

Curriculum Vitae for Naomi C. Chesler, Ph.D.

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Education:

- August 1996 **Ph.D. Medical Engineering**, Harvard - MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology, Cambridge, MA. Thesis Advisor: Professor Roger D. Kamm.
- June 1991 **M.S. Mechanical Engineering**, Massachusetts Institute of Technology, Cambridge, MA. Thesis Advisor: Professor William K. Durfee (now at University of Minnesota).
- June 1989 **B.S. Engineering**, Swarthmore College, Swarthmore PA *with distinction* (one year of study in Mechanical Engineering at King's College, University of London, England). Thesis Advisor: Professor Erik Cheever.

Professional Experience:

- 2008 - present **Associate Professor**, Department of Biomedical Engineering, UW–Madison College of Engineering, Madison, WI. Affiliate appointments in Departments of Medicine and Mechanical Engineering since 2003. Affiliate appointment in Department of Educational Psychology since 2010.
- 2002 - 2008 **Assistant Professor**, Department of Biomedical Engineering, UW–Madison College of Engineering, Madison, WI.
- 1998 – 2002 **Assistant Professor**, Department of Mechanical, University of Vermont (UVM), Burlington, VT. Affiliate appointment in Department of Medicine, 1999-2002.
- 1996 – 1998 **Post-Doctoral Research Fellow**, GW Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA. Advisors: Profs. David N. Ku and Zorina S. Galis (Emory University).
- Summer 1992 **Summer Institute Research Fellow**, Mechanical Engineering Laboratory, Tsukuba, Japan. Advisor: Takashi Yamane. Sponsored by National Institutes of Health and National Science Foundation.
- Summer 1991 **Product Development Intern**, Pfizer Hospital Products Division, New York, NY. Designed new technology for Emergency Room use based on customer need assessment as part of interdisciplinary team.

Awards and Honors:

- 2011 Invited participant in National Academy of Engineering-sponsored Frontiers of Engineering Education
- 2009 Fulbright Scholar, Belgium-Luxemburg Program

2008	Denice D. Denton Emerging Leader Award, Anita Borg Institute for Women and Computing
2006	Polygon Teaching Award for Biomedical Engineering
2004	Invited participant in National Academy of Engineering-sponsored Japan-U.S. Frontiers of Engineering Symposium for top 100 young engineers aged 30-45 in the U.S.
2003	Invited participant in First USNCB Frontiers in Biomechanics Symposium
2002	Invited participant in National Academy of Engineering-sponsored Frontiers of Engineering Symposium for top 100 young engineers aged 30-45 in the U.S.
2001	Nominated for Best Conference Paper, American Society of Engineering Education
1999	Vermonters Pursuing Excellence (1 of 6 faculty given this honor in 1999), UVM
1999	Selected to participate in NSF-sponsored New Century Scholars Workshop at Stanford University
1998	Selected to participate in NSF-sponsored Engineering Education Scholars Workshop at Carnegie Mellon University
1997	Second Prize in American Society of Mechanical Engineers Bioengineering Division Student Poster Competition
1994-1995	MIT—Japan Program Ayukawa Fellow and Prize Recipient
1993	Meredith Kamm Memorial Award for Outstanding Performance in Mechanical Engineering, MIT
1990-1993	National Science Foundation Fellowship, MIT
1989-1990	General Electric Foundation Fellowship, Swarthmore College
1989	Phi Beta Kappa, Tau Beta Pi, Sigma Xi, Swarthmore College

Extra-Mural Biomedical Engineering Research Grants:

Active:

National Institutes of Health R01, 12/01/10 – 11/30/14 for research on “Pulmonary hypertension in genetically modified mice”. **Role: co-I** (PI: Rabinovitch).

National Institutes of Health R01, 07/01/07 – 06/30/12 for research on “Vascular collagen accumulation & mechanical mechanisms in pulmonary hypertension.” **Role: PI.**

National Institutes of Health R01, 09/15/11 – 06/30/2015 for research “Right ventricular-pulmonary vascular interactions in pulmonary hypertension” **Role: PI.**

Peer-Reviewed Biomedical Research Publications:

Publications in Refereed Journals (and Patents):

Vanderpool, R.R., El-Bizri, N., Rabinovitch, M. and Chesler, N.C. Patchy deletion of Bmpr1a potentiates proximal pulmonary artery remodeling in mice exposed to chronic hypoxia *Biomech Model Mechanobiol.* 2012

Tabima, D.M., Roldan, A.R., Wang, Z., Hacker, T.A., Molthen, R.C. and Chesler, N.C. Persistent vascular collagen accumulation alters hemodynamic recovery from chronic hypoxia. *J Biomech.* 2011 Dec 17. [Epub ahead of print]

Wang, Z. and Chesler, N.C., Role of collagen content and cross-linking in large pulmonary arterial stiffening after chronic hypoxia, *Biomech Model Mechanobiol.* 2012 Jan;11(1-2):279-89. Epub 2011 May 3.

