

10/05/2023

## CURRICULUM VITAE

**NAME:** Steven H. Abman

**BIRTHPLACE:** Chicago, Illinois

**CURRENT POSITIONS:** Professor with Tenure, Pediatric Pulmonary Medicine,  
Department of Pediatrics; Faculty member, Clinical Sciences  
Graduate Program, University of Colorado Anschutz  
School of Medicine, and Children's Hospital Colorado  
(CHCO), Aurora, Colorado.

Founder and Director, *Pediatric Heart-Lung Center, CHCO*  
Founder and Co-Director, *Pulmonary Hypertension Program, CHCO*  
Founder and past Director, *Ventilator Care Program, CHCO*

Founder and past Director (2008–2023) and Executive Council  
Member (current), *Pediatric Pulmonary Hypertension  
Network (PPHNet)*

Co-Founder and Executive Vice-Chair, the *BPD Collaborative*

Past President, *American Pediatric Society (APS)*

Co-Chair, Pediatric Task Force, *Pulmonary Vascular  
Research Institute (PVRI)*

Co-leader, PVRI-Innovative Drug Design Initiative  
(*PVRI-IDDI*), *Pediatric Clinical Trials Workstream*

Co-chair, *Lancet Commission on the Future of Neonatology*

**PAST ACADEMIC APPOINTMENTS:** Associate Professor, Department of Pediatrics,  
University of Colorado School of Medicine, 1990-96.

Assistant Professor, Department of Pediatrics,  
University of Colorado School of Medicine, 1986-90.

**CURRENT ADDRESS:** 1717 E. Arizona Street  
Denver, Colorado 80210

**HOME PHONE:** Cell phone: 303-881-9765

**MARITAL STATUS:** Married to Carolyn Frank Abman, MD  
Four children: Ryan (12/11/83), Lauren  
(1/17/86), and Megan and Mark (9/8/91)

**LICENSURE:** State of Colorado, #24116

**BOARD CERTIFICATION:** Diplomat, American Board of Pediatrics, 1986; (#33226)  
Pediatric Pulmonology, 1989; #159  
Pediatric Critical Care Medicine, 1996; #568

**UNDERGRADUATE EDUCATION:** B.A., Carleton College, Northfield, MN, (9/71-6/75)

**Honors:** Graduated cum laude with honors  
Honors thesis: *Rhythmic Behavior of the Bermudan Littoral Crab, P. Transversus*  
Elected member, Sigma Xi, research society;

**Awards:** Recipient, *National Science Foundation, Student Research grant*, Dept of Biochemistry, Carleton College, 1972;

**MEDICAL EDUCATION:** M.D., Northwestern University Medical School, Chicago, IL, (9/75 - 6/79)

**Awards:** Recipient, *American Diabetes Association Research Award*, Mentor: Dr. Norbert Freinkel, Dept of Medicine, Northwestern University Medical School, 1976;

**INTERNSHIP AND RESIDENCY:** Pediatrics, University of Colorado Health Sciences Center (UCHSC), Denver, Colorado  
June 1979 - June 1980  
July 1980 - June 1982

**Honors:** Recipient, *Bruce M. Garber Memorial Award for the Outstanding Resident*, Dept. of Pediatrics, UCHSC, 1982

**POST-RESIDENCY:** *Chief Resident and Instructor*, Department of Pediatrics, UCHSC, 1982 - 1983;

*Fellow*, Pediatric Pulmonary and Critical Care Medicine, Department of Pediatrics, UCHSC, 1983 - 1986;

**APPOINTMENTS:** *Assistant Professor*, Department of Pediatrics, UCHSC, 1986 - 1990;

*Associate Professor*, Department of Pediatrics, UCHSC, 1990 - 1996;

*Professor with tenure*, Department of Pediatrics, University of Colorado School of Medicine (UCSOM), 1996 – current;

*Founder and Director, **Pediatric Heart Lung Center***, Department of Pediatrics and Children’s Hospital Colorado and UCSOM, 1994 - current.

*Founder and Co-Director, **Pulmonary Hypertension Program***, Children’s Hospital Colorado, 1994 – current.

*Founder and Past Director, **Ventilator Care Program***, Children’s Hospital Colorado, 2004 - 2012.

Founder and Director, ***Pediatric Pulmonary Hypertension Network (PPHNet)***, 2008 – 2022.

Co-Founder and Executive Vice-Chair, ***Bronchopulmonary Dysplasia Collaborative***, 2012- current.

Co-Chair, Pediatric and Congenital Heart Disease Task Force, ***Pulmonary Vascular Research Institute***, (PVRI) 2014- current.

Chair, Pediatric Clinical Trials Workstream, ***Pulmonary Vascular Research Institute (PVRI) Innovative Drug Design Initiative***, 2021- current.

#### **AWARDS/HONORS:**

Recipient, *Cystic Fibrosis Foundation Fellowship Award*, 1983-1985

Recipient, *American Lung Association Fellowship Award*, 1983 (declined);

Recipient, *American Lung Association Fellowship Award*, 1985-1986.

Recipient, ***David W. Smith Research Award***, for "Outstanding Research," from the Western Society for Pediatric Research, 1986

Recipient, ***National Award for Excellence in Pediatric Research, American Academy of Pediatrics***, 1998

Recipient, ***E. Mead Johnson Award for Pediatric Research***, Society for Pediatric Research, 1999

Listed in *"Best Doctors in America"*, 1994 - current;

Advisor to Health Council of the Netherlands, *Extracorporeal membrane oxygenation utilization in the Netherlands*, 1997.

*Associate Editor*, American Journal of Respiratory and Critical Care Medicine, 1999- 2005, 2006 – 2010, 2015 – current.

***Robert J. Haslam Lecture***, Department of Pediatrics, Hospital for Sick Children, Toronto, Canada, 1999.

***Jerry Elliot Memorial Lectureship***, Greater New York Conference on Perinatal Research, State University of NY-Stoneybrook, Mineola, NY, 2001.

Selected as Nominee for Howard Hughes Clinical Investigator Award on behalf of the University of Colorado School of Medicine, 2002.

***Drew Wiltsie Memorial Lecture***, University of Pittsburgh School of Medicine, 2002.

***James B. Strain Award*** for physician best exemplifying the values of the American Academy of Pediatrics, The Children's Hospital Medical Staff, 2003.

***Barry Smith Memorial Lecture***, Department of Pediatrics, Hospital for Sick Children, University of Toronto, Toronto Canada, 2003.

***Dunlevie Family Lecture, Dedication of Wall Center***, Department of Pediatrics, Stanford University School of Medicine, Palo Alto, CA, 2004.

***Seizo Iwai Memorial Lecture***, 10<sup>th</sup> Annual Meeting of the Japanese Society of Pediatric Anesthesiology, Tsu City, Mie Prefecture, Japan, 2004.

***Jerry Elliot Memorial Lecture***, 27<sup>th</sup> Annual Western Conference on Perinatal Research, Rancho Mirage, CA, 2006.

***Nils W. Svenningsen Memorial Lecture***, 22<sup>nd</sup> International Workshop on Surfactant Replacement, Ancona Italy, 2007.

International Fellow, *Pulmonary Vascular Research Institute*, 2007 - current.

International Task Force on Development and Pathology, 4<sup>th</sup> *World Symposium on Pulmonary Hypertension*, Dana Point, CA, 2007.

***David Schiff Memorial Lectureship***, Department of Pediatrics, University of Alberta, Edmonton, Canada, 2008.

***Sprague Family Lecture***, Department of Pediatrics, Children's Hospital of Philadelphia, University of Pennsylvania, 2008.

***Gilbert Forbes Scholar Lectureship***, Department of Pediatrics, University of Rochester School of Medicine, Rochester NY, 2009.

***Fyler Lectureship***, Department of Cardiology, Boston Children's Hospital, Boston, MA, 2009.

*Keynote speaker*, "Pediatric Pulmonary Hypertension: Historical Perspectives," Pediatric Cardiac Intensive Care Society, Miami FL, 2008.

*Guest speaker* and Visiting Professor for *Research Day*, Department of Pediatrics, Mount Sinai School of Medicine, New York, NY, 2009.

*Guest speaker and program reviewer, 7<sup>th</sup> Annual Retreat of the International Graduate Program on Molecular Biology and Medicine of the Lung, International Max Planck Research School for Heart and Lung Research, Giessen Germany, 2009.*

***First Annual Maddie Morgan – “Butterflies for Maddie” Pulmonology Lectureship***, University of Louisville, KY, 2010.

*Member, Scientific Board, Ludwig-Boltzmann Institute of Lung Vascular Disease, Graz, Austria, 2010 – 2023.*

***William H. Tooley Professor Lectureship***, Division of Neonatology and Cardiovascular Research Institute, University of California San Francisco, CA, 2010.

***Frank Sterner Lectureship***, Department of Pediatrics, Medical College of Wisconsin, Milwaukee, WI, 2010.

***Dharmapuri Vidyasagar Lecturer and Visiting Professor***, Department of Pediatrics, University of Illinois at Chicago, Chicago IL, 2011.

***Phil George Lectureship***, Le Bonheur Children’s Hospital and University of Tennessee Health Sciences Center, Memphis TN, 2011.

***33<sup>rd</sup> Annual Gregory Tauber Memorial Lectureship***, National Children’s Hospital and George Washington University Medical School, Washington, DC, 2011.

***Career Teaching Scholar Award***, Department of Pediatrics, University of Colorado School of Medicine, Aurora CO, 2012.

***5<sup>th</sup> Annual Visiting Professor of Pulmonary Hypertension***, Department of Pediatrics, Baylor University Medical School, Houston TX, 2013

***First Robyn Barst Memorial Lectureship***, American Heart Association and American Thoracic Society, Grover Conference on the Pulmonary Circulation, Deckers, CO. 2013

***Thomas Hazinski Memorial Lectureship***, Department of Pediatrics, Vanderbilt University School of Medicine, Nashville TN, 2014.

***Maureen Andrew Mentorship Award*** for outstanding mentorship from the Society for Pediatric

*Research*, presented at the Pediatric Academics Societies Meeting, San Diego CA, 2015.

***Distinguished Achievement Award of the American Thoracic Society*** for outstanding contributions to fighting respiratory disease through research, education, patient care and advocacy, presented at the ATS meeting, Denver, CO 2015.

***Mary Ellen Avery Award*** from the American Pediatric Society and Society for Pediatric Research “*to recognize the lifetime achievement of a pediatric investigator who has made important contributions to neonatal health through basic or translational research,*” presented at the Pediatric Academic Societies Meeting, Baltimore, MD, Spring, 2016.

***Bengt Robertson Award Lectureship*** for research *concerning the neonatal lung* from the European Society for Pediatric Research and the European Academy of Paediatric Societies, Geneva, Switzerland, 2016.

***International Arvo Ylpo Medal Award*** is given once every 5 years in recognition of outstanding research of newborn and premature infants, from the chairs of the Departments of Pediatrics at the 5 Finnish medical schools, the Finnish Foundation for Pediatric Research, the Finnish Pediatric Association and the Mannerheim League for Child Welfare, Helsinki Finland, 2017.

***Thomas H. Pauley MD Lectureship***, Department of Pediatrics, University of Kentucky Medical School, Lexington, KY, 2017.

***Robert DeLemos Memorial Lectureship***, “Management of Pulmonary Hypertension in Infants and Children,” 35<sup>th</sup> Annual Advances in Respiratory Care Snowbird Conference, 2018.

***Robin Barst Keynote Lecture***: “Perinatal Origins of Pulmonary Vascular Disease,” 11<sup>th</sup> Annual Neonatal and Pediatric Pulmonary Vascular Disease,” San Francisco, CA, 2018.

***Moritz Ziegler Lecture***: “Pulmonary vascular disease in the newborn: diverse phenotypes and therapies,” Department of Pediatric Surgery, Children’s Hospital Colorado, Aurora CO, 2019.

***Keynote Lecture***: “Pulmonary Vascular Endothelial Control of Cardiopulmonary Diseases: Molecular Opportunities for Novel Treatments,” Experimental

Biology, San Diego, CA, 2020. (Postponed and re-scheduled due to the COVID pandemic).

***David Schiff Memorial Lectureship***, Department of Pediatrics, University of Alberta, Edmonton, Canada, 2020.

***Invited Professorship, Neonatology Day 2020***, University of Iowa School of Medicine, Iowa City Iowa.

***13<sup>th</sup> Annual Bengt Robertson Award Lectureship***,  
*Sharing Progress In Neonatology (SPIN)*  
*Conference, 2021*

***Frank Sterner Lectureship***, Department of Pediatrics, Medical College of Wisconsin, Milwaukee, WI, 2022.

***Charles F. Wasserman Visiting Professor and Lectureship***, Department of Pediatrics, Children's Hospital of New Orleans and Tulane University, 2023.

***Richard Martin Lectureship***, Department of Pediatrics Rainbow Babies and Children's Hospital, Case Western University, Cleveland OH, 2023.

***Jill Gandy Lectureship***, Clinical School, University of Cambridge, Cambridge, UK, 2023.

***JM Bowman Lectureship***, Departments of Physiology and Pediatrics, University of Manitoba, Winnipeg, Canada, 2023.

***First Recipient of the "Steven Abman Annual PPHNet Leadership Award,"*** Pediatric Pulmonary Hypertension Network, 2023.

## **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

American Heart Association (AHA)  
American Pediatric Society (APS)  
American Physiologic Society (APS)  
American Thoracic Society (ATS)  
BPD Collaborative  
European Respiratory Society (ERS)  
Pediatric Pulmonary Hypertension Network (PPHNet)  
Perinatal Research Society (PRS)  
Pulmonary Vascular Research Institute (PVRI)  
Sigma Xi, Honorary Research Society  
Society for Critical Care Medicine (SCCM)  
Society for Experimental Biology and Medicine  
Society for Pediatric Research (SPR)

## REVIEW WORK FOR JOURNALS (partial listing):

American Journal of Physiology  
American Journal of Respiratory and Critical  
Care Medicine  
Anesthesia  
Archives Diseases of Childhood  
Biology of the Neonate  
British Journal of Obstetrics and Gynecology  
Chest  
Circulation  
Circulation Research  
Critical Care Medicine  
Development  
European Respiratory Journal  
FASEB Journal  
Frontiers in Physiology  
Frontiers in Pediatrics  
Gene Therapy  
Intensive Care Medicine  
Journal of the American College of Cardiology  
Journal of the American Medical Association (JAMA)  
Journal of Applied Physiology  
Journal of Clinical Endocrinology and Metabolism  
Journal of Clinical Investigation  
Journal of Heart and Lung Transplantation  
Journal of Pediatrics  
Journal of Perinatology  
Lancet  
Neonatology  
Key Opinions  
Paediatric and Perinatal Epidemiology  
Pediatric Research  
Pediatric Pulmonology  
Pediatrics  
Plos One  
Pulmonary Circulation  
Respiratory Research  
Stem Cells and Development  
Thorax

## EDITORIAL WORK FOR MEDICAL JOURNALS

Thorax (Editorial Board, 1995-1999)  
“Up to Date in Pulmonary and Critical Care  
Medicine” (Co-Editor, Pediatric Section)  
*Pediatric Pulmonology* (Editorial Board, 1996 - current)  
*American Journal of Respiratory and Critical Care  
Medicine* (Associate Editor; 1999 – 2015);  
*Journal of Pediatrics* (Editorial Board, 2004- 2017)  
*Journal of Pediatrics* (Associate Editor, 2010 - 2011)  
*Pulmonary Circulation* (Editorial Board; 2011-current)  
*American Journal of Physiology Lung, Molecular and Cell  
(Editorial Board, 2011 – current)*  
*Neonatology, Editorial Board (current)*  
*American Journal of Respiratory and Critical Care*

*Medicine (Associate Editor; 2016 - current);*  
*Pediatric Research (Corresponding editor; 2020 - 2022)*  
*Pediatric Research (Pulmonary Editor, 2022 – current)*  
*Intensive Care Medicine Pediatric and Neonatal (ICMPN,*  
*Editorial Board, 2022 – current))*

## REVIEW WORK FOR NATIONAL/INTERNATIONAL RESEARCH GRANTS

1989	March of Dimes Clinical Research Advisory Committee (Ad Hoc)
1992	Site Reviewer, NIH Heart, Lung, Blood Institute Sickle Cell Comprehensive Centers
1992-1996:	American Lung Association Grant Review Committee
1995	Manitoba Health Research Council, Canada
1995	March of Dimes Scientific Advisory Committee
1997	NIH HLBI Lung Biology and Pathology Study Section (ad hoc)
1997-1999	American Heart Association, Colorado-Wyoming (local affiliate)
1997-2002	American Lung Association National Research Grants Award Committee
1996-2002	March of Dimes Basic Research Grant Review Committee (National)
1999-present	The Wellcome Fund, UK
2000,2001	NIH Medical Biochemistry Study Section (ad hoc)
2001	National Science Foundation, Switzerland
2001	NIH/HLBI Lung Biology and Pathology Study Section (ad hoc)
2002	Internal Grants, Hospital for Sick Children, Toronto Canada
2003	NIH/HLBI Special Emphasis Panel, “Coordination of angiogenesis and lung growth”
2003	NIH/HLBI Special Emphasis Panel, “Collaborative Program in BPD”
2003	Canadian Institutes for Health Research, Canada.
2004	Medical Research Council, Australia
2004	NIH/HLBI Special Emphasis Panel, “Pulmonary Complications of Sickle Cell Disease”
2004 - 2008	Regular Member, NIH Study Section, Respiratory Integrative Biology and Translational Research. (RIBT).
2006	Ad hoc Reviewer, NIH Special Emphasis Panel.
2006	Ad hoc reviewer, NIH Study Section, Institutional Fellowship Training Programs (T32)
2009	Chair, NHLBI Special Emphasis Panel for RFA, “Developmental Origins of Altered Lung Physiology and Immune Function.”
2009	Reviewer, Raine Medical Research Foundation, University of Western Australia
2010	Reviewer, NICHD/Food and Drug Administration Best Pharmaceuticals for Children Act, Bethesda MD.
2010	Reviewer, Thrasher Foundation.
2010	Reviewer, NHLBI Special Emphasis Panel, “Developmental Pharmacology”
2011	Reviewer, NHLBI PO1 “Programs in Translational Research in Lung Disease”
2012	Reviewer, NHLBI UO1 Program, “Consortium of Lung Repair and Regeneration: Building the Foundation”
2013	Ad hoc reviewer, NHLBI UO1 Program, “Phase II Clinical Trials of Novel Therapies for Lung Diseases”
2013 - 2017	Grant review committee, <i>Parker B. Francis Family Foundation</i> , Kansas City MO.
2014	Ad hoc reviewer, NHLBI <i>Respiratory Integrative Biology and Translational Research (RIBTR)</i> Study Section;
2014	Reviewer, NHLBI <i>Special Emphasis Panel</i> , ZRG1 CVRS-G (02), “Pulmonary Disease,” Bethesda, MD.
2014	Reviewer, NHLBI Special Emphasis Panel, <i>T32 Training Grants</i> .
2015	Reviewer, National Center for Advancing Translational Sciences (NCATS),

	<i>"Collaborative Innovation Awards,"</i> Bethesda MD.
2016- 2020	Standing Member, <i>NHLBI Study Section on Clinical Trials (CLTR)</i> , Bethesda, MD.
2017	Reviewer, <i>Physician Scientist Development Program (PSDP)</i> of the American Medical School Pediatric Department Chairs, APS, San Francisco CA
2020 - current	Reviewer, <i>Pulmonary Hypertension Association Young Investigator Grants</i>
2021	Reviewer, <i>NIH LungMap Pilot Award Grants</i>
2022-current	Reviewer, <i>Pulmonary Hypertension Association (PHA) Grants Program</i>

## ADMINISTRATION (local)

1989-1993	Director, <i>Special Care Unit</i> , The Children's Hospital
1989-1993	Director, <i>Pediatric Pulmonary Fellowship Training Program</i> , UCHSC
1991-1993	Dean's Seminar Committee, UCHSC
1991-1994	Director, <i>Nitric Oxide Study Group</i>
1994-1996	Course Director, Aspen Conference on the Fetus and Newborn
1994-present:	Founder and Director, <i>Pediatric Heart-Lung Center</i> , Department of Pediatrics, The Children's Hospital and UCHSC;
1994- present	Founder and Co-Director, <i>Pediatric Pulmonary Hypertension Program</i> , TCH, Denver CO.
1996-1999	Board Member, American Heart Association of Colorado/Wyoming
1997	Search Committee, Chairman of Pathology, The Children's Hospital
1997-1998	Research Committee, <i>Vision 2020 Planning Committee</i> , UCHSC;
2000	Consultant, Institutional Review of the Department of Medicine, National Jewish Research and Medical Center, Denver, CO.
2001	Consultant, Pediatric Pulmonary Program, Department of Pediatrics and Mercy Children's Hospital, KC, MO.
2003 - 2010	Member, The Children's Hospital Research Institute Board, Denver, CO.
2003 - 2004	Co-head, <i>Task Force on Collaboration</i> , Department of Pediatrics, UCHSC
2004 - 2007	Member, Clinical-Translational Research Advisory Committee for the Dean, University of Colorado School of Medicine, UCHSC.
2007 – 2011	Founder and Director, <i>Ventilator Care Program</i> , The Children's Hospital.
2008	Interviewer, Medical Scientist Training Program Applicants, University of Colorado School of Medicine.
2008 - present	Member, Medical Student Research Track Program, University of Colorado School of Medicine
2008 – 2010	Member, <i>Research Strategy Task Force</i> , Department of Pediatrics, Children's Hospital Colorado;
2006- 2010	Advisory Committee on Research, Department of Pediatrics, University of Colorado
2010- present	MD-PhD applicant interviews for Pediatric Residency Program
2010- 2020	Member, Medical Student Research Track Committee, UCD School of Medicine
2011- 2016	Member, NIH K12 Child Health Research Program, Dept. of Pediatrics, UCHSC
2011	Mentorship Planning Committee, Department of Pediatrics, UCHSC
2011- 2016	Member, Executive Committee for Child Health Research, Children's Hospital Colorado.
2011- 2012	Planning Committee, March of Dimes Center for Prematurity, Departments of Pediatrics and Obstetrics-Gynecology, University of Colorado School of Medicine, Aurora CO.
2011- 2017	Committee Member, Summer Research Program, Department of Pediatrics, University of Colorado School of Medicine
2013-2016	Review Committee, Boettcher Foundation Webb-Waring Biomedical Research Awards Program, University of Colorado Denver School of Medicine.
2013-present	Mentor, NIH K12 program <i>"Building Interdisciplinary Research Careers in</i>

	<i>Women's Health,</i> ” University of Colorado School of Medicine.
2013-2016	Member, Grant Review Committee, Children’s Hospital Colorado Research Institute
2014 - 2016	Reviewer, Children’s Research Career Development Awards (K12), Dept. of Pediatrics, University of Colorado
2014-2016	Reviewer, <i>Early Career Scholars Program</i> , Department of Medicine, University of Colorado
2015-2022	Member, <i>Dean’s Research Advisory Committee</i> , University of Colorado School of Medicine
2020	Reviewer, <i>Pews Scholar Grant Nomination</i> , University of Colorado Anschutz School of Medicine
2021	Facilitator, <i>Professionalism Workshop for 3<sup>rd</sup> Year Medical Students</i> , University of Colorado Anschutz School of Medicine.
2021- 2023	Co-Chair, <i>Senior Faculty Working Group</i> (SFWG), Department of Pediatrics, UCSOM
2021	Reviewer, Keck Foundation Research Grant Program.
2021- present	Co-director, NHLBI T32 Program on Multidisciplinary Research Training in Pediatric Pulmonary Vascular Disease, (PPHNet)
2023-present	Member, Dean’s Advisory Committee on Senior Faculty, UCSOM
2023-present	Co-lead, Program to Advance Physician-Scientists and Translational Research, UCSOM

## COMMITTEE AND ADMINISTRATIVE WORK FOR NATIONAL AND INTERNATIONAL ORGANIZATIONS

1992	Program Planning Committee Secretary, Pediatric Assembly, American Thoracic Society (ATS).
1993	Chairman-elect, Program Planning Committee, Pediatrics Assembly, ATS.
1994	Chairman, Program Planning Committee, Pediatric Assembly, ATS
1993- current	Abstract Reviewer, Society for Pediatric Research (SPR) and Pediatric Academic Societies (PAS) National Meetings.
1997 - 1998	American Lung Association/ATS Publications Committee
1996 – 2002	March of Dimes Basic Science Research Committee
1997 – 1998	American Heart Association Research Committee (Affiliate)
1997 – 2001	American Lung Association/ATS Research Grant Committee (National)
2000	NIH/HLBI Workshop on Chronic Lung Disease of Infancy, Bethesda, MD
2001	American Thoracic Society Sub-committee, “Guidelines for the Use of Inhaled NO Therapy”
2002-3	Health and Science Policy Committee of the American College of Chest Physicians, “Evidence Based Guidelines on the Diagnosis and Treatment of Pulmonary Hypertension.”
2002	NIH/HLBI Workshop on “Strategies to Augment Alveolization,” Bethesda, MD
2002-2005	E. Mead Johnson Award Selection Committee, Society for Pediatric Research.
2004	NICHD/FDA Newborn Drug Development Initiative. Workshop, Baltimore, MD.
2004- 2007	Pediatric Academic Societies Program Planning Committee (National)
2007	Development and Pathology Working Group, International Task Force on Pulmonary Arterial Hypertension
2007- current	Member, Pulmonary Vascular Research Institute (International Society).
2008	Planning Group and Organizer, NIH HLBI Workshop on Pediatric Pulmonary Diseases, Task Force Leader on Pulmonary Vascular Disease, Bethesda MD.
2008	Member, Child Health Research Committee, Federation of Pediatric Organizations (FOPO)
2009	Member, NHLBI Workshop on Academic Training in Pediatric and Adult

