

## CURRICULUM VITAE

**Mary C.M. Weiser-Evans, Ph.D.**  
**Charles Boettcher II Professor of Medicine**

**OFFICE ADDRESS:** Department of Medicine  
Division of Renal Diseases and Hypertension  
University of Colorado Anschutz Medical Campus  
12700 East 19th Avenue, C281  
Research Complex 2, Room 7002  
Aurora, CO 80045  
Tel: (303)724-4846  
E-Mail: [mary.weiser-evans@cuanschutz.edu](mailto:mary.weiser-evans@cuanschutz.edu)

**HOME ADDRESS:** 28225 Harebell Lane  
Evergreen, CO 80439  
Tel: (303) 842-9180

**PERSONAL:** Married (Ken Evans)  
Two children (Shaye 23, Kaelyn 21)  
Citizenship: USA

### EDUCATION:

B.S.	1985	The Ohio State University Department of Zoology
M.S.	1990	Colorado State University Department of Exercise and Sport Science
Ph.D.	1992	Colorado State University College of Veterinary Medicine Department of Physiology
Post-doc	1992-1996	University of Colorado Health Sciences Center CVP and Pediatrics; Dr. Richard Majack, Ph.D. Mentor

### PROFESSIONAL APPOINTMENTS:

1992-1993	Postdoctoral Research Fellow, Cardiovascular-Pulmonary Research Laboratory, University of Colorado Health Sciences Center
1993-1996	Postdoctoral Research Fellow, Department of Pediatrics, University of Colorado Health Sciences Center
1996-1998	Instructor, Department of Pediatrics, University of Colorado Health Sciences Center
1996-2004	Affiliate Faculty, Department of Biology, University of Colorado at Denver
1998-2004	Assistant Professor, Department of Pediatrics, University of Colorado Health Sciences Center

2001-present	Full Member, University of Colorado Cancer Center, University of Colorado Anschutz Medical Campus
2001-2006	Joint Appointment, Department of Cell and Developmental Biology, University of Colorado Health Sciences Center
2004-2006	Assistant Professor, Department of Medicine, Renal Division, University of Colorado Denver
2005-2010	Affiliate Faculty, Cell and Molecular Biology Graduate Program, Colorado State University
2006-2015	Associate Professor, Department of Medicine, Renal Division, University of Colorado Anschutz Medical Campus
2010-present	Graduate Training Faculty, Pharmacology Program, University of Colorado Anschutz Medical Campus
2013-present	Graduate Training Faculty, Integrated Physiology Program, University of Colorado Anschutz Medical Campus
2015-present	Professor, Department of Medicine, Renal Division, University of Colorado Anschutz Medical Campus
2016-present	Co-Director, Center for Fibrosis Research & Translation (CFReT)
2016-present	MSTP Training Faculty, University of Colorado Anschutz Medical Campus
2019-present	Charles Boettcher II Endowed Professor of Medicine in Atherosclerosis Research
2019-2020	Associate Program Director, Integrated Physiology Program, University of Colorado Anschutz Medical Campus
2020-present	Program Director, Integrated Physiology Program, University of Colorado Anschutz Medical Campus

#### **HONORS AND AWARDS:**

1992-1993	NIH Postdoctoral Research Training Grant
1993-1994	American Heart Association of Colorado Postdoctoral Fellowship Award
1994-1996	American Lung Association Research Training Fellowship Award
2009	Fellow of the American Heart Association (FAHA), Council on Arteriosclerosis, Thrombosis, and Vascular Biology
2010-present	<i>Arteriosclerosis, Thrombosis and Vascular Biology</i> editorial board member
2010-present	<i>Frontiers in Vascular Physiology</i> Editorial Board member
2018-present	<i>Circulation Research</i> Editorial Board member

#### **MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS**

1998-present	American Heart Association Arteriosclerosis, Thrombosis and Vascular Biology - Fellow
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1999-present  
2000-present  
2001-present

American Association for the Advancement of Science  
American Society for Developmental Biology  
North American Vascular Biology Organization (NAVBO)

## SUMMARY OF MAJOR RESEARCH ACTIVITIES

Atherosclerosis and restenosis are chronic and acute inflammatory vascular diseases, respectively, characterized by significant vascular remodeling. Progression of remodeling in these settings is associated with recruitment and activation of immune cells, in particular monocytes/macrophages. For years, treatment of atherosclerosis has focused on intensive lipid lowering or surgical interventions, such as drug-eluting stent (DES) deployment. Current FDA-approved DESs are based on paclitaxel or rapamycin derivatives, both general cell cycle inhibitors, and restenosis and stent thrombosis remain important complications. While lipid lowering therapy has been effective for many patients, many more patients remain at high risk for myocardial infarction or stroke due to a residual inflammatory risk rather than residual cholesterol risk. As a trained vascular biologist, my research focus has centered on the vascular smooth muscle cell (SMC) and its role in cardiovascular disease progression as it is well known that under pathological conditions SMCs undergo profound phenotypic and functional changes resulting in a proliferative, inflammatory phenotype. As a result, SMCs are major contributors to this complex pathophysiology observed in cardiovascular diseases, including, but not limited to vascular wall dysfunction and inflammation.

Following my post-doctoral training, my initial independent research program began with two separate focuses centered on SMC phenotype control. The first included a non-biased screen to identify novel genes regulating a unique smooth muscle phenotype expressed in early vascular development and during vascular disease progression. Our seminal research discoveries identified a novel acetyltransferase complex highly expressed by developing SMCs and essential for vascular development; silencing of this complex promotes SMC differentiation and vessel stabilization (Weiser-Evans, et.al. 2000 *J Cell Physiol* 182:12-23; Weiser-Evans et.al. 2000 *Circ Res* 87:608-615; Wenzlau, et.al. 2006 *Circ Res* 98:846-55). These findings were supported by #9950407N AHA GIA Weiser PI and NIH/NHLBI 1R01HL63946 Weiser-Evans PI. Additional findings from this screen uncovered a role for the tumor suppressor, PTEN, as an essential regulator of SMC phenotype (Weiser-Evans, et.al. 2000 *J Cell Physiol* 182:12-23; Weiser-Evans et.al. 2000 *Circ Res* 87:608-615; Mourani, et.al. *Circulation* 109:1299-1306). Simultaneously, a separate research direction identified the extracellular heparan sulfate proteoglycan, perlecan, as an essential component driving SMC differentiation and vessel maturation; subsequent studies linked perlecan regulation of PTEN to vessel maturation (Weiser, et.al. *Matrix Biology* 15:331340; Weiser, et.al. *Mol Biol Cell*, 8:999-1011; Walker, et.al. *Mol Biol Cell* 14:1941-1952; Kinsella, et.al. *ATVB* 23(4):608-14; Garl, et.al. *Circ Res* 94: 175-183). These findings were supported by #95008610 AHA GIA Weiser PI and P50HL57144 NIH/NHLBI SCOR Weiser co-I. Therefore, two parallel, but independent research paths identified PTEN as an indispensable regulator of SMC differentiation and vessel development.

Recently, the main focus of my research program has been to define the molecular basis underlying PTEN's role on SMC phenotype (Nemenoff, et.al. 2008 *Circulation Research*, 102:1036-1045; Furgeson, et.al. 2010 *Cardiovascular Res*, 86(2):274-82; Nemenoff, et.al. 2011 *ATVB* 31(6):1300-8; Horita, et.al. 2013 *JAHA*, 31;2(3):e000188). Our findings linked PTEN activity to transcriptional activity of SRF, a master smooth muscle differentiation regulator (Kaplan-Albuquerque, et.al. 2005 *J Biol Chem*, 280(20):19966-76; Kaplan-Albuquerque, et.al. 2005 *Circ Res* 97(5):427-33; Horita, et.al. 2011 *ATVB*, 31:2909-19). These findings were supported by #0850231Z AHA GIA Weiser-Evans PI, NIH/NIBIB R21 EB003999 Weiser-Evans PI, NIH/NHLBI PPG P01HL014985 Weiser-Evans PI Project 2, and NIH/NHLBI R01 HL088643 Weiser-Evans PI. The most recent original findings related to this area of research revealed a novel role for PTEN as a transcriptional co-factor for SRF, never before demonstrated in any cell system (Horita, et.al. 2016 *Nature Communications*, 7:10830). Defining this function for PTEN remains an active research area in my laboratory. A recent manuscript describing the role of PTEN in human atherosclerosis progression and pathological vascular fibrosis in human coronary arteries exposed to continuous-flow left ventricular assist devices was published in *JCI Insight* (Moulton, et. al. 2018 *JCI Insight*, 3(4):e97228). These studies were supported by NHLBI 1R01HL123616 Weiser-Evans PI. In addition, our recent findings support an important role for PTEN as a novel anti-inflammatory, anti-

fibrotic target. Original studies related to an anti-inflammatory, anti-fibrotic role for PTEN in cardiovascular disease were supported by a pilot grant through the CFReT and findings were published in *ATVB* (Lu, et. al. 2020 *ATVB*, 40(2):394). Additional novel findings supported by a high throughput chemical screen suggest that loss of PTEN in disease settings is largely mediated through promoter methylation and gene silencing. The original paper supporting these findings was recently published in *ATVB* (Strand, et. al. 2020, *ATVB*, 40(8):1854). An R01 to further examine this hypothesis received a 7% impact score at the June 2020 study section.