- Wang, Z. and Chesler, N.C. Pulmonary vascular wall stiffness: An important contributor to increased right ventricular afterload in pulmonary hypertension. *Pulm Circ.* 2011 Apr;1(2):212-23.
- Naeije, R. and Chesler, N.C. Pulmonary Circulation at Exercise. *Comprehensive Physiology.* To Appear, 2012.
- Vanderpool, R.R. and Chesler, N.C. Characterization of the isolated, ventilated and instrumented mouse lung perfused with pulsatile flow. *J Vis Exp.* 50: e2690, 2011.
- Vanderpool, R.R., Kim, A.R., Molthen, R. and Chesler, N.C. Effects of acute rho kinase inhibition on chronic hypoxia-induced changes in proximal and distal pulmonary arterial structure and function *Journal of Applied Physiology*, 110(1):188-98, 2011.
- Tabima, D.M, Hacker, T.A. and Chesler, N.C. Measuring right ventricular function in the normal and hypertensive mouse hearts using admittance-derived pressure-volume loops. *American Journal of Physiology – Heart and Circulatory Physiology*, 299(6):H2069-75, 2010.
- Ooi, C.Y., Wang, Z., Tabima, D.M., Eickhoff, J.C. and Chesler, N.C. The role of collagen in extralobar pulmonary artery stiffening in response to hypoxia-induced pulmonary hypertension. *American Journal of Physiology Heart & Circulatory Physiology*, 299(6):H1823-31, 2010.
- Tabima, D.M and Chesler, N.C. The effects of vasoactivity and hypoxic pulmonary hypertension on extralobar pulmonary artery biomechanics. *Journal of Biomechanics*, Jul 20;43(10):1864-9, 2010.
- Vanderpool, R.R., Naeije, R. and Chesler, N.C. Impedance in isolated mouse lungs for the determination of site of action of vasoactive agents and chronic hypoxia. *Annals of Biomedical Engineering* May;38(5):1854-61, 2010.
- Sprague, B.J., Chesler, N.C., and Magness, R.R. Shear Stress Regulation of Nitric Oxide Production in Uterine and Placental Artery Endothelial Cells: Experimental studies and Hemodynamic Models of Shear Stress Forces on Endothelial Cells. *International Journal of Developmental Biology* 54: 331-339, 2010.
- Argiento, P., Chesler, N.C., D’Alto, M., Bossone, E., Unger, P. and Naeije, R. Exercise stress echocardiography for the study of the pulmonary circulation, *European Respiratory Journal*. June 1: 35(6): 1273-1278, 2010.
- Philippi, N.R., Bird, C.E., Marcus, N.J., Olson, E.B., Chesler, N.C. and Morgan, B.J. Time course of intermittent hypoxia-induced impairments in resistance artery structure and function. *Respiratory Physiology & Neurobiology*. Feb 28;170(2):157-63, 2009.
- Roldan, A., Haughton, V.M., Wieben, O., Osswald, T., and Chesler, N.C.. Characterization of CSF hydrodynamics in the presence and absence of tonsillar ectopia by means of Computational Flow Analysis. *American Journal of Neuroradiology* 30:941-946 2009.
- Estrada, K.D and Chesler, N.C. Collagen-related gene and protein expression changes in the lung in response to chronic hypoxia. *Biomechanics and Modeling in Mechanobiology* 8(4):263-272, 2009.
- Sprague, B.J., Phernetton, T.M., Magness, R.R., and Chesler, N.C. The effects of the ovarian cycle and pregnancy on uterine vascular impedance and uterine artery mechanics. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 144S: S170-S178, 2009.
- Zhu, Y., Sprague, B.J., Phernetton, T.M., Magness, R.R., and Chesler, N.C. Transmission line models to simulate the impedance of the uterine vasculature during the ovarian cycle and pregnancy. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 144S: S184-S191, 2009.

- Rabinovitch, M, Chesler, N.C. and Molthen, R.C. Chronic hypoxia-induced pulmonary hypertension does lead to loss of pulmonary vasculature. *Journal of Applied Physiology* 103: 1449-1451, 2007.
- Tuchscherer, H.A., Vanderpool, R.R. and Chesler, N.C. Effects of hypoxia-induced pulmonary hypertension on pulmonary vascular resistance in an isolated mouse lung. *Journal of Biomechanics*. 40: 993-1001, 2007.
- Kim, D., Chesler, N.C., and Beebe, D.J. A method for dynamic system characterization using hydraulic series resistance. *Lab on a Chip* 6: 639-644, 2006.
- Tuchscherer, H.A., Webster, E. and Chesler, N.C. Pulmonary vascular resistance and impedance in isolated mouse lungs: Effects of pulmonary emboli. *Annals of Biomedical Engineering*. 34(4): 660-668, 2006.
- Kobs, R.W. and Chesler, N.C. The mechanobiology of pulmonary vascular remodeling in the congenital absence of eNOS. *Biomechanics and Modeling in Mechanobiology*. Nov; 5(4):217-25, 2006.
- Kobs, R.W., Eickhoff, J.C., Muvarak, N.E., and Chesler, N.C., Linked mechanical and biological aspects of pulmonary vascular remodeling with hypoxia-induced hypertension in mice. *American Journal of Physiology Heart & Circulatory Physiology*, 288(3): H1209-17, 2005.
- Ander, S.*, MacLennan, M.*, Bentil, S., Leavitt, B., and Chesler, N. Pressure-induced vector transport in human saphenous vein, *Annals of Biomedical Engineering*, 33(2): 202-208, 2005. (*These authors contributed equally). Cover article.
- Chesler, N., Thompson-Figueroa, J. and Millburne, K. Measurements of mouse pulmonary artery biomechanics, *Journal of Biomechanical Engineering*, 126(2): 309-314, 2004.
- Coulson, R., Cipolla, M.J., Vitullo, L. and Chesler, N. Mechanical properties of rat middle cerebral arteries with and without myogenic tone *Journal of Biomechanical Engineering*, 126(1): 76-81, 2004.
- Chesler, N. and Enyinna, O. Particle deposition in arteries *ex vivo*: Effects of pressure, flow and waveform. *Journal of Biomechanical Engineering*, 125(3): 389-394, 2003.
- Coulson, R., Chesler, N., Vitullo, L. and Cipolla, M.J. Effects of ischemia and myogenic reactivity on the active and passive mechanical properties of rat cerebral arteries. *American Journal of Physiology: Heart & Circulatory Physiology*, 283(6):H2268-75, 2002.
- Mavromatis, K. Fukai, T. Tate, M. Chesler, N. Ku, D. and Galis, Z. S. Early effects of arterial hemodynamic conditions on human saphenous vein perfused *ex vivo*. *Arteriosclerosis, Thrombosis and Vascular Biology*, Aug 20(8): 1889-95, 2000.
- Chesler, N.C., Ku, D. N. and Galis, Z. S. Transmural pressure induces matrix-degrading activity in porcine arteries *ex vivo*. *American Journal of Physiology*, 277 (*Heart Circ. Physiol.* 46): H2002-H2009, 1999.
- Chesler, N. C., Conklin, B. S., Han, H. C. and Ku, D. N. Simplified *ex vivo* culture techniques for porcine arteries. *Journal of Vascular Investigation*; 4: 123-127, 1998.
- Chesler, N. C. and Kamm, R. D. Performance analysis of a cardiac assist device in counterpulsation. *Journal of Biomechanical Engineering*; 120: 437-445, 1998.
- Chesler, N. and Durfee, W. Surface EMG as a fatigue indicator during FES-aided standing. *Journal of Electrophysiology and Kinesiology*; 7 (1): 27-37, 1997.

Patent: Makower, J., Slee, E., Chesler, N., Gorman, W. and Barber, F. *U.S. Patent Number 5,380,290 for a Body Access Device*. Assignee: Pfizer Hospital Products Group, Pfizer, Inc. Awarded January 10, 1995.

Book Chapters:

Naeije, R. and Chesler, N.C., "Pulmonary Circulation." In: *Comprehensive Physiology* (To Appear), 2012.

Tabima, D.M. and Chesler, N.C., "Pulmonary Vascular Mechanobiology." In: Nagatomi ed. *Handbook of Mechanobiology*, Taylor & Francis Group, London, England (To Appear), 2011.

