

Kurt R. Stenmark, M.D.

Curriculum Vitae

I. BIOGRAPHICAL SKETCH

Current Position: Distinguish Professor of Pediatrics, Medicine, and Anesthesiology
La Cache Critical Care Chair in Pediatrics
Director, Cardiovascular Pulmonary Research and
Developmental Lung Biology Laboratories

Current Address: University of Colorado Denver
Developmental Lung Biology Laboratory
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Citizenship/Birth: U.S.A., Denver, Colorado

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Scholar h-Index: 93

Citations: 36,716

i10-index: 312

EDUCATION

1969-1973 B.A. University of Colorado, Boulder, Cum Laude, Phi Beta Kappa
1973-1977 M.D. University of Colorado, Denver, Alpha Omega Alpha
1977-1980 Pediatric Residency Levels 1-3
University of Colorado Health Sciences Center (UCHSC)
1980-1981 Pediatric Chief Resident, UCHSC
1981-1984 Pediatric Pulmonary/Critical Care Fellowship, The Children's Hospital
1982-1984 Fellowship, Cardiovascular Pulmonary Research, UCHSC, under John V. Weil, MD, John T. Reeves, MD

ACADEMIC APPOINTMENTS

Present

1994-present Professor with tenure, Department of Pediatrics, UCHSC
2006-present Director, Cardiovascular Pulmonary Research Laboratory, UCHSC
2013- Affiliated Faculty, Center for Global Health, Colorado School of Public Health
2014- Special Graduate Faculty, School of Engineering, University of Guelph, Ontario, Canada

Previous

1980-1981 Instructor in Pediatrics, Department of Pediatrics, UCHSC
1984-1989 Assistant Professor, Department of Pediatrics, UCHSC
1989-1994 Associate Professor with tenure, Department of Pediatrics, UCHSC
1987-2023 Division Head, Pediatric Critical Care Medicine

2015-2018 Associate Affiliate, Department of Microbiology, Immunology, and Pathology, CSU, Ft. Collins
2012-2020 Graduate Faculty, College of Engineering and Applied Science

AWARDS AND HONORS

1973 Phi Beta Kappa - University of Colorado, Boulder, CO
1977 Gengenbach Award - Outstanding Student in Pediatrics - UCHSC
1977 Alpha Omega Alpha - University of Colorado, Denver
1985 Clinical Investigator Award - National Heart Lung and Blood Institute (NHLBI)/NIH
1987 Outstanding Clinical Investigator Award, NHLBI/NIH.
Presented by Dr. James Wyngaarden, Director NIH at the Centennial Celebration of the NHLBI.
1989- Ross Young Investigator Award for Pediatric Research, American Academy of Pediatrics
1990 Career Investigator Award - American Lung Association
1990 Secretary, Pulmonary Circulation Section, American Thoracic Society
1991 Program Chairman, Pulmonary Circulation Section, American Thoracic Society
1991 Executive Council, Western Society for Pediatric Research
1993 Chairman, Pulmonary Circulation Assembly, American Thoracic Society
1993 Board of Directors, American Thoracic Society
1994 Gary Way Teaching Award - Outstanding Teacher Award, Presented by Pediatric Housestaff, University of Colorado Health Sciences Center
1997 Distinguished Scientific Accomplishments Award - American Thoracic Society, Presented at the 1997 ATS International Meeting, San Francis, CA
1997 Elected Member, American Pediatric Society
1998 Best Doctors
2003- Inaugural Fellow of the Council on Cardiopulmonary, Perioperative and Critical Care - AHA
2006-2011 Consumers' Research Council of America, America's Top Pediatricians
2007, 2008 - Top Docs, 5280 Magazine
2011-2015 Associate Editor: American Journal Physiology-Lung Cellular and Molecular Physiology
2013-2016 Scleroderma Foundation Peer Review Committee
2014-present Chair, Nominating Committee of ATS Pulmonary Circulation Assembly
2014-present Head, North American Task Force, Pulmonary Vascular Res. Institute (PVRI), Gaungzhou, China
2015 Robert F. Grover Prize – American Thoracic Society
2015 Chair - North American Task Force, PVRI – 2016 Rome, Italy
2015-present Deputy Editor, Pulmonary Circulation, a journal of the Pulmonary Vascular Research Institute
2015-2018 PVRI Liaison, Cardiopulmonary, Critical Care, Perioperative & Resuscitation (3CPR) Council
2016-present Consulting Editor, American Journal Physiology-Lung Cellular and Molecular Physiology
2018 Associate Editor, Cardiovascular Research Journal, European Society of Cardiology
2019-present La Cache Critical Care Endowed Chair
2019-present Association of American Physicians (AAP)
2020 3CPR Dickinson W. Richards Lecture Award
2023-2024 President, Pulmonary Vascular Research Institute (PVRI)

PROFESSIONAL SOCIETY MEMBERSHIPS

1996-present Society of Critical Care Medicine
1999-present American Thoracic Society
1999-present American Pediatric Society
1999-present AmericanB Physiological Society
2001-2009 American Society for Cell Biology
2003-present American Heart Association
2007-2008 Faculty of 1000 Biology, Respiratory Pharmacology Section; Biology Reports Ltd.
2010-present PVRI Preclinical Task Force
2011-2013 NAVBO

INSTITUTIONAL COMMITTEES

2000-2012	Pediatric Faculty Promotions Committee
2001	Developmental Biology Steering Committee
2001	Research Retreat Break-Out Groups Committee
2002	Post-Doctoral Task Force Committee
2003-2012	UC Denver Promotion/Tenure Committee
2010-2012	Vascular Biology Initiative Committee
2011-2012	Organizer and Co-Chair Aspen Lung Conference
2011-present	Pediatric Student Research Program
2011-present	Co-Interim Leader, Cardiopulmonary and Vascular Biology
2012	Search Committee, Section Chief of Clinical Genetics and Metabolism
2012-2015	Graduate Faculty College of Engineering and Applied Science
2012-present	Research Award Selection Committee for School of Medicine
2018-present	NICHD K12 Child Health Research Career Development Program Executive Committee

NATIONAL AND INTERNATIONAL COMMITTEES

1990-1991	Chair, Pulmonary Circulation Section, American Thoracic Society
1992, 1993	Program Committee: International ATS/ALA Meeting
1993	Long Range Planning Committee, American Thoracic Society
1995	Special Emphasis Panel on Pulmonary Vascular biology, National Institutes of Health
1997	International Workshop Committee on Lymphangiomyomatosis, NIH
1998	Committee to Re-Classify Pulmonary Hypertension, European Respiratory Society
1998	Co-Chairman and Co-Organizer, American Heart Association sponsored by Ninth Annual Pulmonary Circulation Conference, Sedalia, CO.
1998	Co-Chairman and Conference Organizer, Symposium on Airway and Pulmonary Vascular Smooth Muscle Function in Health and Disease, Sponsor ATS, Sundance, Utah.
1999	Program Committee, Vascular Biology, AHA, Annual International Meeting, Atlanta, GA
1999	Organizing Committee, 7 th International Conference on the Pulm. Circ., Prague, Czech Republic
2000	International Advisory Committee: XI Intl. Vasc. Biol. Meeting, Geneva, Switzerland
2000	Program Committee, Vascular Biology, AHA Annual Meeting, New Orleans, LA
2000	Program Committee, Pulmonary Diseases, APS/SPR Annual Meeting, Boston, MA
2001	International Advisory Committee, XII Intl. Vasc. Biol. Meeting, Karuizawa, Japan, 2002.
2001	Program Committee, Vascular Biology, AHA Annual International Meeting, San Francisco, CA
2001	Program Chairman, Pulmonary Disease, APS/SPR Annual Meeting, Baltimore, MD
2001	American Thoracic Society, Task Force on Training in Pulmonary and Critical Care Medicine
2001	American Thoracic Society, Task Force for Basic Science in Pulmonary Medicine
2001-present	Board of Directors, Pulmonary Circulation Foundation
2002	Program Committee, Vascular Biology, American Heart Association Annual Meeting
2002-2014	Research Advisory Committee A, March of Dimes Birth Defects Foundation
2003	Program Committee, Vascular Biology, AHA Annual Meeting, Orlando, FL
2004	Scientific Advisory Board, XIII International Vascular Biology Meeting, Toronto, Canada
2000, '02, '04	International Advisory Committee for International Congress of Vascular Biologists
2005-	NHLBI Strategic Plan-DLD Executive Planning Committee
2008-present	ATS Scientific Advisory Committee
2011-present	Co-Chair, Section 4, Group Leader: New Drug Development PH Academic Res. Consortium
2013-2016	Scleroderma Foundation Peer Review Committee
2015-present	Pulmonary Vascular Research Institute (PVRI) Steering and Scientific Committee
2015-2018	Council on Cardiopulmonary, Critical Care, Perioperative & Resuscitation (3CPR)

GRANT REVIEW COMMITTEES

- 2001-2005 – Permanent Member, Parent Committee Program Project Review for NHLBI
2002-present Lung Cell Biology, National Institutes of Health, Ad Hoc; Veterans Administration - Career Development Grants; American Lung Association, Annual Clinician Scientist Awards American Heart Association; Canadian Research Council; LAM Foundation; Veterans Administration Career Development Grants; British Heart Foundation; Irish Wellcome Foundation
- 2009-2014 Permanent Member RIBT Study Section, NHLBI
2010-2023 Boettcher Foundation Webb-Waring Biomedical Research Awards Committee
2012-2014 Chair, RIBT Study Section, NHLBI
2012-present Agence Nationale De La Recherche, French National Research Agency; Katholieke Universiteit Leuven, Leuven, Belgium; Innovational Research Incentives Scheme Vici - Life Sciences, Netherlands Organisation for Scientific Research, Hague, Netherlands; Health Research Board (HRB), Dublin, Ireland; Medewerker Asthma Fonds, Nederlands
- 2014 Austrian Science Fund, Vienna, Austria
2015-present ENTELLIGENCE Young Investigator Award Steering Committee

LICENSURE

- 1979- present State of Colorado

BOARD CERTIFICATION

- 1978 - National Board of Medical Examiners
1983 - American Board of Pediatrics
1989 - American Board of Pediatrics
Subspecialty Certification Pediatric Pulmonology
1996 - Re-certification in Pediatric Pulmonology

JOURNAL REVIEWER AND EDITORIAL BOARDS

Editorial Board

- 2011-2016 Associate Editor, American Journal of Physiology: Lung Cellular and Molecular Physiology
2011-present American Journal of Respiratory and Critical Care Medicine (AJRCCM)
2014-present American Journal of Respiratory Cell and Molecular Biology (AJRCMB)
2015-present Editor-in-Chief, Pulmonary Circulation
American Review of Respiratory and Critical Care Medicine
Circulation Research

Reviewer

- | | |
|---|----------------------------------|
| American Review of Respiratory and Critical Care Medicine | Journal Clinical Investigation |
| American Journal Physiology | Pediatric Pulmonology |
| American Journal Pathology | Circulation Research |
| Circulation | Journal of Pediatrics |
| Atherosclerosis, Thrombosis and Vascular Biology | Pediatrics |
| Journal of Applied Physiology | Laboratory Investigation |
| Journal American Medical Association | Experimental Lung Research |
| Biology of the Neonate | Journal of Experimental Medicine |
| New England Journal of Medicine | |

II. INVITED LECTURES AT NATIONAL OR INTERNATIONAL MEETINGS AND VISITING PROFESSORSHIPS

italic = title of talk; § = conflict; unable to attend

1986

Invited Speaker: *Roles of Cellular and Inflammatory Products in the Pathophysiology of Bronchopulmonary Dysplasia*. Aspen Conference on Pediatric Disease - Bronchopulmonary Dysplasia (July 1986).

Invited Speaker: *Steroids and BPD*. Aspen Conference on Pediatric Disease - Bronchopulmonary Dysplasia (July 1986).

Invited Speaker: *Potential Role of Eicosanoids and PAF in the Pathophysiology of Bronchopulmonary Dysplasia*. Robert F. Grover Conference on the Pulmonary Circulation, Lost Valley Ranch, Deckers, CO (September 15-18, 1986)

Visiting Professor - University of Rochester, Rochester, New York (December 10-12, 1986)

Pediatric Grand Rounds - *Update on BPD*

Neonatal Grand Rounds - *Persistent Pulmonary Hypertension of the Newborn: Mechanisms*

1987

Invited Speaker: *Role of Chemical Mediators in Bronchopulmonary Dysplasia and New Experimental Approaches to Treatment*. The Sarasota National Conference on Pediatric Lung Diseases, Sarasota, Florida (March 20-22, 1987)

Invited Speaker: *Oxygen Toxicity: Mechanisms, Consequences and Possible Therapies*. The Sarasota National Conference on Pediatric Lung Diseases, Sarasota, Florida (March 20-22, 1987).

