: Zhiyu Dai

Total costs for project period: \$12,120

Project period: 05/04/22-05/31/23

7. Agency: American Heart Association, Career Development Award

ID#: 20CDA35310084 (0.21% percentile)
 Title: Role of Endothelial Fatty Acid Binding Proteins in the Pathogenesis of PAH
 Principal Investigator: Zhiyu Dai (10% effort)
 Direct costs per year: \$70,000
 Total costs for project period: \$231,000
 Project period: 07/01/20-06/30/23

8. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI), Pathway to Independence Award (Parent K99/R00)
 ID#: R00HL138278
 Title: Role of Smooth Muscle Progenitor Cells in Obliterative Vascular Remodeling and PH
 Principal Investigator: Zhiyu Dai
 Direct costs per year: \$162,215
 Total costs for project period: \$747,000
 Project period: 09/01/19-07/31/22 (NCE 07/31/2023)

9. Agency: NIH/National Heart, Lung, and Blood Institute (NHLBI)
 Title: Anaplerotic Reprogramming of Endothelial Cells in Pulmonary Hypertension
 ID#: R01HL132918
 Co-Investigator: Zhiyu Dai (Effort: 5%); Principal Investigator: Ruslan Rafikov (University of Arizona)
 Project period: 04/01/22-7/31/27 (ended 7/31/23 due to the PI relocated to other institute)

PUBLICATIONS AND SCHOLARLY WORK

A. Peer-reviewed Original Investigations

1. Gu X, Yao Y, Cheng R, Zhang Y, **Dai Z**, Wan G, Yang Z, Cai W, Gao G, Yang X. Plasminogen K5 activates mitochondrial apoptosis pathway in endothelial cells by regulating Bak and Bcl-x(L) subcellular distribution. *Apoptosis*. 2011; 16: 846-855.
2. Li L, Yang J, Wang WW, Yao YC, Fang SH, **Dai ZY**, Hong HH, Yang X, Shuai XT, Gao GQ. Pigment epithelium-derived factor gene loaded in cRGD-PEG-PEI suppresses colorectal cancer growth by targeting endothelial cells. *Int J Pharm*. 2012; 438: 1-10.
3. **Dai Z**, Chen Y, Qi W, Huang L, Zhang Y, Zhou T, Yang X, Gao G. Codon optimization increases human kallistatin expression in Escherichia coli. *Prep Biochem Biotechnol*. 2013; 43: 123-136.
4. **Dai Z**, Lu L, Yang Z, Mao Y, Lu J, Li C, Qi W, Chen Y, Yao Y, Li L, Chen S, Zhang Y, Cai W, Yang X, Gao G. Kallikrein-binding protein inhibits LPS-induced TNF-alpha by upregulating SOCS3 expression. *J Cell Biochem*. 2013; 114: 1020-1028.
5. **Dai Z**, Qi W, Li C, Lu J, Mao Y, Yao Y, Li L, Zhang T, Hong H, Li S, Zhou T, Yang Z, Yang X, Gao G, Cai W. Dual regulation of adipose triglyceride lipase by pigment epithelium-derived factor: a novel mechanistic insight into progressive obesity. *Mol Cell Endocrinol*. 2013; 377: 123-134.
6. **Dai Z**, Zhou T, Li C, Qi W, Mao Y, Lu J, Yao Y, Li L, Zhang T, Hong H, Li S, Cai W, Yang Z, Ma J, Yang X, Gao G. Intracellular pigment epithelium-derived factor contributes to triglyceride degradation. *Int J Biochem Cell Biol*. 2013; 45: 2076-2086.
7. Li C, Li L, Cheng R, **Dai Z**, Li C, Yao Y, Zhou T, Yang Z, Gao G, Yang X. Acidic/neutral amino acid residues substitution in NH2 terminal of plasminogen kringle 5 exerts enhanced effects on corneal neovascularization. *Cornea*. 2013; 32: 680-688.
8. Yao Y, Li L, Huang X, Gu X, Xu Z, Zhang Y, Huang L, Li S, **Dai Z**, Li C, Zhou T, Cai W, Yang Z, Gao G, Yang X. SERPINA3K induces apoptosis in human colorectal cancer cells via activating the Fas/FasL/caspase-8 signaling pathway. *FEBS J*. 2013; 280: 3244-3255.