Roldan, A. and Chesler, N.C., "Pulmonary Vascular Mechanics." In: Yuan, Garcia, Hales, Rich, Archer and West eds. *Textbook of Pulmonary Vascular Disease*, Springer-Verlag, New York, NY (To Appear), 2011.

Bergman, H., Chesler, N., Ku, D and Wootton, D. "Hemodynamics and Atherosclerosis." In: Hennerici, M.D. and Meairs, S. eds. *Cerebrovascular Ultrasound*, Cambridge University Press, Cambridge UK, 2001.

Conference Proceedings/Abstracts:

Kristianto, J., Fisher, J.S., Johnson, M.G., Wang, Z., Ooi, C.Y., Litscher, S.J., Chesler, N.C. and Blank, R.D. Pleiotropy Involving Skeletal, Vascular, and Reproductive Phenotypes in Recombinant Congenic Mice. Submitted to the Endocrine Society Annual Conference

Vanderpool, R.R., El-Bizri, N., Rabinovitch, M.R. and Chesler, N.C., Patchy deletion of *Bmpr1a* in smooth muscle cells potentiates chronic hypoxia-induced proximal arterial remodeling. Submitted to the American Thoracic Society Annual Conference.

Roldán-Alzate, A., Kellihan, H.B., Frydrychowicz, A., Consigny, D., Francois, C.J. and Chesler, N.C. Acute Thromboembolic Pulmonary Hypertension in a Dog Model – Correlation of Right Ventricular Ejection Fraction and Pulmonary Arterial Distensibility Measured by MRI. Submitted to the American Thoracic Society Annual Conference.

Tabima, D.M. Hacker, T.A., and Chesler, N.C. The effects of pulmonary vascular collagen accumulation on right ventricular afterload. Submitted to the American Thoracic Society Annual Conference.

François, Roldan, Niespodzany, N. C. Chesler, J. G. Keevil, and A. P. Frydrychowicz. Abnormal Right Heart Flow Patterns in Pulmonary Artery Hypertension Visualized with 4D Flow-Sensitive MRI. Accepted for presentation at the International Society of Magnetic Resonance in Medicine Conference.

Roldan, Chesler, Kellihan, Consigny, Niespodzany, Francois, Wieben, Frydrychowicz. 4D MR Velocity Mapping using PC VIPR to Investigate the Hemodynamics of Acute Pulmonary Hypertension in a Dog Model. Accepted for presentation at the International Society of Magnetic Resonance in Medicine Conference.

- Clayman, R, Roldan, A, and Chesler, N.C. An Investigation into Sex-related Differences in Pulmonary Hemodynamics. Submitted to the Biomedical Engineering Society 2010 Annual Fall Meeting in Austin, TX October 6-9, 2010.
- Sprague, B.J., Henao, D., Phernetton, T.M., Chesler, N.C. and Magness, R.R. Local Uteroplacental Factors Increase Uterine Blood Flow (UBF) and Shear Stress (SS) in Association with Structural and Mechanical Indices, Vascular Impedance Metrics, and eNOS/NO Levels. Presented at the Society for Gynecological Investigation Annual Meeting in Orlando, FL March 24-27, 2010.
- Roldan, A.J., Reeder, S.B., Francois, C.J., Keevil, J.G., Runo, J.R. and Chesler, N.C. Low MPA Relative Cross Sectional Area Change Correlates with decreased RV Function, Presented at the American Thoracic Society International Conference, New Orleans LA, May 14-19, 2010.
- Roldan, A.J., Vanderpool, R.R. and Chesler, N.C., The effects of pulmonary vascular collagen accumulation on right ventricular afterload investigated using a genetically engineered mouse model Presented at the American Thoracic Society International Conference, New Orleans LA, May 14-19, 2010. (PODIUM PRESENTATION; RECEIPT OF TRAVEL AWARD)
- Tabima, D.M, Vanderpool, R.R. and Chesler, N.C., Comparing pulmonary input and characteristic impedance determined in the time and frequency domains: The effects of chronic hypoxia, Presented at the American Thoracic Society International Conference, New Orleans LA, May 14-19, 2010.
- Vanderpool, R.R. and Chesler, N.C., Fixed vs. reactive changes in the pulmonary vasculature with chronic hypoxia: Use of a hemodynamic model to interpret pressure-flow data, Presented at the American Thoracic Society International Conference, New Orleans LA, May 14-19, 2010.
- Vanderpool, R.R., Molthen, R.C. and Chesler, N.C. Effect of acute rho-kinase inhibition on pulmonary vascular structure in isolated mouse lungs following chronic hypoxia. Presented at the Pittsburgh International Lung Conference, Pittsburgh, PA, October 9-10, 2009
- Martinez, D.M and Chesler, N.C. The effects of vasoactivity and disease on conduit pulmonary artery biomechanics. Presented at the Pittsburgh International Lung Conference, Pittsburgh, PA, October 9-10, 2009.
- Wang, Z., and Chesler, N.C. Role of collagen in large pulmonary artery viscoelasticity changes in hypoxic pulmonary hypertension. Presented at the Pittsburgh International Lung Conference, Pittsburgh, PA, October 9-10, 2009.
- Moses, L., Roldan-Alzate, A., Vanderpool, R.R., Molthen, R. and Chesler, N.C. The role of collagen in hypoxia-induced stiffness of pulmonary arteries Undergraduate Research Symposium, Biomedical Engineering Society Conference, Pittsburgh, PA, October 7-10, 2009.
- Wang, Z., and Chesler, N.C. Role of collagen in large pulmonary artery viscoelasticity changes in hypoxic pulmonary hypertension. Presented at the Biomedical Engineering Society Conference, Pittsburgh, PA, October 7-10, 2009.
- Ooi, C.Y., Sandhu, G., Wang, Z., Hacker, T.A., Saless, N., Litscher, S.J., Whitesell, L.F., Chesler, N.C. and Blank, R.D. Potential Shared Remodeling Mechanisms between Vascular and Skeletal Systems. To be presented at the Biomedical Engineering Society Conference, Pittsburgh, PA, October 7-10, 2009.
- Henao, D., Sprague, B.J., Phernetton, T.M., Chesler, N.C. and Magness, R.R. Effect of Gravity on Uterine Blood Flows Relative to Structural and Mechanical Indices of Remodeling in Uterine Arteries during the Ovine Ovarian Cycle vs. Pregnancy. Presented at the 42nd Annual Meeting of the Society for the Study of Reproduction in Pittsburgh, PA July 18-22, 2009.

