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2. **Home Address:** 16 Sherwood Lane, Barrington, RI 02806
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3. **Education:**

1984-88 Post-doctoral Fellow, Department of Physiology, University of Virginia,
Charlottesville, Virginia
1984 Ph.D. (Physiology), Department of Physiology, School of Medicine, Johns
Hopkins University, Baltimore, Maryland.
1980 M.Sc. (Physiology), School of Medicine, University of Ottawa, Ottawa, Ontario,
Canada
1978 B.Sc. (Physiology), University of Toronto, Toronto, Ontario, Canada

4. **Professional Appointments:**

2002-Present Professor of Medical Science, Department of Molecular Pharmacology,
Physiology and Biotechnology, Brown University, Providence, Rhode Island
1994-02 Associate Professor of Medical Science, Department of Molecular Pharmacology,
Physiology and Biotechnology, Brown University, Providence, Rhode Island
1988-94 Assistant Professor of Medical Science, Section of Physiology and Biophysics,
Division of Biology and Medicine, Brown University, Providence, Rhode Island
1987-88 Instructor, Department of Physiology, School of Medicine, University of Virginia,
Charlottesville, Virginia
1984-87 Post-Doctoral Fellow, Department of Physiology, School of Medicine, University
of Virginia, Charlottesville, Virginia (Dr. Richard A. Murphy)

5. **Publications:**

Journal Articles

1. Hai, C.M. Prestrain and Cholinergic receptor-dependent differential recruitment of
mechanosensitive energy loss and energy release elements in airway smooth muscle. J Appl.
Physiol., 2019 (Accepted for Publication)

2. Gu, Z., V. Fonseca, and C.M. Hai. Nicotinic acetylcholine receptor mediates nicotine-induced cytoskeletal remodeling and extracellular degradation by vascular smooth muscle cells. Vascular Pharmacol 58: 87-97, 2013
3. Kim, H.W., C.-M. Hai, and A.G. Greenburg. Chapter 38. Acellular hemoglobin-based oxygen carrier induced vasoactivity: a brief review of potential pharmacologic remedies. Kim, H.W. and A.G. Greenburg. Hemoglobin-Based Oxygen Carriers as Red Cell Substitutes. Springer-Verlag Berlin Heidelberg 2013
4. Hai, C.-M. Systems biology of HBOC-induced vasoconstriction. Curr. Drug. Discovery Technol. 9: 204-211, 2012
5. Hai, C.-M. Editorial. Novel technologies for developing clinically useful hemoglobin-based oxygen carriers. Curr Drug Discovery Technol. 9: 157, 2012
6. Wu, Z., A.W. Aron, E.E. Macksoud, R.V. Iozzo, C.-M. Hai, and B.E. Lechner. Uterine dysfunction in biglycan and decorin deficient mice leads to dystocia during parturition. PLoS ONE 7: e29627, 2012
7. Kim, H.R., K. Liu, T.J. Roberts, and C.-M. Hai. Length-dependent modulation of cytoskeletal remodeling and mechanical energetics in airway smooth muscle. Am. J. Respir. Cell Mol. Biol. 44: 888-897, 2011
8. Kim, H.-W., C.-M. Hai, and G. Greenburg. Relative roles of heme-irons and globin-thiols in the genesis of acellular hemoglobin mediated vasoconstriction. Artificial Cells Blood Substit Immobil Biotechnol 38: 5-12, 2010
9. Fonseca, V., J. Avizinis, P. Moon-Massat, D. Freilich, H.W. Kim, and C.M. Hai. Differential sensitivities of pulmonary and coronary arteries to hemoglobin-based oxygen carriers and nitrovasodilators: Study in a bovine ex vivo model of vascular strips. Vasc. Pharmacol. 52: 215-223, 2010
10. Kim, H.-W., C.-M. Hai, and G. Greenburg. Acellular hemoglobin-based oxygen carrier induced vasoconstriction and hypertension: a brief review of potential pharmacologic remedies. Artificial Blood 17: 147-159, 2009
11. Hai, C.-M. Mechanistic systems biology of inflammatory gene expression in airway smooth muscle as tool for asthma drug development. Curr. Drug. Discovery Technol. 5: 279-288, 2008
12. Hai, C.-M. Caldesmon as a therapeutic target for proliferative vascular diseases. Mini-Reviews in Medicinal Chemistry 8: 1209-1213, 2008
13. Gu, Z., K.D. J. Kordowska, G.L. Williams, C.-L. Wang, and C.-M. Hai. Erk1/2 MAPK and caldesmon differentially regulate podosome dynamics in A7r5 vascular smooth muscle cells. Exp. Cell Res. 313: 849-866, 2007
14. Hai, C.-M. Airway smooth muscle cells as therapeutic target of airway inflammation. Curr. Medicinal Chem. 14: 67-76, 2007
15. Kanefsky, J., M. Lenburg, and C.-M. Hai. Cholinergic receptor and cyclic stretch-mediated inflammatory gene expression in intact ASM. Am. J. Respir. Cell Mol. Biol., 34: 417-425, 2006
16. Hai, C.-M. and Z. Gu. Caldesmon phosphorylation in actin cytoskeletal remodeling. Eur. J. Cell Biol., 85: 305-309, 2006.
17. Kim, H.R. and C.-M. Hai. Mechanisms of mechanical strain memory in airway smooth muscle. Can. J. Physiol. Pharmacol. 83: 811-815, 2005
18. Hai, C.-M. and H.R. Kim. An expanded latch-bridge model of protein kinase C-mediated smooth muscle contraction. J. Appl. Physiol. 98:1356-1365, 2005