9. Cai L, Yi F, **Dai Z**, Huang X, Zhao YD, Mirza MK, Xu J, Vogel SM, Zhao YY. Loss of caveolin-1 and adiponectin induces severe inflammatory lung injury following LPS challenge through excessive oxidative/nitrative stress. *Am J Physiol Lung Cell Mol Physiol*. 2014; 306: L566-73.
10. Hong H, Zhou T, Fang S, Jia M, Xu Z, **Dai Z**, Li C, Li S, Li L, Zhang T, Qi W, Bardeesi AS, Yang Z, Cai W, Yang X, Gao G. Pigment epithelium-derived factor (PEDF) inhibits breast cancer metastasis by down-regulating fibronectin. *Breast Cancer Res Treat*. 2014; 148: 61-72.
11. Li L, Yao YC, Fang SH, Ma CQ, Cen Y, Xu ZM, **Dai ZY**, Li C, Li S, Zhang T, Hong HH, Qi WW, Zhou T, Li CY, Yang X, Gao GQ. Pigment epithelial-derived factor (PEDF)-triggered lung cancer cell apoptosis relies on p53 protein-driven Fas ligand (Fas-L) up-regulation and Fas protein cell surface translocation. *J Biol Chem*. 2014; 289: 30785-30799.
12. Li L, Yao YC, Gu XQ, Che D, Ma CQ, **Dai ZY**, Li C, Zhou T, Cai WB, Yang ZH, Yang X, Gao GQ. Plasminogen kringle 5 induces endothelial cell apoptosis by triggering a voltage-dependent anion channel 1 (VDAC1) positive feedback loop. *J Biol Chem*. 2014; 289: 32628-32638.
13. Li S, Zhou T, Li C, **Dai Z**, Che D, Yao Y, Li L, Ma J, Yang X, Gao G. High metastatic gastric and breast cancer cells consume oleic acid in an AMPK dependent manner. *PLoS One*. 2014; 9: e97330.
14. Zhao YD, Huang X, Yi F, **Dai Z**, Qian Z, Tirupathi C, Tran K, Zhao YY. Endothelial FoxM1 mediates bone marrow progenitor cell-induced vascular repair and resolution of inflammation following inflammatory lung injury. *Stem Cells*. 2014; 32: 1855-1864.
15. Qi W, Yang C, **Dai Z**, Che D, Feng J, Mao Y, Cheng R, Wang Z, He X, Zhou T, Gu X, Yan L, Yang X, Ma JX, Gao G. High levels of pigment epithelium-derived factor in diabetes impair wound healing through suppression of Wnt signaling. *Diabetes*. 2015; 64: 1407-1419.
16. Xu Z, Dong Y, Peng F, Yu Z, Zuo Y, **Dai Z**, Chen Y, Wang J, Hu X, Zhou Q, Ma H, Bao Y, Gao G, Chen M. Pigment epithelium-derived factor enhances tumor response to radiation through vasculature normalization in allografted lung cancer in mice. *Cancer Gene Ther*. 2015; 22: 181-187.
17. **Dai Z**, Li M, Wharton J, Zhu MM, Zhao YY. Prolyl-4 hydroxylase 2 (PHD2) deficiency in endothelial cells and hematopoietic cells induces obliterative vascular remodeling and severe pulmonary arterial hypertension in mice and humans through hypoxia-inducible factor-2alpha. *Circulation*. 2016; 133: 2447-2458.
18. Huang X*, **Dai Z***, Cai L, Sun K, Cho J, Albertine KH, Malik AB, Schraufnagel DE, Zhao YY. Endothelial p110gammaPI3K mediates endothelial regeneration and vascular repair after inflammatory vascular injury. *Circulation*. 2016; 133: 1093-1103. (* Equal contribution)
19. Wu C, Evans CE, **Dai Z**, Huang X, Zhang X, Jin H, Hu G, Song Y, Zhao YY. Lipopolysaccharide-induced endotoxemia in corn oil-preloaded mice causes an extended course of lung injury and repair and pulmonary fibrosis: A translational mouse model of acute respiratory distress syndrome. *PLoS One*. 2017; 12: e0174327.
20. Zhang T, Yin P, Zhang Z, Xu B, Che D, **Dai Z**, Dong C, Jiang P, Hong H, Yang Z, Zhou T, Shao J, Xu Z, Yang X, Gao G. Deficiency of pigment epithelium-derived factor in nasopharyngeal carcinoma cells triggers the epithelial-mesenchymal transition and metastasis. *Cell Death Dis*. 2017; 8: e2838.
21. Fang S, Hong H, Li L, He D, Xu Z, Zuo S, Han J, Wu Q, **Dai Z**, Cai W, Ma J, Shao C, Gao G, Yang X. Plasminogen kringle 5 suppresses gastric cancer via regulating HIF-1alpha and GRP78. *Cell Death Dis*. 2017; 8: e3144.