- Sprague, B.J., Henao, D., Phernetton, T.M., Chesler, N.C. and Magness, R.R. Local factors of placentation substantially alter uterine artery structural and mechanical indices, vascular impedance metrics and eNOS levels during ovine pregnancy. Presented at 42nd Annual Meeting of the Society for the Study of Reproduction in Pittsburgh, PA July 18-22, 2009.
- Argiento, P., Chesler, N.C., D'Alto, M., Bossone, E., Unger, P. and Naeije, R. Estimation of pulmonary distensibility via non-invasive cardiopulmonary exercise testing: A potential guide to normal physiology. To be presented at the European Respiratory Society in Vienna, Austria, Sept. 12-16, 2009.
- Argiento, P., Chesler, N.C., D'Alto, M., and Naeije, R. Exercise stress echocardiography for the study of the pulmonary circulation. Presented at the European Society of Cardiology in Barcelona Spain, August 29-Sept. 2, 2009.
- Chesler, N.C., Argiento, P., D'Alto, M., and Naeije, R. Exercise stress echocardiography for the study of the pulmonary circulation. Presented at the 4th International Symposium on Biomechanics in Vascular Biology and Cardiovascular Disease in Rotterdam, Netherlands, April 16-17, 2009.
- Chesler, N.C., Vanderpool, R.R. and Molthen, R. Pulmonary vascular distensibility in isolated mouse lungs: Effects of chronic hypoxia and acute rho-kinase inhibition. Presented at the 4th International Symposium on Biomechanics in Vascular Biology and Cardiovascular Disease in Rotterdam, Netherlands, April 16-17, 2009.
- Zhu, Y., Sprague, B.J., Phernetton, T.M., Magness, R.R., and Chesler, N.C. A Transmission line model to simulate the impedance of the uterine vasculature during the ovarian cycle and pregnancy. Presented at the Society of Gynecological Investigation in Glasgow Scotland, March 18-21, 2009.
- Roldán-Alzate, A., Reeder, SB, Keevil, JG, Runo, JR, and Chesler, NC. Magnetic resonance imaging provides non-invasive assessment of pulmonary hypertension severity by low relative area change of the pulmonary artery. Presented at the International Society for Magnetic Resonance in Medicine, Honolulu, Hawaii, April 18-24, 2009.
- Vanderpool, R.R. and Chesler, N.C. Contribution of persistent vasoconstriction to chronic hypoxia-induced PAH in mouse lungs. Biomedical Engineering Society Biomedical Engineering Society Conference, St. Louis, MO, October 2-4, 2008.
- Tabima, D.M. and Chesler, N.C. Effects of chronic hypoxia on SMC-related changes in biomechanics of mouse extrapulmonary arteries. Biomedical Engineering Society Conference, St. Louis, MO, October 2-4, 2008.
- Kim, A.R, Vanderpool, R.R and Chesler, N.C. Quantification of arterial rarefaction in isolated mouse lungs. Undergraduate Research Symposium, Biomedical Engineering Society Conference, St. Louis, MO, October 2-4, 2008.
- Ooi, C.Y., Wang, Z. and Chesler, N.C. Collagen accumulation is a significant contributor to pulmonary hypertension-induced large artery stiffening. Artery 8 International Meeting, Ghent, Belgium, September 24-27, 2008.
- Tabima, D.M., Vanderpool, R.R. and Chesler, N.C. Characteristic impedance in isolated mouse lungs is inversely proportional to proximal artery stiffness. Artery 8 International Meeting, Ghent, Belgium, September 24-27, 2008.
- Roldan, A., Haugton, V., Osswald, T. and Chesler, N.C. Computational analysis of cerebrospinal fluid flow in the normal and obstructed subarachnoid space. Summer Bioengineering Conference, Marco Island, FL, June 25-29, 2008.
- Roldan, A., Sweitzer, N., Osswald, T. and Chesler, N.C. Fluid structure interaction analysis of blood flow through a mechanical heart valve. Summer Bioengineering Conference, Marco Island, FL, June 25-29, 2008.
- Ooi, C.Y. and Chesler, N.C. The role of collagen in pulmonary hypertension-induced large artery stiffening. Summer Bioengineering Conference, Marco Island, FL, June 25-29, 2008.

- Vanderpool, R.R. and Chesler, N.C. Hypoxia-induced pulmonary hypertension causes changes in proximal and distal arteries not eliminated by rho-kinase administration. American Thoracic Society International Conference, Toronto, ON, May 16-21, 2008.
- Chesler, N.C. Pulmonary vascular impedance. Design of Medical Devices, Minneapolis, MN, April 15-17, 2008.
- Sprague, B.J., Phernetton, T.M., Chesler, N.C., Magness, R.R. Decrease in volumetric and circumferential stiffness of large uterine arteries occurs with pregnancy. Reproductive Bioengineering 2008, Kuhtai, Austria, April 1-5, 2008.
- Chesler, N.C. and Vanderpool, R.R. The impact of pulmonary artery stiffness on pulmonary vascular impedance. Fifth International BioFluids Symposium and Workshop. Pasadena, CA, March 28-30, 2008.
- Sprague, B.J., Phernetton, T.M., Magness, R.R., and Chesler, N.C. Changes in uterine vascular hemodynamics during the ovarian cycle: Insights gained from resistance and impedance vs. blood flow indices Fifth International BioFluids Symposium and Workshop. Pasadena, CA, March 28-30, 2008.
- Roldan, A., Haughton, V.M., Ossward, T., and Chesler, N.C. Cerebrospinal fluid flow in the Chiari I malformation – Computational approaches using MR-based geometries. Fifth International BioFluids Symposium and Workshop. Pasadena, CA, March 28-30, 2008.
- Ramos, M.C., DeWall, R.J. and Chesler, N.C. The effects of aging and SMC contraction on mouse carotid artery mechanics. Undergraduate Research Symposium, Biomedical Engineering Society Conference, Los Angeles, CA, September 26-29, 2007.
- Tabima, D.M. and Chesler, N.C. Active mechanics of healthy mouse pulmonary arteries: Static and dynamic behavior. Biomedical Engineering Society Conference, Los Angeles, CA, September 26-29, 2007.
- Sprague, B.J., Phernetton, T.N., Magness, R.R. and Chesler, N.C. Effects of estrogen on pressure-length-diameter relationships in uterine arteries during ovine pregnancy. Aspen Perinatal Biology Symposium, Aspen CO, Aug 25-28, 2007.
- Roldan, A., Sweitzer, N., Osswald, T. and Chesler, N.C. Numerical simulation of blood flow through mechanical heart valves using meshless techniques. . Summer Bioengineering Conference, Keystone, CO, June 20-24, 2007.
- Roldan, A., Wentland, A., Weiben, O., Haughton, V., Osswald, T. and Chesler, N.C. CFD modeling for patient specific analysis of cerebrospinal fluid flow. Summer Bioengineering Conference, Keystone, CO, June 20-24, 2007.
- DeWall, R.J. and Chesler, N.C. Changes in Vascular Viscoelasticity Caused by Smooth Muscle Cell Tone and pressurization Frequency. Summer Bioengineering Conference, Keystone, CO, June 20-24, 2007.
- Vanderpool, R.R. and Chesler, N.C. The effects of vasoactive agents in impedance measures in the pulmonary circulation of mice. Summer Bioengineering Conference, Keystone, CO, June 20-24, 2007.
- Sprague, B.J., Phernetton, T.M., Magness, R.R. and Chesler, N.C. Dimensional remodeling of uterine artery vascular networks during pregnancy. Biomedical Engineering Society Conference, Chicago, IL, October 11-14, 2006.
- Vanderpool, R.R. and Chesler, N.C. The role of eNOS defects in pulmonary vascular reactivity. Biomedical Engineering Society Conference, Chicago, IL, October 11-14, 2006.
- Roldan, A., Chesler, N.C., Osswald, T.A. Distribution analysis in prosthetic heart valves using the boundary element method. Biomedical Engineering Society Conference, Chicago, IL, October 11-14, 2006.
- Vanderpool R.R., Tuchscherer H.A., Kersten E.J., Kobs R.W., Chesler N.C. The effects of eNOS deficiency on pulmonary vascular remodeling in pulmonary hypertension. Pulmonary