19. Wahl, M., T.J. Eddinger, and C.-M. Hai. Sinusoidal length oscillation and receptor-mediated mRNA expression of myosin isoforms and α -SM actin in airway smooth muscle. Am. J. Physiol. Cell Physiol. 287: C1697-C1708, 2004
20. Kim, H.R., M. Hoque, and C.-M. Hai. Cholinergic receptor-mediated differential cytoskeletal recruitment of actin- and integrin-binding proteins in intact airway smooth muscle. Am. J. Physiol.: Cell Physiol. 287:C1375-C1383, 2004
21. Lu, Q., E.O. Harrington, C.-M. Hai, J. Newton, M. Garber, T. Hirase, and S. Rounds. Isoprenylcysteine carboxyl methyltransferase modulates endothelial monolayer permeability. Involvement of RhoA carboxyl methylation. Circ. Res., 94: 306-315, 2004.
22. Bai, T.R., J.H. Bates, V. Brusasco, B. Camoretti-Mercado, P. Chitano, L.H. Deng, M. Dowell, B. Fabry, L.E. Ford, J.J. Fredberg, W.T. Gerthoffer, S.H. Gilbert, S.J. Gunst, C.-M. Hai, et al. On the terminology for describing the length-force relationship and its changes in airway smooth muscle. J. Appl. Physiol. 97: 2029-2034, 2004
23. Silberstein, J. and C.-M. Hai. Dynamics of length-force relations in airway smooth muscle. Respiratory Physiology & Neurobiology 132: 205-221, 2002
24. Hai, C.-M., P. Hahne, E.O. Harrington, and M. Gimona. Conventional PKC mediates phorbol dibutyrate-induced cytoskeletal remodeling in A7r5 smooth muscle cells. Experimental Cell Research, 280:64-74, 2002.
25. Hai, C.-M., G. Sadowska, L. Francois, and B.S. Stonestreet. Maternal Dexamethasone Treatment Modulates Myosin Isoform Expression and Contractile Dynamics in Fetal Carotid Arteries. Am. J. Physiol. Heart Circ. Physiol. 283: H1743-H1749, 2002.
26. Hai, C.-M.. Mechanosensitive modulation of receptor-mediated crossbridge activation and cytoskeletal organization in airway smooth muscle. Arch. Pharmacol Res. 23: 535-547, 2000
27. An, S.S. and C.-M. Hai. Mechanical signals and mechanosensitive modulation of intracellular $[Ca^{2+}]$ in smooth muscle. Am. J. Physiol. Cell Physiol. 279: C1375-C1384, 2000
28. Chan, W.L., J. Silberstein, and C.-M. Hai. Mechanical strain memory in airway smooth muscle. Am. J. Physiol. Cell Physiol. 278: C895-C904., 2000
29. An, S.S. and C.-M. Hai. Mechanical Strain Modulates Maximal Phosphatidylinositol Turnover in Airway Smooth Muscle. Am. J. Physiol 277 (Lung Cell. Mol. Physiol. 21): L968-L974, 1999
30. Wong, C.T. and C.-M. Hai. Mucosal modulation of agonist-induced myosin phosphorylation and contraction in airway smooth muscle. Respiration Physiology 115: 103-111, 1999
31. Youn, T., S.A. Kim, and C.-M. Hai. Length-dependent modulation of smooth muscle activation: effects of agonist, cytochalasin, and temperature. Am. J. Physiol. 274 (Cell Physiol. 43): C1601-1607, 1998
32. Tseng, S., R. Kim, T. Kim, K.G. Morgan, and C.-M. Hai. F-actin disruption attenuates agonist-induced $[Ca^{2+}]$, myosin phosphorylation, and force in smooth muscle. Am. J. Physiol. 272 (Cell Physiol. 41): C1960-C1967, 1997
33. Szeto, B. and C.-M. Hai. Length-dependent modulation of myosin phosphorylation and contractile force in coronary arterial smooth muscle. Arch. Biochem. Biophys. 329: 241-248, 1996
34. Yoo, J., R. Ellis, K.G. Morgan, and C.-M. Hai. Mechanosensitive modulation of myosin phosphorylation and phosphatidylinositol turnover in smooth muscle. Am. J. Physiol. 267 (Cell Physiol. 36): C1657-C1665, 1994

35. Hai, C.-M. and C.B.B. Ma. Fluoroaluminate- and GTP γ S-induced stress, shortening, and myosin phosphorylation in airway smooth muscle. Am. J. Physiol. 265 (Lung Cell Mol. Physiol. 9): L73-L79, 1993
36. Hai, C.-M., C. Watson, S.J. Wallach, V. Reyes, E. Kim, and J. Xu. Effects of substrate and inhibition of oxidative metabolism on contraction and myosin phosphorylation in ASM. Am. J. Physiol. 264 (Lung Cell Mol. Physiol. 8): L553-L559, 1993
37. Hai, C.-M. and N. Karlin. Time-dependent uncoupling between myosin phosphorylation and contractile force induced by Ca²⁺-depletion in smooth muscle. Arch. Biochem. Biophys. 301: 299-304, 1993
38. Hai, C.-M. and R.A. Murphy. Adenosine 5'-triphosphate consumption by smooth muscle as predicted by the coupled four-state crossbridge model. Biophys. J. 61: 530-541, 1992
39. Hai, C.-M. and B. Szeto. Agonist-induced myosin phosphorylation during unloaded shortening in airway smooth muscle. Am. J. Physiol. 262 (Lung Cell Mol. Physiol. 6): L53-L62, 1992
40. Hai, C.-M. Length-dependent myosin phosphorylation and contraction of arterial smooth muscle. Pflugers Arch. 418: 564-571, 1991
41. Hai, C.-M., C.M. Rembold, and R.A. Murphy. Can different four-state crossbridge models explain latch and the energetics of vascular smooth muscle? Adv. Exp. Med. 304: 159-170, 1991
42. Hai, C.-M. and R.A. Murphy. Crossbridge phosphorylation and regulation of vascular smooth muscle contraction. Am. J. Hypertension 3: 235S-237S, 1990
43. Murphy, R.A., C.M. Rembold, and C.-M. Hai. Contraction in smooth muscle: what is latch? Progr. Clin. Biol. Res. 327: 39-50, 1990
44. Hai, C.-M. and R.A. Murphy. Ca²⁺, crossbridge phosphorylation, and contraction. Annual Review of Physiology 51: 285-298, 1989
45. Hai, C.-M. and R.D. Phair. Forskolin and caffeine induce Ca²⁺ release from intracellular stores in rabbit aorta. Am. J. Physiol. 257 (Cell Physiol. 26): C413-C418, 1989
46. Hai, C.-M. and R.A. Murphy. Crossbridge dephosphorylation and relaxation of vascular smooth muscle. Am. J. Physiol. 256 (Cell Physiol. 25): C282-C287, 1989
47. Ratz, P.H., C.-M. Hai, and R.A. Murphy. Dependence of stress on crossbridge phosphorylation in vascular smooth muscle. Am. J. Physiol. 256 (Cell Physiol. 25): C96-C100, 1989
48. Hai, C.-M. and R.A. Murphy. Crossbridge phosphorylation and the energetics of contraction in the swine carotid media. Progr. Clin. Biol. Res. 315: 253-264, 1989
49. Hai, C.-M. and R.A. Murphy. Sr²⁺ activates crossbridge phosphorylation and the latch state in smooth muscle. Am. J. Physiol. 255 (Cell Physiol. 24): C401-C407, 1988
50. Hai, C.-M. and R.A. Murphy. Regulation of shortening velocity by crossbridge phosphorylation in smooth muscle. Am. J. Physiol. 255 (Cell Physiol. 24): C86-C94, 1988
51. Hai, C.-M. and R.A. Murphy. Crossbridge phosphorylation and regulation of the latch state in smooth muscle. Am. J. Physiol. 254 (Cell Physiol. 23): C99-C106, 1988
52. Hai, C.-M. and R.A. Murphy. Ba²⁺ induces contraction in swine carotid artery by mobilizing intracellular Ca²⁺. Am. J. Physiol. 252 (Cell Physiol. 21): C378-C384, 1987
53. Chatterjee, M., C.-M. Hai, and R.A. Murphy. Dependence of stress and velocity on Ca²⁺ and myosin phosphorylation in the skinned swine carotid media. Progr. Clin. Biol. Res. 245: 399-410, 1987