	Medicine, Bethesda MD
2008 - current	Founder and Director, <i>Pediatric Pulmonary Hypertension Network (PPHNet)</i>
2010	Speaker and Discussant, NIH Consensus Development Conference, "Inhaled NO Therapy for Premature Infants," Bethesda MD.
2010	Member, NHLBI Working Group, "Improving Transitional Care in Chronic Heart, Lung and Blood Diseases," Bethesda, MD.
2010	Abstracts reviewer, Pediatric Academic Societies International Conference, Denver CO
2010	Member, "Reviving Pediatric Pulmonary Medicine," Pediatric Assembly Committee, American Thoracic Society.
2010- 2014	Chairman, American Heart Association and American Thoracic Society Joint Guidelines on Pediatric Pulmonary Hypertension.
2011-2015	External Advisor, NIH T32 Training Program, "'Pulmonary and Critical Care Post-Doctoral Research Training Program," University of Illinois Chicago.
2011- 2013	Co-chair, NHLBI T32 Directors Working Group on Career Development
2011- 2013	Co-Chair, Federation of Pediatric Organizations (FOPO) Child Health Research Committee on "Crafting Successful Clinician-Scientists"
2011	Ad Hoc Reviewer, NHLBI Translational Program Grants, Bethesda MD.
2011	Reviewer, NHLBI Special Emphasis Panel, "Consortium of lung repair and regeneration: building the foundation (U01)" and "Lung repair and regeneration consortium administrative coordinating center (U01)"
2011	Co-Chair, NHLBI Division of Lung Disease Workshop, "Improving outcomes for pulmonary vascular disease," Bethesda MD.
2011	Invited Participant, NHLBI Division of Lung Disease Workshop, "Lung Development," Bethesda, MD.
2011- 2015	Member, NICHD Better Pharmaceuticals for Children Act (BPCA), Pulmonary Therapeutic Area Working Group.
2012	External Reviewer, Pediatric Pulmonary Medicine Section, Cincinnati Children's Hospital Medical Center, Cincinnati OH.
2012-13	Pediatric Task Force Member, 5 <sup>th</sup> World Congress on Pulmonary Hypertension, Nice France.
2012- 2013	Group Leader, Transdisciplinary Program for the Prevention of Prematurity, March of Dimes Initiative, University of Colorado School of Medicine.
2012- current	Co-founder, Vice-Chairman and Executive Committee member, the National <i>Bronchopulmonary Dysplasia (BPD) Collaborative</i> .
2012- 2013	Peru Community Health Projects Committee, Global Health Institute, Adventists Hospital.
2012	Reviewer, Abstract Selection Committee, Pediatric Academic Societies Conference 2013
2013	Chair, Pulmonary Hypertension Subcommittee Group, NHLBI Workshop on "Primary Prevention of Lung Diseases Research Strategy," Bethesda, Md.
2013	Member, BPD Subcommittee Group, NHLBI Workshop on "Primary Prevention of Lung Diseases Research Strategy," Bethesda, Md.
2013	Member, <i>Federation of Pediatric Organizations (FOPO)</i> Child Health Research Committee Workshop, Washington DC.
2013	Member, Data Safety and Monitoring Board, "Role of CC10 Therapy for the Prevention of BPD," <i>Tufts University</i> , Boston MA
2013- 2017	Reviewer, <i>Parker B. Francis Family Foundation Grant Program</i> .
2014- current	Co-Leader, Pediatric Task Force, <i>Pulmonary Vascular Resistance Institute (PVRI)</i>
2014	Co-Chair, <i>Neonatal Cardio-Pulmonary Biology Young Investigators' Forum</i> , Chicago, IL
2014	Reviewer, Workshop Conference Selection Committee, Pediatric Academic Society International Conference
2014	Ad Hoc Reviewer, NHLBI Special Emphasis Panel, "T32 training programs in

	pulmonary medicine,” Bethesda, MD.
2014	Ad hoc reviewer, NHLBI NHLBI Special Emphasis Panel, Bethesda MD.
2015 – current	Member, Committee on BPD, International Neonatology Consortium, Critical Path Institute, Tucson Arizona.
2015	Chairman, Data Safety and Monitoring Board, “Intravenous Remodulin therapy for Persistent Pulmonary Hypertension of the Newborn.”
2015	Co-Chair, <i>Neonatal Cardio-Pulmonary Biology Young Investigators’ Forum</i> , Chicago, IL
2016-current	Chairman, Data Safety and Monitoring Board, “Riociguat therapy for pediatric pulmonary hypertension” (BAYER)
2016-current	Member, <i>Mary Ellen Avery Award</i> Selection Committee, PAS/SPR,
2016	Invited participant, NHLBI workshop on “ <i>Enhancing treatments for pulmonary vascular diseases through precision medicine</i> ,” Chicago IL.
2016- 2020	Standing Member, NHLBI Study Section on Clinical Trials (CLTR), Bethesda, MD.
2016-	Co-Chair, “ <i>3<sup>rd</sup> Annual Neonatal Cardiopulmonary Biology Young Investigators Forum</i> ,” Chicago IL.
2016	Invited participant, “Bronchopulmonary Dysplasia,” NICHD / FDA workshop, Bethesda, MD.
2016- current	Advisory Board, <i>PHAware</i> Patient Advocacy Group
2016- current	Member, <i>International Neonatal Consortium</i> (INC) on BPD
2017- 2022	Member, Airway Outcomes Working Group, NIH Environmental Influences on Child Health Outcomes (ECHO) Program
2017	Selection Committee, Physician Scientist Development Program, SPR/PAS.
2017- current	Member, <i>Scientific Leadership Council</i> , Pulmonary Hypertension Association.
2017	Co-Chair, “ <i>4<sup>th</sup> Annual Neonatal Cardiopulmonary Biology Young Investigators Forum</i> ,” Chicago IL.
2017	Chair, <i>Maureen Andrews Award Selection Committee</i> , PAS/SPR.
2018	Member, Pediatric Task Force, 6 <sup>th</sup> World Symposium on Pulmonary Hypertension, Nice France.
2018	Co-Chair, “ <i>5<sup>th</sup> Annual Neonatal Cardiopulmonary Biology Young Investigators Forum</i> ,” Chicago IL.
2018	Participant, “Advancing Endpoint Development for Preterm Neonates with Pulmonary Morbidities,” Duke Margolis Center for Health Policy, Washington DC.
2010- current	<i>Member, Scientific Board</i> , Ludwig-Boltzmann Institute of Lung Vascular Disease, Graz, Austria.
2018– current	Head, Data Safety Monitoring Board, “Riociguat Therapy for Pediatric Pulmonary Hypertension,” Bayer Pharmaceuticals.
2018-2019	Organizer, Co-Chair and Moderator, “ <i>The Pulmonary Vasculature in Development, Homeostasis, Injury and Repair</i> ,” ATS Robert Grover Conference on the Pulmonary Circulation, Lost Valley Ranch, Deckers CO.
2018- current	Member, Executive Committee, Pulmonary Circulation Assembly, ATS
2019- current	Organizing Committee, Chronic Lung Disease Symposium, Philadelphia PA.
2019- 2022	Pediatric Academic Society (PAS) Planning Committee
2019	<i>President-elect</i> , American Pediatric Society (APS)
2020- current	Member, <i>NHLBI Data and Safety Monitoring Board</i> for the study “Safety of Sildenafil In Premature Infants with Severe Bronchopulmonary Dysplasia.”
2020 – 2021	<i>President</i> , American Pediatric Society (APS)
2021-2021	<i>Immediate Past President</i> , member of APS Council
2020- 2021	Member, NIH R38 StARR Study Section
2020	Moderator and Speaker, NIH Workshop, “ <i>Clinical Trials in Down Syndrome for Co-Occurring Conditions Across the Lifespan</i> ”
2020- current	Member, Pulmonary Hypertension Association (PHA) <i>Scientific Leadership Council Research Committee</i> .

2020- 2022	Organizer and Moderator, <i>American Pediatric Society and Society for Pediatric Research Virtual Chats on the Challenges of Academic Pediatric Medicine Series.</i>
2020- 2022	Member, <i>Tackling Racism as Leaders of Academic Societies</i> Working Group.
2020- 2021	Member, <i>Council of Pediatric Subspecialties.</i>
2020- 2022	Member, Committee on Equity, Diversity and Inclusion, <i>NIH Environmental Influences on Child Health Outcomes (ECHO) Program</i>
2021-2022	Planning Committee, <i>APS-SPR Journeys Program for Career Development.</i>
2021-current	Member, Planning Committee, <i>Chronic Lung Disease Symposium</i> , Children's Hospital Philadelphia, Philadelphia PA.
2021-current	Chair, Pediatric Clinical Trial Design, Pulmonary Vascular Research Institute (PVRI) <i>Innovative Drug Development Initiative,</i>
2020- 2022	Member, <i>American Pediatric Society (APS) Council</i>
2020-2022	Member, <i>American Pediatric Society-Society for Pediatric Research Executive Council Board</i>
2020-2022	Member, <i>Pediatric Academic Societies Planning Committee</i>
2021-2022	Chair, <i>American Pediatric Society Nomination Committee</i>
2021-2022	Member, <i>American Pediatric Society Finance Committee</i>
2021-current	Member, Scientific Advisory Board, <i>NIH CU Summer Program</i> (PI: John Repine) (college student mentorship program)
2021- current	Member, Scientific Advisory Board, The Chronic Lung Disease Program, <i>Frontiers Program</i> , Children's Hospital of Philadelphia
2021-current	North American Leader, Steering Committee, <i>The Lancet Commission on the Future of Neonatology</i>
2022-current	Member, <i>ATS 2022 Workshop on Lung Endothelium in Health and Disease</i>
2022-current	Member, <i>International Neonatal Pulmonary Hypertension Registry Study Group</i>
2022-current	Associate Editor, Pulmonary Section, <i>Pediatric Research</i>
2022-current	Advisory Board, <i>Intensive Care Medicine-Paediatrics and Neonatal</i>
2022-current	Advisory Board, NHLBI T32 Pediatric Pulmonary Training Program, University of Pennsylvania School of Medicine and Children's Hospital of Philadelphia
2022-current	Advisory Board, NHLBI T32 Neonatology Training Program, Case Western University and Rainbow Babies Hospital, Cleveland, OH.
2019-current	Advisory Board, NHLBI T32 Training Program in Adult and Pediatric Pulmonary Medicine, Stanford University, Palo Alto, CA.
2023-current	Member, APS Membership Selection Committee
2023-current	APS Trustee, <i>International Pediatric Research Foundation</i>
2023-current	Member, Steering Committee, Research on Pulmonary Hypertension in Neonatology (RePHINE) Registry

## INVITED NATIONAL AND INTERNATIONAL PRESENTATIONS

1987 - American Thoracic Society (ATS) "Long Term Management of Infants with Severe BPD" (Symposium)

1991 - 3rd International Conference on Pulmonary Rehabilitation and Home Ventilation - "Pediatric Home Ventilation"

1991- American Thoracic Society (ATS) Conference- "Role of Endothelial-Derived Products in Perinatal Pulmonary Vasoregulation"

1992 - Society for Pediatric Research (SPR) Conference - "Endothelin in Perinatal Biology" - Poster Symposium Summary.

1992 - American Heart Association (AHA) National Meeting: Postgraduate Series - "Endothelin and the Fetal and Neonatal Pulmonary Circulation".

1992- University of Miami School of Medicine, Neonatal Symposium on New Developments in Neonatal Respiratory Care: ("New Concepts in Pathophysiology and Treatment of PPHN," "Pulmonary Hypertension and Cardiovascular Sequelae of BPD," "Pathogenesis of PPHN: Experimental Aspects").

1992- Hot Topics in Neonatology, 1992, (Ross Laboratories; Washington D.C.): "Clinical Role of Inhaled Nitric Oxide in PPHN Therapy".

1993- ATS Symposium: Abnormal Cardiopulmonary Interactions in Pediatrics (Chairman) and Presentation - "Cardiopulmonary Interactions in Chronic Lung Disease"

1993- SPR Symposium: "Clinical and Cellular Aspects of Nitric Oxide", (moderator).

1993- ATS Symposium: "Clinical Pediatric Cases", (moderator).

1993- NIH Heart Lung Blood Institute Workshop: "Nitric Oxide and the Lung", Presentation: "NO and the Perinatal Pulmonary Circulation".

1993- Hot Topics in Neonatology (Ross Laboratories, Washington D.C.): "Inhaled NO Therapy for PPHN" (Symposium Moderator); Lecture: "NO and the Perinatal Lung."

1993- American Academy of Pediatrics National Meeting: "Role of NO in the Pathophysiology and Treatment of PPHN".

1993- 5th Annual High Frequency Ventilation Conference, Phoenix, Az. "Inhaled NO/PPHN."

1994- Management of the Tiny Baby Conference, Orlando, FL: 1) "NO in the Nursery;" 2) "Long-Term Sequelae of BPD."

1994- Newborn Medicine Update, Marina Del Rey, CA. "Strategies to Prevent Neonatal Lung Injury."

1994- Aspen Conference on the Fetus and Newborn, Aspen, CO. "Steroid Therapy for BPD" and "Inhaled NO Treatment of PPHN."

1994- American Thoracic Society (Boston, MA), Invited Speaker, Joint Symposium of the European Respiratory Society and ATS, Symposium on the Biology of Nitric Oxide: Lecture: "Clinical Uses of Inhaled NO."

1994- International Conference on the Biochemistry and Molecular Biology of Nitric Oxide - Invited Speaker, "Inhalational NO Therapy."

1994- Joint European and American Study Group on NO, Paris, France. "Acute Respiratory Failure."

1994- American Association for Clinical Chemistry, "NO: Its Physiologic Role."

1994- Hot Topics in Neonatology, (Ross Laboratories Washington, D.C.): "Inhaled NO in Premature Neonates," Invited Speaker.

1994- Grover Conference on the Pulmonary Circulation. Symposium moderator, "Nitric Oxide - Clinical Applications."

1994- 45th Perinatal and Developmental Medicine Symposium: "Regulation of Fetal Development and Postnatal Function," Invited Speaker.

1994- Israeli Neonatology Association, Herzliya, Israel: "Inhaled NO Therapy."

1995- 29th Aspen Conference of the Fetus and Newborn: "Novel Therapies for Neonatal Respiratory Failure," Conference moderator: Presentation: "Pathophysiologic Mechanisms of PPHN."

1995- Neonatal Pharmacology (Steamboat Springs, CO): "Inhaled NO and PPHN" and "Efficacy of Steroids in BPD."

1995- 9th International Hypoxia Symposium, Alberta, Canada: "Inhaled NO Treatment of Pulmonary Hypertension," Invited Speaker.

1995- 4th International Congress of Pediatric Intensive Care: Padua, Italy, Invited Speaker.

1995- Scandinavian Society of Anesthesiologists, 23rd Congress: Reykjavik, Iceland, Invited Speaker.

1995- SPR Symposium: "Experimental Biology of Pulmonary Hypertension", Moderator. San Diego, CA.

1995- ATS Course, "Lung Growth and Development: Basic Science and Clinical Correlates", Moderator. Seattle, WA.

1995- Society for Critical Care Medicine. Board Review Course, La Jolla, CA. "Pulmonary Hypertension;" "Lung Growth and Development; and Chronic Lung Disease".

1995- American Academy of Pediatrics - NeoPrep "Boards Review Course": "Pulmonary Vascular Development," "Pulmonary Hypertension: Management," San Diego, CA.

1995- 7th European Congress of Paediatric, Surgical and Neonatal Intensive Care, Invited Speaker. Cambridge, UK.

1995- Abbott Round Table Meeting on Neonatology, "Bronchopulmonary dysplasia;" "Pathogenesis of PPHN;" "Inhaled NO Therapy." Drakensberg, South Africa.

1995- 20th Annual Symposium on Clinical Aspects of Perinatal Medicine and Neonatal Ventilation: Invited Speaker, Chicago, IL.

1995- 11th Annual Symposium on Problems and Controversies in Newborn Medicine; Invited Speaker, Norwalk, Connecticut.

1995- Special Ross Conference: Hot Topics in Neonatology, "Phosphodiesterase Inhibitors and PPHN," Invited Speaker, Washington, D.C.

1996- Society for Critical Care Medicine, Current Concepts in Pediatric Critical Care, "Therapeutic Use of Nitric Oxide in Pediatric Lung Disease", Invited Speaker.

1996- 12th Annual CNMC Symposium on ECMO and Advanced Therapies for Respiratory Failure, "Mechanisms of Abnormal Pulmonary Vasoreactivity in PPHN," Invited Speaker.

1996- European Society Pediatric Intensive Care and European Society for Pediatric Research, Joint Plenary Meeting, "Perinatal Pulmonary Vasoreactivity," Invited Speaker, Lyon, France.

1996- American Thoracic Society International Conference. Postgraduate course on Pulmonary Hypertension, "NO in the Pathogenesis and Treatment of Neonatal Pulmonary Hypertension," Invited Speaker.

1996- 2nd World Congress on Pediatric Intensive Care. "Nitric Oxide in Neonatal and Pediatric Patients," Invited Speaker, Rotterdam, The Netherlands.

1996- Society for Pediatric Research Lung Club Lecture, "NO and the Perinatal Pulmonary Circulation," Washington, D.C.

1996- Society for Pediatric Research, "Mechanisms of Lung Development" (Moderator), Washington, D.C.

1996- Midwestern Society for Pediatric Research, "State of the Art Lecture: NO and PPHN". Invited Speaker, Chicago, IL.

1996- District V/VI Section on Perinatal Pediatrics, "Controversies in the Management of PPHN," Invited Speaker, Chicago, IL.

1996- AAP, "NeoPrep" Board Review Course: "Pulmonary Vascular Development" and "Use of Inhaled NO in PPHN", St. Petersburg, Florida.

1996- NIH Workshop, Acute Chest Study Group, "New Understanding and Treatment of ARDS: How does it relate to acute chest syndrome." Washington, DC.

1997- Federation American Society Experimental Biology (FASEB) Symposium, "The NO Signal Transduction System in the Lung: From Molecular Biology to Bedside Therapy," Invited Speaker, New Orleans, LA.

1997 - American Thoracic Society National Meeting, "Combined Therapies for the Treatment of Severe Respiratory Failure in Neonates."

1997 - American Thoracic Society Postgraduate Course: "Novel Technologies in Pediatric Respiratory Failure." San Francisco, CA.

1997 - 3rd European Postgraduate Course in Neonatal and Pediatric Intensive Care, "Adaptation to Extrauterine Life" and "Use and Misuse of NO". Invited Speaker, Berne, Switzerland.

1997 - 2nd International Congress on NO in Cardiovascular Regulation and Intensive Care, "Inhaled NO in Neonatal care," Stockholm, Sweden.

1997- American Academy of Pediatrics, NeoPrep Board Review Course: "Development of the Pulmonary Circulation and the Transition," Phoenix, AZ.

1997 - Clinical Respiratory Physiology Forum 1997: Inhaled NO, Shanghai, China.

1998 - Society for Pediatrics Research: "Pulmonary Vascular Biology." Moderator.

1998- Issues in Neonatology 1998: "Update on the role of NO in the Pathophysiology and Treatment of PPHN." Invited Speaker, Mineola, NY.

1998 - Food and Drug Administration Advisory Meeting, Cardio-Renal Section: "NO Toxicity"; Invited Speaker.

1998- Third International Conference on Pediatric Pulmonology (CIPP IV): "Pulmonary Hypertension," Nice, France.

1998 - XXII International Congress of Pediatrics: "NO and the Lung". Invited Speaker. Amsterdam, Netherlands.

1998 - American Physiological Society Conference, "Endothelial Regulation of Vascular Tone: Role of ET and NO in the Developing Lung." Invited Speaker. Augusta, GA.

1998 - American Heart Association IXth Pulmonary Circulation Conference: "Ontogeny of NO Activity." Invited Speaker. Deckers, CO.

1998 - Hot Topics in Neonatology, "Update on inhaled NO therapy", Invited Speaker, Washington, DC.

1998- European Society of Intensive Care/European Society for Pediatric Intensive Care- "Role of the Endothelium in Pulmonary Hypertension," Invited Speaker, Stockholm, Sweden.

1998- XXth Central American and Caribbean Pediatric Congress and the VIIIth National Congress on Perinatal Medicine, Invited Speaker, Panama City, Panama.

1998- Nobel Symposium in honor of the Awardees of the Nobel Prize in Medicine or Physiology, Invited Speaker, "Inhaled NO in the Hypoxemic Newborn." Stockholm, Sweden.

1999- Royal Australian College of Physicians, "Role of NO in the Pathophysiology and Treatment of Persistent Pulmonary Hypertension of the Newborn," Invited Speaker, Perth, Australia.

1999- Federation of the American Society for Experimental Biology, "Clinical Disorders of Abnormal Pulmonary Vascular Development," Invited Speaker, Washington, DC.

1999- Society for Pediatric Research, *E. Mead Johnson Award Lecture*, "Fetal and Neonatal Pulmonary Circulation," San Francisco, CA.

1999- European Society for Pediatric Neonatal and Intensive Care- "Clinical Use of Inhaled Nitric Oxide in Pediatrics," Invited Speaker, Italy.

1999- Neonatal Subspecialty Review Course: "Developmental Physiology of the fetal circulation," "Persistent pulmonary hypertension of the newborn," Chicago IL.

1999- American Academy of Pediatrics, NeoPrep Board Review Course: "Development of the Pulmonary Circulation and the Transition," "Clinical Uses of Inhaled NO," San Antonio, Texas.

1999- Annual Robert J. Haslam Lecture, "Role of NO in the Pathophysiologic and Treatment of Neonatal Pulmonary Hypertension," Hospital for Sick Children, Toronto, Canada.

1999- Advances in Pediatric Care, "Neonatal Respiratory Failure: an Integrative Approach," KK Women's Hospital, Singapore.

1999- Symposium on Pediatric Pulmonary Hypertension in Congenital Heart Disease, "Inhaled NO therapy of congenital heart disease," American Heart Association National Meeting, Atlanta GA.

2000- Update on Pediatric Critical Care, "NO in Acute Lung Injury," Society for Critical Care Medicine, Orlando FL.

2000- Symposium on "New Developments of Hypoxemic Respiratory Failure in the Newborn," Society for Critical Care Medicine, Orlando, FL.

2000- Postgraduate Course, "Inhaled NO Therapy," American Thoracic Society International Scientific Meeting, Toronto, Canada.

2000- Symposium on Abnormal Lung Development, “Abnormal Gene Expression in Neonatal Pulmonary Hypertension,” American Thoracic Society International Scientific Meeting, Toronto, Canada.

2000- Third World Congress on Pediatric Intensive Care, “Lung Vascular Injury” (plenary session); “Persistent Pulmonary Hypertension of the Newborn” (plenary session), and “How I Use Inhaled Nitric Oxide” (workshop); Montreal, Canada.

2000- Symposium on “Role of Inhaled NO in the Treatment of Hypoxemic Respiratory Failure in the Newborn,” Third World Congress on Pediatric Intensive Care, Montreal, Canada.

2000- Workshop on Chronic Lung Disease of Infancy, NIH Heart Lung Blood Institute, “Inhaled NO and lung inflammation, airway function and gas exchange,” Bethesda, MD.

2000- FASEB/American Physiologic Society Conference on Perinatal Regulation of the Cardiovascular System, “Regulation of Fetal Pulmonary Circulation,” Copper Mountain, CO.

2000- Toronto Conference on Critical Care, “Inhaled NO Therapy in Preterm Infants,” Toronto, Canada.

2000- Symposium on Acute Respiratory Distress Syndrome, “Role of NO the pathophysiology and treatment of ARDS,” American Academy of Pediatrics, Chicago IL.

2000- Invited Lecture, “Inhaled NO therapy for Pulmonary Hypertension;” NIH Heart Lung Blood Institute, Workshop on Sickle Cell Disease, Bethesda MD.

2000- Symposium on “Inhaled NO Therapy,” American Heart Association National Meeting, New Orleans, LA.

2000 - Invited Lecture, Neonatology 2000- Challenges for the New Century, University of Miami, Florida.

2000- Chronic Lung Disease Workshop- “Role of Pulmonary Vascular Injury in the Pathogenesis of BPD,” London, UK.

2000- Hot Topics in Neonatology, “Update on Inhaled NO Therapy of Neonatal Respiratory Diseases,” Washington, DC.

2001- American Academy of Pediatrics, NeoPrep Board Review Course: "Development of the Pulmonary Circulation and the Transition," “Basic Mechanisms of Lung Development,” Boston, MA.

2001- Symposium, “Developmental Physiology of the Pulmonary Circulation,” “Inhaled NO therapy of Neonatal Respiratory Diseases,” Mead Johnson Neonatology Regional Meeting, Nemaquin, PA.

2001- ATS Symposia: “Update on Nitric Oxide Therapy,” “Pediatric Clinical Chest Rounds,” American Thoracic Society National Meeting, San Francisco, CA.

2001- VII Congreso Argentino de Perinatología; VI Congreso Latino Americano de Perinatología, “Pathophysiology of PPHN;” “Update on Chronic Lung Disease of Infancy;” “Mechanical Ventilation of the Sick Newborn;” “High frequency oscillatory ventilation.” Buenos Aires, Argentina.

2001- Plenary Lecture, “Chronic NO therapy of primary pulmonary hypertension,” Third World Congress of Pediatric Cardiology and Cardiovascular Surgery, Toronto, Canada.

2001- Plenary Lecture, “Influencing cardiovascular function through nitric oxide,” European Society for Pediatric Research, Helsinki Finland.

2001- Plenary Lecture, "Mechanisms of abnormal vascular development in neonatal pulmonary hypertension," New Frontiers in Neonatology, Heidelberg, Germany.

2001- Lecture, "New Developments in the Treatment of Neonatal Pulmonary Hypertension," American Heart Association National Meeting, Anaheim CA.

2001- Lecture, "Pathogenesis and Treatment of Neonatal Pulmonary Hypertension," 40<sup>th</sup> Anniversary Celebration, Division of Neonatology, Department of Pediatrics, Yale University School of Medicine, New Haven, CT.

2001- Lecture, "Role of NO in the Pathogenesis and Treatment of Neonatal Pulmonary Hypertension," Jerry Elliot Memorial Lectureship, SUNY-Stoneybrook, Mineola, NY.

2000- Lecture, "Pulmonary Circulation in BPD," Lung Injury in the Newborn Keystone Symposium (LINKS) Meeting, Keystone, CO. (Conference Co-Organizer and Moderator).

2002- Lecture, "Role of angiogenesis in alveolar development in BPD," NIH Workshop on Mechanisms of Alveolarization, Bethesda MD.

2002- Drew Wiltsie Memorial Lectureship, "Role of Inhaled NO in the Treatment of Neonatal lung Disease," Department of Pediatric Grand Rounds, University of Pittsburgh Medical School, Pittsburgh, PA.

2002- Invited Lecture, "Inhaled NO in Cardiorespiratory Disease," Grand Rounds, Department of Critical Care, University of Pittsburgh Medical School, Pittsburgh, PA.

2002- Invited Lecture, "Role of Inhaled NO therapy in the sick newborn," Department of Pediatrics, Mercy Children's Hospital, University of Kansas School of Medicine, Kansas City, MO.

2002- Invited Lecturer, "Role of NO in the pathogenesis and pathophysiology of PPHN," "An update on inhaled NO therapy in children," and "Role of Impaired Angiogenesis in BPD," Symposium on Fetal and Neonatal Pulmonary Biology, University Hospital Maastricht, Maastricht, The Netherlands.

2003- Invited Lecturer, "NO and the Perinatal Lung Circulation," Perinatal Society of Australia and New Zealand, 7<sup>th</sup> Annual Congress; Hotel Grand Chancellor, Hobart, Tasmania.

2003- Invited Lecturer, "Regulation of Pulmonary Vascular Tone in the Perinatal Period," "BPD- A Vascular Hypothesis," "Clinical Approach to Inhaled NO in the Newborn," Ipokrates International Meeting on Neonatal Lung Injury, Paris, France.

2003- American Academy of Pediatrics, NeoPrep Board Review Course: "Development of the Pulmonary Circulation," "Basic Mechanisms of Lung Development," "Treatment of PPHN." Vancouver, Canada.

2003- Invited Lecture, "Role of NO in the Pathogenesis and Pathophysiology of Neonatal Lung Disease," Grand Rounds, Department of Pediatrics, University of Manitoba, Winnipeg, Canada.

2003- Barry Smith Memorial Lectureship, "Roles of NO in the Developing Lung," Department of Pediatrics, Hospital for Sick Children, University of Toronto, Toronto Canada.

2004- Invited lecture, "Pulmonary circulation in BPD," 20<sup>th</sup> Annual CNMC Symposium on ECMO and Advanced Therapies for Respiratory Failure, Keystone, CO.

2004- 6<sup>th</sup> International Congress on Pediatric Pulmonology (CIPP), "Lung Development," "Neonatal Pulmonary Hypertension: A Physiologic Approach to Treatment," Lisbon, Portugal.

2004- 7<sup>th</sup> European Conference on Pediatric and Neonatal Ventilation, “BPD- A Vascular Hypothesis,” “Inhaled NO in Neonatal Respiratory Failure,” Montreux Switzerland.

2004- Invited Lecture, “Lung Vascular and Alveolar Interactions in the Pathogenesis of Bronchopulmonary Dysplasia,” Pediatric Academies Society Meeting, San Francisco, CA.

2004- Invited Lecture, “Early Experience with Chronic Inhaled NO therapy for the Treatment of Pulmonary Arterial Hypertension,” American Thoracic Society, Orlando FL.

2004- Dunlevie Family Lectureship, “Role of NO in the Pathogenesis and Treatment of Neonatal Lung Disease,” Department of Pediatrics, Stanford University, Palo Alto, CA.