We have developed innovative *in vivo* genetic systems that allow gain- or loss-of-function analyses combined with cell fate-mapping approaches throughout the course of our studies. Using these approaches, our most recent novel and exciting area of research has been our discovery that mature SMCs are endogenously reprogrammed to give rise to distinct resident vascular progenitor cells, a highly novel finding that has important implications to regenerative medicine. Our original observations led to the funding of NIH/NHLBI R21HL114126 Weiser-Evans PI. Positive findings provided the necessary supporting data for our ongoing funded NHLBI 1R01HL121877 Weiser-Evans PI, which was recently renewed. In addition, these findings also initiated collaborative studies with Dr. Majesky at the University of Washington and the funding of NIH/NHLBI 1R01HL123650 Majesky PI, Weiser-Evans PI sub-contract. Our initial manuscript describing these findings were published in *Circulation Research* (Majesky, et. al. 2017 *Circ Res*, 120(2):296). Our ongoing studies showed that adventitial SMC-derived stem cells (AdvSca1-SM cells) are the predominant cell type responding to vessel wall dysfunction and matrix production. These recent data are currently in press (*JCI Insight*, 2020). In addition, collaborative work with Dr. Moulton has led to a new R01 MPI grant submission (Moulton, Weiser-Evans). This project was reviewed in Jun, 2020 and received a positive 29% impact score. Finally, a recent collaboration with Dr. Kovacic (Mount Sinai SOM, NY) led to the funding of R01HL148167 (Kovacic, Weiser-Evans subcontract).

I have been an important collaborator with several other investigators and have contributed to research involving lung cancer progression, pulmonary hypertension, acute kidney injury, adipocyte differentiation, and cardiac hypertrophy. Most notably, I have maintained a highly successful collaboration with Dr. Nemenoff in the Renal Division. Through this collaboration, we developed a novel lung cancer metastasis model in order to define the role of the lung tumor microenvironment on lung cancer progression, to define specific signaling pathways activated in both cancer cells and the tumor microenvironment that regulate cancer progression, and to test potential therapeutic agents (Weiser-Evans, et.al. 2009 *Cancer Research*, 69(5):1733-8; Li, et.al. 2011, *Plos One* 6(12):e28133; Li, et.al. 2012 *PPAR Research*, Volume 2012; Poczobutt, et.al. 2013 *Plos One* 8(11):e79633; Marek, et.al. 2014 *Molecular Cancer Res*; Poczobutt, et.al. 2016, *J Immunol.* 196(6):2847-59; Li, et.al. 2014). This metastasis model has become the chosen preclinical model being used by several labs throughout our Institution, including in the long-running SPORE in Lung Cancer through our Cancer Center. Pilot grants (a Cancer Center Seed grant and a LUNG SPORE Translational Pilot Project, Weiser-Evans PI on both) provided essential preliminary data to support NIH/NCI R01CA108610 Nemenoff PI and NIH/NCI R01CA162226 Nemenoff PI. Most recently, a study combining our findings related to vascular stem cells with our collaborative work with lung cancer progression was initiated; these preliminary findings have led to a new NCI R21 grant that received a 2% impact score at the July 2020 study section. I am currently a Training Faculty member on several NIH-funded training grants, a Training Faculty member for several Graduate and MSTP programs, and Program Director of the Integrated Physiology graduate program. In addition, I am co-Director of the Consortium for Fibrosis Research and Translation (CFReT), which focuses on identification of novel anti-fibrotic therapeutics across organ systems. Through the CFReT, we have brought new technologies and collaborations to the CU AMC campus and have recruited several very strong junior faculty who have already gone on to acquire their own extramural funding. I have trained a number of undergraduate students, Master's candidates, PhD candidates, Postdoctoral Fellows, and Renal/Pulmonary/Pediatric Fellows. With few exceptions, they now have positions in medical schools and academic settings.

## **MAJOR COMMITTEE AND SERVICE RESPONSIBILITIES**

### **National Committees and Service:**

2002-2004

NAVBO Meritorious Awards Committee

2003-present	AHA Committee on Scientific Sessions Program – Grading Panel
2004,2006,2007	Session Moderator, American Heart Association Scientific Sessions
2006-2008 2007	ATVB annual conference – Abstract Grading Panel Session Chair/Speaker, Arteriosclerosis, Thrombosis, and Vascular Biology Annual Conference 2007
2009	Session Moderator and Commentary, American Heart Association Scientific Sessions
2010	International Vascular Biology conference, poster session judge
2013	Poster Professor, American Heart Association Scientific Sessions
2014 2017	Poster Professor, Vascular Biology Annual Conference Session Moderator, American Heart Association Scientific Sessions

**Institutional Committees and Service:**

***Current***

2020-present	CU Anschutz COVID Official
2010-present	Pharmacology Graduate Program – Graduate student admissions committee member
2013-present	Integrated Physiology Graduate Program – Graduate student admissions committee (chair)
2014-present	CCTSI K to R (KTR) Transition Program – core member
2015-present	Dean’s Research Advisory Committee (RAC) – chair
2016-present	UC Cancer Center Seed Grant Study Section
2017-present	DOM Mid-Career Review (MCR) Committee – member
2017-present	DOM Strategic Initiative on Gender Equity – focus group member
2017-2019	DOM Academic Incentive Committee – member
2018-present	DOM PhD Task Force – committee member
2020-present	PhD-SOM Working Committee
2020	CU REproduction (CURE) study section
2020	CU Diabetes Research Center study section
2020	Chair, Department of Physiology AMC – committee member

***Past***

2001-2003	Departments of Pediatrics and Cell and Structural Biology Search Committee for Developmental Biology Program Head
2001-2004	University of Colorado Health Sciences Center Faculty Senate
2002-2004	Departments of Pediatrics and Cell and Structural Biology Steering Committee – Developmental Biology
2003-2011	UC Cancer Center Seed Grant Study Section
2008-2011	Steering Committee – Vascular Biology Center
2010-2014	CCTSI K to R (KTR) Transition Program - reviewer
2013, 2014	DOM/CCTSI Research Day, poster session judge
2013-2014	Vice Chancellor for Research Irradiator Use Committee
2013-2015	Dean’s Research Advisory Committee (RAC) - member

**INVENTIONS, INTELLECTUAL PROPERTY AND PATENTS HELD OR PENDING**

**Patents Filed:**

2007	“PTEN and Heparan Sulfate in Reducing In-Stent Restenosis” PI: Dr. M.C.M. Weiser-Evans
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### **Published Sequences:**

1. AY102702                    3497 bp    DNA  
Mus musculus embryonic growth-associated protein EGAP gene, promoter region and partial cds.  
Wenzlau, J.M. and Weiser-Evans, M.C.M.
2. AY102701                    2552 bp    mRNA  
Mus musculus embryonic growth-associated protein EGAP mRNA, complete cds.  
Wenzlau, J.M. and Weiser-Evans, M.C.M.

