

## **Personal Information**

**Full Name:** Laszlo Farkas, M.D.

**Business Name:** Virginia Commonwealth University

**Business Address:** MCV Campus, MMRB 6038, 1220 E Broad Street, Richmond, VA 23298

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**Email:** laszlo.farkas@vcuhealth.org

**Languages Spoken:** English, German, Hungarian, French

## **Professional Summary**

### **Primary Departmental Specialization Area/Field**

Pulmonary Vascular Biology

### **Areas of Expertise and Interest**

Pulmonary hypertension

pulmonary fibrosis

animal models

stem cells

progenitor cells

apoptosis

endothelial cell

innate immunity

## **Education**

### **Post Graduate**

Stem/progenitor cells in pulmonary hypertension, Department of Internal Medicine, Pulmonary and Critical Care Division, VCU

2010 - 2011

vascular remodeling in pulmonary fibrosis, McMaster University, Department of Medicine, Firestone Institute for Respiratory Health, Hamilton, ON, Canada

2006 - 2010

2011-2013

Instructor, Department of Internal Medicine, VCU

2013-present

Assistant Professor, Department of Internal Medicine, VCU

2003 - 2006 Internal Medicine, University Hospital of Regensburg, Germany

## **Graduate**

M.D., University of Regensburg Medical School, Germany (M.D. Ph.D. equivalent, Summa cum laude) Title of Thesis: ["Differences in LPS-induced activation of alveolar (A549) and bronchial (BEAS-2B) epithelial cells"] [german]  
2003

## **Undergraduate**

University of Regensburg Medical School, Germany  
1996 - 2003

## **Academic Appointment History**

Assistant Professor of Medicine  
01/2013 - Present

Instructor of Medicine  
05/2011 - 01/2013

## **Employment History**

January 16, 2013 – present, Assistant Professor of Medicine, Department of Internal Medicine, Division of Respiratory Disease and Critical Care, Virginia Commonwealth University, Richmond, Virginia, USA

May 25, 2011 – January 15, 2013, Instructor of Medicine, Department of Internal Medicine, Division of Respiratory Disease and Critical Care, Virginia Commonwealth University, Richmond, Virginia, USA

June 01, 2010 – May 24, 2011, Postdoctoral Employee, Department of Internal Medicine, Division of Respiratory Disease and Critical Care, Virginia Commonwealth University, Richmond, Virginia, USA

April 01, 2006 – May 31, 2010, Postdoctoral Fellow, Firestone Institute for Respiratory Health, Department of Medicine, McMaster University, Hamilton, Ontario, Canada

October 01, 2004 – March 31, 2006, Resident (Assistenzarzt), Department of Internal Medicine II, University Hospital Regensburg, Regensburg, Germany

July 01, 2003 – September 30, 2004, Intern (Arzt im Praktikum), Department of Internal Medicine II, University Hospital Regensburg, Regensburg, Germany  
01/2013 - 09/2004

## **Special Awards & Honors**

September 19, 2010 First recipient of the "Sir John Vane Award for Innovation in

Pulmonary Vascular Research related to Pulmonary Hypertension” at the European Respiratory Society Conference, Barcelona, Spain

October 06, 2008: “Young Scientist Cell and Molecular Biology Travel Award” at the European Respiratory Society conference, Berlin, Germany

Scientific Reviewer, Congressionally Directed Medical Research Program 2014-present  
2014

Reviewer, Congressionally Directed Medical Research Program 2014-2018

Reviewer, NHLBI Special emphasis panels ?ZHL1 CSR-P (S1) (2014), ?ZHL1 CSR-R S1 1 (2017), ?CVRS-Q (11) (2017)  
2014

### **Society Memberships**

American Thoracic Society - Member of the Stem cell working group - Respiratory Cell and Molecular Biology Assembly

American Heart Association

American Physiological Society

### **Scholarly Activities**

#### **Expert Services**

Organizing Committee, 2017 Vermont Stem Cell conference “Stem Cells, Cell Therapies and Bioengineering in Lung Biology & Lung Diseases”.  
2017

Organizing Committee, 2015 Vermont Stem Cell conference “Stem Cells, Cell Therapies and Bioengineering in Lung Biology & Lung Diseases”.  
2015

Panelist, Panel Discussion “EPCs, MSCs, and Cell Therapy Approaches For Lung Diseases”, 2015 Vermont Stem Cell conference.  
2015

Reviewer, Special Emphasis Panel/Scientific Review Group ZHL1 CSR-R S1 1, National Heart Lung and Blood Institute, National Institutes of Health, 2017  
2017

Reviewer, Congressional Directed Medical Research Program 2016, PRMRP Pre-application, 2016  
2016 - 2016

Reviewer, Congressional Directed Medical Research Program 2015, PRMRP Pre-application, 2015  
2015 - 2015

Reviewer, Congressional Directed Medical Research Program 2014, PRMRP IIRA, Adhoc reviewer, 2015  
2014 - 2015

Reviewer, Congressional Directed Medical Research Program, PRMRP Investigator-Initiated Research Program, 2014  
2014

Reviewer, Congressional Directed Medical Research Program, PRMRP Discovery Grant, 2014  
2014

Reviewer, Congressional Directed Medical Research Program, PRMRP Preapplication, 2014  
2014

Reviewer, Special Empasis Panel/Scientific Review Group ZHL1 CSR-P (S1), National Heart Lung and Blood Institute, National Institutes of Health, 06/17/2014  
06/2014

Lead Facilitator, Thematic Poster Session B68 – Experimental Models of Pulmonary Hypertension II, May 19, 2014, Annual conference of the American Thoracic Society 2014 in San Diego, CA.  
05/2014 - 2014

Organizing Committee, conference/workshop “Stem Cell and Cell Therapies in Lung Biology and Lung Diseases”, July 29-August 1, 2013, Burlington, VT  
07/2017 - 08/2013

Facilitator, Thematic poster session A52 – Mechanisms of Pulmonary Vascular Disease, May 19, 2013, Annual conference of the American Thoracic Society 2013 in Philadelphia.  
05/2013 - 2013

Facilitator, Thematic poster session C62 – Case Reports: Pulmonary Circulation. May 21, 2013, Annual conference of the American Thoracic Society 2013 in Philadelphia.  
05/2013 - 2013