2004- Invited Lecture, “Role of Endothelial NO Synthase,” Science of Pulmonary Hypertension Conference, San Antonio, Texas.

2004- Seizo Iwai Lectureship, “Inhaled NO Therapy in Pediatrics: Scientific Basis for Therapy,” 10<sup>th</sup> Meeting of the Japanese Society of Pediatric Anesthesiology, Tsu City, Japan.

2005- Invited Lecture, “Nitric Oxide- State of the Art,” Western Society for Pediatric Research, Carmel, CA.

2005- Symposium, “Career Development in Pediatric Pulmonary Medicine,” Pediatric Academic Societies, Washington DC.

2005- Invited Lecture, “NO-cGMP signaling in Neonatal Pulmonary Hypertension,” International cGMP Symposium, Potsdam, Germany.

2005- Invited Lecture, “Drug Therapy for PPHN,” and “Drug Therapy for BPD,” Neonatal Pharmacology, Seattle, WA.

2005- Invited Lecture, “NO in Neonatal Lung Disease: Recent Advances,” Recent advances in Neonatal Medicine, Wurzburg, Germany.

2005- Invited Lecture, “Future Clinical Uses of Inhaled NO,” 5th International Society for Medical Gas Meeting, Stockholm, Sweden.

2005- Invited Lecture, “BPD: from bench to bronchus,” Grand Rounds, Dept of Pediatrics, University of Colorado School of Medicine, Denver, CO.

2005-Invited Lecture, “NO in the pathophysiology and treatment of neonatal lung disease,” Academic Day for Neonatologists of Southern California, Neonatal Meeting, Los Angeles, California.

2006- Invited Lecture, “Impaired Angiogenesis in BPD,” Western Perinatal Research Meeting, Banff, Canada.

2006- Hot Topics Symposium, “Lung angiogenesis and its dysregulation in BPD,” Pediatric Academies’ Society Meeting, San Francisco, CA.

2006- Plenary Speaker, “NO in the pathogenesis and treatment of BPD,” *Eastern Society for Pediatric Research*, Old Greenwich, CT.

2006- Invited Lecture, “NO in the pathogenesis and treatment of BPD,” *Jerry Elliott Memorial Lecture*, Western Conference on Perinatal Research, CA.

2006- Invited Lecture, "Treatment of Pulmonary Hypertension in BPD," Keystone ECMO Conference, Keystone, CO.

2006- Invited Lecture, 7<sup>th</sup> International Congress on Pediatric Pulmonology (CIPP), "Pulmonary Hypertension in the Older Child: A Physiologic Approach to Treatment," Montreal, Quebec, Canada.

2006- Invited Lecture, 4<sup>th</sup> International Conference on the Biology, Chemistry and Therapeutic Applications of Nitric Oxide, "NO in the pathogenesis and treatment of neonatal lung disease," Monterey CA.

2006- Invited Lecture, "Development of the pulmonary circulation. Implications for congenital diaphragmatic hernia." International workshop on pathophysiology and management of abnormal lung development, Faculte de medecine Henri Warembourg, Universite de Lille, France.

2006- Invited Lecture, "The 'new' approach to bronchopulmonary dysplasia," European Society for Pediatric Research, Barcelona, Spain.

2007- Invited Lecture, "BPD: New Ideas on Etiology, Pathogenesis and Genetic Susceptibility" ATS National Meeting, San Francisco, CA.

2007- Invited Lecture, "Neonatal Lung Injury," "Controversies in the use of inhaled NO," 5<sup>th</sup> World Congress on Pediatric Critical Care, Geneva, Switzerland.

2007- Invited Lecture, "Advances in the Pathobiology and Treatment of Persistent Pulmonary Hypertension of the Newborn," *Nils W. Svenningsen Memorial Lecture*, 22<sup>nd</sup> International Workshop on Surfactant Replacement, Ancona, Italy, 2007.

2007- Invited Lecture, "NO in the Pathogenesis and Treatment of BPD," Society of Neonatology, Taiwan.

2007- Invited Lecture, "Pulmonary Vascular Disease in the Newborn," European Society for Pediatric Research, Prague, Czechoslovakia.

2007- Invited Lecture, "Nitric oxide in neonatal lung disease," Colorado Chapter of the American Academy of Pediatrics, Denver, CO.

2007- Invited Lectures, "Inhaled NO in premature newborns" and "New Therapies for PPHN," XXI National Congress for Perinatal Medicine of the Spanish Society of Neonatology and the IV<sup>th</sup> Congresso Iberoamericano de Neonatologia (SIBEN), Granada, Spain.

2008- Invited Lecture, "Impaired angiogenesis and pulmonary hypertension in BPD," 24<sup>th</sup> Children's National Medical Center Symposium: ECMO and the Advanced Therapies for Respiratory Failure, Keystone CO.

2008- Invited Lectures, "Is there a role for inhaled NO in the Prevention of BPD?," "Mechanical Ventilation in Severe BPD," "Pulmonary hypertension in BPD," International Congress on Pediatric Cardiology, Madrid Spain.

2008- Keynote Address, "Pulmonary vascular disease in BPD," Neonatal Fellows' Research Symposium, Harvard University Medical School, Boston MA.

2008- Invited lecture, "Developmental physiology of the pulmonary circulation and neonatal pulmonary hypertension," Postgraduate Course on "PULMONARY CIRCULATORY PHYSIOLOGY AND PATHOPHYSIOLOGY," International Conference of the American Thoracic Society, May 16-21, 2008, Toronto, Ontario, Canada.

2008- Invited Lecture, "Pulmonary Vascular Disease in BPD," Wells Center for Research, Riley Children's Hospital, Indiana University School of Medicine, Indianapolis, IN.

2008- Invited lecture, "VEGF and development of the pulmonary circulation," Grover Conference of the American Thoracic Society, Lost Valley Ranch, Deckers, Colorado.

2008- Invited lecture, "Recent advances in the pathogenesis and treatment of PPHN," Reason 2008, Birmingham England.

2008- Invited lecture, "Impaired NO-cGMP signaling in neonatal pulmonary hypertension: novel mechanisms and treatments," 5<sup>th</sup> International Conference on Nitric Oxide, Bergen, Austria.

2008- Invited lecture, "Pulmonary vascular disease in children," The David Schiff Memorial Lectureship, Department of Pediatrics, Stollery Children's Hospital, University of Alberta, Edmonton, Canada.

2008- Invited lecture, "Recent Advances in the Pathogenesis and Treatment of BPD," The Sprague Lecture in Pulmonary Medicine, Department of Pediatrics, Children's Hospital of Philadelphia, Philadelphia PA.

2008- Invited lecture, "Pediatric pulmonary hypertension: an historical perspective," Pediatric Cardiac Intensive Care Symposium, Miami, FL.

2009- Invited lecture, "Vascular-Epithelial interactions during lung development and clinical implications," 2<sup>nd</sup> International Conference on Neonatal and Childhood Pulmonary Vascular Disease, San Francisco, CA.

2009- Invited Lecture and Professorship. "Recent concepts in the pathogenesis and treatment of BPD," The Gordon Forbes Scholar, Department of Pediatrics, University of Rochester Medical Center, Rochester, NY.

2009- Invited lecture, "Recent advances in the pathogenesis and treatment of BPD," Department of Pediatrics, Mount Sinai School of Medicine, New York, NY.

2009- Invited Lectureship, "Pulmonary vascular disease in children," Fyler Memorial Lecture, Children's Hospital, Boston MA.

2009- Invited lectures, "The Effect Of Oxygen Tension On The Molecular And Cellular Events That Mediate Pulmonary Vascular Development," Postgraduate Course on "PATHOBIOLOGY OF OXYGEN EXPOSURE DURING DEVELOPMENT: BEDSIDE TO BENCH AND BACK TO BEDSIDE," International Conference of the American Thoracic Society, San Diego CA.

2009- Speaker, "VEGF Receptors in Pulmonary Angiogenesis," Workshop on Postnatal Angiogenesis, American Thoracic Society International Conference, San Diego, CA.

2009- Invited lecture, "Pediatric Year In Review: Pulmonary Hypertension," International Conference of the American Thoracic Society, San Diego CA.

2009- Invited Lecture, "Acute management of patients with BPD associated with congenital heart defects," Kids Hearts 2009 Symposium, The Children's Hospital, Denver CO.

2009- Invited lecture, "Impaired NO-cGMP Signaling in Neonatal Pulmonary Hypertension," 4<sup>th</sup> International cGMP Symposium, Regensburg, Germany.

2009- Invited lecture, "Pulmonary Vascular Disease during Development: Mechanisms and Clinical Implications," 7<sup>th</sup> Annual Retreat of the International Graduate Program on Molecular Biology and Medicine of the Lung, International Max Planck Research School for Heart and Lung Research, Giessen

Germany.

2009- Invited lecture, “Advances in Pediatric Pulmonary Hypertension,” and “Impaired vascular growth in the Pathogenesis of BPD,” Grand Rounds, Department of Pediatrics, University of Wisconsin, Milwaukee, WI.

2009- Invited lecture, “New Thoughts on the Pathogenesis of BPD,” Advances in Neonatology, Children’s Hospital of Philadelphia, Philadelphia PA.

2010- Invited lecture, “Role of Inhaled NO in Premature Infants,” NEO Meeting, Orlando FL.

2010- Invited Lecture, First Annual Maddie Morgan - Butterflies for Maddie Pulmonology Lectureship, “Update on Pulmonary Hypertension and Veno-Occlusive Disease in Pediatrics,” University of Louisville School of Medicine, Louisville, Kentucky.

2010- Invited lectures, “Defining research priorities for acute neonatal and pediatric lung disease in the year 2010,” (Plenary Talk); “Pulmonary Circulation: How to assess, how to control;” “Ventilating the BPD patient;” and “Angiogenesis in BPD;” 10<sup>th</sup> European Conference on Neonatal and Pediatric Ventilation, Montreux, Switzerland, 2010.

2010- Invited lecture, “Pediatric Patients in Clinical Trials for Pulmonary Hypertension Therapies,” Pulmonary Vascular Research Institute, Lisbon, Portugal.

2010- Invited Lecture, “Abnormal lung vascular growth in premature infants,” 3<sup>rd</sup> International Conference on Neonatal and Pediatric Pulmonary Hypertension, Banff, Canada.

2010- Invited lecture, “New Advances in the Pathogenesis and Treatment of Childhood Pulmonary Hypertension,” Pediatric Academic Societies International Conference, Vancouver, BC, Canada.

2010- Organizer, Speaker and Workshop Moderator, “Crafting Successful Clinician-Scientists in Child Health Research,” Pediatric Academic Societies International Conference, Vancouver, BC, Canada.

2010- Invited speaker, “Determinants of Pulmonary Blood Flow in Health and Disease,” Post-Graduate Course on “A Physiologic Approach to Pediatric Lung Disease,” American Thoracic Society International Conference, New Orleans, LA.

2010- Invited lecturer, “Impaired Pulmonary Vascular Growth in BPD,” The William H. Tooley Professorship, Division of Neonatology and Cardiovascular Research Institute, UCSF, CA.

2010- Invited lecture, “BPD: new thoughts on pathogenesis and treatment,” and “Abnormal Vascular Development in BPD,” *The Frank Sterner Lectureship*, Department of Pediatrics and the Cardiovascular Research Center, University of Wisconsin, Milwaukee WI.

2010- Invited speaker, “Knowns and Unknowns of Administering NO Therapy,” National Institute of Child Health and Development Consensus Development Conference, Bethesda MD.

2010- Invited lecture, “Strategies for the Management of Severe BPD,” Neonatal Organization of Georgia, Atlanta, GA.

2010- Invited Lecture, “Evolving Concepts in Bronchopulmonary Dysplasia,” Grand Rounds, Department of Pediatrics, Emory University, Atlanta, Ga.

2010- Invited Lecture, “Impaired angiogenesis and parenchymal injury in BPD,” Division of Neonatology, Emory University, Atlanta Ga.

2010- Invited Lecture, “Pathogenesis of Bronchopulmonary Dysplasia,” 3<sup>rd</sup> Annual Respiratory Care Symposium, Colorado Respiratory Care Society, Aurora CO.

2010- Invited Lecture, “Emerging Concepts in BPD,” Neonatology Conference, Children’s Hospital of Philadelphia, Philadelphia, PA.

2010- Invited Lecture, “New thoughts on the pathogenesis and treatment of BPD,” Grand Rounds, Department of Pediatrics, University of Chicago, Chicago IL.

2011- Invited lecture, “The New BPD: thoughts on pathogenesis and therapy,” Grand Rounds, Department of Pediatrics, Johns Hopkins University, Baltimore, MD.

2011- Speaker and Organizer, Conference on “Crafting Successful Clinician-Scientists in Child Health Research,” Federation of Pediatric Organizations, The Woodlands, Texas.

2011- Invited lecture, “Newer therapeutics for BPD and other chronic lung diseases,” NEO conference, Orlando, Florida.

2011- Invited lecture, “Home therapy using a novel pulsed nasal NO delivery system in child pulmonary hypertension,” and “Pulmonary hypertension in chronic lung disease of prematurity,” Cardiology 2011-15<sup>th</sup> Annual Update on Pediatric Cardiovascular Disease, Scottsdale AZ.

2011- Invited lecture, “Mechanisms of Pulmonary Vascular Disease in BPD,” National ECMO Conference, Keystone CO.

2011- Invited Speaker, “Role of NO in the pathogenesis and treatment of BPD,” and “Clinical approach to pulmonary hypertension in BPD,” Turkish Neonatology Society 19<sup>th</sup> National Neonatology Congress (UNEK019), Marmaris, Turkey.

2011- Invited Speaker, “Inhaled NO in premature infants” and “New Therapies for BPD,” 8<sup>th</sup> Neonatology Congress, Seville. Spain.

2011- Speaker, “Crafting the Clinician-Scientist: patching holes in the pipeline,” Grand Rounds, Resident Research Day, Department of Pediatrics, Children’s Hospital Colorado, Aurora, CO.

2011- Invited Speaker, Dharmapuri Vidyasagar Lecturer and Visiting Professor, Department of Pediatrics, University of Illinois at Chicago, Chicago IL.

2011- Invited Speaker, Phil George Lectureship, Le Bonheur Children’s Hospital and University of Tennessee Health Sciences Center, Memphis TN.

2011- Invited Speaker, “New Thoughts on the Pathogenesis and Treatment of BPD,” Frontier in Pregnancy Research Symposium, Department of Obstetrics-Gynecology, University of Colorado and the March of Dimes- Colorado Chapter, Aurora CO.

2011- Invited Speaker, “Translating Discovery into ICU Therapies,” 33<sup>rd</sup> Annual George Tauber Memorial Lecture, Dept. of Pediatrics, Washington DC.

2011- Invited Speaker, Joint Program of Neonatology and Pulmonology, “The Vasculature in Chronic Lung Disease: Assessment and Treatment of Cor Pulmonale,” and “Workshop on Infant PFTs,” American Academy of Pediatrics National Meeting, Boston MA.

2011- Invited Speaker, “Novel thoughts on the Pathogenesis of BPD,” Department of Pediatric Grand Rounds, Chu Sainte Justine, Montreal Canada.

2012- Invited Speaker, “Pulmonary vascular disease in BPD,” Joint Neonatology Fellows Conference. Loma Linda University Medical Center, Loma Linda, CA.

2012- Invited Speaker, Symposium on Angiogenesis: “Role of VEGF in Lung Angiogenesis,” Pediatric Academic Societies International Conference, Boston MA.

2012- Invited Speaker, Issues in Perinatal and Neonatal Care Symposium, 35<sup>th</sup> Annual Seminar, Women and Infants Hospital, Alpert Medical School of Brown University, Providence, RI.

2012- Invited Speaker, “Pulmonary Hypertension: Approach and Management,” “Pulmonary Hypertension in Obstructive Sleep Apnea,” “Living with Pulmonary Hypertension at High Altitude,” “Pediatric Obstructive Sleep Apnea,” Columbian Congress on Pediatric Respiratory Medicine and Asthma, Medellin, Colombia.

2012- Invited Speaker, “Pulmonary circulation in chronic lung disease,” American Heart Association International Conference, Los Angeles, CA.

2012- Invited Speaker, “Update on persistent pulmonary hypertension of the newborn,” “New approaches towards understanding BPD,” Division of Neonatology, Vanderbilt University, Nashville, TN.

2013- Invited Speaker, “Pulmonary vascular disease in BPD,” 5<sup>th</sup> *Pulmonary Hypertension Professorship* and Pediatric Grand Rounds, Baylor University, Houston TX.

2013- Invited Speaker, “Drug therapy of chronic pulmonary hypertension,” NEO Conference, Orlando FL.

2013- Symposium Moderator and Speaker, “Care of the Child with Pulmonary Hypertension,” Pediatric Academic Societies’ Annual Meeting, Washington DC.

2013 – Invited Speaker, “Pediatric Research Training,” Federation of Pediatric Organizations Workshop in Child Health Research, Pediatric Academic Societies’ Annual Meeting, Washington DC.

2013- Invited Speaker, “Developmental Physiology of the Pulmonary Circulation,” Postgraduate Course on Pediatric Pulmonary Physiology, American Thoracic Society, Philadelphia, PA.

2013- Invited Speaker, “BPD and Pulmonary Hypertension,” Pediatric Pulmonary Core Curriculum, American Thoracic Society, Philadelphia, PA.

2013- Invited Speaker, “Pediatric Task Force Report to the 5<sup>th</sup> World Symposium on Pulmonary Hypertension,” Pediatric Pulmonary Hypertension Meeting, San Francisco, CA.

2013- Invited Speaker, “Differences between the fetal, newborn and adult pulmonary circulation: relevance for age-specific therapy,” Robin Barst Lecturer, American Heart Association Grover Conference, Lost Valley Ranch, Deckers, CO.

2013- Invited Speaker, “Pulmonary Vascular Disease in BPD,” First European Conference on Neonatal and Pediatric Pulmonary Vascular Disease,” Groningen, Netherlands.

2013- Invited Speaker, “BPD and Pulmonary Vascular Disease: pathogenesis and a different approach to ventilation,” and “Treatment of Pulmonary Hypertension: Roles for Sildenafil and NO therapy in Preterm Infants,” Civadele, Italy.

2013- Invited Speaker, “Inhaled Nitric Oxide- Useful or Not?,” Neonatology Symposium, American Academy of Pediatrics National Conference, Orlando FL.

2013- Invited Speaker, “Role of Impaired Lung Vascular Growth in the Development of BPD,” and “Diagnostic and Therapeutic Approach to Pulmonary Hypertension in BPD,” Current Topics in Neonatal Nutrition and Advances in Neonatal Care, Children’s Hospital at Albany Medical Center, NY.

2013- Invited Speaker, “Management of Severe BPD in the ICU Setting,” Pediatric Critical Care Society Colloquium, Washington DC.

2013- Invited Speaker, “Controversies in the Management of Severe BPD,” and “Pulmonary Vascular Disease in BPD,” Miami Neonatology 2013, Miami FL.

2014- Invited Speaker, “Persistent Pulmonary Hypertension of the Newborn,” NEOPREP, San Diego, CA.

2014- Invited Speaker, “Current and Future Therapy of Pediatric Pulmonary Hypertension,” ECCPS/Pulmonary Vascular Research Institute Symposium, Bad Nauheim, Germany.

2014- Invited Speaker, “Rationale for Establishing a Pediatric Pulmonary Hypertension Network,” Pediatric Task Force, Pulmonary Vascular Research Institute International Conference, Giessen, Germany.

2014- Invited speaker, “Recent advances in pediatric pulmonary hypertension and its treatment,” Grand Rounds, Department of Pediatrics, University of Texas Southwestern, Dallas TX.

2014- Invited speaker, “Pediatric Pulmonary Hypertension: An Update,” Pulmonary Symposium, Pediatric Academic Societies International Conference, Vancouver, CA.

2014- Invited Speaker, “Experimental Basis and Clinical Application of Inhaled NO and cGMP Agonists in Pediatric Pulmonary Hypertension,” International Conference on Nitric Oxide-Nitrite/Nitrate, Cleveland Ohio.

2014- Invited Speaker, “Pulmonary circulation and pulmonary hypertension in term and preterm infants,” “BPD: current concepts in pathogenesis and prevention;” 5<sup>th</sup> International Conference on Clinical Neonatology, Torino, Italy.

2014- Invited Speaker, “Pulmonary Arterial Hypertension: the ‘other’ hypertension,” 21<sup>st</sup> Annual Pediatric Critical Care Colloquium, Huntington Beach, CA.

2014- Invited Speaker, “Pulmonary Hypertension in BPD,” Thomas Hazinski Memorial Lecture and Grand Rounds, University of Vanderbilt, Nashville TN.

2014- Invited Speaker, “Pulmonary vascular disease in BPD” and “Management of Severe BPD,” Asan Neonatology Symposium, Seoul, South Korea.

2015- Invited Speaker, “Pulmonary vascular development and BPD,” and “Impaired NO-cGMP Signaling in PPHN,” 21<sup>st</sup> Annual Meeting of the Japanese Society of Pediatric Pulmonary Circulation, Tokyo Japan.

2015- Chairman and speaker, Oxygen Therapy in Preterm Infants Workshop, Madrid Spain.

2015- Moderator and Speaker, “Neonatal Lung Development and Adult Lung Homeostasis: Common Molecular Mechanisms in Lung Disease,” Experimental Biology, Boston MA.

2015- Invited Speaker, “Pulmonary vascular physiology,” The “Art” of Pediatric Respiratory Physiology: form and function,” ATS Postgraduate Course, Denver CO.

2015- Post Graduate Course Organizer and Moderator, “Pediatric Pulmonary Hypertension,” ATS Postgraduate Course, Denver CO.

2015- Invited Speaker, “External Stimuli in the Pathogenesis of BPD,” Pediatric Academic Society Symposium, San Diego, CA.

2015- Invited speaker, “Improving Diagnosis and Treatment Outcomes of Pulmonary Hypertension in Preterm Infants,” PAS Satellite Symposium, San Diego, CA.

2015- Invited Speaker, “Pulmonary Hypertension in BPD,” Canadian Pediatric Society, Toronto, Canada.

2015- Invited Speaker, “Pulmonary Vascular Disease in BPD,” and “Controversies in the Management of Severe BPD,” European Neonatology Conference, Avignon, France.

2015- Invited Speaker, “Treatment Guidelines for Pediatric Pulmonary Hypertension,” “An Update on the Pathophysiology and Treatment of Persistent Pulmonary Hypertension of the Newborn,” Mechanisms of Pulmonary Vascular Injury in Pediatrics,” “Pulmonary Vascular Disease in BPD,” South American Conference on Neonatology, Cardiology and Pulmonology, Children’s Hospital Garrahan, Buenos Aires, Argentina.

2015- Invited Speaker, “Challenges to Improve Outcomes of Children with Pulmonary Hypertension,” NHLBI Workshop on Accelerating Scientific Advancement for Pediatric Rare Lung Diseases, Bethesda MD.

2015- Invited Speaker, “Bioinformatics and Phenotyping of Pediatric Pulmonary Vascular Disease,” Grover Conference, American Heart Association, Deckers, CO.

2015- Co-chair and Moderator, Neonatal Cardiopulmonary Young Investigators Symposium, Chicago, IL.

2015- Invited Speaker, “Improving Outcomes in Pediatric Pulmonary Hypertension: Role of Non-Parenteral Prostanoid,” Actelion Symposium, Zurich Switzerland.

2015- Invited Speaker, “BPD is a fetal disease,” New England Conference on Perinatal Research, AAP Section on Neonatal-Perinatal Medicine, Cape Cod, MA.

2015- Invited Speaker, “Early pulmonary vascular disease in neonates with BPD,” Second European Conference on Neonatal and Pediatric Pulmonary Vascular Disease, Groningen, Netherlands.

2015- Panel discussant, “Immunity and the pathogenesis of pulmonary arterial hypertension,” Wall Center Symposium, Stanford University, Palo Alto, CA.

2015- Invited speaker, “Proteomic markers of high risk for chronic lung disease after preterm birth,” Proteomics Symposium, Aurora CO.

2015- Invited Speaker: “Ongoing challenges of pulmonary vascular disease in BPD,” Annual Memorial Lectureship Honoring Stanley James, William Silverman and Joan Regan, NY Presbyterian Morgan Stanley Children’s Hospital, Columbia University Medical Center, NYC, NY.

2015- Invited Speaker, “Characterizing the Problem: the risk and etiologies of pulmonary hypertension in preterm infants,” Symposium on Tackling Pulmonary Hypertension in Preterm Infants-from Identification to Improving Outcomes, Hot Topics in Neonatology, Washington DC.

2016- Invited Speaker, “Challenge of Persistent Pulmonary Hypertension of the Newborn,” “BPD: Early Events/Late Outcomes,” and “Pulmonary Vascular Disease in BPD,” International Neonatology Symposium, Bangkok, Thailand.

2016- Invited speaker, “*Mary Ellen Avery Award Acceptance Lecture*,” Pediatric Academic Societies, Baltimore MD.

2016- Invited speaker: “Joint AHA/ATS Guidelines for Pediatric Pulmonary Hypertension: Reading between the (guide)lines,” 9th Annual Neonatal and Pediatric Pulmonary Vascular Disease Conference, San Francisco, CA.

2016- Invited Speaker, “Data Fusion: a sustainable, open source registry advancing pediatric pulmonary vascular disease,” Enhanced Phenotyping of Pulmonary Vascular Disease, American Thoracic Society, San Francisco CA.

2016- Invited Speaker, “Cardiopulmonary Interactions,” Enhanced Phenotyping of Pulmonary Vascular Disease, Resident Boot Camp, American Thoracic Society, San Francisco CA.

2016- Invited Speaker, “Guidelines for pediatric pulmonary hypertension,” ATS Documents Symposium, American Thoracic Society, San Francisco CA.

2016- Invited speaker, “Improving Outcomes of Children with Pulmonary Hypertension,” and “Early Pulmonary Vascular Disease in Preterm Infants at risk for BPD,” CIPP XV- the 15<sup>th</sup> International Congress on Pediatric Pulmonology, Naples Italy.

2016- Invited speaker, “Management of Neonatal Pulmonary Hypertension,” Innovations in Neonatal Care, San Antonio TX.

2016- Invited speaker, “Pulmonary Hypertension in Chronic Lung Disease: Etiology, Diagnosis, Management,” American Academy of Pediatrics, District VI Meeting, Chicago, IL.

2016- Invited speaker, “Ventilator Management of Severe BPD” and “Recommendations for the Care of Children with Neonatal Pulmonary Hypertension,” Vermont-Oxford Network Annual Meeting, Chicago IL.

2016- Invited Speaker, “Vascular Origins of Bronchopulmonary Dysplasia,” European Society for Pediatric Research *Bengt Robertson Award Lecture*, European Academy of Paediatric Societies, Geneva, Switzerland, 2016.

2016- Invited Speaker, “Improving Outcomes in Pediatric Pulmonary Vascular Disease,” Interdisciplinary Symposium, European Academy of Paediatric Societies, Geneva, Switzerland, 2016.

2016- Invited Speaker, “BPD: early events, late outcomes,” Grand Rounds, Department of Pediatrics, Yale University School of Medicine, New Haven CT.

2016- Invited Speaker, “Neonatal Pulmonary Hypertension: Reading Between the (Guide)lines,” Neonatal Association of Orange County, Loma Linda University, California.

2017- Invited Speaker, “BPD: Too Little but Not Too Late,” Pediatric Grand Rounds, Florida Hospital, Orlando FL.

2017- Invited Speaker, “Chronic Outpatient Management of BPD- a Pulmonologist’s Perspective,” NEO conference, Orlando FL.

2017- Invited Speaker, “Mechanical ventilation of infants with severe BPD and Pulmonary Hypertension,” and “Pulmonary Hypertension in Pediatric Lung Diseases,” 10<sup>th</sup> Annual Neonatal and Pediatric Pulmonary Vascular Diseases Conference, San Francisco, CA.