### **REVIEW AND REFEREE WORK**

#### **Service on Editorial Boards:**

- 2010-present                    *Arteriosclerosis, Thrombosis and Vascular Biology*  
2010-present                    *Frontiers in Vascular Physiology*  
2018-present                    *Circulation Research*

#### **Study Sections:**

##### ***Regular Study Section Member***

- 2000-2005                    American Heart Association Vascular Wall Biology Peer Review Committee  
2009-2013                    Charter member NIH Vascular Cell and Molecular Biology (VCMB) Study Section

##### ***Ad Hoc Study Sections***

- 2006                            The Wellcome Trust, London; invited reviewer  
2006-2007                    ad hoc NIH Atherosclerosis and Inflammation of the Cardiovascular System (AICS) Study Section  
2008,2009,2017              ad hoc NIH Vascular Cell and Molecular Biology (VCMB) Study Section  
2009                            American Heart Association Vascular Wall Biology Peer Review Committee  
2012                            AAAS KACST grant review  
2014-present                ad hoc NIH ZRG1 CBJ55R Special Emphasis Study Section  
2015-present                ad hoc NIH Vascular Cell and Molecular Biology Study Section  
2016-present                ad hoc/chair NIH ZRG1 CBJ55R Special Emphasis Study Section  
2016                            NIH ZRG1 VH-J (02) M Special Emphasis Study Section – chair  
2016                            ad hoc NIH Atherosclerosis and Inflammation of the Cardiovascular System (AICS) Study Section  
2017                            NIH Outstanding Investigator Award (R35)  
2017                            NIH Emerging Investigator Award (R35)  
2018                            NIH Vascular Cell and Molecular Biology  
2018                            NIH Outstanding Investigator Award (R35)  
2020                            NIH ZRG1 F05 D21  
2020                            ad hoc NIH Atherosclerosis and Inflammation of the Cardiovascular System (AICS) Study Section

#### **Journal Peer Review:**

- Nature Medicine*  
*Nature Communications*  
*American Journal of Physiology*  
*Journal of Clinical Investigation*  
*Journal of Laboratory and Clinical Medicine*  
*ATVB*  
*Atherosclerosis*  
*Circulation*

*Circulation Research*  
*Circulation: Cardiovascular Interventions*  
*American Journal of Pathology*  
*Laboratory Investigation*  
*Vascular Pharmacology*  
*Journal of Cellular and Molecular Medicine*  
*Critical Reviews in Oral Biology and Medicine*  
*Oncogene*  
*European Journal of Cell Biology*  
*Experimental Biology*  
*FEBS Journal*  
*FASEB Journal*  
*Biochemistry*  
*American Journal Physiology – Heart and Circulatory Physiology*  
*Journal of Histochemistry and Cytochemistry*  
*Journal Mol Cell Cardiology*  
*Respiratory Research*  
*Journal Cellular Biochemistry*  
*Experimental Biology and Medicine*  
*American Journal Physiology Lung, Cellular and Molecular Physiology*  
*International Journal of Experimental Pathology*  
*Acta Biochimica et Biophysica Sinica*  
*Life Sciences*  
*Plos One*  
*Cancer Research*  
*American Journal Physiology – Cell Physiology*  
*Journal Cellular Biochemistry*  
*Journal Cell Mol Medicine*

**Reviewer for Scientific Meetings:**

2003-present     AHA Committee on Scientific Sessions Program – Grading Panel  
2006-2010        ATVB annual conference – Abstract Grading Panel

**INVITED EXTRAMURAL LECTURES, PRESENTATIONS AND VISITING PROFESSORSHIPS**

**Local:**

"Modulation-dependent expression of the octamer-binding transcription factor, Oct-1, in vascular smooth muscle cells" Division of Cardiology, Dept. of Medicine, University of Colorado Health Sciences Center, Denver, CO, 1993.

"Regulation of Oct-1 mRNA expression in vascular smooth muscle" Research in Progress, National Jewish Hospital, Denver, CO, 1994

"Developmental controls over vascular smooth muscle cell replication" Vascular Grand Rounds, Division of Cardiology, Dept. of Medicine, University of Colorado Health Sciences Center, Denver, CO, 1995

"Control of Vascular Smooth Muscle Cell Growth In Development and Disease" Department of Cell Biology, University of Colorado Health Sciences Center, Denver, CO, 2001.

"Perlecan-Induced Suppression of SMC Growth Is Mediated Through the Inhibition of FAK Signaling" Cardiovascular Pulmonary Research Laboratory, University of Colorado Health Sciences Center, Denver, CO, 2001.

“Perlecan Upregulation of FRNK Suppresses SMC Proliferation via Inhibition of FAK Signaling” Annual Retreat, Department of Cell and Structural Biology, University of Colorado Health Sciences Center, Denver, CO, 2003.

“Negative regulation of SMC proliferation” Cardiovascular Pulmonary Research Laboratory, University of Colorado Health Sciences Center, Denver, CO, 2003.

“Control of Vascular Smooth Muscle Replication” Cardiovascular Pulmonary Research Laboratory, University of Colorado Health Sciences Center, Denver, CO, 2003.

“A Proteomics Approach to Identify EGAP NAT-specific Substrates” Program in Biomolecular Structure, University of Colorado Health Sciences Center, Denver, CO, 2004.

“Perlecan Heparan Sulfate in the Control of Vascular Smooth Muscle Cell Proliferation” Department of Medicine Renal Division Research Conference, University of Colorado Health Sciences Center, Denver, CO, 2005.

“Cardiovascular-specific inactivation of the tumor suppressor, PTEN, results in early postnatal lethality: role of cell autonomous signaling and circulating progenitor cells.” Cardiovascular Pulmonary Research Laboratory, University of Colorado Health Sciences Center, Denver, CO, 2006.

“Cardiovascular-specific inactivation of the tumor suppressor, PTEN, results in early postnatal lethality: role of cell autonomous signaling and circulating progenitor cells.” Department of Medicine Renal Division Research Conference, University of Colorado Health Sciences Center, Denver, CO, 2006.

“Role of Tumor Suppressor PTEN in Vascular Biology.” Cardiovascular Pulmonary Research Laboratory, University of Colorado School of Medicine, Denver, CO, 2007.

“Role of Tumor Suppressor PTEN in Vascular Biology.” Department of Medicine Renal Division Research Conference, University of Colorado School of Medicine, Denver, CO, 2007.

“Role of Tumor Suppressor PTEN in Vascular Biology.” Department of Medicine Research Seminar, University of Colorado School of Medicine, Denver, CO, 2007.

“Molecular Inflammatory Pathways in Vascular Disease: Mouse Models and In Vitro Systems” Cardiovascular Pulmonary Research Laboratory, University of Colorado School of Medicine, Aurora, CO, 2008.

“Molecular Inflammatory Pathways in Vascular Disease: Mouse Models and In Vitro Systems” Department of Medicine Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2008.

“Role of Pioglitazone in Macrophage Function and Lung Cancer Progression and Metastasis”, Reyland Lab meeting, 2008.

“Role of Pioglitazone in Macrophage Function and Lung Cancer Progression and Metastasis”, SPORE Pilot Update, 2009.

“Smooth Muscle PTEN: Role in Cardiovascular Disease” Cardiovascular Pulmonary Research Laboratory, University of Colorado School of Medicine, Aurora, CO, 2009.

“Surprising Origin of Definitive Smooth Muscle Progenitors” Cardiovascular Pulmonary Research Laboratory, University of Colorado School of Medicine, Aurora, CO, 2010.



“Haematopoietic Stem Cells Derive Directly From Aortic Endothelium During Development”, Department of Medicine Renal Division Journal Club, University of Colorado School of Medicine, Aurora, CO, 2010.

“Surprising Origin of Definitive Smooth Muscle Progenitors” Department of Medicine Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2010.

“Tumor Suppressor PTEN: Role in Cardiovascular Disease”, Pharmacology Seminar, University of Colorado School of Medicine, Aurora, CO, 2010.

“Surprising Origin of Definitive Smooth Muscle Progenitors”, Charles C. Gates Center for Regenerative Medicine and Stem Cell Biology, University of Colorado School of Medicine, Aurora, CO, 2011.

“Molecular Inflammatory Pathways in Vascular Disease: Mouse Models and In Vitro Systems” Mucosal and Inflammation Program, University of Colorado School of Medicine, Aurora, CO, 2011.