54. Murphy, R.A., P.H. Ratz, and C.-M. Hai. Determinants of the latch state in vascular smooth muscle. Progr. Clin. Biol. Res. 245: 411-413, 1987
55. Hai, C.-M. and R.D. Phair. Kinetic identification of an intracellular calcium compartment sensitive to phosphate and dinitrophenol in intact isolated rabbit aorta. Circ. Res. 59: 85-92, 1986
56. Phair, R.D. and C.-M. Hai. Resolution of intracellular calcium metabolism in intact segments of rabbit aorta. Circ. Res. 59: 74-84, 1986
57. Rembold, C.M., C.-M. Hai, and R.A. Murphy. Myoplasmic Ca^{2+} and activation of vascular smooth muscle. Adv. Protein Phosphatases 2: 89-101, 1985
58. Korecky, B., C.-M. Hai, and K. Rakusan. Functional capillary density in normal and transplanted rat hearts. Can. J. Physiol. Pharmacol. 60: 23-32, 1982.

Books and Book Chapters

1. Hai, Chi-Ming. Fundamental Concepts in Physiology: An Illustrative Study (Revised First Edition). Cognella Academic Publishing, 2019. ISBN 978-1-5165-2809-7.
2. Hai, Chi-Ming (Editor). Vascular Smooth Muscle. Structure and Function in Health and Disease. World Scientific Publishing, 2017. ISBN 978-981-3144-05-7.
3. Hai, Chi-Ming. Vascular Smooth Muscle Cell Proliferation and Invasion in Atherosclerosis. In: Hai, Chi-Ming, Ed. Vascular Smooth Muscle. Structure and Function in Health and Disease. World Scientific Publishing, 2017.
4. Hai, Chi-Ming. Introduction. In: Hai, Chi-Ming, Ed. Vascular Smooth Muscle. Structure and Function in Health and Disease. World Scientific Publishing, 2017
5. Hai, Chi-Ming. Fundamental Concepts in Physiology: An Illustrative Study (First Edition). Cognella Academic Publishing, 2016. ISBN 978-1-6487-412-0
6. Hai, Chi-Ming. Fundamental Concepts in Physiology: An Illustrative Study (Preliminary Edition). Cognella Academic Publishing, 2015. ISBN 978-1-60927-381-1

Abstracts

1. Hai, C.-M. Vicoelastic tuning in airway smooth muscle. Mechanobiology: mechanisms of force sensation and transduction that control cell behavior in health & disease. Amsterdam, The Netherlands, March 22-24, 2016
2. Hai, C.-M. Nicotine induces invadosome formation and cell invasion in A7r5 and primary human vascular smooth muscle cells. The American Society for Cell Biology 53rd Annual Meeting, New Orleans, Louisiana, 2013
3. Hai, C.-M. Cigarette smoke and nicotine-induced remodeling of actin cytoskeleton and extracellular matrix by vascular smooth muscle cells. Biophysical Society 56th Annual Meeting, San Diego, California, 2012
4. Hai, C.-M. Cigarette smoke and nicotine-induced remodeling of podosomes and extracellular matrix by vascular smooth muscle cells. Podosomes, Invadopodia and Focal Adhesions in Physiology and Pathology, Madrid, Spain, 2011
5. Moon-Massat, P., R. Pittman, J. Kerby, D. Duncker, Rick Light, C.-M. Hai, D. Freilich, and R. McCarron. Point of diminishing returns: contribution of tetramer content and molecular weight on vasoactivity of HBOC-201. XIII International Symposium on Blood Substitutes and Oxygen Therapeutics, Boston, MA, USA, 2011

6. Hai, C.-M. and H.W. Kim. Vessel type-specific HBOC-mediated contractions and their attenuation by nitrovasodilators. XII International Symposium on Blood Substitutes, Parma, Italy, 2009
7. Hai, C.-M. and Z. Gu. Experimental study and mathematical modeling of Erk1/2MAPK and caldesmon-dependent regulation of podosome size and lifetime in A7r5 vascular smooth muscle cells. FEBS Workshop on Invadopodia, Podosomes and Focal Adhesions in tissue Invasion, Ortona, Italy, 2007
8. Gu, Z. and C.-M. Hai. Erk1/2-Dependent Caldesmon Phosphorylation Regulates Podosome Turnover in A7r5 Smooth Muscle Cells. Am. Soc. Cell Biol. Meeting, San Francisco, CA, 2005
9. Kim, HR and C.-M. Hai. Mechanosensitive modulation of cholinergic receptor-mediated cytoskeletal recruitment in airway smooth muscle. Experimental Biology Meeting, San Diego, CA, 2005
10. Kim, HR, M. Hoque, and C.-M. Hai. Erk1/2 MAPK mediates muscarinic receptor-induced cytoskeletal remodeling in airway smooth muscle. Experimental Biology Meeting, Washington, DC, 2004
11. Hai, C.-M. and H.R. Kim. Carbachol-induced cytoskeletal and cytosolic distributions of alpha-smooth muscle actin, vinculin, and metavinculin in airway smooth muscle. Biophys. J. 84: 316a, 2003
12. Hai, C.-M. Tyrosine phosphorylation, cytoskeletal recruitment of vinculin and airway smooth muscle contraction. European Life Sciences Organization (ELSO) 2002 Meeting, Nice, France
13. Hai, C.-M. and M. Gimona. Regulation of cytoskeleton and focal adhesions by kinases in A7r5 smooth muscle cells. Biophys. J. 82: 419a, 2002
14. Hai, C.-M. and S. Weiss. Receptor agonist and mechanical strain modulate the association of metavinculin and vinculin with the actin cytoskeleton in differentiated airway smooth muscle. Biophys. J. 80: 390a, 2001
15. Hai, C.-M., N. Bansal, and J. Zander. Mechanical strain-dependent cytoskeletal recruitment of vinculin in airway smooth muscle. Am. J. Resp. Crit. Care Med. 161: A472, 2000
16. Hai, C.-M. and S.S. An. The role of sarcoplasmic reticulum during shortening-induced attenuation of $[Ca^{2+}]_i$ and myosin light chain phosphorylation in airway smooth muscle. Biophys. J. 78: 112A, 2000
17. Rothstein, R.W. and C.-M. Hai. PH-dependent nitric oxide (NO) release by acetylcholine (ACH) requires L-arginine (L-ARG) and is attenuated by L-ornithine (L-ORN), an inhibitor of L-ARG transport, in bovine newborn pulmonary artery (PA). Pediatric Res. 47: 2211, 2000
18. Hai, C.-M., N. Bansal, and S. Tan. Strain and extracellular matrix-dependent modulation of cytoskeleton-associated vinculin in differentiated airway smooth muscle cells. Mol. Biol. Cell 10: 132a, 1999
19. An, S.S. and C.-M. Hai. Modulatory roles of mechanical strain on receptor-mediated intracellular $[Ca^{2+}]_i$ in airway smooth muscle. Biophys. J. 76: A285, 1999
20. Chan, W.-L. and C.-M. Hai. Mechanical strain-induced immediate and irreversible attenuation of receptor-mediated force and myosin phosphorylation in airway smooth muscle. Biophys. J. 76: A285, 1999