Invited Speaker: *Vascular Remodeling in Neonatal Pulmonary Hypertension*. Workshop on Postnatal Development in Health and Disease. NIH, Bethesda, Maryland (April 2-3, 1987).

Invited Speaker: *Neonatal Vascular Remodeling: Role of the Smooth Muscle Cell*. Centennial Celebration of the Division of Lung Diseases, National Heart, Lung, Blood Institute, New Orleans, Louisiana (May 9, 1987).

Invited Speaker: *Alterations of Collagen and Elastin Metabolism in Neonatal Pulmonary Hypertension*. Aspen Lung Conference, Aspen, Colorado (June 1987).

Invited Speaker: *Role of the Smooth Muscle Cell in Vascular Remodeling*. Gordon Research Conference on Elastin, Kimball Union Academy, Meriden, New Hampshire (August 9-14, 1987).

Invited Speaker: *Role of the Smooth Muscle Cell in the Vascular Remodeling of Neonatal Pulmonary Hypertension*. Perinatal Medicine Conference, Snowmass, Colorado (August 7-9, 1987).

Invited Speaker: *Smooth Muscle Mediated Connective Tissue Remodeling in Pulmonary Hypertension*. National Heart, Lung, Blood Advisory Council Meeting, Bethesda, Maryland (September 10-11, 1987).

Invited Speaker: *Pediatric Head Injury*. 5th Annual Critical Care Symposium, Colorado Springs, Colorado (November 6, 1987).

1988

Invited Speaker: *The Role of Inflammation and Inflammatory Mediators in Bronchopulmonary Dysplasia*. American Academy of Allergy and Immunology Annual Meeting, Anaheim, California (March 12, 1988).

Invited Speaker: *Vascular Remodeling in Neonatal Pulmonary Hypertension*. Perinatal Emphasis Research Centers Annual Directors Meeting, Denver, Colorado (March 15, 1988).

Invited Speaker: *Differences in the Connective Tissue and Prostaglandin Response of Large and Small Arteries and Veins to Severe Pulmonary Hypertension in Neonatal Calves*. Federation of Experimental Biology National Meeting, Las Vegas, Nevada (April, 1988).

Invited Speaker: *Vascular Remodeling in Pulmonary Hypertension*. American Thoracic Society Annual Meeting, Las Vegas, Nevada (May, 1988). Chairman of Session.

1989

Visiting Professor - University of Pittsburg (January 26-27, 1989).

Invited Speaker: *Mechanisms of Vascular Remodeling in Neonatal Pulmonary Hypertension*. Ross Research Award and Lecture, Western Society for Pediatric Research, Carmel, California (February 7, 1989).

Invited Speaker: *The Pulmonary Circulation: Regulation in Health and Disease, Postgraduate course on Lung Growth and Development: Basic and clinical considerations*. American Thoracic Society Annual Meeting,

Cincinnati, Ohio (May 1989).

Invited Speaker: *Neonatal Pulmonary Hypertension: Mechanisms*. Lung Symposium Annual Meeting Society for Pediatric Research, Washington, D.C. (May 1989).

Invited Speaker: Prague Symposium on the Pulmonary Circulation. Collagen in the Pulmonary Vascular Wall, Prague, Czechoslovakia (July 4-7, 1989). Chairman and Presenter.

Invited Speaker: *Pulmonary Vascular Remodeling in Chronic Lung Disease of Infancy*. Perinatal Symposium, Chicago, Ill. (November, 1989).

Invited Speaker: *Control of Elastin Production in Pulmonary Hypertension*. Fall Meeting of American Physiologic Society and American Thoracic Society. Rochester, Minn. (October, 1989).

1990

Invited Speaker: *Pulmonary Hypertension and its Mediators*. Sixth Annual National Symposium on Extracorporeal Membrane Oxygenation. Breckenridge, Colo. (February, 1990).

Invited Speaker: *Regulation of Elastin Synthesis in Pulmonary Hypertension*. Symposium on Molecular Biology of Extracellular Matrix, American Thoracic Society, Boston, MA. (May, 1990).

Visiting Professor - Loma Linda University. Los Angeles, CA (June, 1990).

Cellular Adaptation in Chronic Hypoxic Pulmonary Hypertension. Joint US-USSR Symposium on Cardiovascular and Pulmonary Biology and Medicine. Suzdal, USSR (September, 1990).

Invited Speaker: *Response of the Developing Pulmonary Circulation to Injury*. 101st Ross Conference on Pediatric Research. Phoenix, AZ (November, 1990).

1991

Invited Speaker: *Future Directions in Extracorporeal Membrane Oxygenation Research*. National Symposium on Extracorporeal Membrane Oxygenation. Breckenridge, CO (February, 1991).

Invited Speaker: *Anti-Inflammatory Agents in the Treatment of Bronchopulmonary Dysplasia*. Symposia on Clinical Problems in Pediatric Lung Disease. American Thoracic Society, American Lung Association Annual Meeting. Anaheim, CA (May, 1991).

Invited Speaker: *Hypoxia Induced Vascular Remodeling*. Gordon Research Conference on Elastin. Meriden, NH (July, 1991).

Visiting Professor - University of Texas, Southwestern, Dallas, TX (October, 1991).

Invited Speaker: *Injury to the Developing Lung*. Mead Johnson Perinatal & Developmental Medicine Symposium. Marco Island, FL (November, 1991).

1992

Invited Speaker: *Perspectives on the Pathogenesis and Treatment of Neonatal and Pediatric Pulmonary Hypertension*. The Eighth Annual National Extracorporeal Membrane Oxygenation Symposium. Breckenridge, CO (February, 1992).

Invited Speaker: *Mechanisms of Vascular Remodeling* at workshop on Pathogenesis of Lung Disease in Sickle Hemoglobinopathies. Division of Blood Diseases and Resources and Division of Lung Diseases, NIH. Bethesda, MD (April, 1992).

Visiting Professor - *Perspectives on the Pathogenesis and Treatment of Neonatal and Pediatric Pulmonary Hypertension*. Newark Beth Israel Medical Center, Newark, NJ (April, 1992).

Invited Speaker: *Response of the Developing Pulmonary Circulation to Injury*. 1992 International American Lung Association Conference. Miami, FL (May, 1992).

Invited Speaker: *Normal and Abnormal Vascular Development*. International Conference on Pulmonary Circulatory Disorders in the Newborn, Infant and Child. Groningen, The Netherlands (May, 1992).

Invited Speaker: *Mesenchymal Cell Derived Growth Factors and Vascular Tissue Remodeling*. International Conference on The Pulmonary Vasculature in Health & Disease, NIH. London, UK (September, 1992).

Invited Speaker: *Use of Bronchoalveolar Lavage in Assessment of Lung Function and Dysfunction in Studies of Infants and Children*. NHLBI Workshop on Infant Lung Function. NIH, Bethesda, MD (September, 1992).

Invited Speaker: *Structural and Functional Changes of the Pulmonary Blood Vessels in Neonatal Pulmonary Hypertension*. Perinatal Research Society. Tucson, AZ (September, 1992).

Visiting Professor and Eli Lilly Pediatric Critical Care Professorship - LeBonheur Children's Medical Center, Memphis, TN (October, 1992).

Invited Speaker: *Regulation of Collagen and Elastin Gene Expression in Pulmonary Hypertension.* American Heart Association Annual Meeting, New Orleans, LA (November, 1992).

1993

Invited Speaker: *Use of Antiproliferative and Antifibrotic Agents in the Treatment of Pulmonary Hypertension.* Team Approach to Pediatric Cardiac Disease. The Children's Hospital of Denver, Vail, CO (March, 1993).

Invited Speaker: *Cellular Adaptation in Pulmonary Hypertension: Implications for treatment.* 20th Neonatal and Infant Respiratory Symposium. The Ohio State University Hospitals, Vail, CO (March, 1993).

Invited Speaker: *Impact of Lung Injury on the Pulmonary Vessel.* 20th Neonatal and Infant Respiratory Symposium. The Ohio State University Hospitals, Vail, CO (March, 1993).

Invited Speaker: *Persistent Pulmonary Hypertension of the Newborn: Current Status and Future Directions.* The Diamond Conference. Arkansas Pediatric/Neonatal Cardiopulmonary Care. Respiratory Care Services Arkansas Children's Hospital, Little Rock, AR (April, 1993).

Invited Speaker: *Bronchoalveolar Lavage: Use in the Assessment of Pediatric Lung Function and Dysfunction.* American Lung Association/American Thoracic Society International Conference. San Francisco, CA (May, 1993).

Invited Speaker: *Vascular Remodeling in Neonatal Pulmonary Hypertension.* World Congress of Pediatric Cardiology and Cardiac Surgery. Paris, FRANCE (June, 1993).

Invited Speaker: *Heterogeneity of Smooth Muscle Phenotype in the Developing Circulation.* 20th Anniversary Celebration of the Soviet-American Scientific Exchange Program. Moscow, RUSSIA (September, 1993).

1994

Visiting Professor - *Developmental Differences in Mechanisms Controlling Growth and Matrix Protein Synthesis in the Pulmonary Circulation.* University of Utah, Salt Lake City (April, 1994).

Control of Pulmonary Vascular Growth in the Perinatal Period. State-of-the-Art Plenary Session, American Pediatric Society/Society for Pediatric Research Annual Meeting. Seattle, WA (May, 1994).

Chairman - *Symposia on Nitric Oxide in the Treatment of Neonatal and Pediatric Pulmonary Hypertension.* 10th Annual Children's National Medical Center. ECMO Symposium, Keystone, CO (February, 1994).

Chairman - *Symposia on Pulmonary Vascular Remodeling in Development and Disease.* American Lung Association/American Thoracic Society International Conference. Boston, MA (May, 1994).

Invited Speaker: *Pediatric Pulmonary Hypertension.* Treating the Hypoxic Patient at A Rocky Mountain Symposium for the Clinician. Snowmass, CO (August, 1994).

Invited Speaker: *Effect of Moderate Altitude on Cardiac Disease on Children.* Treating the Hypoxic Patient at A Rocky Mountain Symposium for the Clinician. Snowmass, CO (August, 1994).

Invited Speaker: *Regulation of Pulmonary Vascular Wall Cell Growth: Developmental Cell, and Site Specific Heterogeneity.* Pediatric Cardiology - The Failing Heart. The University of Colorado Health Sciences Center. Aspen, CO (August, 1994).

Invited Speaker: *Identification and Characterization of Phenotypically Distinct Smooth Muscle Cell Populations with Unique Proliferative Responses to Growth Promoting Stimuli.* United States - Russia Joint Symposium on Vascular Biology and Cellular Differentiation. Dallas, Texas (November, 1994).

Chairman - *Symposia on Pulmonary Vascular Growth/Remodeling.* American Heart Association International Meeting. Dallas, TX (November, 1994).

1995

Invited Speaker: *Unique Aspects of the Cellular Response to Injury in the Developing Pulmonary Circulation.* Team Approach to Pediatric Cardiac Disease. The Children's Hospital, Denver, Vail, CO (February, 1995).

Chairman - *Symposia on Pulmonary and Critical Care I.* Western Society for Pediatric Research. Carmel, CA (February, 1995).

Invited Speaker: *Mechanisms of Lung Growth and Maladaptation of These Processes in Disease.* 11th Annual CNMC Symposium on ECMO and Advanced Therapies for Respiratory Failure. Keystone, CO (February, 1995).

Invited Speaker: *Unique Mechanisms Controlling Growth of Vascular Cells in the Neonate.* International Conference on the Fetus and Newborn XXIX - Novel Therapies for Neonatal Respiratory Disorders. University of Colorado School of Medicine CME/The Children's Hospital. Aspen, CO (March, 1995)

Invited Speaker: *Heterogenic SMC Subpopulations Exist in the Pulmonary Artery: Implications for the Vascular*

Response to Injury. National Institutes of Health - Special Emphasis Panel on Pulmonary Vascular Biology. Bethesda, MD (March, 1995).

Invited Speaker: *Clinical Correlates: Neonatal Pulmonary Hypertension*. Lung Growth and Development: Basic Science and Clinical Correlates. ALA/ATS International Conference. Seattle, WA (May, 1995).

Invited Speaker: *Growth and Regulation of Normal Vascular Tissue*. Immune Mechanisms of Cardiovascular Disease. The University of Colorado Health Sciences Center/The Children's Hospital. Aspen, CO (August, 1995).