Facilitator, Thematic poster session D41 – The Bleomycin model of lung fibrosis and beyond. May 22, 2013. Annual conference of the American Thoracic Society 2013 in Philadelphia.  
05/2013 - 2013

Member, Stem Cell Working Group, Respiratory Cell & Molecular Biology Assembly, American Thoracic Society, 2012-present  
2012 - Present

Webinar organization and presentation January 29, 2014 for the ATS Stem Cell Working Group: “Introduction to Mesenchymal Stem Cells – Characterization, Isolation, Culture and Applications”

01/2014

Editorial Board, Associate Editor, Frontiers in Pediatric Pulmonology

Ad-hoc peer reviewer (PlosONE, Circulation, Circulation Research, Chest, JAHA, Am J Respir Crit Care Med, Am J Respir Cell Mol Biol, Eur Respir J, Am J Physiol-Lung Cell Mol Physiol, Journal of Scientific Research and Reports, Stem Cell Research & Therapy, Cellular Immunology, Innate Immunity, Respiriology, Respiration, Respiratory Research)

### **Grants and Contracts: Active**

1R01HL139881 (PI Laszlo Farkas), NIH/NHLBI. Endothelial Toll-like Receptor 3 in the Pathogenesis and Therapy of Pulmonary Arterial Hypertension. 1/1/2019 – 12/31/2022. Direct costs: \$1,781,370.00. Indirect costs: \$808,162.00. Total costs: \$2,589,532.00. Role: Principal Investigator. Effort: 40%.  
01/2019 - 12/2022

R21 HL123044 (PI Laszlo Farkas), NIH/NHLBI. Central role of endothelial stem cells in pulmonary arterial hypertension. 08/01/2016 – 07/31/2019. Total direct costs: \$275,000.00 (+ \$54,356.00 consortium F&A). Indirect costs: \$125,098.00. Total costs: \$454,454.00. Role: Principal Investigator. Effort: 12%  
08/2016 - 07/2019

### **Grants and Contracts: Past**

13SDG16360018 (PI Laszlo Farkas), American Heart Association. NF-kappaB in severe pulmonary arterial hypertension. 07/01/2013-06/30/2018. Total direct costs: \$280,000. Indirect costs: \$28,000. Total costs: \$308,000. Role: Principal Investigator. Effort: 34%  
07/2014 - 06/2018

CCTR Endowment Fund (PI Laszlo Farkas), CCTR VCU. A new model of Pulmonary Arterial Hypertension based on endothelial stem cells. 04/01/2016 – 07/31/2016. Total costs: \$44,201. Role: Principal Investigator.

PT111546 (PI Laszlo Farkas), Keck Graduate Institute. Efficacy of two Investigational Small Molecules against Pulmonary Arterial Hypertension. 10/24/2014 – 10/24/2015. Total direct costs: \$562. Indirect costs: \$0. Total costs: \$562. Role: Principal Investigator. Effort: 1%.

1 R03 HL114816-02 (PI Laszlo Farkas), NIH/NHLBI. Precursor cells in human pulmonary hypertension. 08/01/2012 – 12/30/2014. Total direct costs: \$100,000. Indirect costs: \$49,500. Total costs: \$149,500. Role: Principal Investigator. Effort: 20%

A.D. Williams Grant Program (intramural supplies start-up funds) (PI: Laszlo Farkas). Anti-inflammatory treatment as a potential new therapeutic option for angioproliferative pulmonary hypertension. 04/01/2012 – 03/31/2013. Total direct costs: \$14,922.30. Indirect costs: \$0. Total costs: \$14,922.30. Role: Principal Investigator.  
04/2016 - 03/2013

## **Advising and Mentoring**

Advisory committee Robert Poulot, PhD 2016, Department of Bioengineering, School of Engineering (Supervisor: Dr. Rebecca Heise).  
2016

Advisor/Co-mentor for Patrick Link, Department of Bioengineering, School of Engineering (Supervisor: Dr. Rebecca Heise).

Supervisor for research summer project for Hyun Ji, VCU Medical School, 2015.  
2015

Supervisor for research summer project for Neil Blanchard, Marshall University Medical School, 2016  
2016

Supervisor for research summer project for Kavailya Dandamudi, VCU undergraduate program, 2016  
2016

Supervisor for research summer project for Stephanie Nguyen, VCU undergraduate program, 2016  
2016

Supervisor for undergraduate research for Naveen Kotha, VCU undergraduate program, 2016-2017  
2016 - 2017

Advisory committee Andrea Elkovich, PhD candidate, Department of Immunology & Microbiology, School of Medicine (supervisor: Dr. Daniel Conrad).

Research Advisor for Dr. Grant Farr, VCU Pulmonary and Critical Care Division Fellow.

Supervisor/Advisor for Aneel Bhagwani, Physiology PhD program  
2017 - Present

Supervisor undergraduate research Rebecca Moncayo, summer 2017  
2017

Supervisor undergraduate research Arsema Zadu, summer 2017  
2017

## **Presentations**

### **Invited**

### **Internal/VCU**

VCU DOIM Grand Rounds "Pulmonary Hypertension - Targeting a Disease"  
04/2018

## National

"Endothelial cells in Pulmonary Hypertension – at the crossroad between innate immunity and progenitor cell biology". Invited presentation at the Pulmonary and Critical Care Division research rounds, Ohio State University, Columbus, OH  
01/2019

Invited presentation at the Pittsburgh Heart, Lung and Blood Vascular Medicine Institute, University of Pittsburgh, "Endothelial cells in Pulmonary Hypertension – at the crossroad between innate immunity and progenitor cell biology"  
11/2018

"Vascular progenitors- applications and directions." Invited Presentation during session MP612- The Stem Cell Niche: Applications in Pulmonary Diseases (Meet the Professor Seminar), ATS 2018 conference, 5/2018.  
05/2018

Hypoxia- and SU5416-induced downregulation of Nestin causes cell cycle arrest and promotes apoptosis in bone marrow mesenchymal stem cells. Poster presentation at the ATS 2018 conference  
05/2018

Contrasting effects of CD117+ endothelial cell injection in chronic hypoxic- and lung fibrosis-associated Pulmonary Hypertension. Poster presentation at the ATS 2018 conference  
05/2018