21. Hai, C.-M. and W.L. Chan. Mechanical strain-induced attenuation of receptor-mediated force and myosin phosphorylation in airway smooth muscle. Am. J. Respir. Crit. Care Med. 159: A470, 1999
22. Rothstein, R.W. and C.-M. Hai. Acetylcholine (ACH) stimulated release of endothelial nitric oxide (EDNO), prostaglandins (EDPG) but not hyperpolarizing factor (EDHF) is dependent on pH in bovine newborn pulmonary vascular smooth muscle (PVSM). Pediatric Res. 45: 1872, 1999
23. Wong, C.-N., C.-M. Hai, and J.J. Fredberg. Perturbed equilibrium of myosin binding in airway smooth muscle: myosin phosphorylation during imposed length fluctuations. Am. J. Respir. Crit. Care Med. 159: A469, 1999
24. An, S. and C.-M. Hai. Mechanical stretch modulates maximum phospholipase C activity mediated by muscarinic receptor activation in airway smooth muscle. Biophys. J. 74: A151, 1998
25. Hai, C.-M., T. Youn, and S.A. Kim. Mechanical and cytoskeletal modulation of myosin phosphorylation and contraction of airway smooth muscle to muscarinic receptor activation. Am. J. Respir. Crit. Care Med. 157: A747, 1998
26. Rothstein, R.W. and C.-M. Hai. Receptor-mediated nitric oxide (NO) release is dependent on pH in bovine newborn pulmonary vascular smooth muscle (PVSM). Pediatric Res. 43: 296A, 1998
27. Simma, V. and C.-M. Hai. Length-dependent modulation of vinculin and α -actin in differentiated airway smooth muscle cells. Mol. Biol. Cell 9: 37a, 1998
28. An, S. and C.-M. Hai. Linear dependence of muscarinic receptor-mediated phosphatidylinositol turnover on muscle length and its pharmacodynamics in airway smooth muscle. FASEB J. 11: A324, 1997
29. Cadet, E.R. and C.-M. Hai. Length-dependent modulation of focal adhesions in differentiated smooth muscles. Mol. Biol. Cell 8: 60a, 1997
30. Hai, C.-M. and T. Youn. Pharmacodynamics of length-dependent modulation of muscarinic receptor-mediated myosin light chain phosphorylation and contraction in airway smooth muscle. FASEB J. 11: A59, 1997
31. Rothstein, R.W. and C.-M. Hai. Endothelium derived nitric oxide (ENDO) decreases pulmonary vascular smooth muscle (PVSM) tone independent of pH in bovine newborns. Pediatric Res. 41: 266A, 1997
32. Wong, C.T. and C.-M. Hai. Mucosal modulation of myosin phosphorylation and contraction in airway smooth muscle. Biophys. J. 70: A46, 1996
33. Kowalski, B., R. Kim, and C.-M. Hai. Actin filaments modulate cholinergic receptor-mediated intracellular $[Ca^{2+}]$, myosin phosphorylation, and contraction in airway smooth muscle. Biophys. J. 68: A278, 1995
34. Rothstein, R.W., W. Oh, and C.-M. Hai. ATP-dependent potassium channels (K_{ATPCh}) modulate normoxic pulmonary arterial basal tone independent of EDRF release in bovine newborn subjects. Pediatric Res. 37: 348A, 1995
35. Kwon, S.C., C.-M. Hai, and R.A. Murphy. Control of crossbridge cycling by Ca^{++} -dependent phosphorylation in fast, phasic smooth muscle. J. Vascular Res. 31: 300-301, 1994
36. Rothstein, R.W., W. Oh, and C.-M. Hai. EDRF release does not account for the difference in hypoxic pulmonary vasoconstriction in bovine newborn and adult subjects. Pediatric Res. 35: 351A, 1994