Invited Speaker: *Regulation of Pulmonary Vascular Wall Cell Growth: Developmental, Cell, and Site Specific Heterogeneity*. Pediatric Cardiology - The Failing Heart. The University of Colorado Health Sciences Center. Aspen, CO (August, 1995).

Chairman - Symposia on *Diversity in Vascular Smooth Muscle Cell Phenotype and Function in Pulmonary and Systemic Arteries*. American Heart Association International Meeting. Anaheim, CA, (November, 1995).

Invited Speaker: *Identification and Characterization of Phenotypically Distinct SMC Subpopulations with Unique Proliferative Responses to Growth Promoting Stimuli*. Vascular Biology and Cellular Differentiation. USA-Russia Joint Symposium. Dallas, TX (November, 1995).

1996

Invited Speaker: *Persistent Pulmonary Hypertension of the Newborn: In vivo and in vitro evidence for expression of fetal-like characteristics in pulmonary vascular wall cells*. International Conference on the Fetus and Newborn XXX - Novel Therapies for Neonatal Respiratory Disorders. University of Colorado School of Medicine CME/The Children's Hospital. Aspen, CO (March, 1996).

Visiting Professor - *New Developments in the Pathophysiology and Treatment in the Vascular Wall: Implications for Arterial Structure and Function*. Pediatric Grand Rounds, The Hospital for Sick Children. Toronto, Ontario Canada (May, 1996).

Visiting Professor - *Heterogeneity of SMC Phenotype in the Vascular Wall: Implications for arterial structure and Function*. Respiratory Medicine Seminar Grant Rounds, The Hospital for Sick Children. Toronto, Ontario Canada (May, 1996).

Invited Speaker: *Pulmonary Vascular Smooth Muscle Cell Heterogeneity: In Vivo and In Vitro Studies*. Heterogeneity of Airway and Vascular Smooth Muscle. Hecla Island, Manitoba CANADA, (August, 1996).

Invited Speaker: *Pediatric Pulmonary Disease*. Clinical Topics in Pulmonary Medicine/Clinical Year in Review. ALA/ATS International Conference. New Orleans, LA (May, 1996).

Invited Speaker: *Pulmonary Vascular Remodeling Symposia, Pulmonary Hypertension: From the Bench to the Bedside*. ALA/ATS International Conference. New Orleans, LA (May, 1996).

Invited Speaker: *Secretion of Novel Growth Factor by a Unique Subpopulation of Bovine Vascular Smooth Muscle Cells*. Pulmonary Biology and Medicine. Experimental and Clinical Aspects of Cardiovascular Medicine. Russia-USA Joint Symposium. Volzhsky Utes, USSR (June, 1996).

Invited Speaker: *Post-Graduate Course on The Pulmonary Circulation*. 2nd World Congress on Pediatric Intensive Care 1996. Rotterdam, Netherlands. (June, 1996).

Invited Speaker: *Pulmonary Vascular Remodeling*. 2nd World Congress on Pediatric Intensive Care 1996. Rotterdam, Netherlands. (June, 1996).

Invited Speaker: *Nitric Oxide - How does it work in the lungs*. 2nd World Congress on Pediatric Intensive Care (June 1996).

Invited Speaker: Rotterdam, Netherlands. (June, 1996).

Chairman - *Prevention and Treatment of Pulmonary Edema*. Pathogenesis and Treatment of Pulmonary Edema. Eighth Pulmonary Circulation Conference. Deckers, CO (September, 1996).

1997

Invited Speaker: *Vascular Smooth Muscle Cell Heterogeneity*. ICOS Corporation. Bothell, WA. (November, 1996).

Visiting Professor: *Pediatric Grand Rounds*. The Children's Hospital. Denver, CO (January, 1997).

Invited Speaker: *Mechanisms of Pulmonary Vascular Remodeling - State of the Art*. Western Society for Pediatric Research. Carmel CA (February, 1997).

Chairman - Symposia on: *Lung Vascular Injury and Remodeling During Development*. Experimental Biology '97.

New Orleans, LA (April, 1997).

Invited Speaker: *Smooth Muscle Heterogeneity and Vascular Remodeling - Pulmonary Arteries.* Differences & Similarities Between the Pulmonary and Systemic Circulations Related to Reactivity, Progression and Regression of Vascular Disease Workshop. ALA/ATS International Conference. San Francisco, CA (May, 1997).

Invited Speaker: *Response of the Developing Lung Circulation to Injury .* Distinguished Lecture for Scientific Accomplishments. American Thoracic Society International Meeting. San Francisco, CA (May, 1997).

Invited Speaker: *Vascular Smooth Muscle Phenotypes in Pulmonary Hypertension - State of the Art - Biology and Pathobiology of the Lung Circulation.* 40th Annual Thomas L. Petty Aspen Lung Conference. Aspen, CO (June, 1997).

Invited Speaker: *Smooth Muscle Phenotypes in Pulmonary Vessels.* International Workshop on Lymphangiomyomatosis (LAM). NIH. Bethesda, MD (June, 1997).

Invited Speaker: *Pulmonary Vascular Disease Superimposed on Development: Can Heterogeneity and Plasticity be Used to Advantage?* National Conference on Mechanisms of Proliferative and Obliterative Vascular Diseases. NHLBI. Bethesda, MD (September, 1997).

Visiting Professor - University of South Alabama. (September, 1997)

Chairman - *Cell Growth / Apoptosis.* American Heart Association 70th Scientific Session. Orlando, FL (November, 1997).

1998

Invited Speaker: *Debate on Nomenclature in Pulmonary Hypertension.* European Respiratory Society (ERS). Geneva, Switzerland (September, 1998).

Visiting Professor - Vienna, Austria (September 1998).

Invited Speaker: *Vascular Cell Growth and Differentiation.* Scientific Conference on Control Mechanisms in the Fetal and Neonatal Pulmonary Circulation. AHA Ninth Pulmonary Circulation Conference. Sedalia, CO (September, 1998).

Chairman - *Regulation of Smooth Muscle Phenotype.* ATS Committee Symposium on Airway and Pulmonary Vascular Smooth Muscle Function in Health and Disease. Sundance, UT (October, 1998).

Invited Speaker: *The Contribution of Select Smooth Muscle Cell Populations to Pulmonary Vascular Remodeling.* 9th Annual Vascular Biology and Hypertension Research Symposium. Sandestin, FL (October 1998).

1999

Invited Speaker: *Pulmonary Hypertension-Age-Dependent Effects of Pulmonary Hypertension.* Society of Critical Care Medicine 28th Educational & Scientific Symposium. San Francisco, CA (January 1999).

Invited Speaker: *Hypoxic Regulation of Vascular Growth.* 11th International Hypoxia Symposium. Jasper Park Lodge, Alberta, Canada (February 1999).

Invited Speaker: *Contribution of Unique SMC Subpopulations to Vascular Disease.* 1999 Lifeline Foundation Research Initiatives and NIH Conference on Vascular Disease. Bethesda, MD (March 1999).

Invited Speaker: *Developmental Changes in the Pulmonary Vascular Response to Injury, Plenary Session.* 1999 Pediatric Academic Society and Society for Pediatric Research International Conference. San Francisco, CA (May 1999).

Chairman, *Chronic Hypoxia and the Pulmonary Circulation.* International Symposium Pulmonary Circulation VII. Prague, Czech Republic (June 1999).

Invited Speaker: *Role of Unique Cells and Genes in the Vascular Response to Injury.* University of Vienna Medical School., Vienna, Austria (July 1999).

Invited Speaker: *Adult Consequences of Fetal Hypoxia and Abnormal Lung Development.* International Conference on Fetal Origins of Adult Disease. Rockville, MD (Sept. 1999).

Invited Speaker: *Pathology of Pulmonary Hypertension.* BALR Symposium, Annual British Thoracic Society Meeting. London, England (Dec. 1999).

2000

Visiting Professor – *Long Term Consequences of Fetal and Neonatal Vascular Injuries,* Pediatric Grand Rounds, Yale University, New Haven, CT (March 8-9, 2000)

External Examiner – Kyle Cowan Thesis “Co-Ordinated Induction of Apoptosis and Extracellular Matrix Resorption Reverses Severe Pulmonary Vascular Disease”. The Hospital for Sick Children, University of

Toronto, Toronto, Ontario, Canada. (March 17, 2000).

Invited Speaker: Impact of Injury on the Developing Pulmonary Circulation at NICHD/NHLBI Workshop *Redefining the new Bronchopulmonary Dysplasia*. Bethesda, Maryland (May, 2000)

Chairman – *Insights into Abnormal Lung Development*, American Thoracic Society International Conference, Toronto, Canada (May, 2000)

Invited Speaker: *Mechanisms of Endothelial Cell Transdifferentiation*. XI International Vascular Biology Meeting, Geneva, Switzerland. (September, 2000)

Visiting Professor – *Role of the Adventitial Fibroblast in Vascular Remodeling*. University of Bern, Switzerland, (Sept. 2000)

Visiting Professor – *Perinatal Injuries: Acute and Long-Term Effects on the Cardiovascular System*. Pediatric Grand Rounds, The University of Iowa, Iowa City, Iowa, (October 20, 2000).

Invited Speaker: *Endothelial Cell Transdifferentiation in Development and Disease*. The Eighth Woods Hole Conference in Lung Cell Biology, Woods Hole, Massachusetts, (October 29-November 1, 2000).

2001

Invited Speaker: *Signals: Reprogramming the Vessel Wall*. Session: Pulmonary Hypertension I: Genetics and Mechanisms. 3rd World Congress of Pediatric Cardiology and Cardiac Surgery, Toronto, Canada, (May 27-31, 2001).

Invited Speaker: *Current Concepts in Perinatal Vascular Remodeling*. Lung Development and Congenital Diaphragmatic Hernia Workshop, Rotterdam, Netherlands, (June 18-20, 2001).

Invited Speaker: State-of-the-Art: *Response of the Developing Circulation to Injury*, Dutch Symposia on the Pulmonary Circulation, Erasmus University, Rotterdam, The Netherland (June 21, 2001)

External Examiner – Alexandra Guldemeester Thesis “Maturation Features of the Neonatal Pulmonary Circulation”. Erasmus Medical Centre Rotterdam, Netherland. (June 20, 2001).

Invited Speaker: *Endothelial Cell Transdifferentiation*, International Conference on New Approaches to Pulmonary Hypertension, sponsored by University of Vienna, Vienna, Austria (June 25, 2001).

Co-Chair and Speaker – *Role of Fibroblasts in the Etiology of Pulmonary Hypertension*. Lovelace Respiratory Research Institute Symposium on Remodeling and Repair in Respiratory Disease, 2001. Santa Fe, New Mexico. (October 14-17, 2001).

2002

Chairman, Organizer and Speaker: *Pulmonary Circulation: Normal and Abnormal Development and Clinical Implications. Role of the Adventitial Fibroblasts in Vascular Remodeling*. 5th International Congress on Pediatric Pulmonology. Nice, France (Feb. 18-21, 2002).

Invited Speaker: *Yin and Yang of an Endothelial Cell: From Normal too Extreme in Growth, Secretion, Differentiation*. US-Italy Symposium on Pathophysiology and Therapeutic Approaches for Vascular Remodeling. Atlanta, Georgia (March 14-16, 2002).

Keynote Address – *Control of Vascular Smooth Cell Proliferation in Development and Disease*. LAM Foundation/National Heart Lung and Blood Institute Research Conference. Cincinnati, Ohio (March 22-24, 2002).

Invited Speaker: *Adventitial Fibroblasts: Sentinel Cells in the Vascular Response to Injury*. Lung Injury in the Newborn, Keystone, 2002, Keystone, CO (June 13-16, 2002).

Invited Speaker: *Hypoxia-Induced Cell Signaling: Role in Vascular Development*. Symposium on Lung Growth and Repair. Washington University, St. Louis, MO (October 24, 2002).

Visiting Professor: *Hypoxia: A Key Regulator of Cell Function in Health and Disease*. Grand Rounds. Washington University, St. Louis, MO (October 25, 2002).

2003

Ray Krock Visiting Professor: Grand Rounds. LeBonheur Children’s Hospital, Memphis, TN (February 24-27, 2003).

Visiting Professor: Grand Rounds. Departments of Pediatrics and Physiology. University of Wisconsin-Madison Medical School, Madison, WI (March 5-9, 2003).

Invited Speaker: *Viral Infection in the Premature Lung: Potential Mechanisms of Respiratory Failure*. 2003 International Congress on Respiratory Viruses. Chantilly, VA (April 25-27, 2003).