- Hypertension Association 7th International Conference and Scientific Sessions, Minneapolis, MN, June 23-25, 2006
- Baillies, A., Kammer, R., Hewitt, A., Chesler, N.C., Hind, J., Gill, G., and Robbins, J. Comparison of commercial thickeners for achieving diagnostic and treatment congruence. American Speech Language Hearing Association National Conference, San Diego, CA, November, 2005.
- Kersten, E.J., Gopalakrishnan, B., Wang, D., Nagy, A., Greenspan, D.S. and Chesler, N.C. Mechanical significance of the alpha 3 chain of collagen V in the great vessels of mice. Biomedical Engineering Society Conference, Baltimore, MD, September 28-October 1, 2005.
- Vanderpool, R.R., Tuchscherer, H.A. and Chesler, N.C. Role of nitric oxide in pulmonary vascular remodeling. Biomedical Engineering Society Conference, Baltimore, MD, September 28-October 1, 2005.
- Roldán, A., Chesler, N.C., Bustamante, J., and Osswald, T. Simulation of blood flow and deformations of mechanical heart valves using boundary integral techniques. Congress of the International Society of Biomechanics, Cleveland, OH, July 31 – August 5, 2005.
- Chesler, N.C. and Hacker, T.A. Right ventricular-pulmonary vascular coupling in mice. Proceedings of the Summer Bioengineering Conference, Vail, CO, June 22-26, 2005
- Kobs, R.W. and Chesler, N.C. Large artery elasticity and viscoelasticity in a mouse model of primary pulmonary hypertension. Proceedings of the Summer Bioengineering Conference, Vail, CO, June 22-26, 2005
- Kobs, R.W., Weichert, J. and Chesler, N.C. In vivo and ex vivo measurement of mouse pulmonary artery length using contrast-enhanced microcomputed tomography. Proceedings of the Summer Bioengineering Conference, Vail, CO, June 22-26, 2005
- Tuchscherer, H.A., Vanderpool, R. and Chesler, N.C. Pulmonary vascular resistance and impedance changes with hypertension-induced vascular remodeling in a mouse model. Proceedings of the Summer Bioengineering Conference, Vail, CO, June 22-26, 2005
- Estrada, K.D., Muvarak, N.E., and Chesler, N.C. Hypoxia-induced pulmonary hypertension causes differential gene expression of collagen and its regulators in the lungs of eNOS-null mice. Proceedings of the American Society of Matrix Biology Conference, San Diego, CA, November 10-13, 2004.
- Kobs, R.W., Muvarak, N.E., and Chesler, N.C. Role of collagen and elastin in main pulmonary artery remodeling in the absence of eNOS. Proceedings of the American Society of Matrix Biology Conference, San Diego, CA, November 10-13, 2004.
- Estrada, K.D., Muvarak, N.E., and Chesler, N.C. Hypoxia-induced pulmonary hypertension increases gene expression of collagen and MMP-2 in the lung. Proceedings of the Biomedical Engineering Society Conference, Philadelphia, PA, October 13-16, 2004.
- Webster, E., Tuchscherer, H.A. and Chesler, N.C. Pulmonary vascular impedance changes resulting from recurrent pulmonary embolism in a mouse model. Proceedings of the Biomedical Engineering Society Conference, Philadelphia, PA, October 13-16, 2004.
- Tuchscherer, H.A. and Chesler, N.C. Variation in pulmonary vascular impedance with embolic pulmonary hypertension. Proceedings of the Biomedical Engineering Society Conference, Philadelphia, PA, October 13-16, 2004.
- Chesler, N.C, Kobs, R.W., and Muvarak, N. Structure-function relationships in mouse hilar pulmonary arteries during pulmonary vascular remodeling. Proceedings of the Experimental Biology conference, Washington DC, April 17-21, 2004.
- Chesler, N.C, Non-linear viscoelastic modeling predictions of pulmonary arterial behavior as a function of heart rate. Proceedings of the Experimental Biology conference, Washington DC, April 17-21, 2004.
- Kobs, R.W., Muvarak, N. and Chesler, N.C., Changes in non-linear viscoelastic properties of mouse pulmonary arteries with hypoxia. Proceedings of the First US National Symposium on Frontiers in Biomechanics, Nashville, TN, October 1, 2003.