22. **Dai Z**, Zhu MM, Peng Y, Machireddy N, Jin H, Zhang X, Zhao YY. Endothelial and Smooth Muscle Cells Interaction via FoxM1 Signaling Regulates Pulmonary Vascular Remodeling and Pulmonary Hypertension. *Am J Respir Crit Care Med*. 2018;198(6):788-802. Accompanied with commentary.
23. **Dai Z**, Zhu MM, Peng Y, Machireddy N, Evans CE, Machado R, Zhang X, Zhao YY. Therapeutic Targeting of Vascular Remodeling and Right Heart Failure in PAH with HIF-2 α Inhibitor. *Am J Respir Crit Care Med*. 2018;198(11):1423-1434. Accompanied with commentary.
24. Kelly GT, Faraj R, **Dai Z**, Cress AE, Wang T. A mutation found in esophageal cancer alters integrin β 4 mRNA splicing. *Biochem Biophys Res Commun*. 2020. 2020;529(3):726-732.
25. Yi D, Liu B, Wang T, Liao Q, Zhu MM, Zhao YY, **Dai Z**. Endothelial Autocrine Signaling through CXCL12/CXCR4/FoxM1 Axis Contributes to Severe Pulmonary Arterial Hypertension. *Int J Mol Sci*. 2021, 22(6), 3182.
26. **Dai Z***, Cheng J, Liu B, Yi D, Feng A, Wang T, Gao C, Wang Y, Zhu MM, Zhang X, Zhao YY*. Loss of Endothelial HIF-Prolyl hydroxylase 2 (PHD2) Induces Cardiac Hypertrophy and Fibrosis. *J Am Heart Assoc*. 2021; 10(22):0:e022077. (*Co-corresponding author)
27. Liu B, Yi D, Pan JK, Dai J, Zhu MM, Zhao YY, Oh SP, Fallon MB, **Dai Z**. Suppression of BMP signaling by PHD2 deficiency in Pulmonary Arterial Hypertension. *Pulm Circ*. 2022;12:e12056.
28. Evans CE, Peng Y, Zhu MM, **Dai Z**, Zhang X, Zhao YY. Rabeprazole Is a HIF-1 α Agonist Promoting Vascular Repair and Resolution of Inflammatory Lung Injury Induced by Sepsis. *Cells*. 2022;11(9), 1425.
29. Liu B, Peng Y, Yi D, Machireddy N, Dong D, Ramirez K, Dai J, Vanderpool R, Zhu MM, **Dai Z***, & Zhao YY*. Endothelial PHD2 Deficiency Induces Nitritative Stress via Suppression of Caveolin-1 in Pulmonary Hypertension. (*Co-corresponding author). *Eur Respir J*. 2022 Jul 7;2102643. Accompanied with commentary.
30. Liu B, Yi D, Yu Z, Pan J, Ramirez K, Li S, Wang T, Glembotski CC, Fallon MB, Oh SP, Gu M, Kalucka J, **Dai Z**. TMEM100, a Lung-Specific Endothelium Gene. *Arterioscler. Thromb. Vasc. Biol*. 2022.08.26.504609. Featured article and selected as the inaugural paper for the event Vascular Biology in the Spotlight by ATVB.
31. Liu C, Le HHT, Denaro III P, **Dai Z**, Shao N-Y, Ong S-G, Lee WH. E-cigarettes induce dysregulation of autophagy leading to endothelial dysfunction in pulmonary arterial hypertension. *Stem Cells*. 2023;sxad004.
32. Yi D, Liu B, Ding H, Li S, Li R, Pan J, Ramirez K, Xia X, Kala M, Ye Q, Lee WH, Frye R, Wang T, Zhao Y, Knox K, Glembotski C, Fallon M, **Dai Z**. E2F1 mediates SOX17 Deficiency Induces Pulmonary Hypertension. *Hypertension*. 2023. Accepted.
33. James J, Dekan A, Niihori M, McClain N, Varghese M, Bharti D, Lawal OS, Padilla-Rodriguez M, Yi D, **Dai Z**, Gusev O, Rafikova O, Rafikov R. Res Sq. 2023 May 3:rs.3.rs-2887159. doi: 10.21203/rs.3.rs-2887159/v1. Preprint.
34. Liu B, Yi D, Xia X, Ramirez K, Dong R, Ding H, Qiu S, Kalinichenko VV, Fallon MB, **Dai Z**. 2023, gCaps undergo reprogramming into arterial endothelial cells in pulmonary hypertension through HIF-2/SOX17/NOTCH4 pathway. manuscript in preparation, will submit to Nature Medicine.