Contribution Of Reduced Toll-Like Receptor 3 Expression To Endothelial Dysfunction In Pulmonary Hypertension. Poster presentation at the ATS 2017 conference.  
05/2017

Role Of Cxcr3 In The Apoptosis-Resistance Of Endothelial Progenitor Cells In Hiv-Induced Pulmonary Hypertension. Poster presentation at the ATS 2017 conference.  
05/2017

Role Of Integrin  $\beta 5$  For The Phenotype Of Human Pulmonary Microvascular Endothelial Cells: Implications For Endothelial-To-Mesenchymal Transition And Pathogenesis Of Pulmonary Hypertension. Poster presentation at the ATS 2017 conference.  
05/2017

Endothelial stem cells in the lung- biology and potential roles in disease pathogenesis and therapy. Pulmonary Seminar at the University of Minnesota - 9-16-2016  
09/2016

September 13, 2016. "Endothelial Stem Cells in the Lung – Biology and potential Roles in disease pathology and therapy". Invited Lecture, Research conference, Pulmonary, Allergy, Critical Care and Sleep Medicine, University of Minnesota, Minneapolis, MN.  
09/2016

May 2016. "Immunomodulatory therapy with synthetic double stranded RNA prevents

Pulmonary Hypertension". Poster presentation at the ATS 2016 International Conference in San Francisco, CA.  
2016

May 2016. "The NF- $\kappa$ B pathway is important for phenotype and proliferation of pulmonary microvascular endothelial cells and lung endothelial progenitor cells." Poster presentation at the ATS 2016 International Conference in San Francisco, CA.  
2016

May 3, 2016. "Endothelial Stem Cells and Lung Vascular Remodeling" Invited Lecture ICVBM/ Physiology Seminar Indiana University, Indianapolis, IN  
05/2016

July 2015. "Putative role of altered TGF- $\beta$  signaling in lung vascular and alveolar remodeling promoted by transplantation of lung progenitor cells". Poster presentation at the 2015 Vermont Stem Cell conference in Burlington, VT.  
2015

May 2015. "Increased Expression of the Axonal Guidance Molecule Netrin-1 in Pulmonary Vascular Lesions in Human and Experimental Severe Pulmonary Hypertension". Poster presentation at the ATS 2015 International conference in Denver, CO.  
2015

May 2015 "Transplantation of CD117+ Cells Derived from the Lungs of Rats with Severe Pulmonary Hypertension Induce Pulmonary Vascular and Alveolar Remodeling." Poster presentation at the ATS 2015 International conference in Denver, CO.  
2015

May 2014. "Transplantation of bone marrow-derived mesenchymal stem cells improves immune regulation and ameliorates vascular obliteration in the SU5416 and chronic hypoxia model." Poster discussion at the ATS 2014 international conference in San Diego, CA.  
2014

May 2014. "Lung tissue homogenate of patients with severe pulmonary hypertension promotes angiogenesis and cellular senescence in human pulmonary microvascular endothelial cells." Poster presentation at the ATS 2014 international conference in San Diego, CA.  
2014

May 2014. "Inhibition of NF- $\kappa$ B improves immune regulation in the SU5416 and chronic hypoxia model of severe obliterative PAH." Poster presentation at the ATS 2014 international conference in San Diego, CA.  
2014

November, 2013. "Increased expression of the neuronal/mesenchymal stem cell marker Nestin in plexiform lesions of patients with severe PAH." Oral Presentation at the AHA Scientific Sessions 2013 in Dallas, TX.  
2013

November, 2013. "Nf- $\kappa$ B Inhibition Prevents Vascular Obliteration And Improves Immune Regulation In Severe Pulmonary Arterial Hypertension." Oral Presentation at the AHA Scientific Sessions 2013 in Dallas, TX.  
2013

November, 2014. "Inflammation and Progenitor Cells in lung vascular remodeling." Invited oral presentation, Pulmonary Research Conference, Indiana University, Indianapolis, IN.  
11/2014

October, 2013. "Inflammation and Progenitor Cells in lung vascular remodeling." Invited oral presentation in the Vascular Medicine Research Conference, University of Pittsburgh, PA.  
10/2013

July, 2013. "Reduced proliferative and angiogenic capacity of lung c-kit<sup>+</sup> cells isolated from animals with severe pulmonary hypertension." Poster presentation at the 2013 "Stem Cells and Cellular Therapies in Lung Biology and Lung Diseases" workshop in Burlington, VT.  
2013

May, 2013. "C-kit<sup>+</sup> cells isolated from the lungs of animals with severe PAH contain multipotent stem cells with impaired proliferative and angiogenic capacity." Poster discussion at the annual conference of the American Thoracic Society in Philadelphia, PA.  
05/2013

May, 2013. "NF- $\kappa$ B inhibition differentially alters the accumulation of progenitor and stem-like cell populations and prevents angioobliteration and severe PAH in the SU5416/chronic hypoxia model." Poster presentation at the annual conference of the American Thoracic Society in Philadelphia, PA.  
05/2013

June, 2012. "Stem cell-like cells in angioproliferative lesions in the SU5416/chronic hypoxia model of angioproliferative PAH." Poster presentation at the 55th Annual Thomas L. Petty Aspen Lung conference  
06/2012

May, 2012. "Evidence For The Presence Of Mesenchymal Stem Cell-Like Cells In Angioproliferative Lesions In The SU5416/Chronic Hypoxia Model Of Angioproliferative PAH." Oral presentation at the annual conference of the American Thoracic Society in San Francisco, CA.  
05/2012

May, 2012. "Anti-Proliferative Treatment With Tetrahydromolybdate (TTM) In The SU5416/Chronic Hypoxia Model Restores The Endothelial Monolayer." Oral presentation at the annual conference of the American Thoracic Society in San Francisco, CA.  
05/2012

May, 2012. "Inflammation is Required for the Initiation of Angioproliferative PAH." Poster discussion at the annual conference of the American Thoracic Society in San Francisco, CA.  
05/2012

October, 2011. "Experimental lung fibrosis and pulmonary hypertension induces cardiomyocyte apoptosis and right heart failure." Poster presentation at the American Heart Scientific Session 2011 in Orlando, FL.  
2011