- Kobs, R.W., Muvarak, N. and Chesler, N.C., Hypoxia-induced changes in the mechanical properties of the mouse pulmonary artery. Proceedings of IMECE2003 Advances in Bioengineering, 2003.
- Coulson, R.J, Cipolla, M.J. and Chesler, N.C. Mechanical properties of active and passive rat middle cerebral arteries. Proceedings of IMECE2002: BED-Vol. 53, 2002 Advances in Bioengineering, 2002.
- Chesler, N.C., Thompson-Figueroa, J. and Millburne, K. M. Ex vivo measurement of mouse pulmonary artery biomechanics. Proceedings of IMECE2002: BED-Vol. 53, 2002 Advances in Bioengineering, 2002.
- Coulson, R.J, Cipolla, M.J. and Chesler, N.C. Smooth muscle cells actively control incremental elastic modulus during cerebral artery myogenic reactivity. Experimental Biology Conference, New Orleans, LA, 2002.
- Chesler, N. Interactions of pressure and flow on particle deposition in arteries ex vivo. Annals of Biomedical Engineering; 29, Suppl 1: S27, 2001.
- Chesler, N., MacLennan, M. and Leavitt, B. J. Oscillatory Flow Increases Adenovirus-Model Deposition in Human Saphenous Vein. . Annals of Biomedical Engineering; 29, Suppl 1: S97, 2001.
- Babetty, Z. and Chesler, N. Distribution of MMP-2 in porcine carotid arteries ex vivo. ASME Summer Bioengineering Division Conference. Snowbird, Utah, June 27-July 1, 2001.
- Enyinna, O. and Chesler, N. Flow-dependent luminal deposition of microspheres in porcine carotid arteries ex vivo. ASME Fall Annual Meeting, Bioengineering Division, Orlando, FL, Nov. 5-10, 2000.
- MacLennan, M., Leavitt, B., Schmoker, J. and Chesler, N. Pressure increases inert particle uptake in human saphenous vein. ASME Fall Annual Meeting, Bioengineering Division, Orlando, FL, Nov. 5-10, 2000.
- MacLennan, M., Leavitt, B. and Chesler, N. Pre-treatment pressure increases adenovirus-model transport in human saphenous vein. Arteriosclerosis, Thrombosis and Vascular Biology Society Conference Proceedings, Denver, CO May 2000.
- Chesler, N., Galis, Z. and Ku, D. Early pressure-dependent expression of matrix metalloproteinases and matrix degrading activity in an *ex vivo* artery culture system. Proceedings of the Third World Congress of Biomechanics, Sapporo, Japan, August 1998.
- Chesler, N.C., Brewton, N. and Ku, D. N. Alterations in endothelial permeability after intravascular intervention. Advances in Bioengineering; BED-Vol. 39: 369-370, 1998.
- Brewton, N. E., Chesler, N.C. and Ku, D. N. Intimal damage due to synthetic clot embolectomy. Annals of Biomedical Engineering; 26 (Suppl 1): S69, 1998.
- Chesler, N., Galis, Z. and Ku, D. Effect of flow on matrix metalloproteinases activity in an *ex vivo* artery culture system. Annals of Biomedical Engineering; 26 (Suppl 1): S144, 1998.
- Chesler, N. C. and Kamm, R. D. Three-dimensional swirling flow in a counterpulsating cardiac assist device. Advances in Bioengineering; BED-Vol. 35: 9-10, 1997.
- Chesler, N. C. and Kamm, R. D. Fluid forces during mechanical cardiac assist: A numerical analysis. Advances in Bioengineering; BED-Vol. 35: 155-156, 1997.

Chesler, N., Loree, H., Yamaguchi, R., Lee, R., and Kamm, R. Steady, three-dimensional flow simulations: Comparison to experiment. *Annals of Biomedical Engineering*; 23 (Suppl 1): S37, 1995.

Chesler, N. and Kamm, R. A Systematic method for design and evaluation of a cardiac pumping chamber. *Advances in Bioengineering*; BED-Vol. 28: 401-402, 1994.

Chesler, N. and Durfee, W. EMG as an indicator of fatigue during functional electrical stimulation of paraplegics. *IEEE Engineering in Medicine and Biology Society International Conference*; 13:2:926-27, 1991.

Extra-Mural Engineering Education/Mentoring Grants Funded:

Active:

National Science Foundation Course, Curriculum and Learning Improvement (CCLI) Research Grant, 09/01/09-08/31/11 for research on “Professional practice simulations for engaging, educating and assessing undergraduate engineers” **Role: Co-PI** (PI: Shaffer).

National Science Foundation Nanotechnology Undergraduate Education (NUE) Research Grant, 09/01/09-08/31/11 for research on “A Nanotechnology certificate program for engineering undergraduates” **Role: Co-PI** (PI: Crone).

Intra-Mural Engineering Education/Mentoring Grants Funded:

College of Engineering 2010 Proposal for research on “Integrating Professional Development into Undergraduate Design and Research Experiences” PI: Crone; Role: Co-PI.

Peer-Reviewed Engineering Education/Mentoring Publications:

Publications in Refereed Journals:

Chesler, N.C., Arastoopour, G., D’Angelo, C.M., Bagley, E.A., and Shaffer, D.W., Design of a Professional Practice Simulator for Educating and Motivating First-Year Engineering Students. *Advances in Engineering Education* (To Appear), 2012.

Chesler, N.C., Barabino, G., Bhatia, S.N. and Richards-Kortum, R. The pipeline still leaks and more than you think: A status report on gender diversity in biomedical engineering *Annals of Biomedical Engineering*. May;38(5):1928-35, 2010.

Anderson, J.J Goplen, C. Murray, L., Seashore, K., Soundarrajan, M., Lokuta, A., Strang, K., and Chesler, N.C. Human Respiratory Mechanics Demonstration Model. *Advances in Physiology Education* 33: 53-59, 2009.

Chesler, N.C. and Chesler, M.A. Theater as a Community-Building Strategy for Women in Engineering: Theory and Practice. *Journal of Women and Minorities in Science and Engineering*, 11(1): 83-95, 2005.

Chesler, N.C. Single, P.B. and Mikic, B. On Belay: Peer-Mentoring and Adventure Education for Women Faculty in Engineering. *Journal of Engineering Education*, 92(3):257-262, 2003.

Chesler, N.C. and Chesler, M.A. Gender-informed mentoring strategies for women in engineering: On establishing a caring community. *Journal of Engineering Education*, Jan 91(1): 49-56, 2002.