Invited Speaker: *Smooth Muscle Phenotype and Environmental Interactions*. Cellular and Molecular Biology of Smooth Muscle. ATS 98th International Conference, Seattle, WA (May 16-21, 2003).

Task Force Member and Speaker on Pathology and Pathobiology of Pulmonary Hypertension: 3rd World Symposium on Pulmonary Arterial Hypertension. Venice, Italy. (June 23-25, 2003).

Invited Speaker: “*Hypoxic Signaling and Pulmonary Vascular Cell Proliferation*”. Cambridge Pulmonary Hypertension International Meeting. Cambridge, England (Sept. 11-12, 2003).

Visiting Professor: *Mechanisms of Hypoxia-Induced Pulmonary Vascular Remodeling: Resident and Stem Cell Contributions*. Stanford University Medical Center, Stanford, CA (Sept. 21-23, 2003).

Visiting Professor: Indiana University School of Medicine, Indianapolis, IN (Oct. 9-10, 2003).

Invited Speaker: *Lung Physiology and the Risk of RSV*. MedImmune Satellite Symposium at RSV 2003. Stone Mountain, GA (Nov. 10, 2003).

Invited Speaker: “*Relationship of the Pulmonary circulation to Lung Development: Implications for Chronic Lung Disease.*” and “*The Impact of Viral Infection and Inflammation on Infants with Chronic Lung Disease.*”. 15th Annual Conference on High Frequency Ventilation and Other Advances in Neonatal/Perinatal Care. Tempe, AZ (Nov. 6-7, 2003).

Invited Speaker: “*Role of Adventitial Fibroblasts in Vascular Remodeling*”. Session: Mechanisms of Vascular Remodeling. American Heart Association. Orlando, FL (Nov. 9-12, 2003).

2004

Visiting Professor: *Pulmonary Vascular Remodeling: Contribution of Non-muscle Cells to the Process*”. University of Rochester Medical Center, Rochester, NY. (February 29-March 2, 2004).

Chairperson: “*Smooth Muscle Cell Phenotype and Heterogeneity*”. XIII International Vascular Biology Meeting 2004. Toronto, Ontario, Canada (June 1-5, 2004).

Invited Speaker: *Molecular and Cellular Signaling in the Perinatal Cardiovascular System*. FASEB Summer Research Conference. Tucson, AZ (Aug. 14-19, 2004).

2005

Visiting Professor: *Hypoxic Signaling and Pulmonary Vascular Remodeling*. Grand Rounds. Children’s Hospital of Orange County, CA. (Jan. 18-20, 2005).

Visiting Professor: *Circulating Progenitor Cells in Pediatric Lung Disease: Friend or Foe?* Pediatric Grand Rounds. Children’s Hospital of Orange County, CA. (Jan. 18-20, 2005).

Invited Speaker: *The Role of Stem Cells in Pulmonary Vascular Remodeling*. XXXV International Congress of Physiological Sciences. “Genetic and Developmental Insights into Pulmonary Vascular Pathobiology” Symposia. San Diego, CA (March 31-April 5, 2005).

Invited Speaker: *Hypoxia-Induced Pulmonary Vascular Remodeling: Contribution of Leukocytes and the Adventitial Vasa Vasorum*. ATS 100th International Conference, San Diego, CA (May 20-25, 2005).

Invited Speaker: *Vascular Remodeling and Angiogenesis in the Pulmonary Circulation (Pt. 1 & II)*. ERS/ATS Joint Research Seminar. Paris, France (December 8-9, 2005).

2006

Invited Speaker: *Recent Insights into Pulmonary Vascular Remodeling: Opportunities for New Therapies?* 5th Annual Evans Family Lecture. Stanford Univ. Med. Ctr, Palo Alto, CA (Feb 23, 2006).

Visiting Professor: *Contribution of Resident Fibroblasts and Circulating Mesenchymal Precursor Cells to Pulmonary Vascular Remodeling*. Cell Biology Seminar. The University of Alabama at Birmingham. (March 15, 2006).

Invited Speaker: *Perspectives on Endothelial-Mesenchymal Transitions in the Pulmonary Vasculature*. Endothelial-Mesenchymal Transformation in Cardiovascular Regenerative Medicine. Experimental Biology. San Francisco, CA (April 1-5, 2006).

Visiting Professor: *Contribution of Resident Fibroblasts and Circulating Mesenchymal Precursor Cells to Pulmonary Vascular Remodeling*. Institute for Medicine and Engineering (IME) at the University of Pennsylvania. Philadelphia, PA (April 17-18, 2006).

Chairperson: *Molecular Mechanisms of Pulmonary Vascular Remodeling*. ATS International Conference, San Diego, CA (May 19-24, 2006).

Invited Speaker: *Adventitial Orchestration of Vascular Remodeling Under Chronic Hypoxic Conditions*. 12th

- Annual University of Pennsylvania Respiration Research Retreat. Philadelphia, PA (June 23, 2006).
- Visiting Professor:** *Contribution of Resident Fibroblasts and Circulating Mesenchymal Precursor Cells to Pulmonary Vascular Remodeling.* University of Pennsylvania, Institute for Medicine and Engineering. Philadelphia, PA (April 17-18, 2006).
- Chair-Elect:** ATS Pulmonary Circulation Assembly: Molecular Mechanisms of Pulmonary Vascular Remodeling. San Diego, CA (May 19-24, 2006).
- Invited Speaker:** *Adventitial Orchestration of Vascular Remodeling Under Chronic Hypoxic Conditions.* 12th Annual University of Pennsylvania Respiration Research Retreat. Philadelphia, PA (June 23, 2006).
- Invited Speaker:** *Adventitial Orchestration of Vascular Remodeling under Chronic Hypoxic Conditions.* Annual Retreat of the Graduate Program “Molecular Biology and Medicine of the Lung”. Giessen, Germany (July 31-Aug. 2, 2006).
- Invited Speaker:** *Circulating Progenitor Cells in Pulmonary Hypertension.* 2006 Grover Conference. Sedalia, CO. (Sept. 6-10, 2006).

2007

- Invited Speaker:** *Contribution of Circulating Mesenchymal Precursor Cells to Pulmonary Hypertension.* George P. Brumley Invited Lectureship at Duke University. Durham, NC (Feb. 15-16, 2007).
- Invited Speaker:** *Hypoxia-Induced Vascular Remodeling and Hypertension.* 15th International Hypoxia Symposium. Lake Louise, Calgary, Canada (Feb. 28-March 3, 2007).
- Visiting Professor:** *Inflammatory and Progenitor Cells in Vascular Remodeling and Stiffening.* Cardiopulmonary Research-in-Progress Seminar. Stanford University. Palo Alto, CA (March 8, 2007).
- Invited Speaker:** *Rho Kinase Inhibitors (Fusadil).* 1st International Conference on Childhood Pulmonary Vascular Disease. University of California, SF. San Francisco, CA (March 9, 2007).
- Invited Speaker and Chair:** *Sources of Smooth Muscle in Pulmonary Vascular Remodeling: Heterogeneity, Transdifferentiation and Progenitor Cells.* Experimental Biology 2007. Washington, DC (April 29-May 2, 2007).
- Invited Speaker:** *Extracellular ATP: A critical modulator of hypoxia-induced pulmonary artery adventitial fibroblast phenotype.* “Pulmonary Hypertension and Signaling in Pulmonary Artery Smooth Muscle Cells”. Life Sciences 2007. Glasgow, Scotland, UK (July 8-12, 2007).
- Invited Speaker:** *Fibrocytes in pulmonary vascular disease.* “Stem Cells and Cellular Therapies in Lung Biology and Lung Diseases”. University of Vermont. Vermont, MA (July 30-Aug. 1, 2007).
- Invited Speaker:** *Effect of hypoxia on the developing lung* “Interaction of Maternal, Placental, and Fetal Systems in Perinatal Development”. Aspen Perinatal Biology Symposium. Aspen, CO (Aug. 25-28, 2007).
- Invited Speaker:** *Vascular Remodeling and Pathogenesis of Pulmonary Hypertension* “Stem Cells, Pulmonary Vascular Diseases and Therapeutics.” American Heart Association. Orlando, FL (Nov. 4-7, 2007).

2008

- Co-Chair:** *Inflammation, Growth Factors, and Pulmonary Vascular Remodeling.* 4th World Symposium on PAH. Dana Point, CA (Feb. 11-14, 2008).
- Chair:** ATS International Conference, Abstract Session/C97: Pathogenic and Therapeutic Role of Stem Cells in Pulmonary Vascular Disease and COPD. Toronto, Ontario, Canada (May 16-21, 2008).
- Invited Speaker:** *Hypoxia-Induced Remodeling of Pulmonary Arterial Media is Associated with the Recruitment of Non-Resident Cells with Enhanced Growth, Migratory and Pro-Mitogenic Capabilities.* 15th International Vascular Biology Meeting (IVBM 2008). Darling Harbour, Sydney, Australia (June 1-5, 2008).
- Invited Speaker:** *SCCOR Program Updates.* Pulmonary Hypertension Association (PHA). Houston, TX (June 19-22, 2008).
- Invited Speaker:** *Novel Therapeutics in Pulmonary Hypertension.* The Pediatric Cardiac Intensive Care Society 7th International Conference. Miami Beach, FL. (Dec. 2-6, 2008).

2009

- Invited Speaker:** *Role of Rho Kinase in Pulmonary Hypertension.* Pulmonary Vascular Research Institute (PVRI). Mexico City, Mexico (Jan. 28-29, 2009).
- Visiting Professor:** *Stem Cells in Lung and Lung Vascular Diseases: Allies or Adversaries?* Grand Rounds. Department of Pediatrics. University of Texas Southwestern Medical Center, Children’s Medical Center. Dallas, TX (April 7-8, 2009).

Visiting Professor: *Source of Smooth Muscle in Pulmonary Vascular Remodeling: Heterogeneity, Progenitor Cells, and Transdifferentiation.* Children’s Hospital Boston. Boston, MA (May 6-7, 2009).

Invited Speaker: *Stem Cells in Lung and Lung Vascular Diseases: Allies or Adversaries?* Colorado Biosymposium on Pulmonary Disease. University of Colorado Denver. Denver, CO (Sept. 16, 2009).

Invited Speaker: *Sustained Hypoxia Leads to the Emergence of Progenitor-Like Cells with Enhanced Growth, Migratory, and Pro-Mitogenic Potential within the Distal Pulmonary Artery.* Pittsburgh International Lung Conference. Pittsburgh, PA (Oct. 9-11, 2009).

Visiting Professor: *Stem Cells in Lung and Vascular Diseases: Allies or Adversaries?* Grand Rounds. Department of Pediatrics. University of California San Diego, Rady Children’s Hospital. San Diego, CA (Oct. 30, 2009).

Invited Speaker: *Heterogeneity of Pulmonary Arterial SMCs.* “Heterogeneous Response of Vascular Smooth Muscle Cells to Injury, Inflammation, and Lipid Exudation.” American Heart Association. Orlando, FL (Nov. 14-18, 2009).

2010

Invited Speaker: *The Role of Smooth Muscle/Adventitial Fibroblast/Inflammatory Cells in PH.* Pulmonary Vascular Research Institute (PVRI). Lisbon, Portugal (Jan. 8-14, 2010).

Invited Speaker: *Contribution of Inflammatory and Mesenchymal Progenitor Cells to Pulmonary Vascular Remodeling.* 3rd International Conference of Childhood Pulmonary Vascular Disease. Banff Springs, Calgary, Canada (March 11-14, 2010).

Chair: ATS International Conference, Poster Discussion Session/Smooth Muscle Cells in PAH: Regulation, differentiation, and proliferation. New Orleans, LA (May 14-19, 2010).

Invited Speaker: *SCCOR Update.* Pulmonary Hypertension Association (PHA) 9th International PH Conference and Scientific Sessions. Orange County, CA (June 24-27, 2010).

Invited Speaker: *Inflammation and Progenitor Cells are Critical Regulators of Pulmonary Vascular Remodeling.* China Heart Congress & International Heart Forum. Beijing, CHINA (Aug. 13-15, 2010).

Invited Speaker: *Cellular and Molecular Mechanisms of Pulmonary Hypertension.* China Heart Congress & International Heart Forum. Beijing, CHINA (Aug. 13-15, 2010).

2011

Invited Speaker: *Importance of the Vascular Stroma in Pulmonary Hypertension: Evidence from Animal Models and the Human Disease.* Physiology in Focus. Experimental Biology. Washington, DC (April 9-13, 2011).