37. Szeto, B. and C.-M. Hai. Mechanosensitive modulation of agonist-induced myosin light chain phosphorylation in bovine coronary arteries. Biophys. J. 66: A170, 1994
38. Ellis, R.E. and C.-M. Hai. Shortening-induced inactivation of phosphatidylinositol (PI) turnover and myosin phosphorylation in smooth muscle. Biophys. J. 64: A260, 1993
39. Ma, C.B.B. and C.-M. Hai. Shortening-induced inactivation of fluoroaluminate-and GTP γ S-mediated contraction and myosin phosphorylation in smooth muscle. Biophys. J. 64: A260, 1993
40. Rothstein, R.W., C.-M. Hai, and W. Oh. Potassium channel activation during hypoxia decreases pulmonary arterial isometric force in bovine newborn and adult subjects. Pediatric Res. 33: 343A, 1993
41. Hai, C.-M. and N. Karlin. Ca²⁺-depletion and dissociation between isometric stress and myosin phosphorylation in airway smooth muscle. Biophys. J. 61: A162, 1992
42. Rothstein, R.W., C.-M. Hai, and W. Oh. Response of pulmonary arterial muscle tension to hypoxia: the role of potassium channels in bovine newborn and adult subjects. Pediatric Res. 31: 238A, 1992
43. Hai, C.-M. and B. Szeto. Agonist-induced myosin phosphorylation during unloaded shortening and isometric contraction in airway smooth muscle. Biophys. J. 59: 425a, 1991
44. Hai, C.-M. Length dependence of myosin phosphorylation transients in the swine carotid media. Biophys. J. 57: 155a, 1990
45. Hai, C.-M. and R.A. Murphy. ATP consumption by crossbridge phosphorylation and cycling in the swine carotid media. Biophys. J. 55: 73a, 1989
46. Hai, C.-M. and R.A. Murphy. Regulation of shortening velocity by crossbridge phosphorylation in smooth muscle. Biophys. J. 53: 188a, 1988
47. Hai, C.-M. and R.A. Murphy. Crossbridge phosphorylation may be necessary and sufficient to regulate contraction in smooth muscle: a model of crossbridge kinetics. Biophys. J. 51: 338a, 1987
48. Hai, C.-M. and R.A. Murphy. Sr²⁺ substitutes for Ca²⁺ in the activation and maintenance of the latch state in swine carotid media. Biophys. J. 51: 339a, 1987
49. Hai, C.-M. and R.A. Murphy. Ba²⁺ induces stress development in swine carotid artery by mobilizing intracellular Ca²⁺. Biophys. J. 49: 461a, 1986
50. Hai, C.-M. and R.D. Phair. Release of different aortic calcium stores by forskolin and caffeine. Fed. Proc. 43: 427, 1984
51. Hai, C.-M. and R.D. Phair. Kinetic identification of a mitochondrial calcium compartment in rabbit aorta. Fed. Proc. 42: 315, 1983
52. Phair, R.D., D.P. Dempsher, and C.-M. Hai. Mechanistic and tracer kinetic models of calcium handling in arterial smooth muscle. Fed. Proc. 41: 1630, 1982

Invited Presentations

- 2013 Nicotine Drives Cell Invasion in Vascular Smooth Muscle Cells. American Society for Cell Biology Youtube Video 2013: <http://www.youtube.com/watch?v=1bdiQ1SEe0s>
- 2013 Going up in steam. Press Release by American Society for Cell Biology 53rd Annual Meeting, New Orleans, Louisiana, 2013
- 2013 E-cigarettes, facing ban, still figuring out what they want to be. Interview Report by The Daily Beast, December 19, 2013

- 2013 Nicotine in e-cigs, tobacco linked to heart disease. Interview Report by CNN Health, December 16, 2013
- 2013 Nicotine drives cell invasion that contributes to plaque formation in coronary arteries. Interview Report by ScienceNewsline Medicine, December 16, 2013
- 2013 A new warning about e-cigarettes and heart attack risk. HealthlineNews, December 15, 2013
- 2012 Invade and Conquer: A Role for Nicotine in Promoting Heart and Blood Vessel Disease. Press Release as Highlight from the Biophysical Society 56th Annual Meeting, San Diego, California
- 2012 Nicotine Itself May Threaten Cardiovascular Health. Interview Report by The Brown Daily Herald, Brown University, Providence, Rhode Island on March 9, 2012
- 2009 Chair's Introductory Remark. "Focal Adhesion Signalling I" session. Invadopodia, Podosomes and Focal Adhesion Meeting, Hyeres, France
- 2009 Speaker. Vessel type-specific HBOC-mediated contractions and their attenuation by nitrovasodilators. XII International Symposium on Blood Substitutes, Parma, Italy
- 2009 Seminar. Function of Cytoskeletal Remodeling in Airway Smooth Muscle Mechanics. Pulmonary Research Seminar, Rhode Island Hospital, Providence, Rhode Island
- 2008 Speaker. HBOC Prototypes with and without NO Donors in a Vascular Ring Model. Pre-clinical HBOC Meeting, Naval Medical Research Center, Silver Spring, Maryland
- 2007 Seminar. Erk1/2 MAPK and Caldesmon-Dependent Regulation of Podosome Dynamics in Vascular Smooth Muscle Cells. Ecole Normale Supérieure de Lyon. Laboratoire de Biologie et Virologie. Lyon, France.
- 2007 Speaker. Experimental Study and Mathematical Modeling of Erk1/2 MAPK and Caldesmon-Dependent Regulation of Podosome Size and Lifetime in A7r5 Vascular Smooth Muscle Cells. FEBS Workshop. Invadopodia, Podosomes and Focal Adhesions in Tissue Invasion. Ortona, Italy.
- 2007 Seminar. Receptor-Mediated and Mechanosensitive Regulation of Contraction, Cytoskeletal Remodeling, and Gene Expression in Smooth Muscle. Multi-Lab Cardiovascular Research Data Club, Rhode Island Hospital, Providence, Rhode Island.
- 2006 Seminar. Cholinergic Receptor and Cyclic Stretch-Mediated Contractile and Inflammatory Gene Expression in Intact Airway Smooth Muscle. Department of Surgery, Rhode Island Hospital, Providence, Rhode Island.
- 2005 Invited Speaker, Cholinergic Receptor and Cyclic Strain-Mediated Gene Expression in Intact Airway Smooth Muscle. Smooth Muscle Workshop, McGill University, Montreal, Canada
- 2005 Co-chair and Invited Speaker. Caldesmon Modulates Podosome Formation and Turnover in Cultured Smooth Muscle Cells. Mechanisms of Cell Invasion: Podosomes, Invadopodia and Metalloproteinases Subgroup Meeting, American Society for Cell Biology, San Francisco, CA
- 2005 Invited Speaker. Spatial and Temporal Determinants of PKC-Mediated Podosome Formation in A7r5 Cells. Adhesion Meeting. Max Planck Institute of Biochemistry, Munich, Germany
- 2004 Chair and Invited Speaker. MAP Kinase Signaling and Podosome formation in A7r5 Vascular Smooth Muscle Cells. Subgroup Meeting "Podosomes: Cytoskeletal Regulation, Signaling, and Function", European Life Scientist Organization Meeting 2004, Nice, France,