B. Reviews, Commentaries and Editorial

1. **Dai Z**, Zhao YY. Discovery of a murine model of clinical PAH: Mission impossible? *Trends Cardiovasc Med*. 2017; 27: 229-236.
2. **Dai Z**. Invited commentary. *J Vasc Surg*. 2017; 65: 1170.
3. **Dai Z**, Zhao YY. BET in Pulmonary Arterial Hypertension: Exploration of BET Inhibitors to Reverse Vascular Remodeling. *Am J Respir Crit Care Med*. 2019; 200(7):806-808.
4. Evans CE, Cober ND, **Dai Z**, Stewart DJ, Zhao YY. Endothelial Cells in the Pathogenesis of Pulmonary Arterial Hypertension. *Eur Respir J*. 2021.58(3):2003957.
5. Liu B, **Dai Z**. Fatty Acid Metabolism in Endothelial Cell. *Genes (Basel)*. 2022;13:2301.
6. Pan J, Liu B, **Dai Z**. The Role of a Lung Vascular Endothelium Enriched Gene TMEM100. *Biomedicines*. 2023.11(3):937.

C. Patents

Antibodies to pigment epithelium-derived factor and method of using the antibodies for treatment. Chinese patent applied number: 201210245123.2. Inventors: Guoquan Gao, Xia Yang, Weiwei Qi, **Zhiyu Dai**.