May, 2011. "Inhibition of VEGFR-2 induces apoptosis and VEGF protein expression in human pulmonary microvascular endothelial cells." Poster presentation at the Annual conference of the American Thoracic Society in Denver, CO.  
05/2011

May, 2011. "Potential contribution of precursor cells to angioproliferation in the SU5416/chronic hypoxia model of severe PAH." Poster presentation at the Annual conference of the American Thoracic Society in Denver, CO.  
05/2011

March, 2005. "[Expression of CXCR1 and CXCR2 on human bronchial epithelial cells]" [german]. Poster discussion presentation at the annual conference of the German Society for Respiriology, Berlin, Germany  
03/2005

March, 2005. "[Expression of NOD2/CARD15 and RIP2/RICK in bronchial epithelial cells (BEAS-2B)]" [german]. Poster discussion presentation at the annual conference of the German Society for Respiriology, Berlin, Germany  
03/2005

## **International**

October, 2013. "Lung progenitor cells from animals with severe pulmonary hypertension with altered function promote pulmonary vascular remodeling." Poster presentation at the Munich Lung Conference, Munich, Germany.  
10/2013

September, 2011. "Caspase inhibition reduces severe pulmonary hypertension in the AdTGF- $\beta$ 1 model of angioproliferative pulmonary hypertension and lung fibrosis." Poster discussion at the Annual conference of the European Respiratory Society in Amsterdam, the Netherlands.  
09/2011

September, 2011. "Potential contribution of precursor cells to vascular remodeling in the AdTGF- $\beta$ 1 model of lung fibrosis and pulmonary hypertension." Poster discussion at the Annual conference of the European Respiratory Society in Amsterdam, the Netherlands.  
09/2011

March, 2011. "Beneficial effects of VEGF in experimental PAH?" Invited oral

presentation (William Harvey Research Institute). Sixth John Vane Memorial Symposium, London, UK.  
03/2011

September, 2010. "Cigarette smoke results in accelerated airspace enlargement in Smad3 KO mice through increased alveolar cell apoptosis." Poster presentation at the Annual conference of the European Respiratory Society in Barcelona, Spain.  
09/2010

November, 2009. "Endothelial apoptosis, vascular remodeling and pulmonary hypertension in experimental lung fibrosis." Invited oral presentation, Research seminar, Virginia Commonwealth University Medical Center (Richmond, VA, USA)  
11/2009

May, 2009. "BMP-antagonist Gremlin induces fibroblastic foci through EMT in the rodent lung." Oral presentation at the Annual conference of the American Thoracic Society in San Diego, CA.  
05/2009

May, 2009. "VEGF overexpression during fibrogenesis reduces endothelial cell apoptosis and improves pulmonary hypertension." Poster discussion at the Annual conference of the American Thoracic Society in San Diego, CA.  
05/2009

October, 2008. "VEGF overexpression during fibrogenesis ameliorates the development of pulmonary hypertension." Invited oral presentation, Research Seminar, Research Center Borstel, Borstel, Germany  
10/2008

October, 2008. "Gene transfer of the BMP antagonist gremlin induces fibroblastic foci and pulmonary fibrosis in rats." Oral presentation at the Annual conference of the European Respiratory Society in Berlin, Germany. Awarded with the "Young Scientist Cell and Molecular Biology Travel Award".  
10/2008

October, 2008. "VEGF gene transfer enhances fibrosis but improves pulmonary hemodynamics in experimental pulmonary fibrosis." Poster presentation at the Annual conference of the European Respiratory Society in Berlin, Germany.  
10/2008

May, 2008. "Pulmonary hypertension is associated with PEDF-mediated inhibition of angiogenesis in the AdTGF- $\beta$ 1 pulmonary fibrosis model." Poster discussion at the Annual conference of the American Thoracic Society in Toronto, Canada.  
05/2008

April, 2008. "[Pulmonary Hypertension in the AdTGF- $\beta$ 1 lung fibrosis model is associated with loss of vascular density and PEDF-mediated inhibition of angiogenesis]" [german] Oral presentation at the annual conference of the German Society for Respiriology, Lubeck, Germany.  
04/2008

April, 2008. "[Compartment-specific expression of TGF-beta dependent genes in an animal model of emphysema]" [german] Poster presentation at the annual conference of the German Society for Respiriology, Lubeck, Germany  
04/2008

May, 2007. "Transient adenovirus-mediated gene transfer of TGF-β1 induces pulmonary vascular remodelling." Poster presentation at the Annual conference of the American Thoracic Society in San Francisco, CA.  
05/2007

March, 2007. "[Transient adenovirus-mediated gene transfer of TGF-β1 induces pulmonary vascular remodeling]" [german]. Oral presentation at the annual conference of the German Society for Respiriology, Mannheim, Germany.  
03/2007

May, 2006. "The NOD2-ligand Muramyl dipeptide (MDP) increases the interleukin-8 secretion from bronchial epithelial cells under inflammatory conditions." Poster presentation at the annual conference of the American Thoracic Society in San Diego, CA.  
05/2006

September, 2005. "Expression of CXCR1 and CXCR2 in primary bronchial epithelial cells from COPD patients and control subjects." Poster discussion at the annual conference of the European Respiratory Society in Copenhagen, Denmark  
09/2005

## **Posters or Other Unsolicited Presentations**

### **National**

Farkas, D., Hultman, S., Dandamudi, K., Bhagwani, A., **Farkas, L.** Hypoxia- and SU5416-induced downregulation of Nestin causes cell cycle arrest and promotes apoptosis in bone marrow mesenchymal stem cells. Am J Respir Crit Care Med 2018;197:A4624.  
05/2018

Farkas, D., Hultman, S., Bhagwani, A., Cool, C.D., Valentine, M., Kolb, M., Heise, R.L., Yoder, M., Clauss, M., Freishtat, R., **Farkas, L.** Contrasting effects of CD117+ endothelial cell injection in chronic hypoxic- and lung fibrosis-associated Pulmonary Hypertension. Am J Respir Crit Care Med 2018;197:A2878  
05/2018

Bhagwani, A., Hultman, S., Farkas, D., Heise, R.L., Yoder, M.C., Clauss, M., Freishtat, R.J., **Farkas, L.** Bone Morphogenetic Protein 2 Is an Important Regulator of Angiogenesis in Clonally Enriched Lung Endothelial Cells. Am J Respir Crit Care Med 2018;197:A2108  
05/2018