2017- Invited Speaker, “Neonatal Pulmonary Vascular Disease- the Science Behind our Therapies,” NeoHeart: CV Management of the Neonate,” San Diego CA.

2017- Invited Speaker, “BPD: Too Early but not Too Late,” Grand Rounds, Department of Pediatrics, Northwestern University Medical School, Chicago IL.

2017- Invited speaker, “BPD and Pulmonary Hypertension,” Pediatric Respiratory Physiology Post-Graduate Course, American Thoracic Society, Washington DC.

2017- Invited speaker, “Chronic Ventilation of Infants with Severe BPD,” Mechanical Ventilation in the NICU, PICU, and at Home: What the Pediatric Pulmonologist Should Know,” American Thoracic Society, Washington DC.

2017- Invited speaker, “T32 Training Programs in Academic Pediatric Pulmonary Medicine,” NHLBI T32 Directors Meeting, American Thoracic Society, Washington DC.

2017- Invited speaker, “Identification of gaps in knowledge in the care of the patient with severe BPD,” Pediatric Academic Societies Meeting, San Francisco, CA.

2017- Invited speaker, “Antenatal Origins of BPD,” Building Better Babies Symposium, UCD-Anschutz Medical Center, Aurora CO.

2017- Invited speaker, “Meeting the challenges of Persistent Pulmonary Hypertension of the Newborn,” and “Pulmonary Hypertension in BPD,” Recent Advances in Neonatal Medicine VIII International Symposium, Wurzburg, Germany.

2017- Invited speaker, “Prevention of pulmonary hypertension in BPD,” 3<sup>rd</sup> European Conference on Neonatal and Pediatric Pulmonary Vascular Disease, Groningen, The Netherlands.

2017- Invited speaker, “Pulmonary hypertension in preterm infants and BPD,” XI SWAN Conference, Baylor Scott and White, Temple Texas.

2017- Arvo Yllpo Award Recipient Lecture, “Improving Neonatal Outcomes through the Pulmonary Circulation,” *Arvo Yllpo Medal Award Ceremony*, Great Hall, University of Helsinki, Helsinki Finland.

2017- Invited Speaker, “BPD: Too Little but not Too Late,” Department of Pediatrics Grand Rounds, Helsinki Children’s Hospital, Helsinki Finland.

2017- Invited Speaker, “Prevention of BPD and Pulmonary Hypertension in Preterm Infants” Department of Pediatrics Grand Rounds, Oulu Children’s Hospital, Oulu Finland.

2017- Invited Speaker, Plenary Talk: “BPD: Too Little but not Too Late,” and “Physiologic Approach to Pulmonary Hypertension in Preterm Infants,” 37<sup>th</sup> Annual Conference in Neonatology, Vanderbilt University, Nashville TN.

2017- Invited Speaker, *Thomas H. Pauly Memorial Lectureship* Grand Rounds: “BPD: Too Little but not Too Late,” and Neonatology Section Talk: “Physiologic Approach to Pulmonary Hypertension in Preterm Infants,” University of Kentucky School of Medicine, Lexington KY.

2017- Invited speaker, “The Vasculature as a Determinant of Lung Growth,” Bronchopulmonary Dysplasia: Then and Next- a Symposium Honoring William Northway, MD, Stanford University, Palo Alto, CA.

2018- Invited speaker, “Pediatric Task Force Report,” 6<sup>th</sup> World Symposium on Pulmonary Hypertension, Nice France.

2018- Invited speaker, “Update on Pediatric Pulmonary Hypertension,” Scientific Leadership Committee Meeting, Pulmonary Hypertension Association, Silver Springs, MD.

2018- Invited Speaker, “BPD-Associated Pulmonary Hypertension,” 4<sup>th</sup> Annual Chronic Lung Disease Conference, Children’s Hospital of Philadelphia, Philadelphia PA.

2018- Invited speaker, “Management of Pulmonary Hypertension in Infants and Children,” *Robert DeLemos Memorial Lectureship*, 35<sup>th</sup> Annual Advances in Respiratory Care Snowbird Conference, 2018.

2018- Invited speaker, “Perinatal Origins of Pulmonary Vascular Disease,” *Robin Barst Keynote Lecture*, 11<sup>th</sup> Annual Neonatal and Pediatric Pulmonary Vascular Disease Conference, San Francisco, CA.

2018- Invited speaker, “Perinatal origins of pulmonary vascular disease,” Symposium on Developmental Origins of Health and Disease, Pediatric Academic Societies Meeting, Toronto Canada.

2018- Invited Speaker, “Annual review of pediatric lung disease,” Symposium from the American Journal of Respiratory and Critical Care Medicine Editors, American Thoracic Society, San Diego CA.

2018- Invited Speaker, “Pulmonary Vascular Disease in the Pathogenesis of BPD” and “Physiologic Approaches to the Care of Children with Severe BPD,” 25<sup>th</sup> Anniversary Meeting of the Korean Society of Neonatology, Seoul South Korea.

2018- Invited speaker, “Care of the Child with Severe BPD,” Department of Pediatrics Grand Rounds, University of Minnesota School of Medicine, Minneapolis, MN.

2018- Invited speaker, “Pulmonary Hypertension in the Pediatric Population: Insights from the PPHNet Registry,” Pulmonary Hypertension Association Scientific Meeting, Orlando FL.

2018- Invited keynote speaker, T35 Predoctoral Training Program, Cincinnati Children’s Hospital and Medical Center, Cincinnati OH.

2018- Invited speaker, “Pulmonary vascular disease in the developing lung: early and long-term implications,” Department of Pediatrics, University of California San Diego, San Diego CA.

2018- Invited speaker, “Physiology driven approach to pulmonary hypertension in preterm infants” and “BPD: interactions between the heart and lungs,” 6<sup>th</sup> Monash Cardiovascular Symposium (Fetal, Neonatal and Pediatric), Melbourne Australia.

2018- Invited speaker, “Building interdisciplinary collaborative networks,” Monash University Medical Center, Melbourne Australia.

2018- Invited keynote speaker, NHLBI T32 Joint Training Program in Pediatric and Adult Pulmonary Medicine, University of Indiana School of Medicine, Indianapolis IN.

2018- Invited speaker, “Evaluation and management of pulmonary hypertension in infants with BPD,” HCA Neonatology Symposium, Kansas City KS.

2018- Invited Speaker, “What is new in therapy for BPD-Associated Pulmonary Hypertension?” Hot Topics in Neonatology, Washington DC.

2019- Invited Speaker, “Pulmonary Vascular Disease in BPD: Pathophysiology and Treatment,” BPD 2019, Cincinnati Children’s Hospital Medical Center, Cincinnati OH.

2019- Invited Speaker, “Pulmonary hypertension in BPD: from bench to bedside,” 21<sup>st</sup> Annual Conference: “A Day with the Newborn,” St. Christopher’s Hospital for Children, Philadelphia, PA.

2019- Invited Speaker, “Role of Cardiac Catheterization in Assessing PH in preterm infants,” 12<sup>th</sup> annual Neonatal and Pediatric Pulmonary Vascular Disease Conference, San Francisco, CA.

2019- Invited Speaker, “Cross-disciplinary Training in Pediatric Pulmonary Hypertension,” 12<sup>th</sup> annual Neonatal and Pediatric Pulmonary Vascular Disease Conference, San Francisco, CA.

2019- Invited Speaker, “Controversies in BPD: linking vascular disease with respiratory outcomes,” BPD Collaborative Meeting, Philadelphia PA.

2019- Invited Speaker, “The BPD Collaborative: Re-focusing our Mission,” BPD Collaborative Meeting, Philadelphia PA.

2019- Invited Speaker, “Infant and Child Lung Disorders: Genetics, Diagnostics and Tomorrow’s Care,” Pediatric Respiratory Symposium, Stanford University Medical School, Palo Alto, CA.

2019- Invited Speaker, “Precision medicine: how clinical heterogeneity should alter our decision making in acute pulmonary hypertension,” NeoHeart 2019, Huntington Beach, CA.

2019- Invited Speaker, “Pulmonary vascular disease in the developing lung: early and long-term implications,” Department of Pediatrics Grand Rounds, University of California San Diego, San Diego CA.

2019- Invited Speaker and Moderator, “Just Say NO to iNO in preterms. Really?” Pediatric Academic Society State of the Art Plenary, Baltimore MD.

2019- Speaker, “Pulmonary Vascular Disease in Preterm Infants: Pathobiology,” Treatment of Pulmonary Hypertension in Premature Neonates Symposium, Pediatric Academic Society, Baltimore MD.

2019- Invited Speaker, “BPD: Keeping Pace with an Evolving Disease,” Symposium on Clinical Studies of BPD, American Thoracic Society, Dallas TX.

2019- Invited Speaker, “Pulmonary Vascular Phenotypes of Prematurity,” The Neonatal and Developing Lung Interest Group Lecture, American Thoracic Society, Dallas TX.

2019- Invited Speaker, “Biomarker Discovery for Pediatric Pulmonary Vascular Diseases,” Symposium on Novel Biomarkers for the Diagnosis, Phenotyping, and Management of Pediatric Lung Diseases, American Thoracic Society International Conference, Dallas TX.

2019- Invited lecture, “Pulmonary Vascular Disease in Severe BPD: Matching Physiology with Therapy” and “Career Development in Academic Neonatology,” Columbia University, NY, NY.

2019- Invited Speaker, “Current Management of Pulmonary Arterial Hypertension in the BPD Infant,” Innovations in Neonatal Care, Austin TX.

2019- Invited Speaker, “Fetal Origins of Pulmonary Vascular Disease,” the 4<sup>th</sup> European Conference on Neonatal and Pediatric Pulmonary Vascular Disease, Groningen, NL.

2019- Invited lectures, “Management of BPD-Associated Pulmonary Hypertension,” “Pulmonary Vascular Phenotypes of Prematurity,” “Building Interdisciplinary Programs in Pulmonary Hypertension,” and “Career Development in Academic Pediatrics,” Johns Hopkins University, Baltimore MD.

2019- Invited Speaker, “Old BPD, New BPD and Current Severe BPD,” and “Current Understanding of BPD-Associated Pulmonary Hypertension,” 2019 International Infant Chronic Lung Disease Forum, Guangzhou, China.

2020- Invited Speaker, “Pulmonary Hypertension and BPD Phenotypes,” Cincinnati BPD Symposium 2020: Advances in Diagnosis and Management, Cincinnati Children’s Hospital Medical Center, Cincinnati OH.

2020- Invited Speaker, “Bronchopulmonary Dysplasia: a Continuing Dilemma” and “Dilemmas of Pulmonary Hypertension,” International Neonatology Symposium: Bangkok 2020, Mahidol University, Bangkok Thailand.

2020- Invited Speaker, “*Ask the Expert*,” Chronic Lung Disease Symposium.

2020- Invites Speaker, “*Conference Summary*,” BPD Collaborative Conference.

2020- Keynote speaker, “*Pulmonary Vascular Endothelial Control of Cardio-Pulmonary Diseases: Molecular Opportunities for Novel Treatments*,” Experimental Biology, San Diego, CA. cancelled due to coronavirus pandemic.

2020- Invited speaker, Edwin Kendig Symposium on Pediatric Pulmonary Medicine, Virginia Commonwealth University, Richmond Virginia. cancelled due to coronavirus pandemic.

2020- Invited Speaker and Moderator, “Down syndrome patient registries,” NIH-NICHD Clinical Trials in Down Syndrome for Co-occurring Conditions Across the Lifespan Workshop. (Held as virtual workshop meeting due to Coronavirus pandemic).

2020- Invited speaker, “*Pulmonary hypertension in BPD*,” National MEDNAX Seminar (held as virtual grand rounds).

2020- Invited speaker, “Inhaled NO- just say NO?,” Royal Hospital for Women, Randwick, Australia (held as international society lecture).

2020- Invited Speaker, “Keeping Pace with Bronchopulmonary Dysplasia,” Department of Pediatric Grand Rounds, University of Iowa School of Medicine.

2020- Keynote Address, “Pulmonary Vascular Phenotypes of Prematurity,” Neonatology Day 2020, University of Iowa School of Medicine.

2020- Invited Speaker, “Building an Academic Career,” and “Interactive Case Presentations,” Section of Neonatology and Department of Pediatrics, University of Iowa.

2020- Invited speaker, “Pathobiology of pulmonary hypertension in BPD: novel insights” NeoHeart Meeting, Columbia University, NY, NY.

2020- Invited speaker, ““Pulmonary vein stenosis in preterm infants: an overview on a diagnosis commonly overlooked,” NeoHeart Meeting, Columbia University, NY, NY.

2020- Invited speaker, “Severe Persistent Pulmonary Hypertension of the Newborn: Case Presentation and Discussion,” NeoHeart Meeting, Columbia University, NY, NY.

2020- Invited Speaker, “Organizing to Promote Diversity, Equity and Inclusion,” Environmental Influences on Child Health Outcomes Fall National Meeting, Bethesda MD.

2020- Invited speaker and moderator, “Cardiovascular and Pulmonary Hypertension in Down Syndrome,” NIH Workshop on *Co-Morbidities of Down Syndrome*, Bethesda MD.

2020- Speaker and Moderator, “*The American Pediatric Society: All Members Meeting*,” APS Conference.

2020- Invited speaker, Plenary Session, “*Advanced therapeutic strategies for pediatric pulmonary hypertension*,” Asian Paediatric Pulmonology Society, Taiwan.

2020- Invited speaker, “*Pulmonary Hypertension in the First Week of Life in the Term Neonate*,” 10<sup>th</sup> International Conference of the Union of European Perinatal and Neonatal Societies, Rome Italy.

2020- Invited speaker, “*Mechanical Ventilation of Severe BPD*,” Pediatric Critical Care Lecture Series, Children’s Health Care of Atlanta, Emory University, Atlanta GA.

2020- Invited Speaker, “*Pulmonary Phenotypes of Prematurity*,” Pediatric Grand Rounds, University of Alberta, Edmonton Canada.

2020- Panelist, “*BPD Definition and Phenotypes*,” ATS Journal Club Conference.

2021- Speaker, “*Mechanical Ventilation of Severe BPD*,” Azienda Sanitaria Universitaria Friuli Centrale Presidio Ospedaliero di Udine - Santa Maria della Misericordia, Italy.

2021- Keynote speaker, “*The 13<sup>th</sup> Bengt Robinson Lecture: Pulmonary Hypertension in the Newborn: The Hidden Danger*,” Sharing Progress In Neonatology 2021, Vilnius, Croatia.

2021- Keynote speaker, “*Pulmonary Vascular Endothelial Control of Cardio-Pulmonary Diseases: Molecular Opportunities for Novel Treatments*,” Experimental Biology Conference.

2021- Invited speaker, “*Building Successful Academic Careers*,” Seminar Series, American Pediatric Association (APA) Research in Academic Pediatrics Initiative on Diversity (RAPID) Program.

2021- Invited speaker, “*Careers in Pediatric PH: Mentoring and Career Advice*,” UCSF 14<sup>th</sup> International Conference on Neonatal and Childhood Pulmonary Vascular Disease.

2021- Invited speaker, “*Ask the Expert Workshop*,” Children’s Hospital of Philadelphia Chronic Lung Disease Conference.

2021- Invited speaker, “*Importance of a Pulmonologist in Neonatal and Critical Care*,” Cotton Conference.

2021- Panelist, “*Policies to Advance Children’s Health and Equity*,” Pediatric Policy Committee, American Academy of Pediatrics.

2021- Invited Speaker, “*The American Pediatric Society Presidential Address- “The New APS: Lingering Lessons*,” Pediatric Academic Societies (PAS) Conference.

2021- Invited speaker, “*Angiogenic targets for the prevention of Bronchopulmonary Dysplasia-Associated Pulmonary Hypertension*,” Scholarly Session on “BPD-Associated Pulmonary Hypertension: Novel Mechanisms and Therapies,” Pediatric Academic Societies (PAS) Conference.

2021- Panelist, “*Restoring the reputation of science in child health policy*,” Pediatric Policy Council Symposium.

2021- Invited speaker, "*Perinatal origins of pulmonary vascular disease: mechanisms and therapies*," American Thoracic Society (ATS) International Conference.

2021- Invited speaker, "*NHLBI Session: the Pediatric Pulmonary Vascular Disease (PVD) Registry-methods, results and implications*," American Thoracic Society (ATS) International Conference.

2021- Invited speaker, "*Management of pulmonary hypertension in BPD*," and "*Pulmonary vascular phenotypes of prematurity*," Sixth Journey EpicLatino "Cruzando Fronteras en Neonatologia," Mexico City, Mexico.

2021- Keynote speaker, "*Neonatal Pulmonary Hypertension: Persistent Challenges*" Keynote Lecture, National Neonatology Forum of India, Indian Academy of Pediatrics Emirates, Mumbai, India.

2021- Invited speaker, "*Pulmonary Hypertension in the Premature*," Update Course in Pediatric Respiratory Diseases, Department of Pediatrics and the Academic Development and Research Department of Clinica Alemana de Santiago, Chile.

2021- Invited Speaker, "*Management of Pulmonary Hypertension in Preterm Infants*," IX International Symposium on Neonatology, Buenos Aires, Argentina.

2021- Invited speaker, "*Pulmonary Hypertension Phenotypes*," Clinical Cardiopulmonary Physiology for the Care of the Sick Newborn, Joint Meeting of the Neonatal Hemodynamics Research Centre (NHRC) and PanAmerican Hemodynamics Collaborative (PAHC), Toronto, Canada.

2021- Invited speaker, "*Bronchopulmonary Dysplasia: Keeping Up with an Evolving Disease*," Grand Rounds, Department of Pediatrics, Columbia University, NYC.

2021- Invited speaker, "*Ask the Expert Panel*," 2021 Guangzhou International BPD Forum, Guangzhou China.

2021- Invited Speaker, "*BPD: What factors are associated with the Development of Severe BPD?*" and "*BPD: Do we know what it is? Do we know how to treat it?*," 12<sup>th</sup> Annual Current Topics in Neonatal Nutrition and Advances in Neonatal Care," Einstein College of Medicine and the Montefiore Medical Center, Tarrytown, NY.

2021- Invited speaker, "*Bronchopulmonary Dysplasia: Keeping Up with an Evolving Disease*," Grand Rounds, Department of Neonatology/Pediatrics, Phoenix Children's Hospital, University of Arizona College of Medicine.

2022- Invited speaker, "*Pulmonary Hypertension in the Neonatal Period*" and "*Origin of Pulmonary Vascular Disease*," 21<sup>st</sup> International Congress of Pediatric Pulmonology (CIPP).

2022- Invited Speaker, "*Ask the Expert*," Chronic Lung Disease Conference, Children's Hospital of Philadelphia/University of Pennsylvania.

2022- Invited Speaker and Moderator, "*Oxygen Targeting in the ICUs: Are Children Small Adults?*" Pediatric Academic Societies Conference, Denver CO.

2022- Moderator and Panelist, *Joint Session of the Hemodynamic Club and Lung Club*, Pediatric Academic Societies Conference, Denver CO.

2022- Invited Speaker, "*Challenges in the Care of Children with Severe BPD*," Columbia University Annual Memorial Lectureship, Section of Neonatology and Department of Pediatrics, Columbia, NYC.

2022- Invited Speaker, “*Angiogenic Targets for the Prevention of BPD: Is there a Role for Insulin-Like Growth Factor-1*,” 10<sup>th</sup> International Conference on Clinical Neonatology, Turin, Italy.

2022- Invited speaker, “*Pulmonary Hypertension in BPD*,” Hot Topics in Bronchopulmonary Dysplasia, Pontificia Universidad Catolica de Chile and NEOCOSUR Neonatal Research Network.

2022- Invited Speaker, “*Pediatric Clinical Trial Design: the PVRI-Innovative Drug Design Initiative*,” Pulmonary Vascular Research Institute International Conference, Athens, Greece.

2022- - Invited Speaker, “*Pediatric Task Force: New Directions*,” Pulmonary Vascular Research Institute International Conference, Athens, Greece.

2022- Invited Speaker, “*Pulmonary Hypertension in the Newborn Period*,” and “*Perinatal Origins of Pulmonary Vascular Disease*,” 21<sup>st</sup> International Congress on Pediatric Pulmonology, Virtual meeting.

2022- Invited Speaker, “*Pediatric Pulmonary Hypertension*,” Pediatric Critical Care Rounds, National Children’s Medical Center, Washington DC.

2022- Invited Speaker, “*Care of the Child with Pulmonary Hypertension*,” Pediatric Pulmonary Conference, Children’s Hospital Colorado, Aurora CO.

2022- Invited Speaker, “*Care of the Child with Pulmonary Hypertension*,” Pediatric Critical Care Fellows Conference, Children’s Hospital Colorado, Aurora CO.

2022- Invited speaker, “*Lessons Learnt from the PPHNet Registry*,” International Neonatal Pulmonary Hypertension Registry, Barcelona.

2022- Invited speaker, “*Pulmonary Vascular Phenotypes of Prematurity: Therapeutic Implications*,” Toronto Neonatal Grand Rounds, Toronto.

2022- Invited Speaker, “*Care of the Child with Severe Bronchopulmonary Dysplasia*,” Frank Sterner Endowed Lecture, Department of Pediatrics, University of Wisconsin- Milwaukee.

2022- Invited Speaker, “*Pulmonary Vascular Disease in Prematurity: Phenotypes and Therapy*,” Department of Newborn Care and The Royal Hospital for Women, Australia.

2022- Invited Speaker, “*Developmental Lung Disease in the WSPH Classification: how to move forward?*”, Neonatal and Childhood Pulmonary Vascular Disease, Groningen NL

2022- Invited Speaker, “*Pulmonary Hypertension in Newborns*,” Cross-Canada Rounds for Neonatal-Perinatal Medicine Fellowship Programs, Calgary Canada.

2023- Invited Speaker, “*Pulmonary Vascular Disease of Prematurity: Matching Therapies with Phenotypes*,” Chronic Lung Disease Conference, Philadelphia, PA.

2023- Invited speaker, “*The Lung Circulation in Childhood Interstitial Lung Disease: Pulmonary Hypertension and Beyond*,” New Opportunities to Identify, Prevent and Manage Fibrosis in Children’s Interstitial and Diffuse Lung Disease, Aurora, CO.

2023- Invited Speaker, “*Bronchopulmonary Dysplasia: Keeping up with an evolving disease*,” The Charles F. Wasserman Lecture, Children’s Hospital of New Orleans, Tulane University School of Medicine and Louisiana State University Health Sciences Center.

2023- Invited Speaker, *“Pulmonary Vascular Phenotypes of Prematurity,”* Cardiology/Pulmonary Lecture, Children’s Hospital of New Orleans, Tulane University School of Medicine and Louisiana State University Health Sciences Center.

2023- Invited Speaker, *“The Pediatric Pulmonary Hypertension Network: Launch and Development,”* BPD Collaborative Conference, Philadelphia PA.

2023- Invited Speaker, *“The BPD Collaborative: State of the Collaboration,”* BPD Collaborative Conference, Philadelphia PA.

2023- Invited Speaker and Moderator, *“Pulmonary Vascular Disease of Prematurity: Navigating the Phenotypes,”* Hot Topic Symposia, Pediatric Academic Societies Conference, Washington DC.

2023- Invited Speaker, *“After NICU discharge: special cardiovascular considerations and when to worry in children born preterm,”* Hot Topic Symposia, Pediatric Academic Societies Conference, Washington DC.

2023- Invited Speaker, *“Pulmonary Vascular and Cardiovascular Outcomes After the NICU,”* State of the Art Plenary, Pediatric Academic Societies Conference, Washington DC.

2023- Invited Speaker, *“After birth: How much oxygen does a baby with bronchopulmonary dysplasia need in and outside of the NICU?”* State of the Art Plenary, Pediatric Academic Societies Conference, Washington DC.

2023- Moderator, *The Lung Club*, Pediatric Academic Societies Conference, Washington DC.

2023- Invited Speaker, *“Pediatric BPD-PH: Pulmonary vein stenosis, Future avenues, Translational models,”* Pediatric Academic Societies, Washington DC.

2023- Invited Speaker, *“Antenatal Determinants of BPD,”* Bronchopulmonary Dysplasia Across the Lifespan” Symposium, American Thoracic Society International Conference, Washington DC.

2023- Invited Speaker, *“Lung and Heart Interaction in Preterm Infants with Chronic Lung Disease: The Ultrasound Perspective,”* Neonatal Hemodynamics Research Centre, Mount Sinai, Toronto CA.

2023- Invited Speaker, *“Pulmonary Vascular Diseases of Prematurity: Phenotypes and Treatment,”* Keynote Lecturer, The Jill Gandy Symposium, University of Cambridge School of Clinical Medicine, Cambridge, UK.

2023- Invited speaker, *“Pulmonary Vascular Phenotypes of Prematurity: Therapeutic Implications,”* Toronto Neonatal Grand Rounds, Toronto.

2023- Panelist Discussant, *“Neonatal Pulmonary Hypertension: How many pulmonary vasodilators are enough?”*, Neonatal Perinatal Section, Canadian Pediatric Society, Halifax Canada.

2023- Panelist Discussant, *“Case Presentations,”* Neonatal Perinatal Section, Canadian Pediatric Society, Halifax Canada.

2023- Keynote Lecturer, *“Ongoing Challenges of Severe BPD: the Never-Ending Saga,”* 49th Meeting of the German Society of Neonatology and Pediatric Intensive Care Medicine (GNPI, Hamburg Germany.

2023- Invited Speaker, *“Lessons Learned from Clinical Trials in PH Groups 2 & 3: What are the Similarities & Differences in Pathogenesis & Pathophysiology?”* Pulmonary Vascular Research Institute Drug Discovery and Development Symposium, Bethesda MD.

2023- Invited Speaker, *“Lessons Learned from Adult and Pediatric Pulmonary Hypertension Registries,”* and *“Cardio-Respiratory Management of Chronic Ventilator-Dependent Children,”* NeoCard 2023: the 4<sup>th</sup> Neonatal Cardiology & Hemodynamics Conference and REPHINE Registry Meeting, Birmingham UK.

2023- Invited Speaker and Presenter of the Whipple Family Distinguished Research Scientist Endowed Chair to Dr. Peter Mourani, Arkansas Children’s Research Institute, University of Arkansas for Medical Sciences Little Rock AR.

2023- Invited Speaker, *“Antenatal Origins of Pulmonary Vascular Disease in Preterm Infants,”* the Dr. JM Bowman Lectureship on Neonatal Research, University of Manitoba, Winnipeg, Canada.

2023- Invited Speaker, *“Pulmonary Vascular Phenotypes of Prematurity”* and *“Care of the Child with Severe BPD,”* 47<sup>th</sup> Miami Neonatology Conference, University of Miami, Miami FL.

2023- Speaker, *“Should we never say no to iNO?”* *“Pulmonary hypertension treatment: diagnosis, treatment and novel advances,”* *“The full-term infant with ‘hyaline membrane disease’ – navigating the diagnostic conundrum,”* *“Can we ever prevent BPD or is it a price of our success in keeping preterm babies alive?,”* IOKRATES Symposia, Bali, Indonesia, and Guangzhou, China.

2024- Speaker, *“Pediatric Task Force,”* and *“PVRI-IDDI Pediatric Workstream Meeting,”* Pulmonary Vascular Research Institute International Conference, London UK.

2024- Speaker and Task Force Member, *“Pediatric Pulmonary Hypertension,”* World Symposium on Pulmonary Hypertension, Barcelona Spain.

2024- Plenary Speaker, Pediatric Research Day, University of Iowa Stead Family Department of Pediatrics, Iowa City, Iowa.