D. published abstracts

1. **Dai Z**, Zhu MM, Gao C, Zhang X, Zhao Y-Y. Endothelial Prolyl-4 hydroxylase 2 Deletion Induces Cardiac Hypertrophy and Heart Failure via Hypoxia Inducible Factor-2 α Activation. *Circulation*. 2016;134:A12629–A12629.
2. **Dai Z**, Zhu MM, Zhao Y-Y. Diminished Cavolin-1 Expression and Augmented Nitritative Stress Secondary to Prolyl-4 Hydroxylase 2 Deficiency Contribute to Obliterative Vascular Remodeling and Severe Pulmonary Arterial Hypertension. *Circulation*. 2016;134:A12497–A12497.
3. **Dai Z**, Zhu MM, Zhao Y-Y. PHD2 Deficiency Induces Obliterative Vascular Remodeling and Severe PAH through Nitritative Stress and Caveolin-1 Downregulation. *FASEB J*. 2017;31:1016.8-1016.8.
4. Tarjus A, **Dai Z**, Zhao Y. HIF2 α is required for the development of pulmonary vascular fibrosis associated with pulmonary arterial hypertension. *FASEB J*. 2017;31:1016–1017.
5. **Dai Z**, Zhu MM, Zhang X, Tarjus A, Zhao Y. Selective Targeting HIF-2 α for Treatment of Pulmonary Arterial Hypertension. *FASEB J*. 2017;31:1016.
6. **Dai Z**, Zhu MM, Zhao Y-Y. Target Vascular Remodeling and Right Heart Failure With Selective Hypoxia Inducible Factor-2 α Inhibitors. *Circulation*. 2017;136:A13871–A13871.
7. Xing J, **Dai Z**, Huang X, Zhao Y. Pulmonary Vascular Niche Regulates Macrophage Functional Polarization through Endothelial Jag1. *FASEB J*. 2017;31:910–995.
8. **Dai Z**, Dai J, Zhao Y-Y. Single-cell Transcriptomes Identify Abnormal Endothelial Subpopulation in Pulmonary Arterial Hypertension. *Circulation*. 2019;140:A11227–A11227.
9. **Dai Z**, Zhao Y. PHD2 Deficiency Induces Nitritative Stress via Suppression of Caveolin-1 in Pulmonary Arterial Hypertension. *FASEB J*. 2019;33:841–845.
10. **Dai Z**, Zhu MM, Peng Y, Machireddy N, Evans C, Machado RF, Zhang X, Zhao Y. Targeting HIF-2 α for the Treatment of Pulmonary Arterial Hypertension. In: C26. LET IT BLEED: ENDOTHELIAL INJURY AND ANGIOGENESIS IN PULMONARY HYPERTENSION. American Thoracic Society; 2019. p. A4412–A4412.
11. Zhu MM, **Dai Z**, Dai J, Peng Y, Zhao Y. GCN2 Regulates Vascular Remodeling in the Pathogenesis of Pulmonary Arterial Hypertension. *Circulation*. 2019;140:A13732–A13732.
12. **Dai Z**, Dai J, Zhao Y-Y. Single-Cell Transcriptomes Identify Endothelial TMEM100 Playing a Pathogenic Role in Pulmonary Arterial Hypertension. In: ATS. 2020. p. A7863.
13. **Dai Z**, Yi D, LIU BIN, Li S. Endothelial SOX17 Deficiency Induces Pulmonary Arterial Hypertension. *Circulation*. 2020;142:A14257–A14257.
14. LIU BIN, Dai J, Shuai L, Yi D, Zhao Y, **Dai Z**. Single-cell Transcriptomes Identify Unique Endothelial Subpopulation (FABP4+ TMEM100-) With Lipid Metabolism Dysfunction in Pulmonary Arterial Hypertension. *Circulation*. 2020;142:A14880–A14880.
15. Dai J, **Dai Z**, Zhu M, Dong D, Zhao Y. EglN1 Deficiency Induce Alveolar Macrophages Accumulation and Polarize Lung Interstitial Macrophages to a Pro-pah State Mediating Obliterative Pulmonary Vascular Remodeling and Severe PAH. *Circulation*. 2020;142:A15227–A15227.

16. Liu B, Yi D, Pan J, Ramirez K, Fallon M, **Dai Z**. Fatty Acid-binding Proteins Promote Pulmonary Arterial Hypertension Via Upregulation Of Endothelial Glycolysis. *Circ Res*. 2022;131:AP3009–AP3009.
17. Evans CE, Peng Y, **Dai Z**, Zhang X, Zhao Y. Rabeprazole Enhances Vascular Repair And Resolution Of Sepsis-induced Lung Injury Through HIF1/FoxM1 Signaling. *Arterioscler Thromb Vasc Biol*. 2022;42:A122–A122.
18. Liu B, Li S, Yi D, Pan J, Ramirez K, Vanderpool R, Rafikov R, Gu H, Fallon M, **Dai Z**. Fatty Acid-Binding Proteins Promote Pulmonary Arterial Hypertension via Upregulation of Endothelial Glycolysis. *Circulation*. 2022;146:A12025–A12025.
19. Yi D, Liu B, Ramirez K, Li R, Pan J, Lee WH, Kala M, Fallon MB, **Dai Z**. Sox17 Deficiency Induces Pulmonary Hypertension Through E2F1/BRD4 Signaling. *Circulation*. 2022;146:A13304–A13304.
20. James J, Valuparampil Varghese M, Niihori M, Yi D, **Dai Z**, Rafikova O, Rafikov R. Single-Cell Sequencing in the Genetic Model of Mitochondrial Dysfunction Reveals Heterogeneity of Lung Endothelial Cells and Novel Targets in Pulmonary Hypertension. *FASEB J*. 2022;36;S1, R5292