**Farkas, L.**, Farkas, D., Chelvanambi, S., Cool, C., Clauss, M.A. Role of CXCR3 in the

Apoptosis-Resistance of Endothelial Progenitor Cells in HIV-Induced Pulmonary Hypertension. P1567 ATS 2017 conference  
2017

Blanchard, N., Farkas, D., Cool, C., **Farkas, L.** Role of integrin  $\beta 5$  for the Phenotype of Human Pulmonary Microvascular Endothelial Cells: Implications for Endothelial-to-Mesenchymal Transition and Pulmonary Hypertension. P 1580 ATS 2017 conference  
2017

Link, P.A., Farkas, D., **Farkas, L.**, Heise, R.L. Pulmonary Endothelial Progenitor Cells Demonstrate Phenotypic Shift From Altered Substrate Mechanics. P209 ATS 2017 conference.  
2017

Farkas, D., Cool, C., Goncharova, E.A., **Farkas, L.** Contribution of Reduced Toll-like Receptor 3 Expression to Endothelial Dysfunction in Pulmonary Hypertension. P1006 ATS 2017 conference.  
2017

Farkas, D., Kraskauskas, D., Kraskauskienė, V., Fowler, A.A. III, Spiegel, S., **Farkas, L.** Immunomodulatory therapy with synthetic double stranded RNA prevents Pulmonary Hypertension. Am J Respir Crit Care Med 193;2016:A3882  
2016

Farkas, D., Kraskauskienė, V., Kraskauskas, D., Fowler, A.A. III, Islam, K., Natarajan, R., **Farkas, L.** The NF- $\kappa$ B pathway is important for phenotype and proliferation of pulmonary microvascular endothelial cells and lung endothelial progenitor cells. Am J Respir Crit Care Med 193;2016:A6590  
2016

Farkas, D., Kraskauskas D., Kraskauskienė, V., Drake, J.I., Kolb, M.R.J., **Farkas, L.** Putative role of altered TGF- $\beta$  signaling in lung vascular and alveolar remodeling promoted by transplantation of lung progenitor cells. Vermont Stem Cell conference abstract book, p.73.

Farkas, D., Kraskauskienė, V., Kraskauskas, D., Fowler, A.A., Islam, K., Cool, C.D., **Farkas, L.** Increased Expression of the Axonal Guidance Molecule Netrin-1 in Pulmonary Vascular Lesions in Human and Experimental Severe Pulmonary Hypertension. Am J Respir Crit Care Med 191;2015:A1921  
2015

Farkas, D., Kraskauskas, D., Kraskauskienė, V., Drake, J.I., Voelkel, N.F., Kolb, M.R.J., Fowler, A.A., **Farkas, L.** Transplantation of CD117+ Cells Derived from the Lungs of Rats with Severe Pulmonary Hypertension Induce Pulmonary Vascular and Alveolar Remodeling. Am J Respir Crit Care Med 191;2015:A5288  
2015

Farkas, D., Kraskauskas, D., Drake, J.I., Fowler, A.A., Voelkel, N.F., Natarajan, R., **Farkas, L.** Transplantation of bone marrow-derived mesenchymal stem cells improves immune regulation and ameliorates vascular obliteration in the SU5416 and chronic

hypoxia model. Am J Respir Crit Care Med 2014;189:A5298  
2014

Farkas, D., Kraskauskienė V., Kraskauskas, D., Cool, C.D., **Farkas, L.** Lung tissue homogenate of patients with severe pulmonary hypertension promotes angiogenesis and cellular senescence in human pulmonary microvascular endothelial cells. ATS 2014 conference. Am J Respir Crit Care Med 2014;189:A4810  
2014

Farkas, D., Kraskauskas, D., Kraskauskienė, V., Voelkel, N.F., Fowler, A.A., Natarajan, R., Nicolls, M.R., **Farkas, L.** Inhibition of NF- $\kappa$ B improves immune regulation in the SU5416 and chronic hypoxia model of severe obstructive PAH. Am J Respir Crit Care Med 2014;189:A3347  
2014

Kraskauskienė, V., Farkas, D., Voelkel, N.F., Cool, C.D., **Farkas, L.** Increased expression of the neuronal/mesenchymal stem cell marker Nestin in plexiform lesions of patients with severe PAH. Circulation. 2013;128:A15950  
2013

Farkas, D., Alhussaini, A.A., Kraskauskas, D., Kraskauskienė, V., Nicolls, M.R., Voelkel, N.F., Natarajan, R., **Farkas, L.** NF- $\kappa$ B Inhibition Prevents Vascular Obliteration And Improves Immune Regulation In Severe Pulmonary Arterial Hypertension. Circulation 2013;128:A9814  
2013

Farkas, D., Kraskauskienė, V., Drake, J.I., Alhussaini, A.A., Kraskauskas, D., Voelkel, N.F., **Farkas, L.** Reduced proliferative and angiogenic capacity of lung c-kit<sup>+</sup> cells isolated from animals with severe pulmonary hypertension. Abstract book, 2013 "Stem Cells and Cellular Therapies in Lung Biology and Lung Diseases" workshop in Burlington, VT.  
2013

**Farkas, L.,** Farkas, D., Kraskauskienė, V., Drake, J.I., Alhussaini, A.A., Kraskauskas, D., Voelkel, N.F. C-kit<sup>+</sup> cells isolated from the lungs of animals with severe PAH contain multipotent stem cells with impaired proliferative and angiogenic capacity. Am J Respir Crit Care Med 187;2013:A5922  
2013

**Farkas, L.,** Farkas, D., Alhussaini, A.A., Kraskauskienė, V., Kraskauskas, D., Voelkel, N.F. NF- $\kappa$ B inhibition differentially alters the accumulation of progenitor and stem-like cell populations and prevents angioobliteration and severe PAH in the SU5416/chronic hypoxia model. Am J Respir Crit Care Med 187;2013:A4617  
2013

Gomez-Arroyo, J.G. Syed, A. **Farkas, L.,** Drake, J.I., Kraskauskas, D., Farkas, D., Bogaard, H.J., Sakagami, M., Byron, P., Voelkel, N.F. Inhaled Iloprost Reverses Established Fibrosis And Improves Right Ventricular Dysfunction By Reducing Connective Tissue Growth Factor Expression And Collagen Synthesis. Am J Respir Crit