Conference Proceedings/Abstracts:

- Shaffer, D.W., Chesler, N.C., Arastoopour, G., and D'Angelo, C. (2011). Nephrotex: Teaching first year students how to think like engineers. Poster presented at the Course, Curriculum, and Laboratory Improvement (CCLI) PI Conference, Washington D.C.
- D'Angelo, C., Arastoopour, G., Chesler, N. & Shaffer, D. W. (2011) Collaborating in a Virtual Engineering Internship. Paper presented at Computer Supported Collaborative Learning Conference (CSCL), Hong Kong, Hong Kong SAR.
- Chesler, N.C., Arastoopour, G., D'Angelo, C. and Shaffer, D.W. Use of a professional practice simulation in a first year Introduction to Engineering course. Presented at American Society of Engineering Education Conference (extended abstract). Vancouver, CA, June 26-29, 2011.
- Chesler, N.C., Brace, C. and Tompkins, W. Learning Assessment in a Design-Throughout-the-Curriculum Program. Presented at American Society of Engineering Education Conference (extended abstract). Vancouver, CA, June 26-29, 2011.
- D'Angelo, C. Chesler, N.C., Arastoopour, G., and Shaffer, D.W. Engaging in a Professional Practice Simulation for Undergraduate Engineers. Presented at American Society of Engineering Education Conference (extended abstract). Vancouver, CA, June 26-29, 2011.
- Chesler, N.C. Bagley, E., Breckenfeld, E., West, D. and Shaffer, D.W. Professional practice simulation for undergraduate engineers: A tool for engaging, educating and assessing. Presented at ASME Summer Bioengineering Conference 2010. Naples, FL, June 16-19, 2010.
- Chesler, N.C. Bagley, E., Breckenfeld, E., West, D. and Shaffer, D.W. Professional practice simulation for undergraduate engineers: A tool for engaging, educating and assessing. Presented at the American Society of Engineering Education (extended abstract). Louisville, KY, June 20-23, 2010.
- Chesler, N.C., Barabino, G., Bhatia, S.N. and Richard-Kortum, R. The pipeline still leaks and more than you think: A status report on gender diversity in biomedical engineering. Presented at the American Society of Engineering Education (extended abstract). Louisville, KY, June 20-23, 2010.
- Cadwell, K.D., Zenner, G.M., Chesler, N.C. and Crone, W.C. Developing undergraduate student design skills using online video modules and active learning exercises. Presented at the American Society of Engineering Education (extended abstract). Austin, TX, June 14-17, 2009.
- Nelson, R. and Chesler, N.C. Work in Progress – Assessing Adaptive Expertise in Physiology Using Online Challenge Modules in Biofluids. *Frontiers in Education*. San Antonio, TX, October 2009.
- Nelson, R.J. and Chesler, N.C. Considering Mathematical Approach and Course Content Structure When Teaching Physiology to Biomedical Engineers. Presented at the American Society of Engineering Education (extended abstract). Austin, TX, June 14-17, 2009.
- Chesler, N.C., Tompkins, W.J. and Radwin, R.G. Found in Translation: From Translational Research to Undergraduate Design and Back. 2008 Biomedical Engineering Summit. Chicago, IL 2008.
- Nelson, R. and Chesler, N. (2008). The challenge mosaic model as a data collection environment for learning how engineers learn. ASEE North Midwest Section Conference. Platteville, WI, October 2008.

Tompkins, W.J., Block, W.F., Chesler, N.C., Masters, K.S., Murphy, W.L., Tyler, M.E., and Webster, J.G. Development of Professional Communication Skills Throughout the BME Curriculum. Proceedings of the American Society of Engineering Education (extended abstract). Hawaii, HI 2007.

Chesler, N.C. and Tompkins, W.J. Encouraging non-BME Engineering Majors to Study Biology. Proceedings of the American Society of Engineering Education (extended abstract). Chicago, IL, 2006.

Chesler, N.C., Hall, L. and Chesler, M. A. Acting Up: Using Theater to Discuss the Career Struggles of Women Faculty in Engineering. American Society of Engineering Education Conference Proceedings, Salt Lake City, UT. June, 2004.

Chesler, N.C. and Riley, D. The Art of Engineering: Using Fine Arts to Discuss the Lives of Women Faculty in Engineering. American Society of Engineering Education Conference Proceedings, Salt Lake City, UT. June, 2004.

Chesler, N.C., Single, P.B. and Mikic, B. Peer-Mentoring for untenured women faculty: A Leadership skills and community-building workshop. American Society of Engineering Education Conference Proceedings, Montreal, QC. June, 2002.

Chesler, N.C. and Chesler, M. A. Mentoring undergraduate women in engineering: Lessons learned from the sociology of gender. American Society of Engineering Education Conference Proceedings, Albuquerque, NM. June, 2001.

Chesler, N.C. and Chesler, M. Dilemmas in the mentoring of faculty women in engineering: "The heroic journey" v. "The caring community". Presented at the Women in Engineering Programs & Advocates Network 2000 National Conference, Washington DC, June 25-27, 2000.

Courses Taught:

Biomedical Engineering (BME)/CBE 517 Biology in Engineering Seminar, Fall 2005 (as BME 601), Fall 2006, Fall 2007, Spring 2008, Fall 2009

BME 505 Biofluidics. Spring 2004, Spring 2005, Spring 2006, Spring 2007, Spring 2008, Spring 2010, Spring 2012

BME Design course. Spring 2003, Fall 2003, Spring 2004, Spring 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2009, Spring 2010, Fall 2010, Fall 2011

Professional Development:

2010 Co-Chair, Big 10 Women's Workshop

2009 Track chair (Cardiovascular) for Biomedical Engineering Society Int'l Conference

2007 Local arrangements chair for ASME Summer Bioengineering Conference

2005 Organizer for USNCB-Sponsored Frontiers in Biomechanics meeting

August 2003 Developed faculty development program for women faculty members in engineering to enhance strategic career planning and build community for peer mentoring.

August 2002 Developed experiential learning program for women faculty members in engineering to emphasize writing skills and build community for peer mentoring.

August 2001 Developed Outward Bound experiential learning program for women faculty members in engineering in the Northeast Region to develop leadership skills and build community for peer mentoring.

August 1999 Participant in NSF-sponsored New Century Scholars Workshop at Stanford University.

July 1998 Participant in NSF-sponsored Engineering Education Scholars Workshop at Carnegie Mellon University.

1992-1995 Teaching assistant for Fluid Dynamics (MIT), Pulmonary Physiology and Pathophysiology (Harvard Medical School) and Quantitative Physiology (MIT).