- 2004 Invited Speaker. Cytoskeletal Basis of Mechanical Strain Memory. International Symposium: Models of Smooth Muscle Contraction. Hecla Island, Manitoba, Canada, 2004
- 2004 Invited Speaker. The Smooth Muscle Crossbridge Cycle, A Symposium in Honor of Richard A. Murphy. University of Virginia Medical School, Charlottesville, Virginia. "Modeling the Latch State in Smooth Muscle".
- 2004 Panel Discussant. Using PRS (Personal Response System), Teaching in the Digital Age. Faculty Showcase, Instructional Technology Group, Brown University.
- 2003 Seminar, Pulmonary Research Conference, Rhode Island Hospital, Providence, RI. "Cytoskeletal Remodeling in Vascular and Airway Smooth Muscle Cells".
- 2003 Seminar entitled "Receptor- and PKC-Mediated Cytoskeletal Remodeling in Smooth Muscle Cells". Boston Biomedical Research Institute, Watertown, MA.
- 2002 Institute of Molecular Biology, Austrian Academy of Sciences, Salzburg, Austria. "Mechanosensitive Modulation and Cytoskeletal Regulation in Smooth Muscle Cells".
- 2001 Featured Topic Presentation on Cell Signaling in airway smooth muscle, Experimental Biology 2001, Orlando, Florida. "Mechanosensitive modulation of signal transduction and cytoskeleton in airway smooth muscle".
- 2000 Plenary Lecture, The 49th Annual Convention of the Pharmaceutical Society of Korea & International Symposium, Seoul, Korea. "Mechanosensitive modulation of cytoskeleton and signal transduction in airway system".
- 2000 Seminar, Department of Physiology, College of Medicine, The Catholic University of Korea, Seoul, Korea. "Mechanosensitive modulation of cytoskeleton and signal transduction in airway smooth muscle".
- 2000 Seminar, Department of Pharmacology, School of Pharmacy, Chung An University, Seoul, Korea. "Mechanical strain memory in airway smooth muscle".
- 2000 Seminar, Pulmonary Research Group, Rhode Island Hospital, Providence, Rhode Island. "Mechanosensitive and cytoskeletal modulation of airway responsiveness".
- 1999 Seminar, Meakins-Christie Laboratories, McGill University, Montreal, Quebec, Canada. "Mechanosensitive modulation and mechanical strain memory in airway smooth muscle".
- 1998 Mini-Symposium Presentation on Biophysical Basis of Smooth Muscle Reactivity. American Thoracic Society International Conference, Chicago, Illinois, 1998. "Mechanical and cytoskeletal modulation of myosin phosphorylation and contraction of airway smooth muscle to muscarinic receptor activation".
- 1998 Review Lecture, Program of Paramedicine, Memorial Hospital of Rhode Island, Pawtucket, Rhode Island. "Review of Cardiovascular Physiology".
- 1997 Seminar, Department of Cellular and Molecular Physiology, School of Medicine, Yale University, New Haven, Connecticut. "Mechanical and cytoskeletal modulation of signal transduction in smooth muscle".
- 1997 Review Lecture, Program of Paramedicine, Memorial Hospital of Rhode Island, Pawtucket, Rhode Island. "Review of Cardiovascular Physiology".
- 1995 Seminar, John B. Pierce Laboratory, Yale University, New Haven, Connecticut. "Mechanosensitive modulation of airway contraction".
- 1995 Seminar, Pulmonary Research Conference, School of Medicine, Brown University, Providence, Rhode Island. "Modulation of airway smooth muscle contractility by mechanical state and cytoskeleton".

- 1995 Basic Science Conference Lecture, Department of Orthopaedics, Rhode Island Hospital, Providence, Rhode Island. “Structure, function, and physiology of muscle”.
- 1993 Seminar, Department of Biology, Marquette University, Milwaukee, Wisconsin. “Mechanisms of shortening-induced inactivation in smooth muscle”.
- 1993 Seminar, Department of Physiology, University of Virginia, Charlottesville, Virginia. “Mechanism of shortening-induced inactivation in smooth muscle”.
- 1993 Seminar, Pulmonary Research Conference, Rhode Island Hospital, Providence, Rhode Island “Shortening-induced inactivation of G-protein-mediated signal transduction and contraction in airway smooth muscle”.
- 1992 Seminar, Division of Cardiology, Beth Israel Hospital, Harvard Medical School, Boston, Massachusetts. “Shortening-induced inactivation of smooth muscle contraction and myosin phosphorylation”.
- 1992 Seminar, Department of Biology, Morehouse College, Atlanta, Georgia. “Shortening-induced inactivation of signal transduction in smooth muscle”.
- 1992 Seminar, Division of Pulmonary Medicine, Veteran Administration Hospital, Providence, Rhode Island. “Shortening-induced inactivation of signal transduction in smooth muscle”.
- 1991 Seminar, Department of Zoology, University of Rhode Island, North Kingston, Rhode Island. “Stretch-sensitive and stretch-insensitive signal transduction mechanisms in smooth muscle”.
- 1990 Seminar, Division of Cardiology, Rhode Island Hospital, Providence, Rhode Island. “Length-dependence of myosin phosphorylation transients in vascular smooth muscle”.
- 1988 Seminar, Gastrointestinal Motility Research Group, Rhode Island Hospital, Providence, Rhode Island. “Crossbridge phosphorylation and the regulation of smooth muscle contraction”.
- 1988 Invited Presentation on International Seminar on Calcium Metabolism in Hypertension, Tokyo, Japan. “Crossbridge phosphorylation and the regulation of smooth muscle contraction”.

7. Research Grants:

Completed Grants

National Heart, Lung, and Blood Institute
Mechanosensitive Modulation of Airway Contraction (2R56HL052714-09A2)
2008-09 (no-cost extension to 2010)
Role: Principal Investigator

Naval Medical Research Center
HBOC-Mediated Vascular Smooth Muscle Reactivity and Inflammation (N00189-07-C-Z086)
2007-08 (no-cost extension to 2009)
Role: Principal Investigator

National Heart, Lung, and Blood Institute

Mechanosensitive Modulation of Airway Contraction (2R01HL052714-05A2)
2001-04 (no-cost extension to 2005)
Role: Principal Investigator

National Heart, Lung, and Blood Institute
Mechanosensitive Modulation of Airway Contraction (2R01HL052714-01)
1996-2000 (no-cost extension to 2001)
Role: Principal Investigator

American Heart Association, National Center
Phosphatidylinositol Turnover in Coronary Arteries
Grant-in-Aid Award (91008460)
1991-94
Role: Principal Investigator