CURRENT TRAINEE

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|-----------------------|--|
| Sep 2019-present | Dan Yi, Postdoc research associate |
| Sep 2019-present | Bin Liu, Postdoc research associate |
| June 2021-present | Jiakai Pan, Midwest University DO school student |
| Jan 2022-present | Karina Ramirez, Research Specialist |
| July 2022-present | Xiaomei Xia, Research Specialist |
| August 2022-present | Syed Hamid, UA Clinical Research program master student |
| December 2022-present | Ryan Dong, Arizona State University undergraduate student |
| Jan 2023-present | Anton Gao, Arizona State University undergraduate student |
| June 2023-present | David Guo, high school student |
| June 2023-present | Ebani Acedo, Arizona State University undergraduate student |
| August 2023-present | Hanqiu Zhao, UA Clinical Translational Science (CTS) program PhD student |

PAST TRAINEE

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| July 2019-March 2020 | Shuai Li, Visiting Scholar, Guangdong Medical University, China |
| Jan 2020-July 2020 | Mengyao Zhao, Arizona State University master student |
| Nov 2020-Sep 2021 | Rebecca Li, UCLA undergraduate student |
| July 2022-Dec 2022 | Ethan Ngo, Arizona State University undergraduate student |
| May 2023-June 2023 | Gabriella Li, high school student |
| August 2022-June 2023 | Amy Cai, Arizona State University undergraduate student |
| May 2023-July 2023 | Rogelio Mora, UA Flinn Summer Interns |

TEACHING AND MENTORING

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|--------------|--|
| 2010-2011 | Teaching Assistant, Biochemistry Laboratory Courses, Sun Yat-sen University, Zhongshan School of Medicine, Guangzhou, China |
| 2015-2016 | Mentoring high school students: David Zhao, Stella Zhao (UIC) |
| 2018 | Lecturer, Transcriptional regulation of vascular cells plasticity in health and disease, Endothelial and smooth muscle cells, Rush University, Chicago, IL |
| 2015-2019 | Mentoring PhD student: Maggie, M Zhu (UIC and Northwestern University) |
| 2019-2020 | Dissertation committee: Gabriel Kelly (UA) |
| 2020-2021 | Co-mentoring Emma Simpson, Department of Internal Medicine, UA-COMP |
| 2020-2022 | Graduate student mentoring committee: Reem Faraj (UA) |
| 2022-present | Mentoring graduate student: Syed Hamid, UA Clinical Research program |

INVITED LECTURES

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| June 17, 2016 | Invited Speaker, Pulmonary Hypertension Association's International Conference and Scientific Sessions, Dallas, TX |
| May 23, 2018 | Invited Speaker, Mini Symposium, American Thoracic Society International Conference, San Diego, CA |