Care Med 187;2013:A3984  
2013

Gomez-Arroyo, J.G., Al-Husseini, A.A., **Farkas, L.**, Farkas, D., Abbate, A., Bogaard, H.J., Voelkel, N.F. Right Ventricular Failure Secondary To Pulmonary Arterial Hypertension Is Characterized By Impaired Autophagic Flux. Am J Respir Crit Care Med 187;2013:A3970  
2013

Al-Husseini, A.A., Wijesinghe, D.S., **Farkas, L.**, Kraskauskas, D., Chalfant, C., Voelkel, N. Increased Eicosanoid Levels In The Sugen/Chronic Hypoxia Model Of Severe Pulmonary Hypertension. Am J Respir Crit Care Med 187;2013:A4631  
2013

**Farkas, L.**, Farkas, D., Kraskauskas, D., Voelkel, N.F. (2013) Stem cell-like cells in angioproliferative lesions in the SU5416/chronic hypoxia model of angioproliferative PAH. Pulm Circ 3:193.  
2013

Al-Husseini, A.A., Wijesinghe, D.S., Kraskauskas, D., Farkas, D., Arroyo, J.G., Chalfant, C.E., Voelkel, N.F., **Farkas, L.** (2012) Nf- $\kappa$ B Controls Eicosanoid Production In Severe Angioproliferative Pulmonary Hypertension. Circulation 126:A11902.  
2012

**Farkas, L.**, Farkas, D., Kraskauskas, D., Voelkel, N.F. (2012) Evidence for the Presence of Mesenchymal Stem Cell-like Cells in Angioproliferative Lesions In the SU5416/Chronic Hypoxia Model of Angioproliferative PAH. Am J Respir Crit Care Med 185:A5096  
2012

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## International

Farkas, D., Kraskauskienė, V., Drake, J.I., Alhussaini, A.A., Kraskauskas, D., Voelkel, N.F., **Farkas, L.** Lung progenitor cells from animals with severe pulmonary hypertension with altered function promote pulmonary vascular remodeling. Abstract book/conference program "Munich Lung Conference 2013" in Munich, Germany 2013

Gomez-Arroyo, J., Mizuno, S., **Farkas, L.,** Kraskauskas, D., Farkas, D., Hussein, A., Abbate, A., Bogaard, H., Voelkel, N. (2011) Adrenergic receptor blocker reverses

cardiac metabolic remodeling and improves right ventricular function in experimental pulmonary hypertension. Eur Respir 38:Suppl.55:869S  
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**Farkas, L.,** Farkas, D., Kraskauskas, D., Gauldie, J., Kolb, M., Voelkel, N.F. (2011) Caspase inhibition reduces severe pulmonary hypertension in the AdTGF- $\beta$ 1/SU5416 model of angioproliferative pulmonary hypertension and lung fibrosis. Eur Respir 38:Suppl.55:594S  
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**Farkas, L.** (2011) Beneficial Effects of VEGF in Experimental PAH? In: Presentation Summaries of the Sixth John Vane Memorial Symposium on Prostacyclin Science and Pulmonary Vascular Disease. CML Pulmonary Hypertension 2(2) Suppl.  
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**Farkas, L.,** Ask, K., Möller, A., Farkas, D., Gauldie, J., Kolb, M. (2008) [Compartment-specific expression of TGF-beta dependent genes in an animal model of emphysema] [german] Pneumologie 62(S2):DOI: 10.1055/s-2008-1074193  
2008

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2008

Ask, K., Moeller, A., **Farkas, L.,** Froese, A., Lagunov, A., Inman, M., Gauldie, J., Kolb, M. (2008) Experimental induction of unilateral pulmonary fibrosis using bronchoscopy. Lung Injury, Repair and Remodelling, Sixth ERS Lung Science Conference, Estoril, Portugal.  
2008

**Farkas, L.,** Ask, K., Gauldie, J., Kolb, M. Compartment-specific expression of TGF- $\beta$  responsive genes in an animal model of emphysema. (2007) Eur Respir J 30: 58S  
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Moeller, A., Smith, J.A., **Farkas, L.,** Ask, K., Gauldie, J., Kolb, M. (2007) [Bronchoscopy in rats: a new method to evaluate airway diseases in animal models] [german] Pneumologie 61(S1):DOI: 10.1055/s-2007-973175  
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2006

Hamann, L.I., Holler, E., Brennmöhl, J., Rogler, G., **Farkas, L.**, Pfeifer, M., Schulz, C. (2006) [NOD2/CARD15 mutations of donor and recipient are associated with accelerated lung function decrease after allogeneic stem cell transplant] [german] Pneumologie 60(S1):S24  
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**Farkas, L.**, Heitzer, S., Stoelcker, B., Jentsch, N., Pfeifer, M., Schulz, C. (2006) [Enhanced interleukin-8 (IL-8) release from bronchial epithelial cells after stimulation with NOD2-ligand Muramyl dipeptide (MDP)] [german] Pneumologie 60(S1):S37  
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**Farkas, L.**, Jentsch, N., Pfeifer, M., Schulz, C. (2006) [Expression of CXCR1 and CXCR2 in primary bronchial epithelial cells of patients with chronic obstructive pulmonary disease (COPD) and control patients without obstruction] [german] Pneumologie 60(S1):S75  
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**Farkas, L.**, Jentsch, N., Pfeifer, M., Schulz, C. (2005) Expression of CXCR1 and CXCR2 in primary bronchial epithelial cells from COPD patients and control subjects. Eur Respir J 26(S49): 484S.  
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**Farkas, L.**, Stoelcker, B., Jentsch, N., Pfeifer, M., Schulz, C. (2005) [Expression of NOD2/CARD15 and RIP2/RICK in bronchial epithelial cells (BEAS-2B)] [german] Pneumologie 59(S1):S73  
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**Farkas, L.**, Krätzel, K., Jentsch, N., Pfeifer, M., Schulz, C. (2005) [Expression of CXCR1 and CXCR2 on human bronchial epithelial cells] [german] Pneumologie 59(S1):S18  
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Schulz, C., Schmoezer, M., Krätzel, K., **Farkas, L.**, Jentsch, N., Wolf, K., Pfeifer, M. (2004) Expression of the chemokine receptors CXCR1 and CXCR2 on bronchial epithelial cells. Eur Respir J 24(S48):551S  
2004