## **VISITING PROFESSORSHIPS**

1990 - Department of Pediatrics; Buffalo Children's Memorial Hospital, Buffalo, New York

1993 - Department of Medicine; University of Minnesota, Minneapolis, Minnesota

1993 - Department of Pediatrics; British Columbia Children's Hospital, Vancouver, BC, Canada

1993 - Department of Pediatrics; Stanford University Medical Center; Palo Alto, CA.

1994 - Department of Pediatrics; Omaha Children's Hospital, Omaha, NE.

1994 - Department of Pediatrics; University of Manitoba Health Sciences Center, Winnipeg, Manitoba.

1994 - Department of Pediatrics; Uniformed Services University of the Health Sciences, F Edward Hebert School of Medicine; Bethesda, MD.

1994 - Department of Pediatrics/Neonatology: Shaare Zedek Medical Center, Jerusalem; Rambam Medical Center, Haifa; Soroka Medical Center, Beersheva, Israel.

1995 - Departments of Neonatology and Pediatrics: Tygerberg Hospital, Groote Schuur Hospital, University of Stellenbosch; Cape Town, South Africa.

1995 - Department of Pediatrics, Emory University Medical School, Atlanta, Georgia.

1995 - Departments of Anesthesiology and Pharmacology, University of Washington School of Medicine, Seattle, Washington.

1996 - Department of Pediatrics, Wyler Children's Hospital and University of Chicago School of Medicine, Chicago, IL.

1996 - Department of Anesthesia, Boston Children's Hospital, Boston, MA.

1997 - Department of Pediatrics, Department of Pediatric Anesthesia and Critical Care, The Children's Hospital, Gothenburg, Sweden.

1997- Department of Pediatrics, Children's Hospital, Shanghai Medical University, Shanghai, China.

1998 - Department of Pediatrics, Primary Children's Hospital, Salt Lake City, Utah.

1999- Department of Pediatrics, Rainbow Babies and Children Hospital, Case Western Reserve University School of Medicine, Cleveland, Ohio.

1999- Department of Pediatrics, Women's and Children's Hospital, Adelaide, Australia.

1999- Department of Pediatrics, Hospital for Sick Children, Toronto, Canada.

2001- Department of Pediatrics, Yale University Medical School, New Haven CT.

2002- Department of Pediatrics, and Department of Critical Care Medicine, University of Pittsburgh School of Medicine, Pittsburgh PA.

2004- Department of Pediatrics, Mercy Children's Hospital and University of Kansas School of Medicine, Kansas City, MO.

2005- Department of Pediatrics, University Hospital Maastricht, Maastricht, The Netherlands.

2003- Department of Pediatrics, University of Manitoba, Winnipeg, Canada.

2003- Department of Pediatrics, Hospital for Sick Children, University of Toronto, Toronto, Canada.

2004- Department of Pediatrics, Stanford University, Palo Alto, CA.

2004- Department of Pediatrics, National Center for Child Health and Development, Tokyo, Japan.

2006 - Department of Pediatrics, Columbus Children's Hospital, Ohio State University, Columbus Ohio

2006- Department of Pediatrics, University of Texas-Southwestern Medical School, Dallas TX

2007- Department of Pediatrics, University of California, San Diego

2007- Section of Pulmonary, Critical Care and Allergy, Department of Pediatrics, Stanford University, Palo Alto, CA.

2007- Department of Pediatrics, Wake Forest University, North Carolina

2008- Division of Neonatology, Department of Pediatrics, Harvard Medical School, Boston, MA

2008- Department of Pediatrics, Indiana University School of Medicine, Indianapolis, IN

2008- Department of Pediatrics, University of Alberta, Edmonton, Alberta, Canada

2008- Department of Pediatrics, Children's Hospital of Philadelphia, Philadelphia PA

2009- Department of Pediatrics, University of Rochester School of Medicine, Rochester NY

2009- Department of Pediatrics, Mount Sinai School of Medicine, NY, NY

2009- Department of Cardiology, Boston Children's Hospital, Harvard University, Boston, MA

2009- Graduate Program on Molecular Biology and Medicine of the Lung, International Max Planck Research School for Heart and Lung Research, Giessen, Germany

2010- Department of Pediatrics, University of Louisville, Louisville KY

2010- Department of Pediatrics, University of Wisconsin, Milwaukee WI

2010- Division of Neonatology, Department of Pediatrics, and the Cardiovascular Research Institute, UCSF, CA.

2010- Department of Pediatrics, Emory University, Atlanta GA

2010- Department of Pediatrics, University of Chicago, Chicago IL

2011- Department of Pediatrics, Johns Hopkins University, Baltimore MD

2011- Department of Pediatrics, University of Illinois at Chicago, Chicago IL

2011- Department of Pediatrics, University of Tennessee, Memphis TN

2011- Department of Pediatrics, Weill School of Medicine, Cornell University, NY, NY

2011- Department of Pediatrics, CHU Sainte-Justine, Montreal, Canada

2011- Department of Pediatrics, National Children's Hospital, Washington DC

2012- Department of Pediatrics, Brown University, Providence RI

2013- Department of Pediatrics, Texas Children's Hospital, Baylor University, Houston Texas

2014- Department of Pediatrics, University of Texas Southwestern, Dallas TX

2014- Department of Pediatrics, Vanderbilt University, Nashville TN.

2014- Department of Pediatrics, University of Ulsan College of Medicine, Asan Medical Center Children's Hospital, Seoul, South Korea.

2014- Department of Pediatrics, Toho University Omori Medical Center, Tokyo, Japan.

2015- Department of Pediatrics, Stanford University, Palo Alto CA.

2016- Department of Pediatrics, Yale University, New Haven CT.

2017- Department of Pediatrics, Northwestern University School of Medicine, Chicago, IL.

2017- Department of Pediatrics, Children's Hospital, Helsinki Finland.

2017- Department of Pediatrics, Oulu Children's Hospital, Oulu, Finland.

2017- Department of Pediatrics, University of Kentucky, Lexington, KY.

2018- Department of Pediatrics, University of Minnesota, Minneapolis MN.

2018- Department of Pediatrics, Cincinnati Children's Medical Center, Cincinnati OH.

2018- Department of Pediatrics, Riley Hospital for Children, University of Indiana School of Medicine.

2019- Department of Pediatrics, University of California San Diego Medical School

2019- Department of Pediatrics, Columbia University, New York City, NY.

2019- Department of Pediatrics, Johns Hopkins University, Baltimore MD.

2020- Department of Pediatrics, University of Alberta, Edmonton Canada.

2020- Department of Pediatrics, University of Iowa School of Medicine, Iowa City Iowa

2021- Department of Pediatrics, Columbia University, NYC, NY

2022- Department of Pediatrics, University of Wisconsin- Milwaukee.

2023- Department of Pediatrics, Tulane University, New Orleans, LA.

2023- Department of Pediatrics, Rainbow Babies Hospital, Case Western Reserve University, Cleveland OH.

2023- Departments of Pediatrics and Physiology, University of Manitoba, Winnipeg Canada.

2024- Department of Pediatrics, University of Iowa Carver School of Medicine, Iowa City, Iowa.

**Research Mentorship (Fellows and Early-Stage Faculty):**

<b>Individual</b>	<b>Project Title</b>	<b>Current Position</b>
Barbara Chatfield MD (1989-91) (deceased)	Endothelial Regulation of Fetal Pulmonary Vasoreactivity	Professor Pulmonary Medicine Dept. of Pediatrics University of Utah Salt Lake City UT
John McQueston, MD (1990-92)	Endothelial Function in Neonatal Pulmonary Hypertension	Professor Pulmonary Medicine Dept of Pediatrics University of Oregon Health Sciences Center Portland OR

Steven Allen, MD (1990-92) (deceased)	Endothelin and Clinical Pulmonary Hypertension	Private Practice, Cardiology Wichita, Kansas
David Cornfield, MD (1990-92)	K <sup>+</sup> Channels in Perinatal Lung	Professor, Chief of Pulmonary Medicine and Allergy, Dept of Pediatrics Stanford University Palo Alto, CA
John Kinsella, MD (1991-92)	Inhaled NO Therapy in the Newborn	Professor Neonatology Dept of Pediatrics University of Colorado
Ann Halbower, MD (1992-94)	Developmental regulation of eNOS	Professor, Pediatric Pulmonology, Director, Sleep Lab, University of Colorado Denver, CO
Dunbar Ivy, MD* (1993-96)	Endothelin in Pulmonary Hypertension	Professor, Chief, Pediatric Cardiology, Dept of Pediatrics University of Colorado
James Ziegler, MD (1994-96)	cGMP Phosphodiesterase in Pulmonary Hypertension	Professor Pediatric Cardiology Dept of Pediatrics Brown University Providence, RI
Oliver W. Jones, MD (1993-4)	Endothelin in the Hypoxic Fetus	Private Practice (Ob-Gyn)
Emily Dobyns, MD* (1992-4)	Clinical Studies of Acute Respiratory Failure in Pediatrics	Professor Emerita, Critical Care Medicine, Dept. of Pediatrics University of Colorado
Thomas Parker, MD* (1996-98)	Hormonal Modulation of Fetal Pulmonary Circulation	Professor, Neonatology Fellowship Training Director, Head of GME, Dept. of Pediatrics University of Colorado
Henry Galan, MD (1996-98)	Role of Endothelial NO Synthase in Placental Function	Professor Chief of Perinatal Medicine, Dept. of Ob-Gynecology University of Colorado

Robyn Rairigh, MD (1997-99) (deceased)	Inducible NO Synthase in the Perinatal Lung Circulation	Private Practice Neonatology
Theresa Grover, MD* (1998-2000)	VEGF in Neonatal Pulmonary Hypertension	Professor, NICU Medical Director Neonatology, Dept. of Pediatrics University of Colorado
Timothy D. Le Cras, PhD (1996-2000)	Regulation of Angiogenesis	Professor, Division of Lung Biology Department of Pediatrics University of Cincinnati Cincinnati OH
Sarah Gebb, PhD (1998-2000)	Embryologic Mechanisms of Angiogenesis	Professor Dept of Pharmacology University of South Alabama Mobile, Alabama
Jamie Wooldridge, MD (2001)	NO in the CF airway	Professor, Chief of Pulmonary Medicine Dept of Pediatrics Women and Children's Hospital University of Buffalo School of Medicine, Buffalo, NY
Jeanne Zenge, MD (1999-2001)	Regulation of Fetal Pulmonary Vascular Smooth Muscle	Associate Professor, Neonatology Fellowship Director Dept of Pediatrics University of Colorado
Vivek Balasubramanian, MD* (1999-2003)	Mechanisms of Angiogenesis and Alveolization in Development	Associate Professor, Pulmonary Medicine Dept of Pediatrics University of Wisconsin
Greg Montgomery, MD (2003 - 2005)	Pulmonary Hypertension in CF	Associate Professor, Pulmonary Medicine, Dept of Pediatrics University of Indiana Indianapolis, IN
Anette Kunig, MD (2003- 2006)	Lung Vascular-Alveolar Interactions	Private Practice, NICU St Joseph Hospital, Denver CO
Jason Gien, MD * (2004 - 2007)	Cell-Cell Interactions in Pulmonary Vascular Development	Associate Professor, Neonatology Dept of Pediatrics University of Colorado

Jen-Ruey Tang, MD (2005; 2008- 2011)	VEGF signaling in prematurity	Research Assistant Professor Neonatology Dept of Pediatrics University of Colorado
Peter Mourani, MD* (2005 – 2010)	Pulmonary Hypertension in BPD	Professor Director, Research Institute, Section of Critical Care Medicine Department of Pediatrics University of Arkansas
Chris Baker, MD* (2005 – 2008; 2012-17)	Circulating EPCs in BPD	Professor Pulmonary Medicine Dept of Pediatrics University of Colorado
Jeremiah Lysinger, MD (2005- 2009)	Cardiopulmonary function in CF	Private Practice, Pulmonary Billings, Montana
Vincent Muehlethaler, MD (2006 - 2008)	Lung development in CDH	Neonatology, Lausanne, Switzerland
Marc Chester, MD (2007 – 2009)	Soluble Guanylate Cyclase Activators in PPHN	Private Practice, Pulmonary Virginia
Cassidy Delaney, MD* (2007 – 2013)	Serotonin signaling in PPHN	Associate Professor, Neonatology, University of Colorado,
Hillary Tuttle, MD (2007 – 2010)	Erythropoietin in the developing lung	Associate Professor Neonatology, University of Oregon Portland, OR
Robert Rock, MD (2007 – 2010)	Fetal Lung vascular development	Private Practice, NICU
Rachel Wright, MD (2009- 2011)	SOD in experimental BPD	Assistant Professor, Neonatology University of Colorado
K. Joseph Hurt, MD, PhD (2010- 2012)	Hydrogen Sulfide in Development	Associate Professor Dept. of Obs and Gynecology University of Colorado
Jennifer Taylor-Cousar, MD* (2010 – 2015)	Phosphodiesterase inhibitors in CF	Professor, Dept. of Medicine National Jewish Center Denver CO
Paul Rozance, MD * (2010 – 2015)	Intrauterine Growth Restriction and Lung Hypoplasia	Professor Neonatology Department of Pediatrics University of Colorado

Clyde J. Wright, MD* (2011 - 2012)	NFKB signaling in the developing lung	Professor, Neonatology Dept. of Pediatrics University of Colorado
Blair Dodson, PhD (2011 – 2017)	Abnormal Vasculature in IUGR	Assistant Professor Dept. of Surgery University of Colorado
Erica Mandell, MD * (2011 – 2014)	Vitamin D in Lung Development	Associate Professor Neonatology University of Colorado
Shannon Acker, MD (2012 – 2014)	Endothelial dysfunction in Congenital Diaphragmatic Hernia	Assistant Professor, Pediatric Surgery Department of Surgery University of Colorado
Csaba Galambos, MD (2012 – 2014)	Vascular – Epithelial Interactions Lung Growth in Down Syndrome	Professor, Department of Pathology, University of Colorado
Bradley Wallace, MD (2015 – 2017)	Mechanisms of Pulmonary Vascular Growth Arrest in BPD	Pediatric Surgery Fellow Department of Surgery University of Alabama Birmingham
Uyen Truong, MD* (2015 – 2018)	MRI studies of pediatric PH	Associate Professor Pediatric Cardiology Richmond VA
Doug Bush, MD (2015 – 2017)	Pulmonary vascular disease in Down Syndrome	Assistant Professor Pediatric Pulmonary Medicine Mt Sinai School of Medicine NYC, NY
Vitaly Khayfets, PhD * (2016 - 2017)	Cardiac imaging in pediatric PH	Assistant Professor, Bioengineering and Pediatric Cardiology, University of Colorado
Rony Marwan, MD (2016 – 2017)	Pulmonary Hypertension in CDH	Assistant Professor Department of Surgery University of Colorado
Jonathon Davies, MD * (2017 – 2020)	Adenosine Signaling in BPD	Assistant Professor Neonatology, Baylor University
Dan Ehrman, MD (2017- 2019)	Echocardiography in pediatric PH	Fellow, Pediatric Cardiology, UCHSC

Ben Frank, MD *	Pulmonary Hypertension in BPD	Assistant Professor, Pediatric Cardiology, UCHSC
Clare Paterson, PhD	Antenatal mechanisms of behavioral disorders	Assistant Professor Department of Psychiatry UCHSC
Mattson, Courtney, PhD	Lung mechanics with ventilator injury	Research Assistant Professor Department of Engineering UCHSC
Michael Cookson, MD	Vitamin D and endothelial dysfunction in experimental BPD	Fellow, Neonatology, UCSOM
Paula Dias Maia, MD	Endothelial heterogeneity in lung development and disease	Fellow, Neonatology, UCSOM
Elizabeth McGinn, MD	Role of dysanapsis in lung disease	Fellow Pediatric Critical Care, UCSOM
Sarah Kohn, MD	Lung Ultrasound and BPD	Fellow, Neonatology, UCSOM
Katie Enzer, MD	Electrical Impedance Tomography	Fellow, Pediatric Pulmonary Medicine UCSOM

*\* denotes NIH K grant recipients*

#### **Research Sabbaticals for International Visiting Faculty:**

Eduardo Villamor, MD	Neonatology, Madrid SPAIN (1995-6)
Flaminia Torielli, MD	Neonatology, Genoa, ITALY (1996-7)
Sylvia Gothberg, MD	Pediatric Critical Care and Anesthesia, Gothenburg, SWEDEN (1998-9)
Dug-Ha Kim, MD	Neonatology, Seoul, SOUTH KOREA (1998-9)
Laurent Storme, MD	Neonatology, Lille, FRANCE (1999-2000)
Jen-Ruey Teng, MD	Neonatology, TAIWAN (1999; 2001)
Y-H. Lin, MD	Neonatology, TAIWAN (2001-2)
Ren-Huei Fu, MD	Neonatology, TAIWAN (2002-3)
Phillipe Deruelle, MD	Obstetrics/Gynecology, Lille, FRANCE (2004-5)
Pierre Tourneux, MD	Neonatology and Pediatric Critical Care, Amiens, FRANCE (2007-8)
Vincent Meuhlethaler, MD	Neonatology and Pediatric Critical Care, SWITZERLAND (2007-9)
Hideshi Fujinaga, MD	Neonatology, Tokyo, JAPAN (2007-9)
Eric Dumas De La Roque, MD	Neonatology and Pediatric Critical Care, Bordeaux, FRANCE (2010-11)

Anna Milan, MD	Neonatology, London England
Sanne Arjaans, MD PhD	Cardiology, University of Groningen, NETHERLANDS (2018)

**Mentor for Student and Resident Projects:**

Conrad Epting, MD	Pediatrics Resident; Pediatric Cardiology Fellowship, UCSF
Urszula Tjachman, MD	Pediatrics Resident; Pediatric Cardiology Fellowship, Iowa
Mary Dubus, MD	Pediatrics Resident; Anesthesiology Faculty, UCHSC
Jonathon Fox, BA	Student; Anesthesiology Residency, Stanford
Gresham Richter, BA	Student; ENT Residency, Arkansas
Malathi Jakkula, BA	Student
Sonja Burbano, MD	Pediatrics Resident; Chief Resident, UCHSC
Kate Ackerman, MD	Pediatrics Resident; Pediatric Critical Care, Harvard
Thomas Best, MD	Pediatric Resident; Pediatric Cardiology Fellow, Cincinnati
Kris Wilkerson, MD	Pediatrics Resident; Heme-Oncology Fellow, UT-Southwestern
Ryan Vaughn, BS	Student (MS II), UCHSC
Tyler Maxwell, BA	Undergraduate Student, Baylor University
Jen-Ruey Teng, MD	Pediatric Resident, University of Florida
Courtney Paterson, MD	Pediatric Resident, UCHSC
Maureen Cunningham, MD	Pediatric Resident, UCHSC
Emily Lich	Undergraduate Student, UCD
Deandra Walker	Undergraduate Student, UCD
Marlena Hartman-Filson	Undergraduate Student, Carleton College
Alicia Brown	Undergraduate Student, Labcoats Program, Messiah College
Anish Punjabi	Arapahoe High School, Littleton CO
Rachel Wright	Colorado Academy, Denver CO
Shannon Acker, MD	Resident, Department of Surgery, UCHSC
Daniel Caballeros, BS	Undergraduate Student, Yale University
Alex Metoxen, BS	Medical Student Research Track, University of Colorado Denver
Logan Brock	Undergraduate student, University of Colorado
Matt Morgan	Undergraduate student, Duke University
Dominique Nguyen	Undergraduate student, Notre Dame University
Amelie Peisl	Medical Student Research Track; University of Colorado
Michael Cookson	Medical Student Research Track, University of Colorado
Bradley Wallace	Surgery Resident, University of Colorado
Christine Kim	Surgery Resident, University of Colorado
Phuong Thong	Undergraduate summer student, University of California Los Angeles

Daniella Coronado	Undergraduate summer college student, Princeton University
Kellen Hirsch*	Medical Student Research Track, University of Colorado * Recipient, ARCS Scholar Award, UCD 2017-2018 and 2018-2019 * Recipient, 2019 Alpha Omega Alpha Carolyn L. Kuckein Student Research Fellowship Award.
Winston Lie	Undergraduate summer college student research program, Princeton University, 2019
Carly Callahan	Undergraduate summer college student research program, University of Southern California, 2019 - 2020.
Alison Abele	Medical Student Research Track, University of Colorado, 2018 - 2022 . <ul style="list-style-type: none"> <li>• Awardee, 34<sup>th</sup> Annual student Research Forum, UC Anschutz Medical Center, 2019.</li> <li>• Awardee, Joseph and Regina Glaser Research Prize, 2022</li> </ul>
Noah Wilson	Undergraduate Student, Notre Dame University, 2019.
Abigail Abikoye	Undergraduate student. CU Summer Program, Notre Dame University, 2019.
Kisha Thayapran	Medical Student Research Track, University of Colorado, 2019-current. <ul style="list-style-type: none"> <li>• Awardee, 35<sup>th</sup> Annual student Research Forum, UC Anschutz Medical Center, 2020.</li> </ul>
Adom Netsanet	Medical Student Research Track, University of Colorado, 2020-current. <ul style="list-style-type: none"> <li>• the 2023 AΩA Carolyn L. Kuckein Student Research Fellowship Awardee</li> </ul>
Marica Almeda	Undergraduate Summer Student, Princeton University, 2021.
Kathy Ding	Medical Student Research Track, University of Colorado, 2021- current.
Caroline Smith	Medical Student Research Track, University of Colorado, 2021- current.
Elizabeth McGinn, MD	Pediatric Resident and Fellow in Pediatric Critical Care, University of Colorado, 2021 – current.
Paula Dias Maia, MD	Pediatric Resident and Neonatology Fellow, University of Colorado, 2021 - current.
Michael Cookson	Pediatric Resident and Neonatology Fellow, University of Colorado 2021 – current.
Mateo Tristan	Undergraduate Student, Notre Dame University, 2020.

### **Thesis Reviews**

2005- Patrik Lassus, MD, Helsinki

- 2005- Graeme Polglase, PhD, Monash University, Australia
- 2006- Philippe Deruelle, MD, Lille, France
- 2007- Scott Sagel, MD, University of Colorado, Denver CO.
- 2008- Angel Luis Cogolludo Torralba, PhD, Maastricht, Netherlands.
- 2009- Caitlin Filby, PhD, Monash University, Australia.
- 2010- Gema Esther Gonzalez-Luis, PhD, Maastricht, Netherlands.
- 2011- Steven Colson, MD PhD, University of Colorado, Denver, CO.
- 2012- Reuben Blair Dodson, PhD, Engineering, University of Colorado, Boulder, CO
- 2013- Robert Galinsky, PhD, Biology, Monash University, Australia
- 2016- Mark-Jan Ploegstra, MD, PhD, University Medical Center Groningen, Netherlands
- 2017- Justin Anthony Ross Lang, PhD, The Ritchie Center, Hudson Institute of Medical Research, Monash, University, Australia
- 2019- Maria Pierro, PhD, Maastricht University, Netherlands
- 2021- DE van der Feen, PhD, University Medical Center Groningen, Netherlands
- 2022- Sanne Arjaans, MD, PhD, University Medical Center Groningen, Netherlands

## **GRANTS:**

American Heart Association - Squibb Clinician-Scientist Award, "Perinatal Oxidant Pulmonary Vascular Injury," \$51,000, 1986-1987.

National Institutes of Health Clinical Investigator Award, NHLBI (HLO1932) "Perinatal Oxidant Pulmonary Vascular Injury, " \$260,000, 1987-1992.

National Institutes of Health, HLBI FIRST Award, (HL41012) "Mechanisms of Abnormal Perinatal Vasoreactivity," \$450,000, 1988-1993.

University of Colorado Health Sciences Center Biomedical Research Assistance Committee, "Mechanisms of Abnormal Perinatal Pulmonary Vascular Reactivity and Structure," \$13,000, 1988.

March of Dimes Birth Defects Foundation, Basil O'Connor Starter Scholar Research Award, "Effects of Acute and Chronic Hypoxia on the Perinatal Pulmonary Circulation," \$60,000, 1989-1991.

Biomedical Research Support, The Kempe Center, The Children's Hospital, Denver, "Endothelin and Perinatal Pulmonary Circulation", \$1950, 1991-1992.

American Heart Association - Colorado: Fellowship Award, "Endothelin and Perinatal Vaso-regulation," Dr. Dunbar Ivy; 1993-94; \$30,000.

National Institutes of Health, Special Center of Research (SCOR): Developing Lung Circulation: Response to Injury (Program Director, JT Reeves); Project title, "Role of Endothelial-Derived Products in Perinatal Pulmonary Vasoregulation"; PI-Steven H. Abman; \$130,000 per year; 12/91- 11/96.

March of Dimes Birth Defects Foundation Basic Research Grant, "Role of Endothelin-1 in Perinatal Pulmonary Vasoregulation," \$30,000 per year; 1992-94.

National Institutes of Health, Research Grant (RO1 HL41012), "Mechanisms of Abnormal Perinatal Vasoreactivity," \$145,000/year; 1994-1998.

American Heart Association - Established Investigator Award, "Role of Nitric Oxide in Vasoregulation of the Perinatal Lung," \$51,000 per year: 1994-99.

Newborn Hope, Research Grant, "Inhaled Nitric Oxide Therapy for Neonatal Respiratory Distress," \$10,000; December 1994.

Wyeth Pediatric Neonatology Research Fund, "Role of Endothelin and Nitric Oxide in Development of Pulmonary Hypertension", for Tom Parker, Fellow; \$3,400; 1995-96.

American Academy of Pediatrics, "Effects of Decreased Blood Flow on Nitric Oxide Synthase Activity and Protein Content in the Fetal Pulmonary Circulation", for Urszula Tajchman, Resident; \$2,000; 1995-96.

Newborn Hope Research Grant, "Role of Inhaled NO in Neonatal Respiratory Failure and Pulmonary Hypertension," \$15,000, March, 1996.

National Institutes of Health HLBI Specialized Center of Research (SCOR)(HL-46481): Neonatal Pulmonary Hypertension (KR Stenmark, Program Director), Project Title: "NO-cGMP Cascade in Perinatal Pulmonary Circulation," SH Abman, PI, 1996-2001.

National Institutes of Health HLBI Specialized Center of Research (SCOR): Neonatal Pulmonary Hypertension; "Clinical Core" (Rosenberg, A, PI). SH Abman, Co-Investigator, 1996-2001.

Variety Club of Colorado "Pediatric Heart Lung Center", \$35,000, 1997 Abman SH (PI).

Newborn Hope, "Pediatric Heart Lung Center: Acute and Long Term Effects of Inhaled NO Therapy in Sick Neonates", Abman SH (PI), \$33,742, 1998.

American Heart Association National Grant-In-Aid, "Role of Abnormal Lung Growth in the Development of Pulmonary Hypertension", Abman SH (PI), 1/1/99-12/31/01; \$150,000 (total Funding, 3 years).

Newborn Hope, "Pediatric Heart Lung Center: Inhaled NO Therapy in Neonates and Infants with Heart and Lung Disease", Abman SH (PI), 1999, \$18,000.

INO Therapeutics, Unrestricted Educational Grant to the Pediatric Heart Lung Center, Abman SH (PI), 2000, \$250,000.

March of Dimes Research Grant: "Role of NO in the Regulation of Fetal Pulmonary Vasoreactivity and Growth," Abman SH (PI), 2000-03, \$96,800/year; \$351,200, total costs (3 years).

BioTechnology General Corporation: "Role of SOD and Inhaled NO in the Treatment of Severe RDS in Premature Lambs," Abman SH, PI; 2000-4; \$225,000.

National Institutes of Health (NIH) HLBI T32 HL07670 National Institutional Research Service Award: Academic Training in Pediatric Pulmonary Diseases, Abman SH (PI), 7/1/99-6/30/04, \$360,000/year; \$1,842,955, total direct costs.

NIH HLBI RO1 HL6487: "Inhaled NO for the prevention of BPD" (Kinsella JP, PI; Abman, SH, Co-Investigator), 2000-05, \$6,480,884 (total direct costs, 4 years).