June 12, 2018 Invited Speaker, Augusta University, Augusta, GA
 June 28, 2018 Invited Speaker, Pulmonary Hypertension Association's International Conference and Scientific Sessions, Orlando, FL
 July 6, 2018 Invited Speaker, Science in the Desert Seminar Series, University of Arizona, Phoenix, AZ
 August 8, 2018 Invited Speaker, University of Florida, Gainesville, FL
 August 23, 2018 Invited Speaker, Wayne State University, Detroit, MI
 October 17, 2018 Invited oral presentation, NAVBO Vascular Biology conference, Newport, RI
 November 09, 2018 Invited oral presentation, The XIII USA-China Cardiovascular Symposium, Chicago, IL
 September 07, 2019 Invited oral presentation, Grover Conference, Sedalia, CO
 October 27, 2019 Invited panel discussion, NAVBO Vascular Biology Conference, Monterey, CA
 February 27, 2020 Invited Speaker, University of Arizona, Department of Cellular Molecular Medicine, Tucson, AZ
 May 12, 2020 Invited Speaker, Mini Symposium, North American Vascular Biology Organization, Webinar
 June 5, 2020 Invited Speaker, Chinese American Lung Association Friday Happy Hour, Webinar
 June 25, 2020 Invited Speaker, Phoenix Children's Hospital, Phoenix, AZ
 August 7, 2020 Invited Speaker, Department of Pharmacology and Toxicology, Augusta University, online seminar
 November 13, 2020 Oral abstract presentation, American Heart Association (AHA) Scientific Section 2020, online
 November 15, 2020 Oral abstract presentation, American Heart Association (AHA) Scientific Section 2020, online
 January 13, 2021 Invited Speaker, University of Chicago Cardiology Research Seminar (online)
 May 14-19, 2021 ePoster presentation, American Thoracic Society International Conference 2021 (online)
 September 1, 2021 Invited Speaker, Academy of Cardiovascular Research Excellence (ACRE) and Chinese American Academy of Cardiology (CAAC) Joint Seminar Series (online)
 October 28, 2021 Oral presentation, North American Vascular Biology Organization Vascular Biology 2021 conference, online
 November 8, 2021 Oral presentation, Gordon Research Conference Lung Development, Injury and Repair, Waterville Valley, NH
 November 18, 2021 Invited Speaker, University Animal Care Seminar - Animal Models of Pulmonary Hypertension, University of Arizona, Tucson, AZ
 December 9, 2021 Oral presentation, ATS Fall Mini-Symposia Program "Translational Research in Pulmonary Hypertension", webinar
 April 18, 2022 Invited Speaker, Southern University of Science and Technology (China), Department of Pharmacology School of Medicine, webinar
 May 5, 2022 Invited Speaker, North American Vascular Biology Organization, webinar
 June 1, 2022 Invited Speaker, Cincinnati Children's Hospital Medical Center, Cincinnati, Oh
 June 30, 2022 Invited Speaker, 14th Changzheng Road National Pulmonary Circulation Conference, China, Webinar
 July 1, 2022 Invited Speaker, Shanghai Pulmonary Hospital Pulmonary Circulation Research Forum, Shanghai, China, Webinar
 August 17, 2022 Invited Speaker, Pulmonary Grand Rounds at Banner University Medical Center Phoenix (BUMCP)
 September 2, 2022 Invited Speaker, Department of Biochemistry and Molecular Biology, Oklahoma State University, Stillwater, OK, Webinar
 September 17, 2022 Invited Speaker, Pulmonary Hypertension Basic and Translational Symposium, Beijing, China, webinar
 September 21, 2022 Invited Speaker, Qianjiang International Cardiovascular Conference, Hangzhou, China, webinar
 October 16, 2022 Invited panelist, "Meet the PIs" session, IVBM 2022, Oakland, CA
 November 5, 2022 Invited talk, AHA 3CPR The Cournand and Comroe Early Career Investigator Prize finalist

- January 17, 2023 Oral presentation, Gordon Research Conference Vascular Cell Biology, Ventura, CA
- January 27, 2023 Invited talk, CardioPulmonary Vascular Biology COBRE, Providence VA Medical Center, Providence, RI
- March 3, 2023 Invited speaker, Lung Vascular Symposium 2023, University of Arizona College of Medicine-Phoenix, Phoenix, AZ
- May 13, 2023 Invited featured speaker, CAAC Symposium at Vascular Discovery 2023, Boston, MA
- June 9 and 10, 2023 Invited speaker, the 24th South China International Congress of Cardiology, Guangzhou, China
- June 21, 2023 Invited speaker, Department of Physiology and Biophysics at the University of Mississippi Medical Center (online)
- July 11, 2023 Invited speaker, Columbia Center for Human Development, Columbia University, New York, NY
- July 24, 2023 Invited speaker, Division of Pulmonary and Critical Care Medicine, Washington University in St. Louis, St. Louis, MO
- July 28, 2023 Invited speaker, Institute for Health Computing (IHC), University of Maryland School of Medicine, webinar
- September 20, 2023 Invited speaker, Department of Physiology and Cell Biology, Ohio State University, Columbus, Oh
- September 27, 2023 Invited speaker, Pittsburgh Heart, Lung, and Blood Vascular Medicine Institute, University of Pittsburgh School of Medicine, Pittsburgh, PA
- October 19, 2023 Invited speaker, ATS Grover Conference, Tabernash, CO
- October 26, 2023 Invited speaker, CVRC seminar series, University of Virginia, Charlottesville, VA