Invited Speaker: *Pathobiology of Pulmonary Vascular Disease and Right Ventricular Dysfunction.* AHA/ATS Joint Guidelines for Pediatric Pulmonary Hypertension. ATS 2011 International Conference. Denver, CO (May 13-18, 2011).

Invited Speaker: *Future Therapies and directions.* AHA/ATS Joint Guidelines for Pediatric Pulmonary Hypertension. ATS 2011 International Conference. Denver, CO (May 13-18, 2011).

Committee Member: *Report from the NHLBI Pulmonary Vascular SCCOR Program.* ATS 2011 International Conference. Denver, CO (May 13-18, 2011).

Chair: *Novel Insights into Pathobiology of Pulmonary Vascular Disease.* Hypoxic-Pulmonary Hypertension – A Half Century of Discover. ATS 2011 International Conference. Denver, CO (May 13-18, 2011).

Chair: *Prostacyclin-Mediated Changes to Inflammation in PAH.* 2011 Risk Factors and Responsiveness to Current and Emerging Therapies. 2011 Grover Conference. Sedalia, CO (Sept. 7-11, 2011).

Invited Speaker: *Large Vessel Stiffening in Pulmonary Hypertension: Contributions of Inflammation and Extracellular Proteins Vary with Age and Species.* Experimental Models of Vascular Pathology. North American Vascular Biology Organization (NAVBO). Hyannis, MA (Oct. 16-20, 2011).

Invited Speaker: *How to Choose the Right Animal Model for PAH Research.* Ask The Experts, Bench to Bedside Pulmonary Hypertension Research. American Heart Association (AHA) Scientific Sessions. Orlando, FL (Nov. 12-16, 2011).

Visiting Professor: *Importance of the Vascular Adventitia in Pulmonary Hypertension: Evidence from Animal Models and the Human Disease.* Georgia Health Sciences University, Department of Pharmacology and Toxicology and Vascular Biology Center. Augusta, GA (Dec. 7-9, 2011).

2012

Invited Speaker: *Acute Lung Injury (ALI) / Acute Respiratory Distress Syndrome (ARDS).* Pediatric Year in

- Review, Basic Science. SCCM 41st Critical Care Congress. Houston, TX (Feb. 3-8, 2012).
- Invited Speaker:** *Pulmonary Stem Cell Populations: Therapeutic Implications.* Neonatal Lung Disease and Pulmonary Vascular Alterations. 5th International Neonatal and Childhood Pulmonary Vascular Disease. San Francisco, CA (March 9-10, 2012).
- Visiting Professor:** *Activated Epigenetically Altered Fibroblasts as a Therapeutic Target in Pulmonary Hypertension.* Pulmonary Grand Rounds. Perelman School of Medicine, University of Pennsylvania. Philadelphia, PA (March 19-21, 2012).
- Visiting Professor:** *Role of Inflammatory and Progenitor Cells in Pulmonary Vascular Remodeling: Potential Role for Targeted Therapies.* Critical Care Medicine Noon Conference. Children's Hospital of Philadelphia. Philadelphia, PA (March 19-21).
- Visiting Professor:** *Acute Lung Injury (ALI)/Acute Respiratory Distress (ARDS) 2011 Update and Future Directions.* Critical Care Medicine Noon Conference. Children's Hospital Boston. Boston, MA (April 18-20, 2012).
- Discussion Panelist:** Novartis PAH Workshop. "Role of Vascular Stiffening in the Pathogenesis of Pulmonary Hypertension." Horsham, United Kingdom (May 3-4, 2012).
- Co-Chair and Conference Organizer:** Mechanics and Mechanisms of Pulmonary Hypertension. 55th Annual Aspen Lung Conference. Aspen, CO (June 6-9, 2012).
- Invited Speaker:** FASEB Summer Research Conference. "Pulmonary Artery "Smooth Muscle-Like" Cells in Pulmonary Hypertension: More than just proliferation and vasoconstriction?" Steamboat, CO (June 24-29, 2012). Presented by Michael Yeager, PhD
- Invited Speaker:** *Importance of the Vascular Stroma in the Pathogenesis of Pulmonary Hypertension and Vascular Remodeling: Fibroblast-Macrophage Interactions as a Therapeutic Target.* 1st International UGMLC Symposium 2012. Marburg, Germany (June 21-23, 2012).
- Discussion Panelist:** BMPR2 in Pulmonary Hypertension: Charting the Future. The Vera Moulton Wall Center for Pulmonary Vascular Disease 10th Anniversary Symposium. Palo Alto, CA (Sept. 10, 2012). §
- Invited Speaker:** *Chronic Inflammation, Autoimmunity, and Epigenetics: A Critical Drug-Targetable Triumvirate in Pulmonary Hypertension.* Keystone Symposia on Molecular and Cellular Biology. Monterey, CA (Sept. 11-15, 2012). Presented by Karim El Kasm, MD, PhD.
- Visiting Professor:** *Chronic Inflammation, Autoimmunity, and Epigenetics: A Critical Drug-Targetable Triumvirate in Pulmonary Hypertension.* Pharmacology Grand Rounds. University of Illinois at Chicago, Chicago, IL (Sept. 19-21, 2012).
- Visiting Professor:** *Advances in Diagnostics and Treatments for Pulmonary Hypertension.* Pediatric Grand Rounds. University of Illinois at Chicago, Chicago, IL (Sept. 19-21, 2012).

2013

- Invited Speaker:** *Regulation of Pathological Lung and Cardiac Remodeling by HDACs.* 6th PVRI Workshops and Debates. Istanbul, Turkey (Jan. 21-25, 2013).
- Discussion Panelist:** *Anticipated Classes of New Medications.* Special Symposium: Pulmonary Hypertension International Clinical Trials Consortium. Istanbul, Turkey (Jan. 21-25, 2013).
- Visiting Professor:** *Chronic Inflammation, Autoimmunity, and Epigenetics: A critical drug targetable triumvirate in pulmonary hypertension.* Pediatric Grand Rounds. Stanford University, Stanford, CA (Feb. 21-22, 2013).
- Planning Committee and Speaker:** Task Force 1, Pathology & Pathobiology. 5th World Symposium on Pulmonary Hypertension. Nice, France (Feb. 27-March 2, 2013).
- Invited Speaker:** *Role of Inflammation in the Initiation and Progress of PAH.* 5th World Symposium on Pulmonary Hypertension. Nice, France (Feb. 27-March 2, 2013).
- Invited Speaker:** *Cellular and molecular mechanisms of pulmonary arterial stiffening.* Special Session: Arterial Stiffening in Pulmonary Hypertension and Other Lung Diseases: Causes and Consequences. ATS 2013 International Conference. Philadelphia, PA (May 17-22, 2013).
- Visiting Professor:** *Chronic Inflammation, Metabolism, and Epigenetics: A Critical Drug-Targetable Triumvirate in Pulmonary Hypertension.* Lillehei Heart Institute Seminar Series. University of Minnesota, Minneapolis, MN (June 4-5, 2013).
- Invited Speaker:** *Large Vessel Stiffening and Pulmonary Hypertension: Contribution of Extracellular Proteins*

and Inflammation. 6th International Conference on Neonatal and Childhood Pulmonary Vascular Disease. San Francisco, CA (June 21-22, 2013).

Invited Speaker: *Vascular Remodeling in the Lung*. World Equine Airway Symposium (WEAS). Calgary Canada (July 14-17, 2013).

Invited Speaker: *Inflammation and Hypoxia in Pulmonary Arterial Hypertension*. 13th International Workshop on Scleroderma Research. San Francisco, CA (June 21-22, 2013).

External Reviewer: *Child Health Research Center (CHRC)*. University of Michigan, Minneapolis, MN (Oct. 21-22, 2013).

Visiting Professor: *Metabolic Reprogramming and Inflammation Act in Concert to Control Vascular Remodeling in Pulmonary Hypertension*. Taubman Medical Research Institute. University of Michigan, Minneapolis, MN (Oct. 21-22, 2013).

Visiting Professor: *Large Vessel Stiffening and Pulmonary Hypertension: Contribution of Extracellular Proteins and Inflammation*. Grand Rounds. Tufts Medical Center. Cambridge, MA (Dec. 5, 2013).

Invited Speaker: *Pathways to PAH: New Insights*. 11th Annual Pulmonary Hypertension Symposia. Cambridge, MA (Dec. 6, 2013).

2014

Invited Speaker: *Epigenetic Regulation of Pathological Lung and Cardiac Remodeling*. Pulmonary Vascular Research Institute (PVRI), Giessen, Germany (Jan. 27, 2-14).

Visiting Professor: *Crosstalk Between Metabolism and Inflammation in Pulmonary Hypertension*. Pathology Seminar Series. University of Chicago. Chicago, IL (Feb. 12-13, 2014).

Visiting Professor: *New Insights into the Pathogenesis and Treatment of Pulmonary Hypertension: Focus on the interaction of metabolism, inflammation, and epigenetics*. Pediatric Grand Rounds and *Crosstalk Between Metabolism and Inflammation in Pulmonary Hypertension*. Pulmonary Biology Rounds. Medical University of South Carolina Children's Hospital (March 5-7, 2014).

Invited Speaker: *Inflammation in Pulmonary Hypertension: Is it time for therapeutic intervention?* 7th International Conference of Neonatal and Pediatric Pulmonary Vascular Disease. San Francisco, CA (March 27-29, 2014).

Visiting Professor: *Inflammation in Pulmonary Hypertension: Is it Time for Therapeutic Intervention?* Cincinnati Children's Hospital Medical Center (April 16, 2014).

Co-Chair: Symposium: Bioengineering the Lung: From Myth to Reality. Experimental Biology. San Diego, CA (April 26-29, 2014).

Invited Speaker: *High Pulse Wave Intensity, a Result of Proximal Arterial Stiffening, Induces Downstream Endothelial Inflammation via a TLR2/NF-kappaB pathway*. ATS 2014 International Conference. San Diego, CA (May 16-21, 2014).

Invited Speaker: *The Pulmonary Vascular Adventitia: The Hot Zip Code for Inflammation*. ATS 2014 International Conference. San Diego, CA (May 16-21, 2014).

Chair: *Mitochondria and Metabolic Dysfunction in Pulmonary Hypertension*. ATS 2014 International Conference. San Diego, CA (May 16-21, 2014).

Discussion Panelist: Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). Bethesda, MD (May 28, 2014).

Visiting Professor: *Interaction Between Inflammation and Vascular Stiffening in the Pathogenesis of Pulmonary Hypertension*. Graz, Austria (Sept. 26-27, 2014).

Visiting Professor: *The Pulmonary Vascular Adventitia: The Hot Zip Code for Inflammation*. Valhalla, NY (Nov. 5, 2014).

Invited Speaker: *The Potential of Histone Deacetylation Inhibitors (HDACi) for Pulmonary Hypertension*. Epigenetics of Pulmonary Arterial Hypertension. American Heart Association (AHA) 2014 International Conference. Chicago, IL (Nov 15-19, 2014).

Visiting Professor: *The Pulmonary Vascular Adventitia: The Hot Zip Code for Inflammation*. Columbia University Medical Center, New York, NY (Dec. 8-9, 2014).

2015

Steering and Scientific Committee: Pulmonary Vascular Research Institute (PVRI). 8th Annual World Congress on Pulmonary Vascular Disease. Guangzhou, China (Jan. 14-18, 2015).