INO Therapeutics, "Development of Home Program for the Chronic Treatment of Severe Cardiopulmonary Diseases," Abman SH (PI), 2001-5; \$130,000/year.

NIH HLBI RO1 68702, "Role of VEGF in Perinatal Pulmonary Hypertension," Abman SH (PI), 2001-5, \$1,000,000; total direct costs.

NIH HLBI Mentored Scientist Development Award (K08 HL04206), "Estradiol in Regulation of the Fetal Pulmonary Circulation;" Thomas Parker (PI); \$590,750, 2000-5.

NIH HLBI Mentored Scientist Development Award (K08 HL03823), "Role of Endothelin in Perinatal Pulmonary Vasoregulation;" Dunbar Ivy (PI); \$508,432; 1999-2004.

NIH HLBI Mentored Patient-Oriented Research Award (K23 RR16178): "Interactive Effects of HFOV and Inhaled NO in the Treatment of Acute Hypoxemic Respiratory Failure in Pediatrics;" Emily Dobyns (PI), \$640,190; 2000-5.

NIH HLBI Specialized Center of Research (SCOR) (P50 HL57144): Impact of Injury to the Developing Lung Circulation (KR Stenmark, Program Director), Project Title: " Inhaled NO in the Prevention of BPD," SH Abman, (Project PI), 2001-6; \$1,216,964; total direct costs

NIH HLBI Specialized Center of Research (SCOR) (P50 HL57144): Impact of Injury to the Developing Lung Circulation (KR Stenmark, Program Director), Project Title: "Clinical Core" (Kinsella JP, PI). Abman SH, Co-PI, 2001-6.

American Academy of Pediatrics, Marshall Klaus Award, "Endothelial cell dysfunction and impaired angiogenesis in neonatal pulmonary hypertension," Gien J (PI); Abman SH (mentor), 2005-6, \$5,000.

American Academy of Pediatrics, Marshall Klaus Award, "Antiapoptotic effects of nitric oxide in an experimental model of BPD," Tang JR (PI); Abman SH (mentor), 2005-6, \$5,000.

Advancing Newborn Medicine Grant Program for Fellows in Neonatology, "Endothelial cell dysfunction in PPHN," Gien J (PI), Abman SH (mentor), 2007-8, \$7500.

Advancing Newborn Medicine Grant Program for Fellows in Neonatology, "VEGF treatment of congenital diaphragmatic hernia," Kunig A (PI), Abman SH (mentor), 2006-7, \$7500.

American Academy of Pediatrics, Marshall Klaus Award, "Endothelial cell dysfunction and impaired angiogenesis in neonatal pulmonary hypertension," Gien J (PI); Abman SH (mentor), 2006-7, \$5,000.

American Academy of Pediatrics, Marshall Klaus Award, "Inhaled NO prevention of apoptosis after VEGF inhibition," Tang JR (PI); Abman SH (mentor), 2006-7, \$5,000.

NIH HLBI T32 HL07670 National Institutional Research Service Award: Academic Training in Pediatric Pulmonary Diseases, Abman SH (PI), 7/1/04-6/30/09, \$350,293/year.

NIH HLBI Mentored Scientist Development Award (K08): "Role of VEGF - NO Signaling in Lung Growth;" Vivek Balasubramaniam (PI). Abman SH (Mentor); 2003-2008, \$121,000 direct costs per year.

INO Therapeutics, Advancing Newborn Medicine Fellowship Grant Program, “Soluble Guanylate Cyclase in PPHN,” Marc Chester (PI), Abman SH (Mentor), 2007-8. \$7500.

Bayer Health Care, “Soluble guanylate cyclase activators in PPHN,” Abman SH, PI, \$50,000.

NIH HLBI Mentored Scientist Development Award (K08): “VEGF in Perinatal Pulmonary Hypertension;” Theresa Grover (PI), Abman SH (Mentor); 2004-2009. \* Selected for award and additional support from the Pulmonary Hypertension Association.

NIH R21 Grant, “SOD treatment of PPHN,” (Kinsella JP, PI; Abman SH Co-PI); 2006-2011

Thrasher Foundation (PN200601-194): “Novel Strategies for the Prevention and Treatment of Chronic Lung Disease in Premature Newborns.” Abman SH (PI); 2006-2010, \$441,786 total direct costs.

NIH HLBI U01 (HL081335-01): Clinical Proteomics Center in Lung Disease (Accurso FJ, PI), Abman SH (Co-PI), 1/1/06 – 12/31/09, \$4,166,102 total direct costs.

American Thoracic Society Award, Transitional Faculty Award, Baker C (PI), Abman SH (mentor), 2008 – 2010.

NIH HLBI Mentored Patient-Oriented Research Award (K23): “Pathogenetic Mechanisms of BPD;” Peter Mourani (PI), Abman SH (Mentor); 2005-2010.

Entelligence Mentored Scientist Award, Actelion (sponsor), Gien J (PI), Abman SH (Mentor), 2010 – 2011, \$100,000.

NIH K12 Award, “Genetic differences between premature and term endothelial progenitor cells,” Baker C (PI), Abman SH (mentor), 2008 – 2011.

NIH SCCOR Program, “Injury to the Developing Lung Circulation,” Stenmark KR (PI); Abman SH (Co-PI); 2006–2012; \$2.5 million/year direct costs. Specific projects include: “Clinical Research Skills Development Core,” Abman SH (Core Leader); “Hypoxia-Inducible Factors in Neonatal Pulmonary Hypertension,” White C (Project #5 Leader), Abman SH (Co-investigator); “Inhaled NO and Non-invasive Ventilation of Premature Newborns,” Kinsella JP (Project #1 Leader), Abman SH (Co-investigator).

NIH HLBI RO1 HL68702, “Role of VEGF in Perinatal Pulmonary Hypertension,” Abman SH (PI), 2007-11, \$1,084,201 total direct costs.

NIH HLBI T32 HL07670 National Institutional Research Service Award: Academic Training in Pediatric Pulmonary Diseases, Abman SH (PI), 7/1/11-6/30/15, \$350,293/year.

NIH RO1 Award, “Endothelial Progenitor Cells in BPD,” Balasubramaniam V (PI), Abman SH (Collaborator); 2008-2012.

NIH/SBIR R34 “A novel means to establish free radical balance in the neonatal premature lung” Salzman, A (PI), Abman SH (co-investigator), 08/01/2011-07/31/2012

NIH/SBIR R34HL110374 “Bifunctional Redox Agent for the Treatment of PPHN” Southan, G, (PI), Abman SH (co-investigator), 9/01/2011-08/31/2012.

Gilead Sciences Research Scholars Program in Pulmonary Hypertension Award, “Role of serotonin in the pathobiology of neonatal pulmonary hypertension,” Delaney C (PI), Abman SH (Mentor), 2010-2012, \$130,000 direct costs.

NHLBI U01 HL102235 Phase II Clinical Trials of Novel Therapies for Lung Diseases, “Phase II Trial of Sildenafil in Newborns with Persistent Pulmonary Hypertension,” (Abman SH, Kinsella JP, Steinhorn RH (co-PIs), \$1,293,473 direct costs per year, 9/17/2010 – 6/30/2013.

NIH K12 Child Health Research Award, “Role of Serotonin in the Pathogenesis of Neonatal Pulmonary Hypertension,” Delaney, Cassidy (PI), Abman SH (mentor), 2012-2013.

NIH K08, “Nuclear Factor kappa B Regulation and Oxidative Stress,” Wright Clyde (PI), Abman SH (mentor), 2010 - 2015.

NIH K08 Award, “Rho Kinase in Neonatal Pulmonary Hypertension,” Gien J (PI), Abman SH (Mentor), 2010 - 2015.

NICHD K08 HD060688, “Pancreatic beta-cell endothelial cell function and signaling in intrauterine growth restriction,” Rozance P (PI); Abman SH (co-mentor), 09/01/09-08/31/14

Gerber Foundation, “Microbiome and Cytokine Biomarkers in BPD,” PI: Peter Mourani; Abman SH (Collaborating Investigator). 2013-2015

Gilead Young Investigator Award for Pulmonary Hypertension, “Role of vitamin D in the pathogenesis and treatment of pulmonary hypertension in BPD,” Mandell E (PI), Abman SH (Mentor), \$130,000; 2014-2016.

NIH T35 HL112930 Short Term Institutional Support for Clinician Scientists, “Pediatric Pulmonology and Hematology Research Training for Medical Students,” Abman SH (PI), Dipaolo J (co-PI), \$94,000 (direct costs), 2011-2015.

American Academy of Pediatrics, Marshall Klaus Award, “Vitamin D in experimental chorioamnionitis,” Mandell E (PI); Abman SH (mentor), 2013 - 2014, \$5,000.

NHLBI RO1 HL085703 Award, “Genetic Basis for Impaired Angiogenesis in BPD,” Abman SH (PI); 2007-2013, \$545,384 per year; \$3,500,000 total costs.

NIDDK R01 DK088139, “Nutrient coordination of pancreatic vasculature and beta-cells” Rozance P (PI), Abman SH (co- investigator), 2011-2016.

NIH K23 HL103801 Award, “Use of phosphodiesterase inhibitors to evaluate the pathobiology of CF,” Taylor-Cousar, J (PI), Abman SH (mentor), 2011 – 2016.

Jérôme Lejeune Foundation, “Role of Impaired Angiogenesis in the Pathogenesis of Severe Cardiopulmonary Disease in Children with Down Syndrome,” Galambos C (PI), Abman SH (Collaborator), \$50,000/year x 2 years, 2014 -2016.

Entelligence Award for Pulmonary Hypertension Research, “Hemodynamic Stress in the Pathophysiology of Neonatal Pulmonary Hypertension,” Dodson RB (PI), Abman SH (mentor), \$100,000.

NIH K23 Award, “Endothelial Progenitor Cells in BPD,” Baker, C (PI), Abman SH (mentor), 2014 – 2017.

University of Colorado School of Medicine, Dean’s Scientific Research Committee, “Establishment of the Developmental Angiogenesis Program,” Abman SH (PI); Powell T (Co-PI), Jansson T (Co-PI), \$10,000; 2015 - 2017.

United Therapeutics, “Role of treprostinil therapy for pulmonary hypertension in BPD,” Abman SH (PI), \$62,500, Jan 2017- Jan 2018.

NHLBI RO1 Award, “The Microbiome, Virome and Host Responses Preceding Ventilator-Associated Pneumonia,” Mourani PM (PI); Abman SH (collaborator), 2014 – 2018.

SBIR Grant 1R44HL134429-01: “Iridium-electrode inhaled nitric oxide generator for hypoxic respiratory failure in neonates.” Third Pole/NIH-NHLBI (PI: Silkoff, PE; Abman SH, Collaborator), Grant total: \$1,499,218 09/01/2016 – 08/31/2018 .

NHLBI 2R56 HL68702-13, “Role of VEGF in Perinatal Pulmonary Hypertension,” Abman SH (contact PI), Shepherd DS (MPI), \$500,000; 2018-2019 (\$500,000 direct costs).

Shire Pharmaceuticals, “Antenatal Mechanisms of Neonatal Lung Injury,” Abman SH (PI), \$248,000.

Shire Pharmaceuticals, “Insulin-Like Growth Factor-1/Binding Protein 3 Studies,” Abman SH (PI), \$100,000 (supplement). 2017 – 2019.

United Therapeutics, “Role of treprostinil therapy for pulmonary hypertension in BPD,” Abman SH (PI), \$80,000.

NIH K12 Program Department of Pediatrics, Awardee: Erica Mandell, Abman SH (Mentor), 2017 – 2019.

NHLBI T32 HL07670 National Institutional Research Service Award: “Academic Training in Pediatric Pulmonary Diseases,” Abman SH (PI), 12/1/15 - 11/2019, \$390,000/year direct costs. No cost extension.

NIH T32HL07670-30S1 National Institutional Research Service Award, “Academic Training in Cardiopulmonary Disease in Down Syndrome,” Abman SH (PI), Response to RFA NOT-OD-18-194, \$190,000 direct costs.

NIH Supplement for U01 HL12118, “Comprehensive Characterization of Pulmonary Hypertension in Down Syndrome,” Abman SH (PI), Response to RFA NOT-OD-18-194, \$500,000 direct costs.

NHLBI U01 HL12118-01, “Data fusion: a sustainable, open source registry advancing pediatric pulmonary vascular disease research,” (RFA HL14-005); Abman SH (contact PI); Mandl KD (Co-PI), \$1.8 M/year x 4 years (7/01/14 – 04/30/2021). No Cost Extension Period.

Food and Drug Administration (FDA) Proposal: “Investigation of Actigraphy, an Exercise Measure Device, as a Novel, Well-defined, Reliable, Feasible, Easy-to-use, and Non-invasive Study Endpoint to Facilitate Pediatric Pulmonary Arterial Hypertension Trials and Drug Development.” Haiho Sun (PI), Abman SH (Co-PI), (\$300,000).

United Therapeutics, “Human MSC Exosome Therapy to Promote Lung Growth and Repair in a Novel Rat Model of Bronchopulmonary Dysplasia (BPD) Associated with Preeclampsia (PE) and Antenatal Inflammation,” Abman SH, Kourembanas S (Multi-PI), \$300,000.

SBIR Grant 1R44HL134429 (competitive renewal): “Iridium-electrode inhaled nitric oxide generator for hypoxic respiratory failure in neonates.” Third Pole/NIH-NHLBI (PI: Silkoff, PE; Abman SH, Collaborator), funded.

NHLBI K23 Mentored Patient-Oriented Research Career Development Award, “Cardiac MR imaging in pediatric pulmonary hypertension,” Truong UT (PI), Abman SH (Mentor). 2017-2021. *funded*

## **CURRENT SUPPORT:**

NHLBI T32 HD101388-01, “Multicenter Training in Pediatric Pulmonary Vascular Disease,” Fineman J (contact PI), Austin E, Abman SH (multi-PIs); 2022 – 2027.

NHLBI RO1 HL68702-14, “Role of VEGF in Perinatal Pulmonary Hypertension,” Abman SH, Shepherd DS (Multi-PIs), \$421,000/year; 2019 – 2023.

NHLBI R01 HL145679-01A1 Award, “Physiologic Phenotyping of Respiratory Outcomes in Infants Born Premature,” Tepper R, Abman SH (Multi-PIs), 2019-2023.

NIH R21 INCLUDE Program, “Abnormal HIF Signaling in Down Syndrome-Associated Pulmonary Hypertension.” Galambos (PI), Abman SH (collaborator), *Funded, 2022-2024*.

NHLBI UH3HL151458-01, “Kids MoD PAH Trial: Mono- vs. Duo-Therapy in Pediatric Pulmonary Arterial Hypertension,” Romer L, Abman SH, Berman-Rosenzweig E (Multi-PIs), \$4.9 million (2021-2026).

NIH R38 031023, “StARR Resident Research Training Program at the University of Colorado,” Schwartz D (PI), Abman SH, Di Paola J, Buttrick P (Multi-MPIs).

Janssen Investigator-Initiated Study (IIS) Research Support Application, Children are not small adults: the pulmonary hypertension risk score. Everett AD (contact PI), Sleeper L, Abman SH, Austin ED (co-PIs), *Funded*.

NIH NCATS ECHO Program, “Early life exposome and childhood health- the Colorado Healthy Start program,” Debalea D (PI); Abman SH (Co-investigator). Grant total: \$990,774 direct costs. Dates: 09/01/16-08/31/23.

NIH T32 HL07171 Award, “Respiration and Circulation during Hypoxia,” Stenmark KR (PI), Abman SH, Mentor, *funded*.

NIH T32 HL007085, “Multidisciplinary Respiratory Diseases Research Training,” (Schwarz D, PI), Abman SH, Mentor, *funded*.

NIH K08, Mentored Clinician-Scientist Award, Mandell EW (PI), Abman SH (mentor), 2019-2023, *funded*.

NIH R21 INCLUDE Program, “Abnormal HIF Signaling in Down Syndrome-Associated Pulmonary Hypertension.” Galambos C (contact PI), Abman SH (collaborator), *Funded*.

## **Pending Grants:**

American Heart Association Collaborative Sciences Award, “Evaluating the role of placental angiogenic signaling in ameliorating developmental pulmonary vascular injury,” Taglauer E (contact PI), Abman SH (collaborator). Submitted.

NHLBI RO1, “CC-16 protects the offspring from maternal smoke-induced lung pathology via beta-1 integrin activation,” Polverino F (contact PI), Abman SH (multi-PI). Submitted.

NHLBI RO1, “The Bronchial Circulation in Pulmonary Hypertension,” Galambos C (PI), Abman SH (multi-PI). Submitted.

NHLBI R25, “PRIDE Academy: Impact of Ancestry and Gender on Omics of Lung Diseases.” Flores S (PI), Abman SH (collaborator). Submitted.

NIH R38 031023, “StARR Resident Research Training Program at the University of Colorado,” Schwartz D (PI), Abman SH, Buttrick P (Multi-MPIs). *Renewal, Submitted.*

## Patents

Application No. PCT/US16/26420 (Abman, Seedorf)  
Title: Anti-sFLT-1 Antibodies in Treating Bronchopulmonary Dysplasia  
Filed: 4/7/2016  
CU TTO File No. CU4114H-PCT1

## PUBLICATIONS (PEER-REVIEWED): (D-INDEX: 98; I10-INDEX: 366)

1. Jacob HS, Yawata Y, Matsumoto N, Abman SH, White J. Cyclic-nucleotide-membrane protein interaction in the regulation of erythrocyte shape and survival: Defect in hereditary spherocytosis. In, Erythrocyte Structure and Function. Brewer GT (ed), pp 235-247, 1975.
2. Cole RB, Abman SH, Aziz K, Bharati S, Lev M, Paul MH. Prolonged PgE-1 infusion: Histologic effects on the PDA, Pediatrics 67:831,1981.
3. Abman SH, Warady BA, Lum GM, Koops BL. Systemic hypertension in infants with BPD. J. Pediatr 104:928-931,1984.
3. Abman SH, Accurso FJ, Bowman CM. Unsuspected cardiopulmonary abnormalities complicating BPD. Arch Dis Child 59:966-970, 1984.
5. Abman SH, Accurso FJ, Koops BL. Experience with home oxygen in the management of infants with BPD. Clin Ped 23:471-476, 1984.
6. Abman SH, Fan LL, Cotton EK. Emergency treatment of foreign body obstruction of the upper airway in children. J Emer Med 2:7,1984.
7. Abman SH, Wolfe RR, Accurso FJ, Koops BL, Bowman CM, Wiggins JW. Pulmonary vascular response to oxygen in infants with severe BPD. Pediatrics 75:80-84, 1985.
8. Abman SH, Reardon MC, Accurso FJ, Hammond KB, Sokol R. Hypoalbuminemia as marker for severe respiratory course in infants with CF identified by newborn screen. J Pediatr 107:933 935, 1985.
9. Abman SH, Accurso FJ, Bowman CM. Persistent morbidity and mortality of protein calorie malnutrition in young infants with CF. J. Pediatr Nutr Gastr. 5:393-397, 1986.
10. Abman SH, Accurso FJ, Ward RM, Wilkening RB. Adaptation of fetal pulmonary blood flow to local infusion of tolazoline. Pediatr Res 20:1131-1135,1986.
11. Abman SH, Accurso FJ, Wilkening RB, Meschia G. Persistent fetal pulmonary hypoperfusion after acute hypoxia. Am J Physiol 22:H941-H948, 1987.

12. Abman SH, Schaffer M, Wiggins J, Washington R, Manco-Johnson M, Wolfe RR. Pulmonary vascular extraction of circulating norepinephrine in infants with bronchopulmonary dysplasia. *Pediatr Pulmonology* 3:386-391, 1987.
13. Accurso FJ, Abman SH, Reardon MC, Hammond KB. Early abnormalities in infants with CF diagnosed through newborn screening. *Pediatric Pulmonology*, S1, 83-85, 1987.
14. Abman SH, Accurso FJ. Acute and chronic fetal pulmonary hypertension alters pulmonary vasoreactivity. *Chest* 93:117S-119S, 1988.
15. Abman SH, Ogle JW, Butler-Simon N, Rumack CM, Accurso FJ. Role of respiratory syncytial virus in early hospitalizations for respiratory distress in young infants with cystic fibrosis. *J. Pediatr* 113:836-380, 1988.
16. Abman SH, Accurso FJ. Acute effects of partial compression of the ductus arteriosus on the fetal pulmonary circulation. *Am J Physiol* 257:626-634, 1989.
17. Abman SH, Shanley PF, Accurso FJ. Failure of postnatal adaptation of the pulmonary circulation after chronic intrauterine pulmonary hypertension in fetal lambs. *J Clin Invest*, 83:1849-58, 1989.
18. Abman SH, Burchell MF, Schaffer MS, Rosenberg AA. Late sudden unexpected deaths in hospitalized infants with bronchopulmonary dysplasia. *AJDC*, 143:815-819, 1989.
19. Sokol RJ, Reardon MC, Accurso FJ, Stall C, Narkewicz M, Abman SH, Hammond KB. Fat-soluble vitamin status during first year of life in infants with cystic fibrosis identified by newborn screen. *Am J Clin Nutr*, 50:1064-1071, 1989.
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22. Abman SH, Accurso FJ. Sustained fetal pulmonary vasodilation during prolonged infusions of arterial natriuretic factor and 8-bromo-GMP. *Am J Physiol*, 260:H183-H192, 1991.
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26. Hammond KB, Abman SH, Sokol RJ, Accurso FJ. Efficacy of state-wide screening for cystic fibrosis based on immunoreactive trypsinogen. *N Engl J Med*, 325:769-774, 1991.
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28. Sokol RJ, Reardon MC, Accurso FJ, Stall C, Narkewicz MR, Abman SH, Hammond KB. Fat soluble vitamins in infants identified by CF newborn screening. *Pediatr Pulmonol*, (supplement 7): pp 52-55, 1991.
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255. Rock R, Meuhlethaler V, Kunig A, Balasubramaniam V, Abman SH. VEGF Improves Lung Structure in Fetal Lung Explants and After Neonatal Hyperoxia in Mice Genetically Deficient for Endothelial Nitric Oxide Synthase (eNOS). *Pediatric Academic Societies*, 2009. \*

256. Tang JR, Seedorf GJ, Meuhlethaler V, Walker DL, Markham N, Balasubramaniam V, Abman SH. Postnatal Hyperoxia Enhances Alveolarization in Infant Rats Exposed to Antenatal Endotoxin. Pediatric Academic Societies, 2009.\*
257. Balasubramaniam V, Roth EV, Ryan SL, Seedorf GJ, Abman SH. A novel population of bone marrow cells enhances mouse alveolar type II cell growth in vitro. Pediatric Academic Societies, 2009.\*
258. Fujinaga H, Baker CD, Ryan SL, Seedorf GJ, Balasubramaniam V, Abman SH. Exogenous VEGF increases the in vitro growth potential of umbilical cord blood derived endothelial progenitor cells from preterm neonates in mild hyperoxia. Pediatric Academic Societies, 2009.\*
259. Abman SH. Impaired NO-cGMP signaling in the pathogenesis of neonatal pulmonary hypertension and therapeutic implications. 4<sup>th</sup> International Conference on cGMP Generators, Effectors and Therapeutic Implications. Regensburg, Germany, 2009.\*
260. Sagel SD, Monchill L, Parker D, Emmet P, Wagner B, Abman S. Safety and antimicrobial effects of inhaled nitric oxide in cystic fibrosis: a pilot study. North American CF Conference, 2009.\*
261. Rose B, Jung J, Faroud T, Ingram D, Murray J, Dagle J, Abman S, Mourani P, Poindexter B. Bronchopulmonary dysplasia and polymorphisms of pulmonary vascular genes. Midwest Society for Pediatric Research, 2009.\*
262. Abman SH, Cornfield DN. Crafting Successful Clinician-Scientists in Child Health Research. Pediatric Academic Societies, 2010.\*
263. Roth EV, Seedorf GS, Ryan SL, Abman SH, Balasubramaniam V. Bone marrow derived progenitor cells enhance mouse alveolar type II cell growth and differentiation in vitro. American Thoracic Society International Conference, 2010.\*
264. Baker CD, Mourani PM, Sontag MK, Balasubramaniam V, Roth EM, Ryan SL, Ingram DA, Abman SH. Early decreased peripheral blood progenitor cell levels in preterm newborns are associated with development of moderate to severe BPD. American Thoracic Society International Conference, 2010.\*
265. Mourani PM, Sontag MK, Kerby GS, Fashaw L, Abman SH. Persistent impairment of lung function during infancy correlates with the severity of bronchopulmonary dysplasia at diagnosis. American Thoracic Society International Conference, 2010.\*
266. Wright RH, Tang JR, van Rheen Z, Abman SH, Nozik-Grayck E. Loss or gain of SOD3 affects development of pulmonary hypertension and bleomycin-induced bronchopulmonary dysplasia. Pediatric Academic Societies International Conference, 2010.\*
267. Rock R, Seedorf G, Walker D, Balasubramaniam V, Abman SH. Vascular endothelial growth factor (VEGF) improves lung structure and increases hepatocyte growth factor (HGF) after neonatal hyperoxia in eNOS -/- mice. Pediatric Academic Societies International Conference, 2010.\*
268. Roth EV, Seedorf GS, Ryan SL, Abman SH, Balasubramaniam V. Bone marrow derived progenitor cells enhance mouse alveolar type II cell growth and differentiation in vitro. Pediatric Academic Societies International Conference, 2010.\*
269. Baker CD, Wisniewski BL, Graham DK, Molk DF, Ryan SL, Abman SH, Balasubramaniam V. Blockade of receptor tyrosine kinase, Mer, impairs growth of umbilical cord blood-derived

endothelial colony forming cells (ECFCs). Pediatric Academic Societies International Conference, 2010.\*

270. Delaney CA, Gates R, Grover TR, Abman SH. Selective serotonin reuptake inhibitors cause vasoconstriction in the pulmonary circulation of the late-gestation PPHN ovine fetus. Pediatric Academic Societies International Conference, 2010.\*
271. Seedorf G, Balasubramaniam V, Baker C, Ryan S, Abman SH. Effects of conditioned media from endothelial colony forming cells on fetal pulmonary growth and tube formation. Pediatric Academic Societies International Conference, 2010.\*
272. Chumra K, Seedorf G, Markham N, Tseng N, Abman SH, Gien J. Endothelin-1 – rho kinase interactions decrease AKT signaling and impairs angiogenesis in ovine fetal pulmonary artery endothelial cells after chronic intrauterine pulmonary hypertension. Pediatric Academic Societies International Conference, 2010.\*
273. Rozance PJ, Seedorf G, Brown A, Gien J, Tang, J-R, Abman SH. Pulmonary artery endothelial cell dysfunction and impaired insulin responsiveness in fetal sheep with intrauterine growth restriction. Western Society for Pediatric Research, 2010.\*
274. Liche E, Seedorf GJ, Markham R, Balasubramaniam V, Abman SH. Cinaciguat, a soluble guanylate cyclase activator, augments growth, tube formation, and cGMP production in fetal pulmonary artery endothelial cells (PAEC) in vitro. Pediatric Academic Societies International Conference, 2011.\* **(Received Outstanding Student Award from the PAS).**
275. Rozance PJ, Seedorf GJ, Brown A, Gien J, Tang, J-R, Abman SH. Pulmonary artery endothelial cell dysfunction and impaired insulin responsiveness in fetal sheep with intrauterine growth restriction. Pediatric Academic Societies International Conference, 2011.\*
276. Delaney CA, Gates R, Isenberg N, Gien J, Abman SH. Role of serotonin receptors in pulmonary vasoregulation in the ovine fetus. Pediatric Academic Societies International Conference, 2011.\*
277. Tang JR, Karumanchi SA, Seedorf GJ, Markham N, Abman SH. Intra-amniotic soluble vascular endothelial growth factor receptor-1 impairs alveolarization and causes pulmonary hypertension in infant rats. Pediatric Academic Societies International Conference, 2011.\*
278. Tang JR, Hartman-Filson M, Douglas IS, Seedorf GJ, Balasubramaniam V, Abman SH. Nuclear factor-kB inhibition preserves growth and tube formation in fetal pulmonary artery endothelial cells treated with endotoxin in vitro. Pediatric Academic Societies International Conference, 2011.\*
279. Baker C, Balasubramaniam V, Black CP, Ryan SL, Mourani R, Abman SH. Decreased umbilical cord blood-derived endothelial colony-forming cells in moderate and severe bronchopulmonary dysplasia. Pediatric Academic Societies International Conference, 2011.\*
280. Mourani PM, Kinsella JP, Clermont G, Kong L, Cutter GR, Linde-Zwible WT, Abman SH, Angus DC, Watson RS. Intensive care unit readmissions after premature birth for respiratory failure. Pediatric Academic Societies International Conference, 2011.\*
281. Mourani PM, Harris K, Sontag M, Abman SH. The airway microbiome in BPD. Pediatric Academic Societies International Conference, 2011.\*
282. Duran J, Fashaw L, Abman SH, Mourani PM, Sontag M. Maternal smoking is associated with the development of moderate and severe BPD. Pediatric Academic Societies International Conference, 2011.\*