“Vascular Smooth Muscle: Role in Vascular Progenitor Cell Generation and Vessel Regeneration”, Department of Medicine Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2011.

“Vascular Smooth Muscle: Role in Inflammatory Vascular Disease and Vessel Regeneration” Pharmacology Seminar, University of Colorado School of Medicine, Aurora, CO, 2011.

“Surprising Origin of Definitive Smooth Muscle Progenitors”, Department of Medicine Research and Innovation Conference, University of Colorado School of Medicine, Aurora, CO, 2012.

“Vascular Smooth Muscle: Role in Development and Disease”, Department of Medicine Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2012.

“Effects of Intracoronary CD34+ Stem Cell Transplantation in Nonischemic Dilated Cardiomyopathy Patients 5-Year Follow-Up”, Department of Medicine Renal Division Journal Club, University of Colorado School of Medicine, Aurora, CO, 2013.

“Resident Renal Mononuclear Phagocytes Comprise Five Discrete Populations with Distinct Phenotypes and Functions”, Department of Medicine Renal Division Journal Club, University of Colorado School of Medicine, Aurora, CO, 2013.

“Vascular Smooth Muscle: Role in Development and Disease”, Cardiovascular Pulmonary Research Laboratory, University of Colorado School of Medicine, Aurora, CO, 2013.

“Vascular Smooth Muscle: Role in Development and Disease”, Department of Medicine Cardiology Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2013.

“Novel Methods in Vascular Biology: Focus on Vascular Smooth Muscle Cells (SMCs)”, Cardiology Retreat, University of Colorado School of Medicine, Aurora, CO, 2013.

“Ongoing Projects: Role of PTEN-SRF Interactions on SMC Phenotype and Role of Mature, Differentiated SMCs on Vascular Progenitor Cell Generation: Panel Discussion with visiting Professor, Dr. Walsh, University of Colorado School of Medicine, Aurora, CO, 2013.

“Endogenous Reprogramming of Mature Smooth Cells Gives Rise to a Functionally Distinct Subset of Resident Vascular Progenitor Cells: Implications for Regenerative Medicine”, Department of Medicine Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2014.

“Endogenous Reprogramming of Mature Smooth Cells Gives Rise to a Functionally Distinct Subset of Resident Vascular Progenitor Cells: Implications for Regenerative Medicine”, Cardiovascular Pulmonary Research Laboratory, University of Colorado School of Medicine, Aurora, CO, 2014.

“Endogenous Reprogramming of Mature Smooth Cells Gives Rise to a Functionally Distinct Subset of Resident Vascular Progenitor Cells: Implications for Regenerative Medicine”, Department of Medicine Cardiology Division Work-in-Progress, University of Colorado School of Medicine, Aurora, CO, 2014.

“Vascular Smooth Muscle Differentiation Control in Development and Disease”, Integrated Physiology Graduate Program, University of Colorado School of Medicine, Aurora, CO, 2014.

“Novel methods to define vascular smooth muscle differentiation control and regulation of vessel homeostasis in development and disease”, Frontiers in Pharmacology, Pharmacology Graduate Program, University of Colorado School of Medicine, Aurora, CO, 2015.

“Endogenous reprogramming of differentiated vascular smooth muscle cells into resident vascular progenitor cells: implications for regenerative medicine”, Department of Medicine Cardiology WIP, University of Colorado School of Medicine, Aurora, CO, 2015.

“Endogenous reprogramming of differentiated vascular smooth muscle cells into resident vascular progenitor cells: implications for regenerative medicine”, Department of Medicine Research and Innovation Conference, University of Colorado School of Medicine, Aurora, CO, 2015.

“Klf4-dependent reprogramming of mature differentiated smooth muscle cells gives rise to a distinct subpopulation of resident vascular progenitor cells”, Translational Cardiovascular Biology Conference, University of Colorado School of Medicine, Aurora, CO, 2015.

“Endogenous reprogramming of mature smooth muscle cells to resident vascular progenitor cells: implications in angiogenesis”, Developmental Origin of Angiogenesis Program, University of Colorado School of Medicine, Aurora, CO, 2016.

“Endogenous reprogramming of mature smooth muscle cells to resident vascular progenitor cells: implications in angiogenesis”, Developmental Origin of Angiogenesis Program, University of Colorado School of Medicine, Aurora, CO, 2016.

“Tumor Suppressor PTEN: Novel role in Cardiovascular Disease”, Department of Medicine Cardiology WIP, University of Colorado School of Medicine, Aurora, CO, 2016.

“Vascular Smooth Muscle: Role in Vessel Homeostasis, Pathological Vascular Remodeling, and Fibrosis,” Translational Cardiovascular Biology Conference, University of Colorado School of Medicine, Aurora, CO, 2016.

“Vascular Smooth Muscle: Role in Vessel Homeostasis, Pathological Vascular Remodeling, and Fibrosis,” Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2016.

“Novel mechanisms of Vascular Smooth Muscle Phenotype Control in Development and Disease,” Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2017.

“Translational insights into mechanisms of pathological vascular remodeling: role of smooth muscle-specific PTEN dysregulation” Translational Cardiovascular Biology Conference, University of Colorado School of Medicine, Aurora, CO, 2018.

“Translational insights into mechanisms of pathological vascular remodeling: role of smooth muscle-specific PTEN dysregulation” Renal Division Research Conference, University of Colorado School of Medicine, Aurora, CO, 2018.

“Translational insights into mechanisms of atherosclerosis and pathological vascular remodeling: role of smooth muscle-specific PTEN dysregulation” Cardiology Division Fellows Conference, University of Colorado School of Medicine, Aurora, CO, 2018.

**Regional:**

"Growth suppressive mechanisms in vascular smooth muscle cells" Invited Guest, Seminar Series, Department of Physiology, Colorado State University, Fort Collins , CO, 1996

"Pathogenesis of Atherosclerosis" Kiwanis Club of Denver, Denver, CO, 2000.

"Stem Cells – A Promising New Era in Human Medicine" Kiwanis Club of Denver, Denver, CO, 2002.

"Negative regulation of SMC proliferation" Invited Guest, Seminar Series, Department of Biomedical Engineering, Colorado State University, Fort Collins , CO, 2003

"Perlecan Heparan Sulfate in the Control of Vascular Smooth Muscle Cell Proliferation" Department of Engineering, University of Colorado, Boulder, CO, 2004.

"Control of Vascular Smooth Muscle Replication During Development and Disease" Seminar Series, Cell and Molecular Biology Graduate Program, Colorado State University, Fort Collins, CO, 2005.

**National:**

"Control of smooth muscle cell replication during vascular development" The 11th Annual CNMC Symposium on ECMO and Advanced Therapies for Respiratory Failure, Keystone, CO, 1995

"Vascular smooth muscle cell activation: matrix injury-induced expression of specific growth-essential transcription factors" FASEB meeting, Atlanta, GA, 1995

"Transient reiteration of autonomous growth capabilities by adult smooth muscle cells following experimental vascular injury" American Heart Association 70th Scientific Sessions, Orlando, FL, 1997

"Perlecan Heparan Sulfates in the Control of Smooth Muscle Cell Proliferation" American Heart Association Scientific Conference on Control Mechanisms in the Fetal and Neonatal Pulmonary Circulation, Sedalia, CO, 1998.

"Differential Expression of Genes in Developing Smooth Muscle Cells" FASEB 2003 Summer Conference – Smooth Muscle, Snowmass, CO, 2003.

"Perlecan Heparan Sulfate in the Control of Vascular Smooth Muscle Cell Proliferation" Department of Pathology and Vascular Biology, University of Washington, Seattle, WA, 2004.

"Perlecan Heparan Sulfate in the Control of Vascular Smooth Muscle Cell Proliferation" Gordon Conference – Basement Membrane, RI, 2004.

"Perlecan/PTEN Signaling: Role in Vascular Smooth Muscle Quiescence." Arteriosclerosis, Thrombosis, and Vascular Biology Annual Conference 2007, Chicago, IL

"Commentary – Proliferation, Remodeling, Extracellular Matrix II" AHA Scientific Session, 2009, Orlando, FL.

“Vascular Smooth Muscle: Role in Inflammatory Vascular Disease and Vessel Regeneration”, Texas A&M Health Sciences Center, College Station, TX, 2012.