Professional Membership and Service Activities

Membership in Professional Societies:

2010-present Pulmonary Vascular Research Institute (PVRI)
 2005-present Pulmonary Hypertension Clinicians and Researchers (PHCR)
 2004-present American Physiological Society (APS)
 2000-present American Society of Engineering Education (ASEE)
 2000-present Society of Women Engineers (SWE)
 1999-present Biomedical Engineering Society (BMES)
 1996-present American Society of Mechanical Engineers (ASME)

Service to Professional Societies:

2011-present Associate Editor, Journal of Biomechanical Engineering
 2010 Editorial Board, Pulmonary Circulation
 2010 Publications Chair for ASME Summer Bioengineering Conference
 2009 Track Chair (Cardiovascular) for Biomedical Engineering Society Int'l Conference
 2007-present BMES Ad Hoc committee on Diversity member
 2007 Local Arrangements Chair for ASME Summer Bioengineering Conference (~650 attendees)
 2005 Conference co-chair for USNCB Frontiers in Biomechanics
 2001 – present ASME Cell and Tissue Committee
 ASME Education Committee Liaison, Biofluids Committee
 2001 – 2002 Acting President, ASME Green Mountain Section
 2000 – 2004 ASME Bioengineering Division Student Paper Competition Committee; BS-level (2001), MS-level (2002), Ph.D-level (2003), Competition Chair (2004)
 2000 – 2002 Treasurer, ASME Green Mountain Section
 Faculty Advisor, UVM SWE
 1998 – present ASME Biofluids Committee

Mentoring/Supervision/Advising:

Post-Doctoral Fellows

Bellofiore, Alessandro, August 2011 – present. Exercise hemodynamics as a predictor of mortality in PAH
 Liu, Aiping, June 2011 – present. Sex differences in pulmonary hypertension: Role of collagen metabolism
 Tian, Lian, January 2011 – present. Impact of arterial stiffening on hemodynamics in pulmonary and systemic hypertension.
 Wang, Zhijie. March 2008 – present. AWARDED AHA Post-Doctoral FELLOWSHIP January 2009-December 2011. Impact of collagen content and cross-linking on arterial viscoelasticity
 Roldan, Alejandro. September 2008 – August 2010. Impact of pulmonary hypertension on cardiopulmonary status: Animal and human studies

Doctor of Philosophy Degree:

Roldan, Alejandro. Successfully obtained Doctor of Philosophy (PhD) degree in Mechanical Engineering August 2008. Thesis project titled “Simulation of physiological flows.”

- Vanderpool, Rebecca, Successfully obtained Doctor of Philosophy (PhD) degree in Biomedical Engineering August 2010. Thesis project titled “Pulmonary vascular impedance changes with hypoxia-induced hypertension: experiments and modeling.”
- Tabima Martinez, Diana Marcela, Successfully obtained Doctor of Philosophy (PhD) degree in Biomedical Engineering August 2010. Thesis project titled “Impact of collagen type I on ventricular-vascular coupling in a mouse model of pulmonary hypertension.”
- Nelson, Regina, Doctoral Program in Biomedical Engineering (passed qualifying exams 11/2004). Thesis project titled “Ways of teaching physiology: qualitative vs. quantitative and systems vs. concept maps.”

Master of Science Degree:

- Ooi, Chen Yen, M.S. in Biomedical Engineering, August 2008 for thesis project titled “Role of collagen type I in pulmonary artery stiffening with pulmonary hypertension.”
- Sprague, Benjamin, M.S. in Biomedical Engineering, August 2008 for thesis project titled “Uterine vascular mechanical and hemodynamic changes in pregnancy.”
- DeWall, Ryan, M.S. in Biomedical Engineering, December 2007 for thesis project titled “Role of smooth muscle cell tone in carotid artery mechanics.”
- Estrada, Kristine, M.S. in Biomedical Engineering, May 2005 for thesis project titled “The effect of hypoxia-induced pulmonary hypertension on gene expression collagen and its regulators in heart and lung tissue.”
- Tuchscherer, Holly, M.S. in Biomedical Engineering, May 2005 for thesis project titled “Pulmonary vascular impedance changes with hypoxia-induced hypertension and pulmonary embolism.”
- Leach, Crystal, M.S. in Biomedical Engineering, August 2004 non-thesis project titled “Aortic residual strain in mice with and without a full complement of elastin.”
- Ander, Sarah, M.S. in Biomedical Engineering, May 2004 for thesis project titled “Permeability of human saphenous veins to fluid and particles ex vivo: implications for vascular gene therapy delivery.”
- Kobs, Ryan, M.S. in Biomedical Engineering, May 2004 for thesis project titled “Biomechanics of normal and remodeled mouse pulmonary arteries.”

Undergraduate Project Advising (non-thesis):

- Lepak, Clayton, Spring 2011-present. Second harmonic imaging for measuring vascular structure
- Krohn, Molly, Fall 2010-Fall 2011. Impact of chronic hypoxia on collagen-related gene regulation
- Clayman, Rebecca, Spring 2010-Spring 2011. Effect of sex on pulmonary vascular impedance
- Schreier, David, Spring 2010-present. Role of collagen in ventricular-vascular coupling efficiency
- Moses, Lindsey, Summer 2009. Effect of hypoxia and collagen content on arterial distensibility
- Balge, Nicholas, Summer, Fall 2008. Novel systems to measure vascular viscoelasticity
- Henao, Daniel, Summer, Fall 2008, Summer, Fall 2009. Vascular mechanical changes in sheep uterine arteries with first and multiple pregnancies
- Kim, Ah Ram, Spring, Summer, Fall 2008. Introduction to animal experimentation and studies on arterial rarefaction in isolated mouse lungs
- Anderson, Calvin, Fall 2007-present. Regulators of collagen content in mouse lungs and arteries: Effects of hypoxia-induced pulmonary hypertension
- Krupsky, Jaelyn, Fall 2007. Assays for collagen content in murine lungs.
- Ramos, Maria C, Summer 2007. Impact of aging on murine carotid artery structure and function.
- Lewis, Nina, Summer 2005. Setup and refine instrumentation to measure mouse pulmonary vascular impedance in response to dynamic, high frequency pressurization
- Frederick, Brian, Summer and Fall 2004. Setup and refine instrumentation to measure mouse pulmonary artery mechanical properties in response to dynamic, high frequency pressurization.
- Johnson, Chenara, Summer 2004. Experiments to measure gene-level changes in growth factors in pulmonary tissue in response to hypoxia-induced pulmonary hypertension.
- Webster, Eidan, Summer 2004. Experiments to measure pulmonary vascular impedance changes in response to hypoxia-induced pulmonary hypertension.

- Bou-Reslan, Hani, Spring 2004. Redesign and build chambers to expose mice to closed-loop controlled, low oxygen levels for 1 – 20 days.
- Harris, Matthew, Spring 2004. Redesign and build instrumentation to measure axial force changes in pressurized mouse pulmonary arteries.
- Webster, Eidan, Summer 2003. Experiments to measure pulmonary vascular tone in isolated pulmonary arteries.
- Kobs, Ryan, Summer 2002. Setup and refine instrumentation to measure pressure, diameter, wall thickness and axial force changes in pressurized mouse pulmonary arteries.
- Williams, Kelly, Fall 2002. Critical journal article review on methods for investigating the role of shear stress on the development of intimal hyperplasia in human saphenous veins.