283. Balasubramaniam V, Ryan S, Baker C, Nuanez B, Abman SH. Hyperoxia decreases Notch signaling in preterm but not term cord blood endothelial progenitor cells. Pediatric Academic Societies International Conference, 2011.\*
284. Wright R, Tang JR, Field C, Kluck D, Birari R, Van Rheen Z, Abman SH, Nozik-Graych E. Loss of SOD3 impairs alveolar and vascular development in saline and bleomycin treated neonatal mice. Pediatric Academic Societies International Conference, 2011.\*
285. Wright CJ, Tang JR, Seedorf GJ, Abman SH. Nuclear Factor- $\kappa$ B inhibition preserves growth and tube formation in fetal pulmonary artery endothelial cells treated with endotoxin *in vitro*. Pediatric Academic Societies International Conference, 2012. \*
286. Hurt KJ, Roe G, Abman SH. Hydrogen Sulfide Causes Pulmonary Vasodilation in Normal Fetal Sheep and in an Experimental Model of Persistent Pulmonary Hypertension of the Newborn (PPHN). Pediatric Academic Societies International Conference, 2012. \*
287. Seedorf G, Vu T, Gien J, Abman SH. Vitamin A is Pro-Angiogenic and Contributes to Vascular Endothelial Growth Factor - Mediated Effects on Fetal Pulmonary Artery Endothelial Cells. Pediatric Academic Societies International Conference, 2012. \*
288. Crnich R, Hurt KJ, Breen K, Abman SH. Ontogeny of Hydrogen Sulfide Synthesizing Enzyme Expression in the Developing Lung and the Effects of Chronic Intrauterine Pulmonary Hypertension. Pediatric Academic Societies International Conference, 2012. \*
289. Seedorf G, Lich E, Crnich R, Gien J, Markham N, Balasubramaniam V, Abman SH. Augmenting the NO - cyclic GMP Pathway Preserves Lung Growth and Vascular Development and Prevents Right Ventricular Hypertrophy after Bleomycin Induced Lung Injury. Pediatric Academic Societies International Conference, 2012. \*
290. Wolf D, Tseng N, Roe G, Seedorf G, Abman SH, Gien J. Chronic intrauterine pulmonary hypertension decreases peroxisome proliferator-activated receptor gamma (PPAR $\gamma$ ) expression in ovine fetal pulmonary endothelial cells and impairs angiogenesis in vitro. Pediatric Academic Societies International Conference, 2012.\*
291. Mourani PM, Sontag MK, Harris JK, Miller JI, Abman SH. Airway bacterial diversity is directly associated with inflammatory markers in mechanically ventilated preterm infants. Pediatric Academic Societies International Conference, 2012.\*
292. Mourani PM, Sontag MK, Younoszai A, Miller JI, Poindexter BB, Abman SH. Prospective study of pulmonary hypertension in preterm infants. Pediatric Academic Societies International Conference, 2012. \*
293. Younoszai AK, Miller JI, Sontag MK, Poindexter BB, Abman SH, Mourani PM. A multicenter prospective study of developmental differences in ventricular diastolic function in premature infants. American Echocardiography Society, 2012.\*
294. Acker S, Seedorf GJ, Gien J, Partrick D, Abman SH. Impaired angiogenesis and decreased highly proliferative endothelial cells in an ovine model of congenital diaphragmatic hernia. American Pediatric Surgery Association, 2013.
295. Mandell E, Seedorf GJ, Tang JR, Gien J, Abman SH. Vitamin D attenuates lung injury and improves survival in infant rats after antenatal endotoxin exposure. Western Society for Pediatric Research, 2013. **(Received David Smith Award for Outstanding Fellowship Research, WPSR)•**

296. Michaelis KA, Luna J, Han K, Liu T, Tang JR, Balasubramaniam V, Abman SH, Wright C. The unique role of the NFkB inhibitory protein IKBB in mediating the response to inflammation in the developing lung. Western Society for Pediatric Research. 2013. \*
297. Acker S, Seedorf GJ, Gien J, Partrick D, Abman SH. Impaired lung angiogenesis and decreased highly proliferative endothelial cells in an ovine model of congenital diaphragmatic hernia. Pediatric Academic Societies Meeting, 2013.\*
298. Mandell E, Seedorf GJ, Wright C, Gien J, Abman SH. Vitamin D attenuates lung injury and improves survival in infant rats after antenatal endotoxin exposure. Pediatric Academic Societies Meeting 2013.\* (***Selected for PAS Research Travel Award***).
299. Gien J, Seedorf GJ, Tseng N, Wolf D, Abman SH. Effects of Endothelin Receptor Blockade on Endothelial Cell Function, Lung Structure and Pulmonary Hypertension after Bleomycin Exposure in Rat Pups. Pediatric Academic Societies Meeting 2013.\*
300. Gadhia MM, Cutter GR, Abman SH, Kinsella JP. Effects of early inhaled NO therapy and vitamin A supplementation on the risk for bronchopulmonary dysplasia in premature newborns with respiratory failure. Pediatric Academic Societies Meeting 2013.\*
301. Gien J, Tseng N, Roe G, Seedorf GJ, Abman SH. Peroxisome proliferator-activated receptor gamma – rho kinase interactions contribute to smooth muscle cell proliferation in experimental persistent pulmonary hypertension of the newborn. Pediatric Academic Societies Meeting 2013.\*
302. Baker CD, Mourani PM, Black CP, Poindexter B, Miller JI, Balasubramaniam V, Ingram DA, Abman SH. Peripheral blood angiogenic and non-angiogenic circulating progenitor cells are decreased in preterm infants with clinical chorioamnionitis. Pediatric Academic Societies Meeting 2013.\*
303. Delaney C, Gien J, Roe G, Kailey J, Abman SH. Serotonin contributes to high pulmonary vascular tone in an ovine model of persistent pulmonary hypertension of the newborn. Pediatric Academic Societies Meeting, 2013.\*
304. Acker S, Seedorf GJ, Gien J, Grayck E, Partrick DJ, Abman SH. Impaired Endothelial Cell Nitric Oxide Signaling in an Ovine Model of Congenital Diaphragmatic Hernia. American College of Surgeons Clinical Congress, 2013. \*
305. Mandell E, Seedorf GJ, Gien J, Abman SH. Vitamin D attenuates lung injury and improves survival in infant rats after antenatal endotoxin exposure. American Academy of Pediatrics District VIII Meeting 2013.\* (***Selected for AAP Fellows Research Award; \*\* Recipient of the Young Investigator Award from the American Academy of Pediatrics***).
306. Galambos C, Minic A, Seedorf G, Abman SH. Increased lung endostatin expression impairs perinatal lung development in Down Syndrome. Society for Pediatric Pathology Institute, 2013.\* (***Selected for Society for Pediatric Pathology Award for outstanding research***).
307. Acker SN, Seedorf G, Abman SH, Partrick DA, Gien J. Altered pulmonary artery endothelial-smooth muscle cell interactions in experimental congenital diaphragmatic hernia. Academic Surgical Congress, 2013.\*
308. Wright RH, Tang JR, Delaney C, Woods C, Abman SH, Nozik-Grayck E. Lack of the extracellular superoxide dismutase (SOD3) worsens alveolar development and pulmonary hypertension in a neonatal mouse model of bleomycin-induced bronchopulmonary dysplasia. Soc Crit Care Med, 2013.\*

309. Acker SN, Seedorf G, Abman SH, Nozik-Grayck E, Partrick DA, Gien J. Reactive Oxygen Species Disrupts Pulmonary Artery Endothelial – Smooth Muscle Cell Interactions, Contributing to Smooth Muscle Cell Hyperplasia in Experimental Congenital Diaphragmatic Hernia. American Pediatric Surgery Association meeting, 2014.\*
310. Wright RH, Tang JR, Delaney C, Woods C, Villegas L, Johnson R, Abman SH, Savani R, Nozik-Grayck E. Lack of EC-SOD worsens alveolar development and pulmonary hypertension in a neonatal mouse model of bleomycin-induced bronchopulmonary dysplasia. American Thoracic Society, 2014.\*
311. Dodson RB, Mandell E, Seedorf G, Crombleholme T, Abman SH. Intrauterine endotoxin causes persistent increases in pulmonary artery stiffness and remodeling in infant rats. American Thoracic Society Meeting, 2014.\*
312. Mourani PM, Sontag MK, Younaszai A, Miller JI, Kinsella JP, Poindexter BB, EV Liptsen, Ingram DA, Abman SH. Echocardiographic signs of pulmonary vascular disease at 7 days is associated with increased risk for bronchopulmonary dysplasia and late PH. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
313. Carlton E, Sontag M, Younoszai A, Miller J, Abman SH, Mournia PM. Inter-reader reliability of echocardiogram indicators of pulmonary hyperension in preterm infants at risk for bronchopulmonary dysplasia. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
314. Dodson RB, Morgan M, Seedorf S, Tan W, Abman SH. Hemodynamic stress alters fetal pulmonary artery endothelial cell gene expression in vitro. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
315. Dodson RB, Rozance P, Seedorf G, Abman SH. Impaired pulmonary and systemic arterial vasoreactivity in a model of intrauterine growth restricion in fetal sheep. Pediatric Academic Societies Meeting, Vancouver, Cana, 2014.\*
316. Dodson RB, Morgan M, Seedorf G, Abman SH. Chronic intrauterine pulmonary hypertension induces main pulmonary artery stiffening due to altered collagen deposition and elastin fiber dixtribution in fetal sheep. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
317. Gien J, Kinsella JP, Grenolds A, Abman SH, Baker CB. Improved survival with multidisciplinary care team for infants with tracheostomy–dependent severe bronchopulmonary dysplasia. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
318. Acker SN, Mandell EW, Sims-Lucas S, Abman SH, Galambos C. Histologic identification of intrapulmonary shunt vessels in congenital diaphragmatic hernia. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
319. Gien J, Brock L, Kuhn K, Tseng N, Abman SH. Autocrine endothelin-1 production regulates fetal pulmonary artery smooth muscle cell (PASMC) growth and increases hyper-proliferation of PASMC from fetal sheep with experimental PPHN. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
320. Acker SN, Seedorf G, Abman SH, Nozik-Grayck E, Partrick D, Gien J. Altered pulmonary artery endothelial-smooth muscle cell interactions in experimental congenital diaphragmatic hernia: role of endothelin and superoxide dismutase signaling. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*

321. Kinsella JP, Cutter GR, Steinhorn RH, Nelin LD, Walsh WF, Finer NN, Abman SH. Non-invasive inhaled nitric oxide for the prevention of bronchopulmonary dysplasia in preterm newborns. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
322. Seedorf G, Vu T, Gien J, Abman SH. Vascular endothelial growth factor - vitamin A interactions promote angiogenesis and preserve lung structure in experimental bronchopulmonary dysplasia. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
323. Galambos C, Minic AD, Nguyen D, Seedorf G, Abman SH. Increased lung endostatin impairs perinatal lung development in Down Syndrome. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
324. Kerby GS, Sontag MK, Miller JJ, Abman SH, Mourani PM. Lung function impairment during infancy is associated with the severity of bronchopulmonary dysplasia at diagnosis. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
325. Mandell E, Seedorf GJ, Gien J, Cramer S, Abman SH. Maturation Changes in Lung Vitamin D Receptor and Converting Enzyme Expression in the Developing Rat Fetus and Newborn. Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.\*
326. Galambos C, Dodson B, Minic AD, Seedorf G, Abman SH. Evidence for impaired vascular growth in prenatal Down syndrome. Society for Pediatric Pathology, 2014.\*
327. Guaman MC, Collaco JM, for the BPD Collaborative. Prevalence, Clinical Characteristics and Care Patterns of Infants with Severe BPD Pediatric Academic Societies Meeting, Vancouver, Canada, 2014.
328. Acker SH, Seedorf G, Abman SH, Nozik-Grayck E, Partrick D, Gien J. Abnormal pulmonary artery endothelial – smooth muscle cell interactions in experimental congenital diaphragmatic hernia. American College of Surgeons. 2014.\*
329. Galambos C, Sims-Lucas S, Ali N, Gien J, Dishop MK, Abman SH. Intrapulmonary Shunt Pathways in Alveolar Capillary Dysplasia with Misalignment of Pulmonary Veins. Society for Pediatric Pathology, 2014.\*
330. Mandell E, Seedorf GJ, Gien J, Cramer S, Abman SH. Maturation Changes in Lung Vitamin D Receptor and Converting Enzyme Expression in the Developing Rat Fetus and Newborn. Neonatal Cardiopulmonary Young Investigator Symposium, Chicago IL, 2014 (\***Awarded Outstanding Research Award**).
331. Liptzin D, Hoch H, Abman SH. “She coughed up blood”- an unusual etiology of infantile hemoptysis. Am Thoracic Society International Conference, 2015. \*
332. Wymore E, Sontag M, Cutter G, Abman SH, Kinsella JP. Cytokine production in preterm infants with early respiratory failure. Pediatric Academic Societies Meeting, San Diego, CA, 2015.
333. Wagner B, Mourani P, Sontag M, Miller J, Poindexter B, Ingram D, Abman S, MD<sup>1</sup>. Early Changes in Circulating Angiogenic Biomarkers are Associated with the Subsequent Diagnosis of Bronchopulmonary Dysplasia in Preterm Infants, Pediatric Academic Societies Meeting, San Diego, CA, 2015.
334. Mandell M, Seedorf G, Ryan S, Gien J, Cramer SD, Abman S. Effects of Antenatal Endotoxin on Lung Vitamin D Receptor and 25-hydroxyvitamin D 1-alpha hydroxylase Expression in the Developing Rat. Pediatric Academic Societies Meeting, San Diego, CA, 2015.

335. Ali N, Abman SH, Galambos C. Bronchopulmonary Anastomotic Pathways (BAP) in Neonates with Meconium Aspiration Syndrome (MAS). Pediatric Academic Societies Meeting, San Diego, CA, 2015.
336. Dodson RB, Mandell E, Seedorf G, Powers K, Hunter KS, Abman SH. Vitamin D Treatment Alleviates Intrauterine Endotoxin-Induced Impairment of Right Ventricular Performance and Proximal Pulmonary Artery Stiffness in Infant Rats Pediatric Academic Societies Meeting, San Diego, CA, 2015.
337. Seedorf G, Metoxen A, Gien J, Abman SH. Hepatocyte Growth Factor Promotes Angiogenesis and Preserves Lung Structure In Experimental BPD. Pediatric Academic Societies Meeting, San Diego, CA, 2015.
338. Mourani PM, Sontag MK, Harris JK, Miller JI, Ingram DA, Poindexter BB, Wagner BD, Abman SH. Airway bacterial diversity is associated with inflammatory markers in mechanically-ventilated preterm infants. Pediatric Academic Societies Meeting, San Diego, CA, 2015.
339. Dodson B et al. Intrauterine growth restriction creates persistent increased vascular stiffness and remodeling in postnatal rats. Pediatric Academic Societies Meeting, San Diego, CA, 2015.
340. Powers KN, Alvira C, Gien J, Rozance P, Seedorf G, Astling D, Jones K, Crombleholme T, Abman SH, Dodson RB. Altered Extracellular Matrix-Receptor Interaction and NF-kappa B Signaling Pathways in Fetal Pulmonary Artery Endothelial Cells in an Ovine Model of Intrauterine Growth Restriction (IUGR). North American Vascular Biology Organization, 2015.
341. Dodson RB, Powers K, Seedorf G, Hunter KS, Abman SH, Mandell E. Vitamin D Alleviates Intrauterine Endotoxin-Induced Impairment of Right Ventricular Performance and Improves Pulmonary Vascular Function in Infant Rats. North American Vascular Biology Organization, 2015.
342. Peisl A\*, Seedorf G, Wallace B, Keefe D, Abman SH. Treatment with an Anti-sFlt-1 Monoclonal Antibody Improves Lung Structure and Prevents Pulmonary Hypertension in an Experimental Model of Bronchopulmonary Dysplasia due to Preeclampsia in Infant Rats. Western Society for Pediatric Research, 2016. (*\*Recipient of 2016 Abbott Nutrition Research Award*).
343. Cookson MW, Ryan S, Seedorf GJ, Dodson RB, Abman SH, Mandell E. Antenatal Vitamin D Preserves Placental Weight and Vessel Density and Fetal Growth After Intra-amniotic Endotoxin Exposure. Western Society for Pediatric Research, 2016.
344. Schaffer M, Hunter KS, Ivy DD, Abman SH, Barker AJ, Truong A. Aortic wall shear stress and left ventricular systolic performance are reduced in pediatric patients with pulmonary arterial hypertension. American Thoracic Society, 2016.
345. Bush D, Abman SH, Galambos C. Pulmonary vasculature in infants with Down syndrome is underdeveloped. American Thoracic Society, 2016. (*\* Selected for Pediatric Assembly Young Investigator Award at the ATS*).
346. Seedorf G, Wallace B, Peisl A, Keefe D, Abman SH. Fetal or Postnatal treatment with an anti-sFlt-1 monoclonal antibody improves lung structure and prevents pulmonary hypertension in an experimental model of bronchopulmonary dysplasia due to chorioamnionitis. Pediatric Academic Societies, 2016.
347. Wallace B, Seedorf G, Peisl A, Keefe, Abman SH. Maternal treatment with an anti-sFlt-1 monoclonal antibody improves lung growth and prevents pulmonary hypertension in an

experimental model of bronchopulmonary dysplasia due to preeclampsia. Pediatric Academic Societies, 2016.

348. Mourani P, Younoszai A, Whitfield L, Wagner B, Abman SH. Echocardiogram signs of early pulmonary vascular disease in preterm infants are associated with respiratory outcomes during early childhood. Pediatric Academic Societies, 2016.
349. Dodson RB, Alvira C, Powers KN, Gien J, Rozance PJ, Seedorf G, Astling D, Jones K, Crombleholme TM, Abman SH. Altered extracellular matrix-receptor interaction and NF-kappa B signaling pathways in fetal pulmonary artery endothelial cells in a sheep model of intrauterine growth restriction. Pediatric Academic Societies, 2016.
350. Cookson MW, Ryan S, Seedorf GJ, Dodson RB, Abman SH, Mandell E. Antenatal Vitamin D Preserves Placental Weight and Vessel Density and Fetal Growth After Intra-amniotic Endotoxin Exposure. Pediatric Academic Societies, 2016.
351. Mandell E, Whitfield L, Wagner B, Mourani P, Abman SH. Early Postnatal Vitamin D Levels in Preterm Infant: Associations with Prenatal Factors and Neonatal Outcomes. Pediatric Academic Societies, 2016.
352. Gien J, Kuhn K, Greenwald E, Seedorf G, Abman SH. Mesenchymal stem cells and conditioned media improve pulmonary artery endothelial cell function in experimental congenital diaphragmatic hernia. Pediatric Academic Societies, 2016.
353. Peisl A, Seedorf G, Wallace B, Keefe D, Abman SH. Anti-sFlt-1 Monoclonal Antibody Therapy of Fetal and Neonatal Rat Pups Preserves Lung Structure an Experimental Model of Bronchopulmonary Dysplasia due to Preeclampsia. Pediatric Academic Societies, 2016.
354. Nowlin T, Seedorf G, Wallace B, Peisl A, Keefe D, Abman SH. Insulin-like growth factor-1/binding peptide 3 (IGF-1/BP3) improves alveolar growth and prevents pulmonary hypertension (PH) in a rodent model of preeclampsia-induced bronchopulmonary dysplasia (BPD). European Pediatric Academic Societies, 2016.
355. Seedorf G, Nowlin T, Wallace B, Peisl A, Keefe D, Abman SH. Postnatal treatment with insulin-like growth factor-1/binding peptide 3 (IGF-1/BP3) improves lung structure and prevents pulmonary hypertension in experimental bronchopulmonary dysplasia due to chorioamnionitis in rats. European Pediatric Academic Societies, 2016.
356. Wallace B\*, Seedorf G, Peisl A, Keefe D, Abman SH. Maternal treatment with an anti-sFlt-1 monoclonal antibody improves lung growth and prevents pulmonary hypertension in an experimenatal model of bronchopummonary dysplasia due to preeclampsia. Neonatal Cardiopulmonary Young Investigators Forum. Chicago, 2016. \* **Award recipient for outstanding research.**
357. Ehrmann DE, Mourani PM, Abman SH, Morrow LA, Wagner BD, Di Maria MV. Right ventricular mechanics in bronchopulmonary dysplasia. American Society of Echocardiographers. 2016.
358. Dodson RB, Tan W, Powers KN, Gien J, Seedorf G, Abman SH, Crombleholme TM. Hemodynamic stress alters fetal pulmonary artery endothelial cell gene expression *in vitro*: a potential role in intrauterine growth restriction. North American Vascular Biology Organization (NAVBO), 2016.
359. Wallace B, Seedorf G, Peisl A, Abman SH. Anti-sFlt-1 antibody treatment prevents respiratory distress in a BPD rat model. Academic Surgical Congress, 2016

360. Keefe D, Nowlin T, Seedorf G, Wallace B, Peisl A, Bosco J, Abman SH. Recombinant (rh)IGF-1/rhIGFBP-3 improves alveolar growth and lung structure and prevents pulmonary hypertension in rodent models of BPD. International Congress of the Growth Hormone Research Society and Insulin-Growth Factor Research Society, 2016.
- 361.** Bush D, Minic A, Seedorf G, Abman SH, Galambos C. Decreased alveolarization in a genetic mouse model of Down Syndrome due to increased expression of Regulator of Calcineurin 1. American Thoracic Society, 2017. (*\* Selected for Best of the Pediatric Assembly at the ATS*).
362. Kim C, Seedorf G, Nowlin T, Keefe D, Albertine K, Dahl MJ, Abman S. Maturation changes in pulmonary artery endothelial cell function in vitro and responsiveness to insulin growth factor-1/binding protein 3 in the developing sheep lung. Pediatric Academic Societies, 2017.
363. Ivy DD, Lawrence JP, Stockbridge N, Bossar S, Taylor A, Ariagno R, Abman S, Murphy D, Soreth J, Crescenzi T, Sun H. Potential role for actigraphy in the ambulatory assessment of children with pulmonary hypertension. Pediatric Academic Societies, 2017.
364. Mandell E, Ryan S, Seedorf GJ, Abman SH. Fetal vitamin D deficiency impairs lung structure and increases susceptibility to hyperoxia injury in the developing rat. Pediatric Academic Societies, 2017.
365. Dodson RB, Seedorf G, Powers K, Gien J, Abman SH. Loss of highly-proliferative pulmonary artery endothelial cells after chronic intrauterine pulmonary hypertension in the sheep fetus. Pediatric Academic Societies, 2017.
366. Abman S, Mullen M, Ivy D, Hanna B, Hopper R, Austin E, Rosenzweig EB, Krishnan U, Feinstein J, Fineman J, Keller R, Adatia I, Raj U, Natter M, Luckey H, Batson D, Mandl K. Characterization of pediatric pulmonary hypertensive disorders through a large multicenter registry. Pediatric Academic Societies, 2017.
367. Seedorf G, Nowlin T, Wallace B, Peisl A, Bosco J, Keefe D, Abman SH. Insulin-Like Growth Factor-1/IGF Binding Protein-3 (IGF-1/IGFBP-3) improves lung structure and prevents pulmonary hypertension in antenatal models of bronchopulmonary dysplasia. Pediatric Academic Societies, 2017.
368. Wallace B, Seedorf G, Peisl A, Nowlin T, Bosco J, Keefe D, Abman SH. Antenatal and postnatal anti-sFlt-1 antibody treatments preserve lung structure in experimental bronchopulmonary dysplasia. Pediatric Academic Societies, 2017.
369. Mandl K et al. Automated surveillance of disease and drug effects in pediatric pulmonary hypertension. Pediatric Academic Societies, 2017.
370. Bush D, Minic A, Seedorf G, Abman S, Galambos C. RCAN-1 overexpression causes lung hypoplasia and pulmonary hypertension in a mouse model of Down syndrome. 10<sup>th</sup> Annual Neonatal and Pediatric Pulmonary Vascular Disease Conference, 2017.
371. Ehrmann DE, Mourani PM, Abman SH, Morrow LA, Wagner BD, Di Maria MV. Right ventricular mechanics in bronchopulmonary dysplasia. CHOP Cardiology Meeting. 2017.
372. Galambos C, Bush D, Abman SH, Caplan M. Histologic features of impaired lung development identify a subset of infants with sudden unexplained infant death. Soc Pediatr Pathol, 2017.
373. Williams K, Huang L, Abman S, Galambos C. Early unexplained deaths of Norwich Terrier puppies are associated with abnormal lung development and pulmonary vascular disease. Soc Pediatr Pathol, 2017.