“Vascular Smooth Muscle: Role in Inflammatory Vascular Disease and Vessel Regeneration”, University of Kentucky, Lexington, KY, 2012.

“Vascular Smooth Muscle: Role in Inflammatory Vascular Disease and Vessel Regeneration”, University of Virginia, Charlottesville, VA, 2013.

“Nuclear PTEN Interacts with and Selectively Regulates SRF-dependent Smooth Muscle Gene Expression Independent of its Phosphatase Activity”, International MADS Box Conference, Canandaigua, NY, 2013.

“Vascular Smooth Muscle Differentiation Control in Development and Disease”, Department of Cell Biology and Anatomy, University of South Carolina School of Medicine, Columbia, SC, 2015.

“Tumor Suppressor PTEN: Novel Role in Cardiovascular Disease”, Pulmonary Hypertension Seminar Series, Baylor Scott and White Healthcare, Temple, TX, 2015.

“Klf-4-dependent reprogramming of differentiated smooth muscle cells generates a subpopulation of resident vascular progenitor cells in the adventitia,” 19<sup>th</sup> International Vascular Biology Meeting (IVBM), Boston, MA, 2016.

“Novel mechanisms of Vascular Smooth Muscle Phenotype Control in Development and Disease,” Yale Vascular Biology and Therapeutics Program, Yale School of Medicine, New Haven, CT, 2017.

“Novel mechanisms of Vascular Smooth Muscle Phenotype Control in Development and Disease,” University of Georgia College of Veterinary Medicine, University of Georgia, Athens, GA, 2017.

“Smooth-muscle Specific PTEN Dysregulation and Pulmonary Vascular Disease,” American Heart Association Scientific Sessions, Chicago, IL, 2018.

“Translational Insights into Mechanisms of Pathological Vascular Remodeling: Focus on Resident Vascular Smooth Muscle Cells,” Department of Molecular & Cellular Physiology, Albany Medical College, Albany, NY, 2019.

“Regulation of Smooth Muscle Function and Neointima Formation,” American Heart Association Scientific Sessions, Philadelphia, PA, 2019.

“Translational insights into mechanisms of pathological vascular remodeling: Focus on resident vascular smooth muscle cells.” Mount Sinai, NY, 2020

**International:**

“Perlecan Heparan Sulfate in the Control of Vascular Smooth Muscle Cell Proliferation During Development and Disease” Austrian Science Research Series on Development and Disease of the Neuromuscular System, Vienna, Austria, 2004.

“PTEN-specific Knockout in Smooth Muscle.” FASEB Summer Conference on Smooth Muscle, 2009, Tuscany, Italy.

**TEACHING RECORD**

**Classroom Instructional Activities:**

**a. Department of Biology – University of Colorado Denver (1996-2004)**

• **Biology 4674/5674 Mammalian Endocrinology**

This was a full semester formal series of lectures for Senior's and Master of Science candidates. There were approximately 25 students attending these lectures. I gave two lectures a week for the full semester. The course covered receptor signaling pathways, transcriptional control, and a range of Endocrinology-related systems.

**b. Department of Pharmacology / Pharmacology Graduate Program - University of Colorado Anschutz Medical Campus (2007-present)**

• **PHCL 7620 Principles of Pharmacology**

This is a full semester formal series of lectures for Pharmacology Ph.D. candidates (as well as other BSP and MSTP students). This is a comprehensive course lectured by multiple faculty members that covers the basic principles of pharmacology as well as systems pharmacology, with a focus on pharmacology related the neuroscience, cancer biology, and cardiovascular biology. There are approximately 4-6 students attending lectures. I give two lectures a semester related to vascular development, vascular physiology and pathophysiology, control of peripheral vascular resistance and anti-hypertensive drugs, and nitric oxide in the control of endothelial function.

**c. Department of Pharmacology / Pharmacology Graduate Program - University of Colorado Anschutz Medical Campus (2015-present)**

• **PHCL 7620 Frontiers in Pharmacology**

This is a three-week course. The course is intended to introduce students to cutting-edge pharmacology research and to the range of research opportunities available within the Pharmacology Training Program. A series of presentations focus on cellular signaling mechanisms, mechanisms of drug actions, pathways relevant to cancer, neuroscience, and cardiac biology, as well as other areas. The class format is flexible and discussion oriented. There are no exams or tests. Each class consists of a ~40 min presentation, followed by a student-led discussion. The discussion may include questions about the research field, specific research presented, or even general questions of relevance to pharmacology students.

**d. Colorado Clinical and Translational Sciences Institute - University of Colorado Anschutz Medical Campus (2016-present)**

• **IDPT 7646 Tissue Biology and Disease Mechanisms**

Sponsored by the Colorado Clinical and Translational Sciences Institute (CCTSI), this three-unit course (3 hrs/wk) is directed towards motivating upper level (2nd year and beyond) basic science PhD students to consider tackling problems in human disease in their careers. The course presents a broad perspective on human biology, integrating molecular mechanism and cell function into a description of how tissues and organs work and malfunction in the human body. The format is lecture/discussion/no exams. Each week a basic scientist and a clinician team up to present an organ system; normal - how structure serves function and the significant diseases - aetiology, presentation, treatment options and human impact as well as the underlying mechanisms.

**e. MSTP Program – University of Colorado Anschutz Medical Campus (2017-present)**

• **Independent Study – Journal club**

This is a full semester independent study course intended to provide one-on-one interaction with an MSTP student to discuss a journal article relevant to the student's research interest using a Journal Club format. Student-Mentor meet one hour per week.

**Teaching Administration:**

**a. Department of Biology – University of Colorado Denver (1996-2004)**

• **Director, Biology 4674/5674 Mammalian Endocrinology**

During this period, I organized all lectures on a wide variety of topics related to endocrinology. I was responsible for the development of the course and designed the class material that covered signaling pathways, transcriptional control, and a range of endocrinology-related systems.

**b. Pharmacology Graduate Program - University of Colorado Anschutz Medical Campus (2014-present)**

**• Director PHCL 7620 Principles of Pharmacology**

I am responsible for organizing a series of lectures given by faculty within the University, including Pharmacology Training Program faculty as well as outside faculty members. Lectures are given by faculty members with specific expertise on selected topics relevant to the basic principles of pharmacology and systems pharmacology. It is my task to coordinate the lectures into a logical order and assure that they are presented at the level appropriate for the students. In addition, I coordinate all exams. I modified and updated the lecture topics to stress issues related to molecular and medical pharmacology upon taking over as Director of this course.

**c. Integrated Physiology Graduate Program - University of Colorado Anschutz Medical Campus (2019-2020)**

**• Associate Program Director**

I was responsible for co-directing the Integrated Physiology (IPHY) graduate program, including but not limited to overseeing recruitment and admission, IPHY graduate student progress, preliminary and comprehensive exams, and curriculum.

**d. Integrated Physiology Graduate Program - University of Colorado Anschutz Medical Campus (2020-present)**

**• Program Director**

I am responsible for overseeing the Integrated Physiology (IPHY) graduate program, including but not limited to overseeing recruitment and admission, IPHY graduate student progress, preliminary and comprehensive exams, and curriculum.