**Farkas, L.**, Schulz, C., Wolf, K., Pfeifer, M. (2002) [Differing sCD14-dependency of LPS-induced cytokine release from bronchial and alveolar epithelial cells] [german] Pneumologie 56(S1):S91  
2002

Schulz, C., **Farkas, L.**, Riegger, G., Eissner, G., Pfeifer, M. (2001) [Investigations of LPS induced cytokine release from bronchial epithelial cells] [german] Pneumologie 55(S1):S43  
2001

## **Teaching Experience**

## **Didactic and Clinical**

**MICR505 Immunology course** (graduate level), Lectures on autoimmunity. 2 contact hours  
2017 - Present

**Educational webinar** about mesenchymal stem cells for the ATS stem cell working group/ Respiratory Cell and Molecular Biology Assembly.  
01/2014

### ***Students mentored***

Aneel Bhagwani, Physiology PhD Program, Fulbright Scholarship (Advisor/Supervisor)  
Patrick Link, Bioengineering PhD Program (Advisory Committee)  
Andrea Luker, Immunology PhD Program (Advisory Committee)  
Robert Pouliot, Bioengineering PhD Program - 2016 (Advisory Committee)  
Yumna Rahman, VCU MSIP high school student, 2018 (Supervisor)  
Dillon Persaud, undergraduate summer research, 2018 (Supervisor)  
Yayi Feng, undergraduate summer research, 2018 (Supervisor)  
Arsema Zadu, undergraduate summer research, 2017 (Supervisor)  
Rebecca Moncayo, undergraduate summer research, 2017 (Supervisor)  
Dr. Grant Farr, VCU Pulmonary and Critical Care Division Fellow, laboratory research rotation, 2017 (Supervisor)  
Naveen Kotha, VCU undergraduate independent study program, 2017 (Supervisor)  
Kavailya Dandamudi, undergraduate summer research, 2016 (Supervisor)  
Stephanie Nguyen, undergraduate summer research, 2016 (Supervisor)  
Neil Blanchard, undergraduate summer research, 2016 (Supervisor)  
Hyun Ji, undergraduate summer research, 2015 (Supervisor)  
2015 - Present

## **Educational Innovations**

January 29, 2014: Educational webinar about mesenchymal stem cells for the ATS stem cell working group/ Respiratory Cell and Molecular Biology Assembly.  
01/2014

## **Service Activities**

### **Service to the Profession**

Organizing Committee, 2015 Vermont Stem Cell conference "Stem Cells, Cell Therapies and Bioengineering in Lung Biology & Lung Diseases".  
2015

Panelist, Panel Discussion "EPCs, MSCs, and Cell Therapy Approaches For Lung Diseases", 2015 Vermont Stem Cell conference.  
2015

Reviewer, Congressional Directed Medical Research Program 2016, PRMRP Pre-application, 2016

2016 - 2016

Reviewer, Congressional Directed Medical Research Program 2015, PRMRP Pre-application, 2015  
2015 - 2015

Reviewer, Congressional Directed Medical Research Program 2014, PRMRP IIRA, Adhoc reviewer, 2015  
2014 - 2015

Reviewer, Congressional Directed Medical Research Program, PRMRP Investigator-Initiated Research Program, 2014  
2014

Reviewer, Congressional Directed Medical Research Program, PRMRP Discovery Grant, 2014  
2014

Reviewer, Congressional Directed Medical Research Program, PRMRP Preapplication, 2014  
2014

Reviewer, Special Empasis Panel/Scientific Review Group ZHL1 CSR-P (S1), National Heart Lung and Blood Institute, National Institutes of Health, 06/17/2014  
06/2014

Lead Facilitator, Thematic Poster Session B68 – Experimental Models of Pulmonary Hypertension II, May 19, 2014, Annual conference of the American Thoracic Society 2014 in San Diego, CA.  
05/2014 - 2014

Organizing Committee, conference/workshop “Stem Cell and Cell Therapies in Lung Biology and Lung Diseases”, July 29-August 1, 2013, Burlington, VT  
07/2016 - 08/2013

Facilitator, Thematic poster session A52 – Mechanisms of Pulmonary Vascular Disease, May 19, 2013, Annual conference of the American Thoracic Society 2013 in Philadelphia.  
05/2013 - 2013

Facilitator, Thematic poster session C62 – Case Reports: Pulmonary Circulation. May 21, 2013, Annual conference of the American Thoracic Society 2013 in Philadelphia.  
05/2013 - 2013

Facilitator, Thematic poster session D41 – The Bleomycin model of lung fibrosis and beyond. May 22, 2013. Annual conference of the American Thoracic Society 2013 in Philadelphia.  
05/2013 - 2013

Member, Stem Cell Working Group, Respiratory Cell & Molecular Biology Assembly,

American Thoracic Society, 2012-present  
2012 - Present

Reviewer, Special Emphasis Panel/Scientific Review Group ZHL1 CSR-R S1 1  
2017

Reviewer, Congressional Directed Medical Research Program 2018, PRMRP Pre-application, 2018  
07/2018

Ad-hoc peer reviewer (Circulation, Circulation Research, Chest, JAHA, Am J Respir Crit Care Med, Am J Respir Cell Mol Biol, Eur Respir J, Am J Physiol-Lung Cell Mol Physiol, Journal of Scientific Research and Reports, Stem Cell Research & Therapy, Cellular Immunology, Innate Immunity, Respiriology, Respiration, Respiratory Research, PlosONE)

Associate Editor, Frontiers in Pediatric Pulmonology

## **Service to the University**

Alternate Member, Institutional Animal Care and Utilization Committee  
2016 - Present