- Invited Speaker:** *Metabolic Reprogramming and Inflammation Act in Concert to Control Vascular Remodeling in Hypoxic Pulmonary Hypertension: Role of C-Terminal Binding Protein 1.* International Hypoxia Symposium. Lake Louise, Calgary, Canada (March 3-8, 2015).
- Invited Speaker:** *Right Ventricular Remodeling and RV-PA Coupling in Pediatric Pulmonary Hypertension.* ATS 2015 International Conference. Denver, CO (May 15-20, 2015).
- Invited Speaker:** *Epigenetic Regulation of the Metabolic State of Vascular Cells in Pulmonary Hypertension or Metabolic Regulation of the Epigenetic Phenotype of Vascular Cells in PH.* ATS 2015 International Conference. Denver, CO (May 15-20, 2015).
- Invited Speaker:** *Aerobic Glycolysis is a Critical Metabolic Adaptation in Pro-Inflammatory Adventitial Fibroblasts Isolated from the Remodeled Pulmonary Artery of Animals with Pulmonary Hypertension.* ATS 2015 International Conference. Denver, CO (May 15-20, 2015).
- Visiting Professor:** *Inflammation in Pulmonary Hypertension: Is it Time for Therapeutic Intervention?* Pulmonary Research Conference. Boston University. Boston, MA (May 29, 2015).
- Visiting Professor:** *Epigenetic Regulation of the Metabolic State of Vascular Cells in Pulmonary Hypertension or Metabolic Regulation of the Epigenetic Phenotype of Vascular Cells in PH.* CORT Research Lecture. Boston University. Boston, MA (May 29, 2015).
- Keynote Speaker:** *Metabolic Reprogramming and Inflammation Act in Concert to Control Vascular Remodeling in Pulmonary Hypertension.* 10th International Workshop on Cardiovascular Biology and Translational Medicine. London, UK (Sept. 4, 2015).
- Invited Speaker:** *Epigenetic Reprogramming and a Pathologic Phenotype of Lung Fibroblasts.* New Insights into Pathogenesis 2015 Grover Conference. Sedalia, CO (Sept. 9-13, 2015).
- Keynote Speaker:** *Inflammation in Pulmonary Hypertension: Is it Time for Therapeutic Intervention?* Baylor Scott and White Healthcare, Temple, AZ (Oct. 6-7, 2015).
- Invited Speaker:** *CtBP1, a Transcriptional Co-Repressor Links Changes in Cell Metabolism to Inflammation in Chronic PH.* Vera Moulton Symposium. Stanford, CA (Nov. 6, 2015).
- Visiting Professor/Reviewer:** *Lung Endothelial Cell Phenotypes* University South Alabama. Mobile, AL (Nov. 4-6, 2015).
- Invited Speaker:** *CtBP1, a transcriptional co-repressor, links changes in cell metabolism to inflammation in chronic pulmonary hypertension.* Pulmonary RIP, National Jewish Medical Center. Denver, CO (Dec. 18, 2015).
- 2016**
- Chair/Facilitator:** *Advances in our Understanding of PVD and New Approaches to Studying PVD.* Pulmonary Vascular Research Institute (PVRI). 9th Annual World Congress on Pulmonary Vascular Disease. Rome, Italy (Jan. 14-17, 2016).
- Invited Speaker:** *Biology of Lung Stiffening.* Pulmonary Vascular Research Institute (PVRI). 9th Annual World Congress on Pulmonary Vascular Disease. Rome, Italy (Jan. 14-17, 2016).
- Invited Speaker:** *Of Mice and Men: Animal Models of PH.* 9th International Conference on Neonatal and Childhood Pulmonary Vascular Disease. San Francisco, CA (March 11-13, 2016).
- Invited Speaker:** *Role of Bone Marrow Derived Cells in Pulmonary Hypertension.* Biology of Breathing (BoB) Symposium. Winnipeg, Manitoba, CA (March 21-22, 2016).
- Invited Speaker:** *Microtubule Dynamics Modulates Endothelial Inflammation Induced by High Pulsatility Flow.* Experimental Biology (EB) 2016. San Diego, CA (April 2-6, 2016).
- Invited Speaker:** *Metabolic Reprogramming and Hypoxia in Pulmonary Arterial Hypertension.* Basic Translational Scientific Symposium. American Thoracic Society (ATS). San Francisco, CA (May 13-18, 2016).
- Invited Speaker:** *Metabolic Reprogramming in Lung Disease 101.* Science and Innovation Center (SIC). American Thoracic Society (ATS). San Francisco, CA (May 13-18, 2016).
- Invited Speaker:** *The Elephant in the Room: Role of large vessels' structure and function in pulmonary hypertension. Implications for diagnostics and treatment.* Phaedra Fall Meeting 2016. Amsterdam, Netherlands (Sept. 26-30, 2016).
- Invited Speaker:** *Metabolic Reprogramming and Inflammation Act in Concert to Control Vascular Remodeling in Hypoxic Pulmonary Hypertension.* NAVBO. Boston, MA (Oct. 30-Nov. 3, 2016).

Invited Speaker: *Inflammation Driven Epigenetic Changes in PH.* American Heart Association (AHA). New Orleans, LA (Nov. 12-16, 2016).

Invited Speaker: *Metabolic and Epigenetic Changes as Drivers of Vascular Remodeling in Pulmonary Hypertension.* Pfizer Meeting. Cambridge, MA (Dec. 6, 2016).

2017

Invited Speaker: *Current Understanding of the Pathogenesis of Pulmonary Vascular Remodeling.* PVRI Meeting. Havana, Cuba (Jan. 22-25, 2017).

Chair/Facilitator: *Development, Stem Cells, and PH.* PVRI 11th Annual World Congress on Pulmonary Vascular Disease, Miami, FL. (Jan. 25-28, 2017).

Invited Speaker: *Fibroblast – Macrophage Crosstalk in PH.* PVRI 11th Annual World Congress on Pulmonary Vascular Disease, Miami, FL. (Jan. 25-28, 2017).

Chair/Facilitator: *Pediatric PH Due to Lung Diseases and/or Hypoxia.* 10th International Conference Neonatal & Childhood Pulmonary Vascular Disease. San Francisco, CA (March 9-12, 2017).

Invited Speaker: *Metabolic Reprogramming and Inflammation Act in Concert to Control Vascular Remodeling in Pulmonary Hypertension.* The 9th National Congress on Pulmonary Embolism and Pulmonary^[1]Vascular Diseases & 7th International Symposium on Pulmonary Circulation Disorder. Changsha, China (April. 14-16, 2017).

Invited Speaker: *Role of Epigenetic Changes in the Pathogenesis of Pulmonary Hypertension.* American Thoracic Society (ATS). Washington, DC (May 19-24, 2017).

Invited Speaker: *Perivascular Inflammation in Pulmonary Arterial Hypertension: Role of Metabolic Reprogramming.* 15th International Workshop on Scleroderma Research. Pittsburgh, PA (Aug. 5-9, 2017).

Invited Speaker: *Robyn Barst Lecture – Role of Hypoxic Inducible Factors in the Initiation and Maintenance of Pulmonary Vascular Remodeling: Are They Viable Therapeutic Targets?* Grover Conference. Sedalia, CO (Sept. 6-10, 2017).

Invited Speaker: *Fibroblasts: Contribution Vascular Remodeling.* American Heart Association (AHA). Anaheim, CA (Nov. 11-15, 2017).

Chair/Facilitator: *Translational Research in Pulmonary Arterial Hypertension: A Paradigm Shift is Needed.* American Heart Association (AHA). Anaheim, CA (Nov. 11-15, 2017).

Invited Speaker: *HDAC Inhibition in Reversal of Pulmonary Vascular Remodeling.* American Heart Association (AHA). Anaheim, CA (Nov. 11-15, 2017).

2018

Chair/Facilitator: *What's Hot BASIC.* Plenary Session 4. PVRI World Congress. Singapore (Jan. 21-25, 2018).

Planning Committee and Speaker: Task Force 1, Pathology & Pathobiology. 6th World Symposium on Pulmonary Hypertension. Nice, France (Feb. 27-March 1, 2018).

Invited Speaker: *PRO: Vascular Remodeling in PAH is Initiated in the Adventitia.* American Thoracic Society (ATS). San Diego, CA (May 19-23, 2018).

Invited Speaker: *The Molecular Mechanisms of Persistent Activation of PH Vascular Cells: Role of chromatin structure, multiple transcription factors, and epigenetic regulators.* Johns Hopkins, Anesthesia Grand Rounds (October 5-7, 2018).

Invited Speaker: *Cellular and Molecular Mechanisms of Vascular Remodeling: A View from the Outside In.* 25th Pediatric Critical Care Colloquium at Johns Hopkins. (October 5-7, 2018).

2019

Invited Speaker: *The Molecular Mechanisms of Persistent Activation of PH Vascular Cells: Role of chromatin structure, multiple transcription factors, and epigenetic regulators.* Barcelona, Spain (Jan. 30-Feb. 3, 2019).

Invited Speaker: *New Insights into the Pathophysiology of PAH.* John Vane Memorial Symposium on Prostacyclin Science and Pulmonary Vascular Disease. London, UK (March 8-9, 2019).

Invited Speaker: *Fibroblast Inflammatory Cell Interaction and PA Stiffening- Impact on Longterm Fontan Outcome.* Stanford Single Ventricle Scientific Summit. Stanford, CA (April 29-30, 2019).

Chair/Facilitator: *Beyond the Right Heart Catheterization: Quantitative Methods for Interrogating the Pulmonary Circulation.* American Thoracic Society (ATS). Dallas, TX (May. 17-22, 2019).

Co-Moderator: *Aberrant Proliferation.* 62nd Annual Thomas L. Petty Aspen Lung Conference. Aspen, CO (June

5-8, 2019).

Invited Speaker: *Animal Models: Relevance in the development of new therapies for pulmonary hypertension.* 6th Annual Pulmonary Hypertension Drug Discovery and Development Symposium. Paris, France (July 1-2, 2019).

Invited Speaker: *Metabolic and Epigenetic Control of Inflammatory Gene Expression in Pulmonary Hypertension.* Grover Conference. Sedalia, CO (Sept. 4-8, 2019).

Invited Speaker: *Inflammation and Vascular Remodeling in Pulmonary Hypertension: All Things Complement.* Pulmonary Hypertension AHC Science and Practice Series. Aswan, Egypt (October 18-19, 2019).

Invited Speaker: *Vascular Disease Modeling in Physiologically Relevant Ex Vivo Platforms.* NAVBO. Monterey, CA (October 27-October. 31, 2019).

2020

Moderator: Moderator: Plenary 1: *Hypoxia, mitochondria, and metabolism – a dynamic triangle?*; **Moderator:** Poster Sessions 1. PVRI 14th Annual World Congress. Lima, Peru (January 29-February 2, 2020).

Invited Speaker: *Update on SMC/Inflammatory Based PH Therapies.* 13th International Conference on Neonatal and Childhood Pulmonary Vascular Disease. San Francisco, CA (March 5-8, 2020).

Invited Speaker: *Role of Vascular Complement Activation in Lung Inflammation and Remodeling in Pulmonary Hypertension.* AHA - Dickinson W. Richards Memorial Lecture. Virtual. (October 8, 2020).

2021

Invited Speaker: *Gaps and Opportunities in Vascular Dementia Research: Cognitive and Dementia-like Phenotypes Associated with NHLBI's Existing Animal Models of Vascular Disease and Disorders Workshop.* ZOOM. Denver, CO (September. 15, 2021).

Invited Speaker: *Chronic Lung Vascular Disease and Vascular Dementia/Cognitive Impairment: Is there a connection?.* Pulmonary RIP, National Jewish Medical Center. ZOOM. Denver, CO (October 22, 2021).

2022

Invited Speaker: *Role of Vascular Complement Activation in Pulmonary Hypertension.* PVRI World Congress. Athens, Greece (June. 22, 2022).

Invited Speaker: *Role of Local Complement Activation in COVID-19 Lung Disease.* PVRI World Congress. Athens, Greece (June. 25, 2022).

Invited Speaker: *Epigenetics and Metabolic Dysregulation in PAH.* AHA, Chicago, IL (November 7, 2022).

2023

Invited Speaker: *Use of Spatial Transcriptomics to Examine Lesions-Specific Gene Expression in Human Pulmonary Arterial Hypertension.* AHA, Washington, DC (May 19, 2023).

Invited Speaker: Joint Career Roundtable. *The Interplay Between Fibroblasts and Monocytes in Pulmonary Hypertension.* Keystone Symposium. Santa Fe, NM (June. 25, 2023).

Thesis Committee: Candidate: Camilla Udjus: *Hypoxia-Mediated Inflammation in Pulmonary Hypertension.* Oslo, Norway (Sept. 8, 2023).

Invited Speaker: *Terry Wagner Lecture: Epigenetics for Gene Discovery and Phenotyping of Pulmonary Vascular Disorders.* Grover Conference. Tabernash, CO (Oct. 19, 2023).

2024

President/Speaker: *The next 50 years of pulmonary hypertension – a global view.* PVRI 2024 Annual Congress London. London, UK (Jan 31-Feb. 3, 2024).

Invited Speaker: *Task Force 2: Pathobiology and Mechanisms of Disease.* 7th World Symposium on Pulmonary Hypertension. Barcelona, Spain (June 29-July 1, 2024).