**e. Renal Division, DOM, T32 – Chair, Research Oversight and Trainee Selection Committee (2019-present)**

**Other Didactic Teaching Activities (1996-present):**

As a member of the Pharmacology and Integrated Physiology Graduate Training Programs and the MSTP Program, I have served as chair or member of many committees for graduate students. This includes committees for Preliminary and Comprehensive Exams and Thesis Committees. For the Comprehensive Exams, students are required to present a research proposal to the faculty. This presentation is followed by detailed questioning by the committee on scientific issues relevant to the proposal. Passing this exam is required of all graduate students who pursue a doctoral degree. I have served on many comprehensive exam and thesis committees. In addition, Pharmacology graduate students are required to present a Major Seminar, which involves working with a faculty member to present a topic unrelated to their major area of study to the Pharmacology Program. I have served as Faculty Mentor for a few Major Seminars. I was responsible for research training of Pediatric Critical Care Fellows during my tenure in the Department of Pediatrics. More recently, while a faculty member of the Department of Medicine, I have been responsible for the research training of Renal and Pulmonary Medicine fellows. In addition, I have trained/mentored undergraduate students, MS and PhD students, and postdoctoral fellows. I actively advise Junior Faculty within the Renal Division as well as other Divisions/Departments within the School of Medicine (eg. Pulmonary, Cardiology, CVP). This involves discussion of scientific and technical problems as well as pre-reviewing grant applications. I actively pre-review grant applications from Senior Faculty members in the Renal Division and participate in the Renal Division Journal Club. Once a year, I present a research article to this group that encompasses all of the Renal Division Faculty and Fellows. In addition, I routinely give annual lectures in the Renal Division Research Seminar series, the CVP/Translational Cardiovascular Research Seminar series, and the Cardiology Division Work-in-Progress seminar series. All of these seminars are presentations to approximately 20-60 people, and offer an opportunity to interact with other research groups in the institution with common interests. My research group conducts routine weekly journal clubs to

disseminate recent published research relevant to our research program. Finally, I am a faculty mentor on four T32 training grants (Renal Division, Cardiology Division, Pharmacology Graduate Program, CVP).

### **Clinical Teaching Activities:**

Not applicable

### **Accomplishments:**

#### **a. Director Biology 4674/5674 Mammalian Endocrinology (1996-2004)**

- Development and annual update of all course material.
- Organization of all lectures for course syllabus.

#### **b. Director PHCL 7620 Principles of Pharmacology (2014-present)**

- Development and annual update of lectures.
- Organize course syllabus, coordinate lectures from multiple faculty members in a logical order, and coordinate all exams.
- Modified and updated the lecture topics to stress issues related to molecular and medical pharmacology.

#### **c. Associate Program Director Integrated Physiology (2019-present)**

- Oversee recruitment and admissions
- Oversee student preliminary and comprehensive exams
- Oversee curriculum
- Oversee student progress

#### **c. Program Director Integrated Physiology (2020-present)**

- Oversee recruitment and admissions
- Oversee student preliminary and comprehensive exams
- Oversee curriculum
- Oversee student progress

### **Notable Mentees:**

• **Heather Walker, M.S.** was a Master of Science student at CU Denver who completed her thesis work in Dr. Weiser-Evans laboratory (Walker, et.al. 2003 *Mol Biol Cell* 14:1941-1952). Ms. Walker went on to receive her PA degree and currently practices in the Denver area.

• **Dr. Peter Mourani, M.D.** was a Pediatric Critical Care Fellow who completed his research component in Dr. Weiser-Evans laboratory (Mourani, et.al. 2004 *Circulation* 109:1299-1306). Dr. Mourani is currently a Professor in the Pediatric Critical Care Division at our Institution.

• **Dr. Janet Wenzlau, Ph.D.** was a Research Associate in Dr. Weiser-Evans laboratory for four years (Garl, et.al. 2004 *Circ Res* 94: 175-183; Mourani, et.al. 2004 *Circulation* 109:1299-1306; Wenzlau, et.al. 2006 *Circ Res* 31;98(6):846-55). Dr. Wenzlau is currently an Instructor in the School of Medicine, Barbara Davis Center.

• **Dr. Seth Furgeson, M.D.** Dr. Weiser-Evans co-mentored Dr. Seth Furgeson, M.D. through his Renal Fellowship (Furgeson, et.al. *Cardiovascular Res*, 86(2):274-82). Dr. Furgeson was the recipient of the Young Investigator Travel grant for the ATVB annual conference while a Fellow and an NIH K08 award and is currently an Associate Professor in our Division.

• **Dr. Howard Li, M.D.** Dr. Weiser-Evans co-mentored Dr. Howard Li, M.D. through his Pulmonary Fellowship (Li, et.al. 2011 *Plos One*, 2011;6(12):e28133). Dr. Li was the recipient of a VA Career Development award, was an Associate Professor in the Pulmonary Division of our Institution, and currently is an Associate Professor at Virginia Commonwealth.

• **Ms. Michelle Levine, B.A.** spent summer and winter breaks for two years working in Dr. Weiser-Evans laboratory during her senior high school year and her freshman undergraduate year at Berkley (Horita, et.al. 2013 *JAMA*, 31;2(3):e000188). Ms. Levine graduated from Berkeley and went on to obtain her M.D.

• **Dr. Allison Ostriker, Ph.D.** Dr. Weiser-Evans co-mentored Dr. Allison Ostriker, Ph.D. through her Ph.D. program in Pharmacology (Ostriker, et.al. 2014 *ATVB*, 34(4):877-86). She was the recipient of a

CCTSI TL1 pre-doctoral fellowship grant and an AHA predoctoral fellowship grant. Dr. Ostriker recently graduated and is currently a post-doctoral fellow at Yale School of Medicine.

- **Dr. Henrick Horita, Ph.D.** was a post-doctoral fellow in Dr. Weiser-Evans laboratory for four years (Horita, et.al. 2011 *ATVB*, 31:2909-19; Horita, et.al. 2013 *JAHA*, 31;2(3):e000188; Horita, et.al. 2016 *Nature Communications*, 7:10830; Majesky, et.al. 2017 *Circulation Research*,120:296-311.). Dr. Horita was a recipient of an AHA Scientist Development award and is currently working as Scientist at Cytoskeleton.

- **Mr. Connor Mattivi** was an undergraduate student at CU Boulder who spent three years working in Dr. Weiser-Evans laboratory. Mr. Mattivi was the recipient of a CU Boulder Undergraduate Research Skills and Training award, an HHMI-sponsored Undergraduate Research grant, and an AHA Undergraduate Research grant. He currently is an MD/PhD candidate in the MSTP program at Rutgers Medical School.

- **Sizhao (Kevin) Lu, Ph.D.** has been a post-doctoral fellow in Dr. Weiser-Evans laboratory since October, 2015 (Majesky, et.al. 2017 *Circulation Research*,120:296-311; Moulton, et. al. 2018 *JCI Insight*, 3(4):e97228; Lu, et. al. 2019 *Circ Res*, 125(2):167; Lu, et. al. 2020 *ATVB*, 40(2):394; Strand, et. al. 2020, *ATVB*, 40(8):1854; Lu, et. al. 2020 *JCI Insight*, under review after revision). He is currently funded through an AHA postdoctoral fellowship grant. **\*He is a travel award recipient (AHA Vascular Discovery, UCD Postdoctoral Association), was a DOM 2018 Research Day poster award recipient, received a Basic Science Award (2019 Annual Nephrology Young Investigators Forum), has been an invited speaker at several national meetings (2016 International Vascular Biology meeting, 2019 AHA Vascular Discovery [2 presentations], 2019 Nephrology Young Investigators Forum, 2019 NKF Young Investigators Forum, 2019 AHA Scientific Sessions, 2020 AHA Vascular Discovery [2 presentations]), and has participated in several training programs (Practical Bioinformatics for Large-Scale Genomics Data Mining, Intro to Data Visualization with ggplot, Data Wrangling with R, Advanced Single Cell RNA-Seq Workshop, Introduction to Analysis of Epigenetic Data).**

- **Ashim Bagchi, Ph.D.** was a post-doctoral fellow in Dr. Weiser-Evans laboratory in 2016. He is currently on faculty at the University of Manitoba.

- **Keith Strand** is currently a pre-doctoral candidate in the Integrated Physiology graduate program, was the recipient of a CFR<sub>e</sub>T pre-doctoral fellowship award, and is currently funded through an NIH F31 fellowship (Moulton, et. al. 2018 *JCI Insight*, 3(4):e97228; Lu, et. al. 2020 *ATVB*, 40(2):394; Strand, et. al. 2020, *ATVB*, 40(8):1854). **\*He received a travel award for the 2018 NAVBO national meeting where he presented a poster, he won best poster at the 2019 AMC annual student research forum, was selected to present his work at national meetings (2019 and 2020 AHA Vascular Discovery), and has presented his work at the 2019 CFR<sub>e</sub>T symposium.**

- **Gabrielle Gionet** was an undergraduate student who spent two summers working in Dr. Weiser-Evans laboratory. She currently is a graduate student at Boston University working toward her degree in Public Health and Epidemiology.