National Science Foundation
Regulation of Smooth Muscle Contraction (8902438)
1989-1992
Role: Principal Investigator

Rhode Island Foundation
Regulation of Smooth Muscle Contraction
1989
Role: Principal Investigator

National Institutes of Health (BRSB Brown University Institutional Grant)
Start Up Fund
1988-89
Role: Principal Investigator

8. **Services:**

Services to Brown University (including academic advising)

Brown University Committees

2018-Present Chair, Advisory Committee on Corporate Responsibility in Investment Policies
2018-Present Member, Biology Curriculum Committee
2017-Present Member, Advisory Committee on Corporate Responsibility in Investment Policies
2016-18 Member, Human Resources Advisory Board
2015 Member, Undergraduate Teaching and Research Awards Committee (UTRA)
2013-14 Chair, Faculty Retirement Committee (FRC)
2011-14 Member, College Curriculum Council (CCC)
2011-14 Member, Faculty Retirement Committee (FRC)
2009-12 Member, Committee for Medical Faculty Appointment (CMFA)

2009-17	Mentor, ADVANCE Faculty Mentoring Program
2008-09	Member, Search Committee for Director of Pulmonary, Sleep & Critical Care Medicine
2008	Member, Biomedical Engineering Curriculum Committee
2007-10	Member, Brown University Community Council (BUCC)
2008	Member, Faculty Team for Biomedical Engineering ABET Accreditation
2007	Member, NEASC Accreditation Faculty Subcommittee
2007	Member, Working Group for Cardiovascular Medicine Concept Paper
2006-07	Chair, MPPB Faculty Search Committee
2006	Member, Committee on Diversity in Hiring
2005-06	Chair, Subcommittee on Diversity in Hiring
2005-Present	Chair, MPPB Departmental Curriculum Committee
2004	Chair, Subcommittee on Departmental Statement of Criteria and Standards, Department of Molecular Pharmacology, Physiology & Biotechnology
2004-05	Member, Year I and II Medical Curriculum Subcommittee
2003-04	Member, LCME Task Force for Brown Medical School Accreditation
2004-07	Member, Subcommittee on Diversity in Hiring
2003-05	Member, Assessment Committee on Ability III: Using Basic Science in the Practice of Medicine
2002-12	Member, Biology Curriculum Committee (BCC)
2000-05	Member, Medical Curriculum Committee (MDCC)
1999-01	Chair, Affirmative Action Monitoring Committee (AAMC)
1998-01	Member, Affirmative Action Monitoring Committee (AAMC)
2000-01	Member, Search Committee for the Director of the Center for the Study of Race and Ethnicity in America, Brown University
1999-00	Member, Ad Hoc Committee on Lecturers and Senior Lecturers
1998-03	Member, Basic Biology of Cells Assessment Committee for the MD2000 Curriculum, School of Medicine
1997-03	Member, MD2000 Assessment Committee, School of Medicine
1996-2014	Faculty Liaison to Sheridan Center for the Advancement of College Teaching
1994-01	Member, Departmental Seminar Committee
1995-98	Member, Biomedical Computing Committee, School of Medicine
1991-92	Member, Search Committee for Assistant Professor of Pediatric Gastroenterology
1989-90	Member, Search Committee for Assistant Professor of Cardiology

Academic Advising

2009-10	Freshman Advisor, Brown University
1999-2015	Sophomore Advisor, Brown University
2007	Leader, First-Year Class Seminar Program for Orientation
2006-07	First-Year Student Advisor, Brown University
1989-Present	Concentration Advisor, AB (Biology), Brown University
1996-Present	Concentration Advisor, ScB (Biophysics), Brown University
1993-05	Mentor, NIH Minority Training Program (PI; Dr. Sharon Rounds)
1993-05	Mentor, EIP (Early Identification Program) for Minority Students
1989-2014	Mentor, Graduate Program in Molecular Pharmacology and Physiology

1989-04 Mentor, Fellowship Program in Neonatology, Department of Pediatrics, Women and Infants Hospital, School of Medicine, Brown University
1994-96 Director, Graduate Program in Physiology, Brown University
1991-94 Member, Physiology and Neurobiology Graduate Program Committee

Service to Profession

Professional Committees

2016 Co-Chair, NHLBI Effects of Inhaled Nicotine Review Study Section
2010-15 Panel Member, NHLBI Systems Biology Review Panel
2011 Panel Member, NIAID Asthma and Allergic Diseases Cooperative Research Centers (AADCRC) U19 Review Panel
2009 Board Member, Invadosome Consortium
2008 Temporary Member, NIH Vascular Cell and Molecular Biology Study Section
2007 Panel Member, NIAID Asthma and Allergic Diseases Cooperative Research Centers (AADCRC) U19 Review Panel
2004-07 Regular Member, NIH Lung Cellular, Molecular, and Immunobiology Study Section
2003 Temporary Member, NIH Lung Biology and Pathology A Study Section
2000-03 Regular Member, American Heart Association NEA3 Study Section,
1995 Member, Organizing Committee for New England Smooth Muscle Society Meeting, Rhode Island Hospital, Providence, Rhode Island

Professional Memberships

Regular Member, American Society for Cell Biology
Board Member, Invadosome Consortium

Grant Reviews

Co-Chair, NHLBI Effects of Inhaled Nicotine Review Study Section Member,
Panel Member, NIAID Asthma and Allergic Diseases Cooperative Research Centers (AADCRC) U19 Review Panel
Panel Member, NHLBI Systems Biology Review Panel
Regular Member, NIH Lung Cellular, Molecular, and Immunobiology Study Section
Temporary Member, NIH Lung Biology and Pathology A Study Section
Temporary Member, NIH Vascular Cell and Molecular Biology Study Section
Ad-hoc Reviewer of NIH Minority Biomedical Research Support Program Applications
Regular Member, American Heart Association NEA3 Study Section
Grant Reviewer for National Science Foundation Research
Grant Reviewer for NSERC (Natural Sciences and Engineering Research Council of Canada)
Grant Reviewer for Canadian Institute of Health Research Grant Applications
Grant Reviewer for Health Research Council of New Zealand

Grant Reviewer for National Centre for the Replacement , Refinement & Reduction of Animals in Research (NC3Rs), United Kingdom