THESIS COMMITTEE MEMBER

Asterisk (*) = Primary Research Mentor

Duncan Davis-Hall

Mark Reusser

Rachelle Walter

Winston Elliott

Devon Scott

Camilla Udjus

Phil Kao

Mary Simpson

Steve Lammers
*Krishna Madhavan
*Cassandra Petrou

Zhenbi Su
Lian Tian
Chris Tibaldi

POSTDOCTORAL FELLOWS

Asterisk () = Fellows who received a NIH K* or R01 Award***

Joseph Albietz, MD	Miguel Fragosa, DVM	Cynthia Myers, PhD
Adil Anwar, PhD	Carrie George, MD**/**	Maureen Ostaff, PhD
David Badesch, MD**/**	Bruce Guest DVM, DVSc	Ram Prasad, PhD
Steven Pugliese, MD	Karen Guillory, MD	Lytitia Shea, MD
Mark Banks, MD	Alexandra Guldemeester, MD/PhD	Leopold Stiebellehner, MD
Carlos Barajas, MD	Amelia Hopkins, MD	Derek Strassheim, PhD
Grant Burton, MD	Kendall Hunter, PhD*	John Straumanis, MD
Todd Carpenter, MD**/**	Arvind Kasaragod, MD	Roopa Thukaram, MD
Louis Chicoine, MD**/**	Greta Krafur, DVM	Jennifer Tock, MD
Joe Crossno, MD*	Claudia Kunrath, MD	Daren Wang, PhD
Angelo D'Alessandro, PhD	Steve Lammers, PhD	Mary Weiser, PhD**/**
Mita Das, PhD**/**	Matthew Lemler, MD	Julie Wohrley, MD
Neil Davie, PhD	Krishna Madhavan, PhD	Hui Zhang, PhD
Emily Dobyms, MD	Shelley Miyamoto, MD*	
Anthony Durmowicz, MD*	Marla Moore, MD	
Margaret Ferguson, MD	Nicholas Morrell, MD*	
Mehdi Fini, PhD*	Peter Mourani, MD**	
Michael Floren, PhD		

GRANT SUPPORT

Ongoing Research Support

NIH P01 HL152961-03 (Stenmark) – *Complement Mediated Remodeling in Pulmonary Vascular Disease*. 08/01/2020-06/30/2025. Major goal: To uncover novel pathogenic processes linking pulmonary vascular inflammation and vascular remodeling. In this proposal we test the hypothesis that early and persistent pulmonary vascular specific activation of complement leads to persistent inflammation and vascular remodeling

NIH R01 HL158076-01A1 (Irwin) – *Aerosolized Therapy for Hemoglobin Toxicity in the Treatment of Hemolytic Diseases*. (Stenmark, Co-Investigator). 09/01/2021-08/31/2026.

NIH R01 CA268186-01 (Irwin, Buehler, D'Alessandro) – *The Paradoxical Response to Iron in Pulmonary Hypertension of Sickle Cell Disease*.. (Stenmark, Co-Investigator). 09/01/2021-08/31/2025.

DoD PR230294 (Palmer) – *Enhancing the Safety Profile and Efficacy of Low-Titer Group O Whole Blood* (Stenmark, Co-Investigator).

Active Training Grants

NIH 2T32HL07171 (Stenmark) - *Translational Pulmonary Vascular Biology Program*. 07/01/76-06/30/28. Major goal: To train laboratory and clinical investigators in pediatric and adult lung disease. 6 Postdoctoral slots per year.

NIH 5T32HL007670 (Abman). *Academic Training Program in Pediatric Pulmonary Disease*. (Stenmark, Mentor). Major goal: To train laboratory and clinical investigators in the field of pediatric lung disease, as an institutional training grant.

NIH 2T32HL007085 (Schwarz) - *Multidisciplinary Respiratory Diseases Research Training*. (Stenmark,

Mentor). Major goal: To train laboratory and clinical investigators in the field of pediatric lung disease, as an institutional training grant.

Completed Research Support

DoD – CDMRP - W81XWH2010249 (Stenmark) – *Role of Mitochondrial/Metabolic Reprogramming in Controlling Aberrant Gene Expression in Pulmonary Hypertension*. 05/01/2020-04/31/2024

DoD – CDMRP - W81XWH1910259 (Stenmark) - *Targeting Epigenetic Mechanisms for Novel Therapies of Chronic Lung Vascular Diseases*. 07/05/2019-07/04/2024

NIH HL14985 – (Reeves, Responsible Investigator) - *Role of Leukotrienes in Monocrotaline Induced Pulmonary Hypertension in Young Rats*. Section B-III in: Program Project Grant. (Stenmark, Co-Investigator). 07/01/84-06/30/87

BRS Grant UCHSC (Stenmark) - *Lipid Mediators in Neonatal Pulmonary Hypertension*. 1984-1985. Total: \$15,000

NIH HL01503 (Stenmark) - *Lipid Mediators in Pulmonary Vascular Disorders of Infancy*. Clinical Investigator Award. 07/01/85-06/30/90. Total: \$289,785

C. Henry Kempe Foundation (Stenmark) - *Role of Arachidonate Metabolites in Altered Pulmonary Vasoreactivity in Hypertensive Neonates*. 1985-1986. Total: \$10,000

NIH HL14985 (Stenmark) - *Neonatal Pulmonary Hypertension: Mechanisms*. Project I-E of Program Project Grant, "Adaptations to Hypoxia. 07/01/87-06/30/92. Total: \$5,150,248

NIH HL14985 (Stenmark, Co-Investigator) - *Vascular Compliance and Resistance in Pulmonary Hypertension*. Project I-D in Program Project Grant "Adaptations to Hypoxia." 07/01/87-06/30/92. Total: \$5,150,248

Newborn Hope Inc. (Stenmark) - *Mechanisms of Vascular Remodeling in Neonatal Pulmonary Hypertension*. 1987-1990. Total: \$10,000

C. Henry Kempe Foundation (Ross) - *Effect of ECMO on Inflammatory Mediators in Pulmonary Hypertension*. (Stenmark, Supervising Investigator). 03/01/88-06/30/89. Total: \$10,000

American Lung Association (Stenmark) - "*Modulation of the Smooth Muscle Phenotype in Neonatal Pulmonary Hypertension: Mechanisms*". Career Investigator Award. 07/01/90-6/30/95. Total: \$35,000

NIH HL46481 (Stenmark) – “The Developing Lung Circulation: Its Response to Injury.” SCOR Grant. 12/30/91-11/30/96. Total: \$4,602,229

NIH HL46481 (Stenmark) - *Developmental Changes in the Control of Cell Proliferation and Elastin Synthesis*. Project 1 in SCOR Grant "The Developing Lung Circulation: Its Response to Injury." 12/30/91-11/30/96. Total: \$1,221,122

NIH HL46481 (Stenmark) - *Administrative Core* in SCOR Grant "The Developing Lung Circulation: It's Response to Injury." 12/1/91-11/30/96. Total: \$230,000

NIH HL14985 (Stenmark) - *Role of the Adventitial Fibroblast in Hypoxic Neonatal Pulmonary Hypertension*. Project 5 in Program Project Grant "Adaptation to Hypoxia." 04/01/93-03/31/98. Total: \$1,117,975

NIH HL57144 (Stenmark) - *Impact of Injury on the Immature Pulmonary Circulation*. 12/01/96-11/30/01. Total: \$7,145,567

NIH HL57144 (Stenmark) - *SMC Heterogeneity in the Pulmonary Vasculature*. Project 1 in SCOR Grant "Impact of Injury on the Immature Pulmonary Circulation." 12/01/96-11/30/01. Total: \$1,324,572

NIH HL57144 (Stenmark) - *Perlecan Heparan Sulfates: Molecular mechanisms underlying the control of vascular smooth muscle cell replication and gene expression during normal development and in neonatal*

- pulmonary hypertension. Project 2* in SCOR Grant "Impact of Injury on the Immature Pulmonary Circulation." (Weiser, Co-Investigator). 12/01/96-11/30/01. Total: \$962,228
- NIH HL57144 (Stenmark) - *Administrative Core* in SCOR Grant "Impact of Injury on the Immature Pulmonary Circulation." 12/01/96-11/30/01. Total: \$371,168
- NIH R01 (Stenmark) - **Intracellular Signaling in Pulmonary Artery Cells. *Returned* in lieu of Project 2 in Program Project Grant. 04/01/98-03/31/03.
- NIH HL14985 (Stenmark) - *Distinct Mechanisms of Growth Control in Select SMC Subpopulations. Project 2;* in Program Project Grant "Adaptation to Hypoxia." 04/01/98-03/31/03. Total: \$1,137,299
- NIH R01 HL63946-01A1 (Weiser-Evans) - *Role of Novel Embryonic Genes in SMC Growth After Vascular Injury.* (Stenmark, Co-Investigator). 09/01/00-08/31/04. Total: \$1,280,731
- NIH R01 HL64917-01A1 (Das) - *PKC Isozymes in Hypoxia-Induced Fibroblast Proliferation.* (Stenmark, Co-Investigator). 04/01/01-03/31/05. Total: \$1,250,000
- NIH HL68811 (Stenmark) - **G-proteins in Hypoxic Pulmonary Vascular Remodeling. *Returned* in lieu of identical project in SCOR (Project 1). 12/01/01-11/30/05.
- NIH R01 (Stenmark) **Hypoxia Induces Pulmonary Fibroblast Differentiation. * Returned* in lieu of Project 2 in PPG Grant "Adaptations to Hypoxia" R01/NIH-NHLBI. 04/01/03-03/31/08. Total: \$1,250,000
- NIH HL57144 (Stenmark) - *Impact of Injury on the Immature Pulmonary Circulation.* SCOR Grant. 12/01/01-11/30/06. Total: \$6,415,929.
- NIH HL57144 (Stenmark) - *G-Proteins in Hypoxic Pulmonary Vascular Remodeling. Project 1* in SCOR Grant "Impact of Injury on the Immature Pulmonary Circulation." 12/01/01-11/30/06. Total: \$2,076,662
- NIH HL57144 (Stenmark) - *Administrative Core: Administration* in SCOR Grant "Impact of Injury on the Immature Pulmonary Circulation." 12/1/01-11/30/06. Total: \$543,369
- NIH HL14985 (Stenmark) - *Adaptation to Hypoxia. Overall Program Project Grant.* 04/01/03-03/31/09. Total: \$7,538,969
- NIH HL14985 (Stenmark) - *Hypoxia Induces Pulmonary Fibroblast Differentiation. Project 2* in PPG Grant "Adaptations to Hypoxia." 04/01/03-03/31/09. Total: \$1,146,238
- NIH HL14985 (Stenmark) - *Role of VRAC and Rho in Pulmonary EC Proliferation. Project 4* in PPG Grant "Adaptations to Hypoxia." 04/01/03-03/31/09. Total: \$1,193,292
- NIH HL14985 (Stenmark) *Administrative Core: Administration* in PPG Grant "Adaptations to Hypoxia." 04/01/03-03/31/09. Total: \$600,713
- NIH R01 HL064917 (Das) - *PKC Isozymes in Hypoxia-Induced Fibroblast Proliferation.* (Stenmark, Co-Investigator). 01/01/06-12/31/09.
- Pfizer Pharmaceuticals, Inc. (Stenmark) - *Effects of Sunitinib on Pulmonary Vascular Walls.* 07/01/10-10/31/11.
- NIH UL1RR025780 (Stenmark) - *A Systems Biology Approach to Pulmonary Vascular Disease: Integrating Vascular Stiffness with Cardiac Function and Microvascular Disease.* Colorado CCTSI Grant. 04/01/11-03/31/12.
- NIH T32 HL07171 (Stenmark) - *Respiration and Circulation during Hypoxia.* NRSA Training Grant. 07/01/07-06/30/12
- NIH HL084923 SCCOR (Stenmark) - *Lung Vascular Disease in Infants and Children: Mechanisms and Treatment.* Overall Grant and Administrative Core. 01/12/07-12/31/12. Total: \$12,345,967
- NIH HL084923 SCCOR (Stenmark) - *Circulating Fibrocytes in Hyperoxic Lung Vascular Remodeling* (Proj. 4).

01/12/07-12/31/12. Total: \$1,714,777

NIH R01 HL086680 (Grayck) - *Extracellular Superoxide Induces Egr-1 in the Hypoxic Pulmonary Artery*. (Stenmark, Co-PI). 12/01/07-11/30/12. Total: \$1,250,000.

Novartis AWD-104046 (Stenmark) - *Mesenchymal Progenitor Cells in Pulmonary Vascular Remodeling in Pulmonary Arterial Hypertension*. 03/01/11-09/30/14.

NIH 5P01HL014985-40 (Stenmark) - *Adaptation to Hypoxia*. 07/01/75-06/30/15. Total: \$1,971,570. Major goal: To examine the cell specific mechanisms through which both acute and chronic mechanisms regulate pulmonary vascular function.