- **Shawna Burgett, Ph.D.** was a post-doctoral fellow in Dr. Weiser-Evans laboratory for one- and one-half years.

- **Austin Jolly** is a current MSTP student in the lab, was the recipient of a CFR<sub>e</sub>T pre-doctoral fellowship award, was funded through the Pharmacology T32, and is currently funded through an AHA predoctoral fellowship (Lu, et. al. 2020 *ATVB*, 40(2):394; Strand, et. al. 2020, *ATVB*, 40(8):1854; Lu, et. al. 2020 *JCI Insight*, under review after revision). **\*He is the recipient of best poster awards (2019 UC AMC MSTP retreat, UC AMC student research forum), won 1<sup>st</sup> place 3-minute talk competition (2019 UC AMC, Intercampus [AMC/Boulder], finalist [top two] 3-minute talk competition statewide competition, and finalist [top 5] 3-minute talk competition regional competition, has presented at several on-campus and national meetings (AMC CFR<sub>e</sub>T symposium, CU Pharmacology student research symposium [2019, 2020 oral presentation], CU AMC MSTP student retreat [2019 poster, 2020 oral presentation]), and was the recipient of the Gottesfeld Memorial Award for Outstanding Medical Student.**

- **Allison Dubner** is a current pre-doctoral candidate in the Integrated Physiology graduate program and was the recipient of a CCTSI TL1 pre-doctoral fellowship award (Strand, et. al. 2020, *ATVB*, 40(8):1854; Lu, et. al. 2020 *JCI Insight*, under review after revision). **\*She was accepted for both a poster and oral presentation at Translational Science 2020 (April 2020, Washington DC. Cancelled due to COVID-19 pandemic).**



• **Danielle Bruns** is currently an Assistant Professor at the University of Wyoming. She was a postdoctoral fellow in the Cardiology Division of our Institution and was co-mentored by me and Dr. Walker. She is the recipient of an active NIH K01 award and is being mentored by me.

**Other Mentees:**

- Dona Brekke, M.D. Pediatric Fellow, UCD
- James Cooper, M.D. Renal Fellow, UCD/AMC, Currently Associate Professor of Medicine CU AMC
- Terry Williams Master’s Thesis Committee Member
- Arkadiy Palvonov Master’s Thesis Committee Member
- Jason Stafford Master’s Thesis Committee Member
- Marisha Godek Ph.D. Thesis Committee Member
- Roopa Thukaram, M.D. Pediatric Fellow Mentor
- Katie Ware Ph.D. Thesis Committee Member
- Wes Blakesly Ph.D. Thesis Committee Member
- Kyle Olzswelski M.S. Thesis Advisor
- Sarah Williams M.S. Thesis Committee Member
- Trisha Sippel Ph.D. Thesis Committee Member
- James Dylewski, M.D. Renal Fellow Mentorship Co-Mentor/Committee Member
- Sarah Haeger MSTP Chair, Thesis Committee
- Andrew Riching Ph.D. Thesis Committee Member
- Danting Cao Ph.D. Chair, Thesis Committee Member / Comprehensive Exam Chair
- Austin Jolly MSTP student independent study / research rotation
- Wells Lariviere MSTP student Ph.D. Chair, Thesis Committee
- Christophe Langouet Astrie Ph.D. Chair, Thesis Committee Member

**GRANT SUPPORT**

**Current Funded Grants as Principal Investigator:**

2014-2023	NIH/NHLBI R01HL121877 “Reprogramming of mature smooth muscle cells to vascular progenitor cells” PI: Mary C.M. Weiser-Evans PI SubContract: Mark Majesky	\$3,215,251
2021-2025	NHLBI R01HL151331 “PTEN promoter hypermethylation underlies vascular disease progression” PI: Mary C.M. Weiser-Evans	\$2,950,755
2020-2022	NIH/NCI R21 CA255246 “The Lung Tumor Microenvironment: Role of Resident Pulmonary Vascular Progenitor Cells in Cancer Progression and Metastasis” PDs/Pis: Mary C.M. Weiser-Evans, Raphael Nemenoff	\$423,000
2020-2024	NIH/NHLBI R01 HL148167 “Understanding the Molecular Mechanisms of Fibromuscular Dysplasia” PI: Kovacic PI Subcontract: Weiser-Evans PI subcontract)	\$480,000
2016-2021	CU School of Medicine Transformational Research “Consortium for Fibrosis Research and Translation (CFReT)” Director/Co-Director: Timothy McKinsey/Mary C.M. Weiser-Evans	\$10,000,000
2019-2021	Chernowitz Foundation Research Grant “Epigenetic control of pathological vascular remodeling: Role of smooth muscle PTEN regulation	\$125,000

2016-2021	CFReT pilot grant "Systemic PTEN elevation blunts pathological cardiovascular fibrosis" PI: Mary C.M. Weiser-Evans	\$150,000
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**Pending Grants as Principal Investigator:**

NIH/NHLBI  
"Translating adventitia vascular cell phenotypes of human coronary arteries"  
MPI: Karen S. Moulton, Mary C.M. Weiser-Evans

**Current Funded Grants as Mentor/co-Mentor:**

2018-2020	18POST34030397 "The protective role of PTEN against pathological vascular fibrosis and remodeling" PI: Sizhao Lu, Ph.D. Mentor: Mary C.M. Weiser-Evans
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2019-2021	F31 HL147393 "PTEN upregulation: a novel therapeutic approach to prevent pathological vascular remodeling and fibrosis" PI: Keith Strand Mentor: Mary C.M. Weiser-Evans
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2020-2022	20PRE35200015 "Epigenetic control of pathological vascular remodeling: Role of SMC-derived AdvSca1-SM cell induction of HDAC9-Brg1" PI: Austin Jolly Mentor: Mary C.M. Weiser-Evans
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2019-2013	K01 AG058810 "Therapeutic activation of AMPK for the aging right heart" PI: Danielle Bruns, Ph.D. Mentor: Mary Weiser-Evans
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**Past Funded Grants as Principal Investigator:**

2015-2019	NHLBI 1R01HL123616 "PTEN-dependent regulation of SRF transcriptional activity and SMC phenotype control" PI: Mary C.M. Weiser-Evans	\$1,981,084
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2014-2019	NHLBI R01HL123650 "Resident Progenitor Cells in the Adventitia" PI: Mark Majesky PI SubContract: Mary C.M. Weiser	\$577,500
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2013-2015	NIH/NHLBI R21HL114126 "Microenvironmental reprogramming of SMC" PI: Mary C.M. Weiser-Evans	\$423,500
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2009-2014 NCE 06/30/2015	NIH/NHLBI PPG P01HL014985 (Stenmark, KR) "Adaptations to Hypoxia" Project 2: "Role of PTEN in Hypoxia-induced Pulmonary Hypertension" PI: Mary C.M. Weiser-Evans and Raphael Nemenoff	\$1,609,300
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2009-2012	NHLBI 1R01 HL088643	\$1,540,000
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	"Role of PTEN in Vascular Lesion Formation" PI: Mary C.M. Weiser-Evans	
2008–2009	University of Colorado Cancer Center Seed Grant "cPLA <sub>2</sub> in the tumor microenvironment in the progression and metastasis of lung cancer" PI: Mary C.M. Weiser-Evans	\$20,000
2008-2009	CA058187 SPORE in Lung Cancer (Bunn, P) Lung SPORE Translational Pilot Project "Role of Pioglitazone in Macrophage Function and Lung Cancer Progression and Metastasis" PI: Mary C.M. Weiser-Evans	\$30,000
2008-2010	#0850231Z American Heart Association Grant-in-Aid "Role of PTEN in neointima formation" PI: Mary C.M. Weiser-Evans	\$210,000
2006-2008	NIH/NIBIB 1R21 EB003999 Exploratory/Developmental Bioengineering Research Grant "PTEN and Perlecan Heparan Sulfate in Reducing In-Stent Restenosis" PI: Mary C.M. Weiser-Evans	\$275,000
2004-2005	UCHSC Department Pediatrics Research Institute Bridge Grant "PTEN and Perlecan in Reducing In-Stent Restenosis" PI: Mary C.M. Weiser-Evans	\$65,800
2002-2003	University of Colorado Seed Grant "Role of PTEN in Vascular Smooth Muscle Cell Growth Inhibition" PI: Mary C.M. Weiser-Evans	\$20,000
2000-2004	NIH/NHLBI 1 R01 HL63946-01 "Role of Novel Embryonic Genes in SMC Growth After Vascular Injury" PI: Mary C.M. Weiser-Evans	\$800,000
1999-2002	#9950407N American Heart Association Grant-in-Aid "Growth Suppressive Mechanisms in Vascular SMC" PI: Mary C.M. Weiser	\$165,000
1996-1999	#95008610 American Heart Association Grant-in-Aid "Matrix-injury regulated expression of SRF in vascular SMC" PI: Mary C.M. Weiser	\$165,000
1994-1996	American Lung Association Research Training Fellowship "Expression and functional role of Oct-1 in vascular smooth muscle" PI: Mary C.M. Weiser Supervisor: Richard Majack	
1993-1994	American Heart Association of Colorado Postdoctoral Fellowship "Identification of a growth factor/receptor system operative in autocrine growth of vascular SMC" PI: Mary C.M. Weiser Supervisor: Richard Majack	