## **Publications**

### **Papers Published in Peer Reviewed Journals**

1. Farkas, D.\*, Thompson, A.A.R.\*, Bhagwani, A.R., Hultman, S., Ji, H., Kotha, N., Farr, G., Arnold, N.D., Braithwaite, A., Casbolt, H., Cole, J.E., Sabroe, I., Monaco, C., Cool, C.D., Goncharova, E.A., Lawrie, A., **Farkas, L.** (2018) Toll-like receptor 3 is a therapeutic target for Pulmonary Hypertension. Am J Respir Crit Care Med [epub ahead of print].
2. Gomez-Arroyo, J., Sakagami, M., Syed, A., **Farkas, L.**, Van Tassell, B., Kraskauskas, D., Mizuno, S., Abbate, A., Bogaard, H.J., Byron, P.R., Voelkel, N.F. (2015) Iloprost reverses established Fibrosis in Experimental Right Ventricular Failure. Eur Respir J 45 (2):449-62. Pubmed PMID: 25261325
3. Al-Husseini, A., Wijesinghe, D.S., **Farkas, L.**, Kraskauskas, D., Drake, J.I., Van Tassel, B., Abbate, A., Chalfant, C.E., Voelkel, N.F. Increased eicosanoid levels in the sugen/chronic hypoxia model of severe pulmonary hypertension. PLoS One. 2015;10 (3):e0120157. PubMed PMID: 25785937; PubMed Central PMCID: PMC4364907.
4. Farkas, D.\*, Kraskauskas, D.\*, Drake, J.I., Alhussaini, A.A., Kraskauskas, V., Bogaard, H.J., Cool, C.D., Voelkel, N.F., **Farkas, L.** (2014) CXCR4 Inhibition Ameliorates Severe Obliterative Pulmonary Hypertension and Accumulation of C-kit+ Cells in Rats. PLoS One 9(2): e89810. Pubmed PMID: 24587052. Pubmed Central PMCID: PMC3933653.
5. Al Hussein, A., Bagnato, G., **Farkas, L.**, Gomez-Arroyo, J., Farkas, D., Mizuno, S.,

Kraskauskas, D., Abbate, A., Van Tassel, B., Voelkel, N.F., Bogaard, H.J. Thyroid hormone is highly permissive for angioproliferation in pulmonary arterial hypertension. *Eur Respir J* 41(1):104-14. Pubmed PMID: 22835607.

6. Farkas, D.\*, Alhussaini, A.A.\*, Kraskauskas, D., Kraskauskienė, V., Cool, C.D., Nicolls, M.R., Natarajan, R., **Farkas, L.** (2014) NF- $\kappa$ B inhibition reduces lung vascular lumen obliteration in severe pulmonary hypertension in rats. *Am J Respir Cell Mol Biol* 51(3):413-25. Pubmed PMID: 24684441. Pubmed Central PMCID: PMC4189489.

7. Nold-Petry, C.A., Rudloff, I., Baumer, Y., Cho, S.X., Zepp, J.A., Dinkel, H., Palmer, B.E., Azam, T., Ruvo, M., Marasco, D., Botti, P., **Farkas, L.**, Boisvert, W.A., Cool, C.D., Kim, S.H., Taraseviciene-Stewart, L., Dinarello, C., Voelkel, N.F., Nold, M.F. (2014) IL-32 Promotes Angiogenesis. *J Immunol* 192(2): 589-602. Pubmed PMID: 24337385.

8. Venkatesan, N., Tsuchiya, K., Kolb, M., **Farkas, L.**, Bourhim, M., Ouzzine, M., Ludwig, M.S. (2014) Glycosyltransferases and Glycosaminoglycans in Bleomycin and Transforming Growth Factor- $\beta$ 1-Induced Pulmonary Fibrosis. *Am J Respir Cell Mol Biol* 50(3):583-94. PMID: 24127863.

9. Shojaei, S., Voelkel, N., **Farkas, L.**, de Wit, M., Lee, H.J. (2013) Transforming Growth Factor- $\beta$ 1 Rise in Pleural Fluid After Tunneled Pleural Catheter Placement: Pilot Study. *J Bronchology Interv Pulmonol*. 20(4):304-8. Pubmed PMID: 24162112.

10. Gomez-Arroyo, J., Mizuno, S., Szczepanek, K., Van Tassel, B., Natarajan, R., Dos Remedios, C.G., Drake, J.I., **Farkas, L.**, Kraskauskas, D., Wijesinghe, D.S., Chalfant, C.E., Bigbee, J., Abbate, A., Lesnefsky, E.J., Bogaard, H.J., Voelkel, N.F. (2013) Metabolic Gene Remodeling and Mitochondrial Dysfunction in Failing Right Ventricular Hypertrophy due to Pulmonary Arterial Hypertension. *Circ Heart Fail* 6(1):136-44. Pubmed PMID: 23152488.

11. Tian, W., Jian, X., Tamosiuniene, R., Sung, Y.K., Qian, J., Dhillon, G., Gera, L., **Farkas, L.**, Rabinovitch, M., Zamanian, R., Inayathullah, M., Fridlib, M., Rajadas, J., Peters-Golden, M., Voelkel, N.F., Nicolls, M.R. (2013) Blocking macrophage leukotriene B4 prevents endothelial injury and reverses pulmonary hypertension. *Sci Transl Med* 5: 200ra117. Pubmed PMID: 23986401.

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### **Books, Book Chapters and Monographs**

1. **Farkas, L.**, Kolb, M.R.J. (2011) Pulmonary Hypertension and Interstitial Lung Disease. Pages 141-160. In: Pulmonary Hypertension The Present and Future, [Edited by Norbert Voelkel]. 2011. People's Medical Publishing House-USA, Shelton, CT 06484, ISBN 978-1-60795-037-0

### **Scholarly Work Published in other Media**

#### **Non-Peer Reviewed**

Webinar organization and presentation January 29, 2014 for the ATS Stem Cell Working Group: "Introduction to Mesenchymal Stem Cells – Characterization, Isolation, Culture and Applications"  
01/2014

#### **Papers Published in Journals that are not Peer Reviewed**

1. Froese, A.R., **Farkas, L.**, Ask, K., Gauldie, J., Kolb, M.R.J. (2008). Targeting fibrosis in respiratory lung disease. Drug Disc Today: Therapeutic Strategies, 5(2):97-100.

2. **Farkas, L.**, Pfeifer, M., Schulz, C. (2008). Airway epithelial cells – therapeutic targets for the treatment of COPD. Drug Disc Today: Therapeutic Strategies, 5(2): 111-117.

### **Personal Statement**

I am a committed translational researcher interested in the pathobiology of lung vascular remodeling in the context of pulmonary arterial hypertension and interstitial lung disease.

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