NIH 5P01HL014985-40S1 PPG (Stenmark) - *Adaptation to Hypoxia*. Supplement. 07/01/14-06/30/15. Total: \$249,025

DoD/DARPA N66001-10C2134 (Irwin) - *Combinational drug screening to identify strategies that enhance ground troop readiness at altitude*. (Stenmark, Co-Investigator). 04/01/10-05/17/16. Total: \$13,000,000. Major goal: To complete FDA Phase I human safety testing and phase II efficacy testing with a combinational drug strategy to alleviate symptoms of high altitude illness and be poised for FDA phase II efficacy testing.

NIH 1R01 AG039545 (Meng) - *Mechanisms of Inflammatory Response of Aging Heart to Surgical Ischemia*. (Stenmark, Collaborator). 09/15/11-08/31/16. Total: \$309,304/yr. Major goal: To investigate the mechanisms of myocardial inflammatory responses.

NIH 1R21HL124100-01 (Park) - *A Biomimetic Reverse Thermal Gel For The Treatment Of Myocardial Infarction*. (Stenmark, Co-Investigator). 07/01/14-06/30/17. Total: \$214,900/yr

DoD/CDMRP PR131184 (Fini) - *Inflammatory Role of Macrophage Xanthine Oxidoreductase in Pulmonary Hypertension: Implications for Novel Therapeutic Approaches*. (Stenmark, Co-Investigator). 07/01/14-06/30/17. Total: \$250,000/yr

NIH 5KL2TR001080-02 (Fini) - *K-Award*. (Stenmark, Mentor). 5/01/14-09/30/17. Total: \$75,000/yr.

NIH 1R01HL114887 Axis Grant (Stenmark) - *Fibroblasts and Mononuclear Fibrogenic Cells Drive Right Ventricular Pulmonary Arterial Uncoupling in Pulmonary Arterial Pulmonary Hypertension*. 08/15/12-06/30/17. Total: \$433,415/yr. Major goal: To determine the role that fibroblasts and fibrocytes play in the abnormalities of RV-PA coupling that characterizes pulmonary hypertension.

NIH 5R01HL086680-07 (Grayck) - *Impact of Insufficient Vascular EC-SOD in Pulmonary Hypertension*. (Stenmark, Co-Investigator). 12/01/06-07/31/18. Total: \$517,578/yr. Major goal: To study EC-SOD in pulmonary hypertension.

NIH 1R01HL125827-01 (Stenmark) - * *Returned in lieu of Project 1 in PPG Grant - Crosstalk between metabolism and inflammation in pulmonary hypertension* 12/01/14 - 11/31/18. Total: \$568,882/yr

NIH 5R01HL086783-05 (Gerasimovskaya) - *Extracellular ATP: Potential Regulator of Hypoxia-Induced Vasa Vasorum Neovascularization*. (Stenmark, Co-Investigator). 07/10/08-03/31/19. Total: \$318,042/yr. Major goal: To investigate the role of extracellular ATP as endogenous autocrine/paracrine angiogenic factor of hypoxia-induced vasa vasorum neovascularization; investigate intracellular signaling pathways, involved in hypoxia-induced ATP release.

DoD PR140977 (Stenmark) – *Metabolic and Epigenetic Interactions Regulate Vascular Phenotypic Change and Maintenance in Pulmonary Hypertension*. 07/01/15-03/31/19. Total: \$600,000/yr.

NIH 5R01 HL114933 (Ahmad) - *Hypoxic Factors in Pulmonary Hypertension*. (Stenmark, Collaborator). 04/01/14-10/31/19. Total: \$250,000/yr.

NIH R01 HL114677 (Ahsan) - *Targetable and Inhalable Nanoparticle Based Combination Therapy for PAH*. (Stenmark, Co-Investigator). 04/01/2015-03/31/2020.

USDA-NIFA (Thomas/Stenmark) - *Metabolism and Inflammation Predict Cardiopulmonary Disease Outcomes in Fattening Beef Cattle*. 01/01/2018-12/31/2020.

NIH 5P01 HL014985 (Stenmark) - *Adaptation to Hypoxia*. 04/01/1996-06/30/2021. Major goal: To examine the role of inflammatory cells in the pulmonary hypertension.

NIH 1R01 HL125642 (Irwin) - *The Contribution of Free Hemoglobin in the Progression of Pulmonary Remodeling*. (Stenmark, Co-Investigator). 08/01/2015-05/31/2021.

ALA ETRA 736724 (Stenmark) – *Complement in Endothelial Cell Injury in COVID-19*. 07/01/2020-11/31/2022

Historical Sponsored Research Support

NIH (Badesch) - *Hypertensive Vascular Remodeling: Role of IGF-I*. Clinical Investigator Award. (Stenmark, Sponsor). 07/01/90 - 06/30/95. Total: \$60,000

Pfizer (Badesch) - *Hypertensive Pulmonary Vascular Remodeling: Role of Insulin-Like Growth Factor*. Scholars Research Award. (Stenmark, Sponsor). 07/01/90-06/30/92. Total: \$50,000

RJR Nabisco Award (Badesch) - *Hypertensive Vascular Remodeling: Role of IGF-I*. (Stenmark, Sponsor). 09/19/89-09/10/90. Total: \$25,000

American Heart Award (Durmowicz) - *Adventitial Remodeling in Hypoxic Pulmonary Hypertension*. (Stenmark, Sponsor). 07/01/92-06/30/97. Total: \$300,405

The Wellcome Trust (Gray) - *Characterization of Fibrin(ogen) Derived Mitogens and Their Receptors in Pulmonary Hypertension*. (Stenmark, Sponsor). 07/01/93-06/30/95. Total: \$90,000

British Heart Foundation (Morrell) *Relationship Between Vascular Reactivity and Smooth Muscle Phenotype in the Development of Pulmonary Hypertension*. (Stenmark, Sponsor). 12/01/93-11/30/94. Total: \$45,000

NIH K08 HL03128 (Townsend) - *The IGF Axis in Neonatal Pulmonary Vascular Remodeling*. (Stenmark, Sponsor). 05/01/94-04/30/99. Total: \$385,270

Termeulen Research Foundation, The Netherlands (Guldemeester) - *Pulmonary Vascular Growth and Differentiation During Normal and Abnormal Development of the Lung*. (Stenmark, Sponsor). 10/01/95-09/30/97. Total: \$40,000

Max Kade Foundation, Inc. (Stiebellehner) - *Growth Activation During Hypoxia and its Regulation in Human Pulmonary Endothelial and Vascular SMC*. (Stenmark, Sponsor). 03/01/96-02/28/97. Total: \$33,400

American Heart Association (Das) - *Reg. of Neonatal Pulmonary Artery Adventitial Fibroblast Proliferation in Response to Hypoxia*. (Stenmark, Sponsor). 12/01/96 - 11/30/97

NIH K08 HL04424 (Carpenter) - *Effect of Virus and Hypoxia on Lung Endothelin and Edema*. (Stenmark, Sponsor). 09/01/00-07/31/05. Total: \$631,125

NIH K23 RR16178 (Dobyns) - *Interactive effects of iNO and high frequency oscillatory ventilation on pediatric hypoxemic respiratory failure*. (Stenmark, Sponsor). 09/25/00-08/31/05. Total: \$128,038

TCH-K12 Award (Tan) - *Pulmonary arterial stiffening in pulmonary hypertension: implications for improved diagnostics and therapeutics*. The Children's Hospital Denver and Colorado Clinical and Translational Sciences Institute (Stenmark, Mentor). 01/01/09-12/31/09.

NIH (Albietz) - *Mechanics of the Pulmonary Circulation*. Medical Student Loan Repayment Program. (Stenmark, Mentor). 07/01/09-06/30/11.

NIH K23 RR021921 (Mourani) - *Pathogenetic Mechanisms of Bronchopulmonary Dysplasia*. 08/16/05-07/31/11. (Stenmark, Sponsor). Total: \$637,321

- NIH K12 (Miyamoto) - *Hypoplastic Left Heart Syndrome: Beta-adrenergic Adaptation and Myocyte Mechanics*. Colorado Clinical and Translational Sciences Institute. (Stenmark, Mentor). 07/01/11-06/30/13.
- NIH K25 (Tan) - *Mechanisms of Microvascular Response to Arterial Stiffening and Flow Pulsatility*. (Stenmark, Mentor). 06/01/10-05/30/15. Total: \$250,000/yr.
- NIH K25 HL094749 (Hunter). *Vascular Stiffening in Pediatric PAH*. (Stenmark, Mentor). 08/01/10-06/30/15. Total: \$140,000/yr.
- PHA/ATS (Fini) - *Role of Xanthine Oxidoreductase-Uric Acid Axis in Hypoxia Induced Pulmonary Hypertension*. 12/01/13-11/30/14. (Stenmark, Mentor). Robyn J. Barst, MD, Pediatric PH Research Fund). Total: \$25,000/yr
- Actelion ENTELLIGENCE (Wright) - *Role of Macrophage ET1 Expression in the Pathogenesis of Persistent Pulmonary Hypertension of the Newborn (PPHN) Caused by Perinatal Inflammation*. (Stenmark, Mentor). Young Investigator Grant. 06/01/14 – 05/31/15. Total: \$50,000/yr.
- NIH K12 (Nakano) - *Myocardial Effects of Cyclic Guanosine Monophosphate-Hydrolyzing Phosphodiesterase (PDE) Inhibition in Pediatric Right Ventricular Heart Failure*. (Stenmark, Co-Mentor). 07/01/15-06/30/16.

III. BIBLIOGRAPHY (* denotes Book Chapter)

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3. *Voelkel NF, Morganroth M, Stenmark KR, Mathias M, Reeves JT, and Murphy RC. Leukotrienes in the lung circulation: actions and interactions. In: *Hypoxia, Exercise and Altitude*. Sutton JR, Jones NL, and Houston CS, eds., Alan R. Liss, Inc., New York, 1983.
4. Voelkel NF, Stenmark KR, Reeves JT, Mathias MM, and Murphy RC. Actions of lipoxygenase metabolites in isolated rat lungs. *J. Appl. Physiol.* 57(3):860-867, 1984. (PMID: 6436213). <http://www.ncbi.nlm.nih.gov/pubmed/6436213>
5. Morganroth ML, Stenmark KR, Zirrolli JA, Mauldin R, Mathias M, Reeves JT, Murphy RC, and Voelkel NF. Leukotriene C₄ production during hypoxic pulmonary vasoconstriction in isolated rat lungs. *Prostaglandins* 28:867-875, 1984 (PMID: 6522621). <http://www.ncbi.nlm.nih.gov/pubmed/6522621>
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8. Morganroth ML, Murphy RC, Stenmark KR, Reeves JT, and Voelkel NF. Possible contribution of leukotrienes to hypoxic pulmonary vasoconstriction. *Prog. Respir. Res.*, Karger, Basel., 20:11-16, 1985
9. Westcott JY, Stenmark KR, and Murphy RC. Analysis of leukotriene B₄ in human lung lavage by HPLC and mass spectrometry. *Prostaglandins* 31:227-237, 1985. (PMID: 3008216). <http://www.ncbi.nlm.nih.gov/pubmed/3008216>
10. *Reeves JT, Stenmark KR, and Voelkel NF. Possible role of leukotrienes in the pathogenesis of pulmonary hypertensive disorders. In: *The Pulmonary Circulation and Acute Lung injury*, Said SI, ed., Futura Publishing Co., 1985.
11. Westcott JY, Balazy M, Stenmark KR, and Murphy RC. Analysis of leukotriene D₄ in human lung lavage

- by HPLC, RIA, and mass spectrometry. *Advances in Prostaglandin, Thromboxane, and Leukotriene Research* 16:353-361, 1986 (PMID: 2949560). <http://www.ncbi.nlm.nih.gov/pubmed/2949560>
12. Burghuber OC, Morganroth ML, Stenmark KR, Morris KG, Reeves JT and Voelkel NF. Inhibition of hypoxic pulmonary vasoconstriction by leukotriene blockade. *Wien Klin Wochenschr.* 98(4):113-117. (German) (PMID: 3705592). <http://www.ncbi.nlm.nih.gov/pubmed/3705592>
 13. Stenmark KR, Fasules J, Voelkel NF, Henson J, Tucker A, Wilson H, and Reeves JT. Severe pulmonary hypertension and arterial adventitial changes in newborn calves at 4300m. *J. Appl. Physiol.* 62:821-830, 1987 (PMID: 3558241). <http://www.ncbi.nlm.nih.gov/pubmed/3558241>
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