**Past Funded Grants as co-Investigator:**

2015-2020	DOD Medical Research Program "Novel mTOR signaling pathways in PKD" PI: Charles Edelstein Consultant: Mary Weiser-Evans	
2013-2018	NIH/NCI R01CA162226 "Eicosanoids in Lung Cancer: Progression and Metastasis" PI: Raphael Nemenoff Co-I: Mary Weiser-Evans	
2013-2015	AHA Grant-in-Aid "mTORC2 signaling in PKD" PI: Charles Edelstein Consultant: Mary Weiser-Evans	
2013-2015	Norman Coplan Award "The Role of the neonatal Fc receptor (FcRn) in podocytes" PI: Judith Blaine Consultant: Mary Weiser-Evans	
2013-2017	VA Merit Award 1I01BX001498 "The anti-inflammatory response after acute kidney injury" PI: Sarah Faubel Consultant: Mary Weiser-Evans	
2014-2019	NHLBI R01HL123650 "Resident Progenitor Cells in the Adventitia" PI: Mark Majesky PI SubContract: Mary C.M. Weiser	\$465,000
2011-2016	NIH/NHLBI 1R01HL107804 "Common targeting of the prostacyclin-PPAR $\gamma$ axis in COPD and lung cancer" Multi-PI: Mark Geraci / Rubin Tudor Co-I: Mary C.M. Weiser-Evans	
2004-2015	NIH/NCI R01CA108610 "Peroxisome Proliferator Activated Receptors in Lung Cancer" PI: Raphael Nemenoff Co-I: Mary C.M. Weiser-Evans	
2009-2010	Daiichi Sankyo Pharma Development "Chemopreventive and Chemotherapeutic Effects of CS-7017 in Lung Cancer" PI: Raphael Nemenoff Co-PI: Mary C.M. Weiser-Evans	
2009-2011	NIH/NCI 5R01CA103618-16 "Role of cPLA <sub>2</sub> in Lung Cancer: Microenvironment vs Tumor Cells" PI: Raphael Nemenoff Co-I: Mary C.M. Weiser-Evans	
2003-2009	NIH/NCI 5R01CA103618-16 "Induction of cPLA <sub>2</sub> in transformed cells" PI: Raphael Nemenoff	

Co-I: Mary C.M. Weiser-Evans

- 2006-2007 Australian Research Council International Linkage Award  
“Heparan sulfate proteoglycan from smooth muscle cell basal lamina: It’s role in cell signaling  
PI: John Whitelock Co-I: Mary C.M. Weiser-Evans
- 1996-2001 NIH/NHLBI P50HL57144 SCOR Grant (Kurt R. Stenmark) \$560,000  
“Impact of Injury on the Immature Pulmonary Circulation”  
Project 2: “Perlecan Heparan Sulfates: molecular mechanisms underlying the control of SMC replication and gene expression during normal development and in neonatal pulmonary hypertension”  
PI: K.R. Stenmark  
Co-I: Mary C.M. Weiser

**Past Funded Grants as Mentor/co-Mentor:**

- 2019-2020 CCTSI TOTTS TL1  
“Role of Gli1/H19/Wnt/beta-catenin signaling and AdvSca1-SM cells in plaque neovascularization”  
PI: Allison Dubner  
Mentor: Mary C.M. Weiser-Evans
- 2016-2018 CFReT pre-doctoral fellowship  
“Identification of novel small molecule activators of PTEN”  
PI: Keith Strand  
Mentor: Mary C.M. Weiser-Evans
- 2014-2018 14SDG20100023 American Heart Association SDG  
“Defining PTEN-dependent SRF regulation of VSMC phenotypic modulation”  
PI: Henrick Horita  
Mentor: Mary C.M. Weiser-Evans
- 2012-2016 CDA-2 1IK2BX001282 VA Career Development Program  
“The role of PPAR $\gamma$  in lung cancer progression and metastasis”  
PI: Howard Li  
Co-Mentor: Mary Weiser-Evans
- 2011-2016 NIH/NHLBI K08HL103774  
“The role of smooth muscle PPAR $\gamma$  in neointima formation”  
PI: Seth Furgeson  
Co-I: Mary Weiser-Evans
- 2015 HHMI-UROP Undergraduate Research Grant  
“PTEN-SRF regulation of smooth muscle cell function”  
PI: Connor Mattivi  
Mentor: Mary C.M. Weiser-Evans
- 2014 14UFEL20630011 American Heart Association SWA  
Undergraduate Student Research Program  
“Loss of Nuclear PTEN in human atherosclerotic lesions”  
PI: Connor Mattivi  
Mentor: Mary C.M. Weiser-Evans
- 2014 HHMI-UROP Undergraduate Research Grant

“PTEN-SRF regulation of smooth muscle cell function”

PI: Connor Mattivi

Mentor: Mary C.M. Weiser-Evans

2013

Bioscience Undergraduate Research Skills and Training Program

“PTEN-SRF regulation of smooth muscle cell function”

PI: Connor Mattivi

Mentor: Mary C.M. Weiser-Evans

2012-2014

12PRE11800015 AHA Pre-doctoral Fellowship

“Arterial smooth muscle-macrophage crosstalk mediates neointima formation and vascular injury”

PI: Allison Ostriker

Co-Mentor: Mary Weiser-Evans

2009-2010

Amgen Fellowship Award (Seth Furgeson)

“Role of PPAR $\gamma$  in Neointima Formation”

Co-Mentor: Mary C.M. Weiser-Evans

## **BIBLIOGRAPHY**

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

1. Reeves JT, Durmovitz AG, **Weiser MCM**, Orton EC, Stenmark KR (1993) Diversity in the pulmonary circulation: an overview of the international conference on the Pulmonary Vasculature in Health and Disease. *Eur Respir Rev* 3:530-534.
2. Cook CL, **Weiser MCM**, Schwartz PE, Jones CL, Majack RA (1994) Developmentally timed expression of an embryonic growth phenotype in vascular smooth muscle cells. *Circulation Research* 74:189-196. PMID: 8293558
3. **Weiser MCM**, Majack RA, Tucker A, Orton EC (1995) Static tension is associated with increased smooth muscle cell DNA synthesis in rat pulmonary arteries. *Amer J Physiol* 268:H1133-H1138. PMID: 7900867
4. Majack RA, Grieshaber NA, Cook CL, **Weiser MCM**, Schwartz PE, McFall R, Reidy MA, Reilly CF (1996) Smooth muscle cells isolated from the neointima after vascular injury exhibit altered responses to platelet-derived growth factor and other mitogens. *J Cell Physiol* 167:106-112. PMID: 8698827
5. **Weiser MCM**, Belknap JK, Grieshaber SS, Kinsella MG, Majack RA (1996) Developmental regulation of perlecan gene expression in aortic smooth muscle cells. *Matrix Biology* 15(5):331-340. PMID: 8981329
6. **Weiser MCM**, Schwartz PE, Grieshaber NA, Majack RA (1997) Perlecan heparan sulfates regulate Oct-1 gene expression in vascular smooth muscle cells. *Mol Biol Cell*, 8:999-1011. PMID: 9201711
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### **\*Respir Cell Mol Biol Cover Figure**

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