374. Huang L, Galambos C, Abman S, Williams KJ. Developmental lung disease leading to early death in Norwich Terrier puppies. American College of Veterinary Pathologists, 2017.
375. Hirsh K, Seedorf G, Nowlin T, Kim C, Abman SH. Stabilization of Hypoxia Inducible Factor Improves Lung Structure and Function and Prevents Pulmonary Hypertension in an Antenatal Model of Bronchopulmonary Dysplasia. Western Society for Pediatric Research, 2017.
376. Hirsh K, Seedorf G, Nowlin T, Kim C, Abman SH. Stabilization of Hypoxia Inducible Factor Improves Lung Structure and Function and Prevents Pulmonary Hypertension in an Antenatal Model of Bronchopulmonary Dysplasia. 32<sup>nd</sup> Annual Student Research Forum, 2017. \* **awarded “Best Student Research Forum Poster”**
377. Effinger D, Seedorf G, Nowlins T, Law AJ, Abman S, Paterson C. Investigating the effects of insulin growth factor signaling on the delveoping brain in response to prenatal VEGF inhibition. Society for Neuroscience, Washington DC, 2017.
378. Hirsh K, Seedorf G, Nowlin T, Kim C, Abman SH. Stabilization of Hypoxia Inducible Factor Improves Lung Structure and Function and Prevents Pulmonary Hypertension in an Antenatal Model of Bronchopulmonary Dysplasia. *Pediatric Academic Societies*, 2018. \*
379. Mandell E, Ryan S, Seedorf GJ, Abman SH, Fleet JC. Maternal Vitamin D Deficiency Decreases Angiogenic Signaling Pathways in Newborn Rat Lungs. *Pediatric Academic Societies*, 2018. \*
380. Kim C, Seedorf G, Nowlin T, Abman SH, Shepherd D. Heterogeneity of Vascular Endothelial Growth Factor and Endothelial Nitric Oxide Synthase Protein Expression in Pulmonary Artery Endothelial Cells Using Single Cell Immunofluorescence in Response to Insulin-Like Growth Factor-1. *Pediatric Academic Societies*, 2018. \*
381. Seedorf G, Nowlin T, Kim C, Abman SH. Inhaled and Subcutaneous Treprostinil Improves Lung Structure and Prevents Pulmonary Hypertension in Hyperoxia-Induced Bronchopulmonary Dysplasia in Rats. *Pediatric Academic Societies*, 2018. \*
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385. Galambos C, Bush D, Abman SH, Caplan M. Histologic Features of Impaired Lung Development Identify a Subset of Infants with Sudden Unexplained Infant Death. *Pediatric Academic Societies*, 2018. \*
386. Frank B, Grenolds A, Schafer M, Ivy DD, Abman SH, Darst J. Acute vasoreactivity testing during cardiac catheterization of neonates with bronchopulmonary dysplasia-associated pulmonary hypertension. *Pediatric Academic Societies*, 2018. \*

387. McKinney RL, Keszler M, Truog W, Norberg M, Sindelar R, Wallström L, Schulman B, Gien J, Abman SH on behalf of the Bronchopulmonary Dysplasia Collaborative. Multicenter experience with neurally adjusted ventilatory assist in infants with evolving or established bronchopulmonary dysplasia. *Pediatric Academic Societies*, 2018.\*
388. Bush D, Galambos C, Ivy DD, Abman S, Wolter-Warmerdam K, Hickey F. Clinical Characteristics and Risk Factors for Developing Pulmonary Hypertension in Children with Down Syndrome. *Pediatric Academic Societies*, 2018.\*
389. Abman SH. Managing Pulmonary Hypertension in Infants and Children Beyond the NICU. 35<sup>th</sup> Annual Respiratory Conference Advances in Therapeutics and Technology: Care of Critically Ill Neonates, Children, and Adults, 2018.\*
390. Frank B, Ivy DD, Abman SH, Howley L. A case of pulmonary hypertension secondary to scurvy in a developmentally typical child. 11<sup>th</sup> Annual Neonatal and Pediatric Pulmonary Vascular Disease Conference, 2018.\*
391. Schafer M, Ivy D, Abman S, Browne L, Fonseca B, DiMaria MV, Barker A, Mitchell M, Truong U. Abnormal Aortic Flow in Children with Pulmonary Arterial Hypertension is Associated with Non-uniform Wall Shear Stress Distribution. AHA International Conference, 2018.\*
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393. Di Maria MV, Bush D, Morgan G, Abman SH, Galambos C. Prominent intrapulmonary bronchopulmonary anastomoses in children with single ventricle heart disease.
394. Gonzalez T, Ryan S, Seedorf GJ, Fleet JC, Abman SH, Mandell EW. Maternal vitamin D deficiency decreases distal lung vascular development and pulmonary endothelial cell growth and function. Western Society for Pediatric Research, 2019.
395. Taylor-Couser JL, Hunt KC, St. Clair C, Everett D, Fenster B, Nick JA, Saavedra MT, Abman SH. Sildenafil improves cardiac function, exercise tolerance, QOL in people with moderate to severe CF lung disease. North American Cystic Fibrosis Conference, 2018.
396. Smith BJ, Mattson C, Seedorf G, Ryan S, Gonzalez T, Wallbank A, Abman SH, Mandell EW. Antenatal endotoxin impairs lung mechanical function and increases sensitivity to ventilator-induced lung injury in newborn rat pups. American Thoracic Society, 2019.
397. Di Maria MV, Bush D, Morgan G, Abman SH, Galambos C. Prominent Intrapulmonary Bronchopulmonary Anastomoses in Children with Single Ventricle Heart Disease. American Thoracic Society, 2019.
398. Bush D, Wolter-Warmerdam K, Wagner BD, Galambos C, Ivy DD, Abman SH, McMorro D, Hickey F. Angiogenic Profile Identifies Pulmonary Hypertension in Children with Down Syndrome. American Thoracic Society, 2019.
399. Seedorf G, Kim C, Mandell E, Shepherd D, Abman S. Insulin-like growth factor-1 promotes angiogenesis, prevents pulmonary hypertension and preserves lung growth in experimental models of BPD. Pulmonary Vascular Research Institute International Conference, Barcelona SPAIN

400. Seedorf G, Gonzalez T, Alvira C, Mandell E, Abman SH. Experimental chorioamnionitis impairs endothelial cell growth, function and responsiveness to pro-angiogenic stimuli in vitro. Pediatric Academic Societies Conference, 2019.
401. Taglauer E, Seedorf G, Abman S, Kourembanas S. Pathogenetic mechanisms underlying placental pathology in an experimental model of late preeclampsia in rats. Pediatric Academic Societies Conference, 2019.
402. Gonzalez T, Ryan S, Seedorf GJ, Fleet JC, Abman SH, Mandell EW. Maternal Vitamin D Deficiency Decreases Distal Lung Vascular Development and Pulmonary Endothelial Cell Growth and Function in Infant Rats. Pediatric Academic Societies Conference, 2019.
403. Smith B, Mattson C, Seedorf G, Ryan S, Gonzalez T, Wallbank A, Abman SH, Mandell EW. Antenatal Endotoxin Impairs Lung Mechanical Function and Increases Sensitivity to Ventilator-Induced Lung Injury in Newborn Rat Pups. Pediatric Academic Societies Conference, 2019.
404. Gard C, Wagner BD, Williamson K, Mandell EW, Kerby G, Abman SH, Mourani PM. Infant Pulmonary Function is Associated with the Severity of Bronchopulmonary Dysplasia (BPD) and Late Respiratory Disease. Pediatric Academic Societies Conference, 2019
405. Miller P, Bothwell S, Spell P, Rosales O, Rusk S, Austin R, Mandell E, Wagner BD, Abman SH, Mourani PM. Chorioamnionitis and Pre-eclampsia are Associated with Distinct Circulating Protein Profiles in Preterm Infants. Pediatric Academic Societies Conference, 2019
406. Levin JC, Hayden LH, Keszler M, Troug WE, Abman SH, Nelin LD; for the BPD Collaborative. Enteral Feeding Patterns in a National Cohort of Infants with Severe Bronchopulmonary Dysplasia. Pediatric Academic Societies Conference, 2019.
407. Guaman MC, Pishevarsfahani N, Abman SH, Keszler M, Truog WE, Nelin LD, for the BPD Collaborative. Characteristics of Preterm Infants with Severe Bronchopulmonary Dysplasia Based on the Level of Respiratory Support at 36 weeks Post Menstrual Age. Pediatric Academic Societies Conference, 2019.
408. Zimmerman D, J Dowes JM, Schafer M, Ivy DD, Abman SH, Barker AJ, Naresh N, Kheifets V, Truong U. Non-Invasive Wave Intensity Analysis by Phase-Contrast MRI Correlates with Mean Pulmonary Artery Pressure Before and After Nitric Oxide Testing in Children with Pulmonary Arterial Hypertension. Society for Cardiac MR, 2019.
409. Pierro M, Villamor-Martinez E, Alvarez-Fuente M, Abman SH, Villamor E. Gestational hypertensive disorders and intrauterine growth restriction as risk factors for bronchopulmonary dysplasia: a meta-analysis and meta-regression. European Society for Pediatric Research, 2019.
410. Effinger D, Seedorf G, Law AJ, Abman SH, Paterson C. Antenatal sFlt-1 exposure causes sustained abnormalities of brain structure and function in juvenile rats. Society for Neuroscience, 2019.
411. Seedorf G, Hirsch K, Callahan C, White CW, Abman SH. Stabilization of Hypoxia Inducible Factor Improves Lung Structure and Function and Prevents Pulmonary Hypertension in an Antenatal Model of Bronchopulmonary Dysplasia. Grover Conference on the Pulmonary Circulation, 2019.
412. Abele A, Wilson N, Abikoye A, Brooks, A, Seedorf G, Kourembanas S, Abman SH. Antenatal exosome treatment preserves lung structure and vascular growth in an experimental model of bronchopulmonary dysplasia due to chorioamnionitis. Western Society for Pediatric Research, 2020.

413. Cookson M, Gonzalez T, Seedorf GJ, Smith B, Abman SH, Mandell EW. Antenatal Vitamin D Attenuates Lung Injury in a Preeclampsia Model of Bronchopulmonary Dysplasia. Western Society for Pediatric Research, 2020.
414. Gonzalez T, Seedorf GJ, Fleet JC, Abman SH, Mandell EW. Vitamin D Stimulates Fetal Pulmonary Artery Endothelial Cell Growth Through Enhanced PPAR $\gamma$  Signaling. Western Society for Pediatric Research, 2020.
415. Seedorf G, Hirsch K, Callahan C, White CW, Abman SH. Stabilization of Hypoxia Inducible Factor Improves Lung Structure and Function and Prevents Pulmonary Hypertension in an Antenatal Model of Bronchopulmonary Dysplasia. Neonatal and Pediatric Pulmonary Vascular Diseases, 2020.
416. Galambos C, Wartchow E, Weinman JP, Abman SH. Evidence that pulmonary interstitial glygogenosis cells have mesenchymal stem cell properties. Pediatric Academic Societies Meeting 2020.
417. Taglauer ES, Abele AN, Seedorf G, Willis GR, Mitsialis SA, Abman SH, Kourembanas S. Intra-amniotic mesenchymal stromal cell extracellular vesicle therapy improves placental pathology and preserves infant lung growth in experimental chorioamnionitis. Pediatric Academic Societies Meeting 2020. (Meeting cancelled due to Coronavirus Pandemic)
418. Guaman MC, Abman SH, Panitch H, Davis A, Nelin LD, for the BPD Collaborative. Invasive ventilation at 36 weeks PMA is associated with greatest mortality and morbidity in preterm infants with severe BPD. Pediatric Academic Societies Meeting 2020. (Meeting cancelled due to Coronavirus Pandemic)
419. Seedorf G, Hirsch K, Callahan C, White CW, Abman SH. Stabilization of Hypoxia Inducible Factor Improves Lung Structure and Function and Prevents Pulmonary Hypertension in an Antenatal Model of Bronchopulmonary Dysplasia. Pediatric Academic Societies, 2020. (Meeting cancelled due to Coronavirus Pandemic but presented as part of PAS Virtual Meeting)
420. Cookson M, Gonzalez T, Seedorf GJ, Smith B, Abman SH, Mandell EW. Antenatal Vitamin D Attenuates Lung Injury in a Preeclampsia Model of Bronchopulmonary Dysplasia. Pediatric Academic Societies, 2020. (\* Selected for Medical Student Research Award; Meeting cancelled due to Coronavirus Pandemic but presented as part of PAS Virtual Meeting)
421. Gonzalez T, Seedorf GJ, Fleet JC, Abman SH, Mandell EW. Vitamin D Stimulates Fetal Pulmonary Artery Endothelial Cell Growth Through Enhanced PPAR $\gamma$  Signaling. Pediatric Academic Societies, 2020. (Meeting cancelled due to Coronavirus Pandemic)
422. Mandell E, Ryan S, Seedorf GJ, Gonzalez T, Bye E, Abman SH, Fleet JC. Vitamin D decreases inflammatory and increases angiogenic signaling pathways in newborn rat lungs after antenatal endotoxin exposure. Pediatric Academic Societies, 2020. (Meeting cancelled due to Coronavirus Pandemic)
423. Austin ED, Elia E, Mullen MP, Sleeper LA, Avitabile K, Bates A, Bernier M, Keller R, Kinsella J, Krishnan U, McGrath-Morrow S, Raj JU, Romer L, Mandl KD and Abman SH, on behalf of the PPHNet Investigators. Bronchopulmonary dysplasia-associated pulmonary hypertension diagnosed beyond infancy associates more strongly with adverse perinatal conditions than cases diagnosed during infancy. American Thoracic Society Conference, 2020.

424. McGinn E, Bye E, Gonzalez T, Seedorf GJ, Smith B, Abman SH, Mandell EW. Physiologic Vitamin D, 1,25-OHD, Postnatal Supplementation in Newborn Rats. Western Society for Pediatric Research, 2021.
425. Bye E, Gonzalez T, Seedorf GJ, McGinn E, Smith BJ, Fleet JC, Abman SH, Mandell EW. Impaired Infant Lung Growth and Function in Mice with Genetic Deletion of Endothelial Cell -Specific Vitamin D Receptor Expression. Western Society for Pediatric Research, 2021.
426. Thayapran K, Seedorf GJ, Abman SH. Treprostinil, a Prostacyclin Analog, Enhances Neonatal Lung Endothelial Cell Growth and Angiogenesis in vitro. Western Society for Pediatric Research, 2021.
427. Kielt MJ, Levin J, Cuevas-Guaman M, Davis A, Panitch H, Nelin LD, Abman S on behalf of the BPD Collaborative. The Impact of Racial Disparities on In-Hospital Outcomes in Established Bronchopulmonary Dysplasia. American Thoracic Society International Conference, 2021.
428. Griffiths P, Kielt M, Cuevas M, Levin J, Abman SH, Nelin L. Early referral to a Brochopulmonary Dysplasia (BPD) Center is associated with better outcomes in severe BPD. American Thoracic Society International Conference, 2021.
429. Tiller C, Bjerregaard J, Robinson M, Slaven J, Sokol G, Ren CL, Abman SH, Tepper RS. American Thoracic Society International Conference, 2021.
430. Abele AN, Seedorf G, Wilson N, Abikoye A, Brooks A, Taglauer E, Kourembanas S, Abman SH. Antenatal Exosome Treatment Preserves Lung Structure, Vascular Growth, and Lung Function in a Model of Bronchopulmonary Dysplasia due to Chorioamnionitis. Pediatric Academic Societies Conference, 2021.
431. Griffiths P, Kielt M, Cuevas M, Levin J, Abman SH, Nelin L. Early referral to a Brochopulmonary Dysplasia (BPD) Center is associated with better outcomes in severe BPD. Pediatric Academic Societies Conference, 2021.
432. McGinn E, Bye E, Gonzalez T, Seedorf GJ, Smith B, Abman SH, Mandell EW. Physiologic Vitamin D, 1,25-OHD, Postnatal Supplementation in Newborn Rats. Pediatric Academic Societies Conference, 2021.
433. Bye E, Gonzalez T, Seedorf GJ, McGinn E, Smith BJ, Fleet JC, Abman SH, Mandell EW. Impaired Infant Lung Growth and Function in Mice with Genetic Deletion of Endothelial Cell -Specific Vitamin D Receptor Expression. Pediatric Academic Societies Conference, 2021.
434. Seedorf S, Gonzalez T, Mandell E, Abman SH. Experimental Chorioamnionitis Impairs Pulmonary Vascular Growth through Direct Effects on Endothelial Cell Growth and Responsiveness to Alveolar Type 2 Cell Signaling. Pediatric Academic Societies Conference, 2021.
435. Liberio B, Seedorf G, Soranno D, Faubel S, Abman SH, Gien J. Acute Kidney Injury Decreases VEGF-eNOS Signaling and Impairs Alveolar Development in Rat Pups. Pediatric Academic Societies Conference, 2021.
436. Liberio B, Seedorf G, Soranno D, Faubel S, Abman SH, Gien J. Acute Kidney Injury causes lung inflammation and impairs alveolar growth in neonatal rat pups. Pediatric Academic Societies Conference, 2021.
437. Doughty E, Levine A, Bodmer J, Westoo C, van der Have O, Lundmark K, Abman SH, Galambos C. Unboxing the pulmonary effects of TBX4 germline mutation: an autopsy story. Society for Pediatric Pathology Conference, 2021.\* Recipient of outstanding young investigator award.

438. Bodmer J, Levine A, Westoo C, van der Have O, Lundmark K, Abman SH, Galambos C. Role of intrapulmonary bronchopulmonary anastomoses in severe COVID-19-related hypoxemic acute respiratory failure. Society for Pediatric Pathology Conference, 2021.
439. Galambos NW, Bye E, Gonzalez T, Seedorf G, Smith BJ, Fleet JC, Abman SH, Mandell EW. Effects of vitamin A and vitamin D treatment on lung growth and function in offspring from maternal vitamin D deficient rats. WSPR, 2022.
440. Bye E, Gonzalez T, Seedorf G, Smith BJ, Galambos N, Abman SH, Mandell EW. Early CPAP Alters Lung Structure and Mechanical Function in Neonatal Rats. WSPR, 2022
441. Gonzalez T, Bye E, Galambos NW, Seedorf G, Fleet JC, Abman SH, Mandell EW. Maternal Vitamin D Deficiency Alters Pulmonary Endothelial Cell Growth and mRNA Expression in Newborn Rats. WSPR, 2022.
442. Kielt MJ; Hatch LD, Levin JC, Napolitano N, Baker C, Eldredge LC, McGrath-Morrow S, Collaco M, Abman S, Lhai K, Rose R, Keszler M, Sindelar R, Nelin LD, McKinney R, on behalf of the BPD Collaborative. Classifying Type 2 Severe Bronchopulmonary Dysplasia Ventilation Strategies Across Multiple Sites by Novel Clustering Analysis. Pediatric Academic Societies, 2022.
443. Hammond JD, Kielt MJ, Lingappan K, Austin ED, Eldredge LC, Truog WE, Abman SH, Nelin LD, Guaman MC. Impact of Male Sex on Death or Tracheostomy in Severe Bronchopulmonary Dysplasia. Pediatric Academic Societies, 2022.
444. Giesinger RE, Stanford AH, Thomas B, Abman SH. Safety and feasibility of riociguat therapy for the treatment of chronic pulmonary hypertension of infancy. Pediatric Academic Societies, 2022.
445. Gonzalez T, Bye E, Galambos NW, Seedorf G, Fleet JC, Abman SH, Mandell EW. Maternal Vitamin D Deficiency Alters Pulmonary Endothelial Cell Growth and mRNA Expression in Newborn Rats. Pediatric Academic Societies, 2022.
446. Mueller M, Shepherd EG, Kielt M, Conroy S, Jensen EA, Bamat NA, Panitch H, Levin J, Cuevas MG, Truog W, Abman SH, Nelin LD, for the BPD Collaborative. Surfactant treatment was associated with invasive mechanical ventilation at 36 weeks post-menstrual age in patients with bronchopulmonary dysplasia. Pediatric Academic Societies, 2022
447. Galambos NW, Bye E, Gonzalez T, Seedorf GJ, Smith BJ, Fleet JC, Abman SH, Mandell EW. Effects of Vitamin A and Vitamin D Treatment on Lung Growth and Function in Offspring from Maternal Vitamin D Deficient Rats. Pediatric Academic Societies, 2022
448. Netsanet A, Seedorf G, Abman SH. Antenatal Betamethasone Preserves Lung Structure and Function and Prevents Pulmonary Hypertension in Rat Model of Chorioamnionitis-Induced Bronchopulmonary Dysplasia. Pediatric Academic Societies, 2022.
449. Doughty B, Levin A, Bodmer J, Abman SH, Galambos C. Unboxing the Pulmonary Effects of *TBX4* Germline Mutation, an Autopsy Story, Pediatric Academic Societies, 2022.
450. Dias Maia P, Gien J, Kinsella JP, Zablah J, Morgan G, Ivy DD, Abman SH, Frank BS. Hemodynamic Characterization of Neonates with Congenital Diaphragmatic Hernia-Associated Pulmonary Hypertension by Cardiac Catheterization. Pediatric Academic Societies, 2022.
451. Bye EM, Gonzalez T, Seedorf GJ, Smith B, Galambos N, Abman SH, Mandell EW. Effects of Early CPAP on Infant Lung Structure and Function on the Developing Lung and in an

Experimental Model of BPD due to Antenatal Chorioamnionitis. Pediatric Academic Societies, 2022.

452. Cookson M, Gonzalez T, Bye E, Seedorf GJ, Fleet JC, Abman SH, Mandell EW. Antenatal Vitamin D Therapy Improves Pulmonary Endothelial Cell Growth and Response to Pro-angiogenic Stimuli in a Preeclampsia Model of Bronchopulmonary Dysplasia. Pediatric Academic Societies, 2022.
453. Liberio B, Seedorf GJ, Soranna DE, Montford JR, Faubel S, Abman SH, Gien J. Nephrotoxic Acute Kidney Injury Impairs Alveolar Development in Neonatal Rats. Pediatric Academic Societies, 2022.
454. Austin ED, Mullen M, Elia E, Sleeper LA, Avitabile CM, Bates A, Keller R, Kinsella J, Krishnan U, McGrath-Morrow S, Romer LJ, Steffes L, Yung D; Raj JU, Mandl, KD, Abman, SH; *For the Pediatric Pulmonary Hypertension Network Investigators*. BPD Severity, Hemodynamics, and Outcomes for Children with BPD-associated PH: Results from the Pediatric Pulmonary Hypertension Network Cohort Study. American Thoracic Society, 2022.
455. Nikkho S, Abman SH. PVRI's Innovative Drug Development Initiative (IDDI) and specific challenges in pediatric PAH trials. European Pediatric Pulmonary Vascular Disease Network Pulmonary Hypertension/Heart Failure Symposium, Berlin, June 11-12, 2022.
456. Abman SH, Nowbakht P. PVRI Innovative Drug Development Initiative Workstream Leaders Meeting. PVRI International Conference, Athens, June 25, 2022.
457. Tristan M, Seedorf G, Abman SH. Tryptophan Hydroxylase Inhibition Prevents Right Ventricular Hypertrophy but Does Not Improve Lung Alveolar or Vascular Growth in Experimental Bronchopulmonary Dysplasia. Colorado Undergraduate Student Research Seminar, 2022.
458. McGinn E, Bye E, Gonzalez T, Bilodeaux J, Sosa A, Seedorf G, Smith B, Abman S, Mandell EW. Antenatal endotoxin impairs airway and distal lung growth in infant rats: potential role for developmental dysanapsis in late respiratory disease. Society for Critical Care Medicine, 2023.
459. Hernandez A, Gonzalez T, Bye E, Seedorf G, Abman S, Mandell E, Wright CJ, Nozik E, Sherlock LG. Selenium deficiency decreases hepatic selenoprotein S expression but does not exacerbate the acute hepatic endoplasmic reticulum (ER) stress response after endotoxemia. Western Society for Pediatric Research, 2023.
460. Cookson MW, Gonzalez T, Bye E, Seedorf GJ, Sherlock L, Fleet JC, Abman SH, Mandell EW. Antenatal Vitamin D Therapy Improves Pulmonary Endothelial Cell Growth and Response to Proangiogenic Stimuli in a Preeclampsia Model of Bronchopulmonary Dysplasia Related Pulmonary Hypertension. Western Society for Pediatric Research, 2023. (Received the **2023 David Smith Trainee Research Award**).
461. McGinn E, Bye E, Gonzalez T, Bilodeaux J, Sosa A, Seedorf G, Smith B, Abman S, Mandell E. Antenatal Endotoxin Impairs Airway and Parenchymal Lung Growth and Function in Infant Rats: A Potential Role for Dysanapsis? Western Society for Pediatric Research, 2023. (Received the **2023 WSPR Abbott Nutrition Pediatric Resident Research Award**).
404. Galambos C, Logan W, Stankiewicz P, Szafranski P, Gonzales J, Yildis E, Nath S, Patel S, Abman SH. Histologic Features and Decreased Lung FOXF-1 Gene Expression in Fatal Bronchopulmonary Dysplasia without a Genetic Diagnosis of Alveolar Capillary Dysplasia. American Thoracic Society International Conference, 2023.

462. Ding K, Seedorf G, Smith C, Abman SH. Nintedanib, an Anti-Fibrotic Drug, Preserves Lung Alveolar and Vascular Growth and Prevents Pulmonary Hypertension in an Experimental Model of Hyperoxia-Induced Lung Injury in Rat Pups. Pediatric Academic Societies Conference, 2023.
463. Netsanet A, Seedorf G, Abman SH, Taglauer ES. Placental Growth Factor and Prolactin Upregulation Are Associated with Improved Lung Development After Antenatal Betamethasone Treatment in Experimental Chorioamnionitis. Pediatric Academic Societies Conference, 2023.
464. McGinn EA, Bye E, Gonzalez T, Sosa A, Bilodeaux J, Seedorf G, Smith BJ, Abman SH, Mandell EW. Antenatal Endotoxin Impairs Airway and Parenchymal Lung Growth and Function in Infant Rats: A Potential Role for Dysanapsis. Pediatric Academic Societies Conference, 2023.
465. Cookson MW, Gonzalez T, Bye E, Seedorf GJ, Sherlock L, Fleet JC, Abman SH, Mandell EW. Antenatal Vitamin D Therapy Improves Pulmonary Endothelial Cell Growth and Response to Proangiogenic Stimuli in a Preeclampsia Model of Bronchopulmonary Dysplasia Related Pulmonary Hypertension. Pediatric Academic Societies Conference, 2023.
466. Smith C, Ding K, Seedorf G, Abman SH. Impact of Postnatal TBX4 Insufficiency on Lung Development and Pulmonary Hypertension in Infant Mice. Pediatric Academic Societies Conference, 2023.
467. Hernandez A, Gonzalez T, Bye E, Seedorf G, Abman S, Mandell E, Grayck E, Sherlock L. Selenium deficiency decreases hepatic selenoprotein S expression and exacerbates the acute hepatic endoplasmic reticulum (ER) stress response after endotoxemia. Pediatric Academic Societies Conference, 2023.
468. Seedorf G, Abman SH, Galambos C. Intrapulmonary Right to Left Shunt via Bronchial Circulation and Bronchial Endothelial Dysfunction in Rat Models of Pulmonary Hypertension. Pediatric Academic Societies, 2023.
469. Cookson MW, Gonzalez T, Bye E, Seedorf GJ, Sherlock L, Fleet JC, Abman SH, Mandell EW. Antenatal Vitamin D Therapy Improves Pulmonary Endothelial Cell Growth and Response to Proangiogenic Stimuli in a Preeclampsia Model of Bronchopulmonary Dysplasia Related Pulmonary Hypertension. Neonatal and Pediatric Pulmonary Vascular Disease Conference, San Francisco, 2023. (Received the **2023 Lucas van Wormer Young Investigator Research Award**).
470. Abman SH. Lessons Learned from Clinical Trials in PH Groups 2 and 3: What are the Similarities and Differences in Pathogenesis and Pathophysiology in Pediatric Group 3. NHLBI and PVRI Drug Design and Development Symposium, Bethesda MD, 2023.
471. Griffiths M, Manlhiot C, Chinni BK, Sleeper L, Abman SH, Rosenzweig EB, Romer L, Mullen M, Lin L, Benza R, Everett AD. An artificial intelligence-derived pediatric pulmonary hypertension risk prediction model. American Heart Association Conference, 2023.
472. Dias Maia P, Seedorf GJ, Gonzalez T, Bye E, Frank BS, Mandell EW, Abman SH. Serial echocardiogram assessments of pulmonary hemodynamics and right ventricular hypertrophy in infant rats with experimental bronchopulmonary dysplasia due to antenatal endotoxin. Western Society for Pediatric Research, 2024.
473. Ding K, Smith C, Seedorf G, Abman SH. Nintedanib, an Anti-Fibrotic Drug, Preserves Lung Alveolar and Vascular Growth and Prevents Pulmonary Hypertension in an Experimental Model of Hyperoxia-Induced Lung Injury. Western Society for Pediatric Research, 2024.

474. Smith C, Ding K, Seedorf G, Abman S. Impact of Early Postnatal TBX4 Insufficiency on Lung Development and Pulmonary Hypertension in Infant Mice. Western Society for Pediatric Research, 2024.
475. Galambos C, Khatiwada A, Seedorf G, Blumhagen R, Abman SH. Spatially Resolved Transcriptomics in Alveolar Capillary Dysplasia Identify Diverse Vessel-Phenotype Specific Gene Network of Dysplastic Capillaries and Reduced Number of Mature Alveolar Capillaries. PVRI Conference, 2024.
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