Grant Reviewer of Brown University Richard B. Salomon Faculty Research Award

Manuscript Reviews

American Journal of Physiology: Cell Physiology
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 Physiology: Renal Physiology
Acta Physiologica
American Journal of Respiratory Cellular and Molecular Biology
Anatomical Record
Archives of Biochemistry and Biophysics
ASME Journal of Engineering and Science in Medical Diagnostics and Therapy
Canadian Journal of Physiology and Pharmacology
Cardiovascular Research
Clinical Medicine Circulatory Respiratory Pulmonary Medicine
Current Drug Discovery Technologies
European Journal of Cell Biology
Experimental Cell Research
FASEB Journal
Inflammation Research
Journal of Applied Physiology
Journal of Biological Chemistry
Journal of Chemical Information and Modeling
Journal of Experimental Zoology
Journal of Microscopy
Journal of Muscle Research and Cell Motility
Journal of Theoretical Biology
Libertas Academica
Molecular and Cellular Biology
PLOS ONE
Proceedings of American Thoracic Society
Respiratory Physiology and Neurobiology
Respiratory Research
Scientific Reports
Theoretical Biology and Medical Modeling

National Board Examination Reviews

Review of National Board Step I Physiology Examinations

Tenure and Promotion Reviews

Boston University
 Eastern Virginia Medical School
 Georgetown University Medical School
 Harvard Medical School
 Harvard School of Public Health
 Marquette University
 McGill University
 University of Vermont
 Virginia Commonwealth University

9. Academic Honors and Awards

Academic Honors

2017	Brown University President's Award for Excellence in Faculty Governance
2016	Co-Chair, NHLBI Effects of Inhaled Nicotine Review Study Section
2010-15	Panel Member, NHLBI Systems Biology Review Panel
2011	Panel Member, NIAID Asthma and Allergic Diseases Cooperative Research Centers (AACRC) U19 Review Panel
2009	Chair, Focal Adhesion Signaling I, SBCF Invadopodia, Podosomes and Focal Adhesions in Tissue Invasion Meeting, Hyeres, France
2008	Temporary Member, NIH Vascular Cell and Molecular Biology Study Section
2007	Panel Member, NIAID Asthma and Allergic Diseases Cooperative Research Centers (AACRC) U19 Review Panel
2006	Dean's Teaching Excellence Award, Brown Medical School
2005	Co-chair, Subgroup Meeting "Mechanisms of Cell Invasion: Podosomes, Invadopodia and Metalloproteinases", American Society for Cell Biology 2005 Meeting, San Francisco, CA
2004-07	Regular Member, NIH Lung Cellular, Molecular, and Immunobiology Study Section
2004	Dean's Teaching Excellence Award, Brown Medical School
2004	Chair, Subgroup Meeting "Podosomes: Cytoskeletal Regulation, Signaling, and Function", European Life Scientist Organization 2004 Meeting, Nice, France
2003	Temporary Member, NIH Lung Biology and Pathology A Study Section
2000-02	Member, American Heart Association NEA3 Study Section
2003	Exemplary Online Course Using WebCT Recognition for Biomed 117, Brown University
2000	Plenary Lecture Speaker, The 49 th Annual Convention of the Pharmaceutical Society of Korea & International Symposium, Seoul, Korea

Awards

2008-09	Principal Investigator, NIH R56 Research Grant Award (HL52714)
2007-08	Principal Investigator, Naval Medical Research Center (N00189-07-C-Z086)
1996-05	Principal Investigator, NIH R01 Research Grant Award (HL52714)

- 1991-94 Principal Investigator, American Heart Association, National Center Grant-in-Aid Award (91008460)
- 1989-92 Principal Investigator, National Science Foundation Research Grant Award (8902438)
- 1989 Principal Investigator, Rhode Island Foundation Research Grant Award
- 1988-89 Principal Investigator, NIH BRSB Grant Award (Brown University Institutional Grant)
- 1985-87 Principal Investigator, Post-doctoral Fellowship, American Heart Association, Virginia Affiliate
- 1999-05 Mentor, NIH T32 Perinatal Biology Training Grant (HD07511; PI: James F. Padbury, Rhode Island Hospital, Providence, RI)
- 1998-01 Mentor, Veterans Affairs Merit Grant Award (PI: Dr. Elizabeth Harrington, Providence VA Hospital)
- 1992-04 Mentor, NIH Short-Term Minority Training Grant (PI: Brown University)
- 1996-00 Consultant, NIH Program Project Award (HL33009, PI: Dr. Jeffrey J. Fredberg, Harvard School of Public Health, Boston, MA)
- 1990-94 Consultant, NIH Program Project Award (HL19242, PI: Dr. Richard A. Murphy, Department of Physiology, University of Virginia, Charlottesville, VA)
- 1988 Outstanding Young Men of America
- 1983 Certificate of Merit for Young Investigators, Johns Hopkins University
- 1980-84 Johns Hopkins Medical Institution Graduate Fellowship
- 1978-80 Ontario Heart Foundation Graduate Fellowship
- 1978 University of Toronto Summer Research Scholarship
- 1974 University of Toronto Admission Scholarship

10. **Teaching:**

Courses

2008-Present	Course Leader	Biomed 1160	Exercise Physiology
2007-Present	Course Leader	Biomed 0800	Principles of Physiology
1991-2007	Lecturer	Biomed 80	Principles of Physiology
1991-92	Course Leader	Biomed 80	Principles of Physiology
1994-95	Course Leader	Biomed 110	Cell Physiology and Biophysics
2003-04	Lecturer	Biomed 113	Cell Structure and Movement
1989-06	Course Leader	Biomed 117	Mammalian Physiology
1989-90	Lecturer	Biomed 118	Comparative Physiology
1992-93	Seminar Speaker	Biomed 209	Special Topics in Respiratory Physiology
2006	Lecturer	Biomed 217	Molecular Pharmacology and Physiology

Independent Studies (Since Tenure Review in 1994)

- 1994-2012 52 Students, of which ~30 received honors, and 3 students received prizes
- 2005 David Beck, Recipient of Morris L. Povar Prize in Physiology or Zoology
- 1999 Jennifer Zander, Recipient of Morris L. Povar Prize in Physiology or Zoology
- 1995 Edwin Cadet, Recipient of Morris L. Povar Prize in Physiology or Zoology

Ph.D. Graduates Directed

2007	Zhizhan Gu	Assistant Professor, Hong Kong Baptist University, Hong Kong
2006	Hak Rim Kim	Associate Professor, College of Medicine, Dankook University, Republic of Korea
2000	Steven An	Associate Professor, Johns Hopkins School of Public Health, Baltimore, Maryland

Date of Preparation: February 5, 2019