

## ***CURRICULUM VITAE (CV)***

**K. Adam Morrow, Ph.D.**  
***Associate Professor for Cell Biology and Physiology***  
**Department of Biomedical Sciences**  
**Edward Via College of Osteopathic Medicine**

### **CONTACT INFORMATION**

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### **EDUCATION**

College University of Central Arkansas, 2008, B.S. Chemistry

Graduate School University of South Alabama College of Medicine, 2012,  
Ph.D. Basic Medical Sciences (Focus in Cancer Biology)  
Department of Cell Biology and Neuroscience

Postdoctoral Training Postdoctoral fellowship, University of South Alabama Center  
for Lung Biology  
Department of Cell Biology and Physiology 2012-2016

### **ACADEMIC APPOINTMENTS**

2014-2015; Adjunct Professor, Department of Biology, University of South Alabama, Mobile, AL

2016-2020; Assistant Professor of Biochemistry, Department of Anatomy and Molecular Medicine, Alabama College of Osteopathic Medicine (ACOM), Dothan, AL

2020-2021; Assistant Professor, Department of Cell Biology and Physiology, Edward Via College of Osteopathic Medicine (VCOM), Monroe, LA

2021-Present; Associate Professor, Department of Cell Biology and Physiology, Edward Via College of Osteopathic Medicine, Monroe, LA

2022-Present, Adjunct Professor, College of Pharmacy, University of Louisiana Monroe School of Basic Pharmaceutical Sciences, Monroe, LA

### **COMMITTEES AND LEADERSHIP**

American Physiological Society Education Committee (2017-2019)  
Association of Biochemistry Educators Communication Committee Chair (2022-2023)

### **TEACHING EXPERIENCE**

#### **Medical School**

<u>Course</u>	<u>Role</u>	<u>Year</u>
Foundations of Medicine	Course Director	2021-present
Cell Biology and Physiology		
VCOM		

Pulmonary Physiology VCOM	Course Director	2021-present
Musculoskeletal Physiology VCOM	Course Director	2021-present
Neuroscience VCOM	Lecturer	2021-present
Respiratory System ACOM	Course Director	2019
Heme Lymph System ACOM	Lecturer	2018-2019
Endocrine System ACOM	Lecturer	2017-2019
Reproductive System ACOM	Lecturer	2017-2019
Gastrointestinal (GI) System ACOM	Course Director	2017-2019
Molecular Medicine ACOM	Lecturer	2016-2019
Medical Simulation University of South Alabama	Small Group Facilitator	Fall 2015

### **Graduate Medical Education or other Professional School**

<u>Course</u>	<u>Role</u>	<u>Year</u>
Molecular and Cellular Toxicology (PHA 643) University of South Alabama	Lecturer	2013
Journal Club University of South Alabama Mitchell Cancer Institute	Course Director	2011-2012

### **Undergraduate**

<u>Course</u>	<u>Role</u>	<u>Year</u>
Seminars in Biomedical Sciences (BMD 201) University of South Alabama	Lecturer	2015
UCUR – Scholarship/Fellowship Preparation (HON 290) University of South Alabama	Small Group Facilitator	2015
General Education Biology for Majors (BLY 122) University of South Alabama	Course Director	2014-2015
Biomedical Research, Diversity, and Ethics (CAS 100) University of South Alabama	Course Director	2014

**Other**

<u>Course</u>	<u>Role</u>	<u>Year</u>
AP Biology (BMD 201)	Consultant Lecturer	2014-2020
National Math and Science Initiative		

**PROFESSIONAL AFFILIATIONS**

2012-present; Member of American Heart Association  
 2012-present; Member of American Thoracic Society  
 2012-present; Member of American Physiology Society  
 2022-present; Member of American Society of Biochemistry and Molecular Biology  
 2022-present; Member of Association of Biochemistry Educators

**HONORS AND AWARDS**

*VCOM Faculty of the Block (Block 4 Cardiovascular and Pulmonary Physiology, 2021; Block 1 Biochemistry, 2022)*

**PROFESSIONAL SERVICE****Study Sections & Invited Reviewer**

Virology and Diseases Fellowship Study Section, American Heart Association (2022-2023)  
 Basic Science Signaling Fellowship Study Section, American Heart Association (2022-2023)

**Other**

<u>Activity</u>	<u>Level</u>	<u>Year</u>	<u>Role</u>
NBOME National Faculty	National	2017-present	Item Writer
APS Undergraduate Abstract Awards	Undergraduate	2019	Lead Judge
Handbook Committee	Medical	2018-2019	Member
Wiregrass District Science Fair	High School Middle School Elementary	2018-2020	Director
Wiregrass District Science Fair	Middle School Elementary	2018	Judge
SAMC Poster Day	Medical	2017 and 2019	Judge
APS Undergraduate Abstract Awards	Undergraduate	2017-2020	Judge
Wiregrass District Science Fair	High School Middle School Elementary	2017	Judge
Mobile Regional Science and Engineering Fair	High School	2016	Chair of Zoology
Mobile Regional Science	High School	2015	Judge

and Engineering Fair CREATE Committee for Research And Teaching Experiences	University	2014	Co-Founder
UCUR University Committee for Undergraduate Research	University	2014	Application Reviewer

### **Ad-hoc reviewer**

*Ad-hoc reviewer for several journals including: Frontiers in Physiology, Vascular Physiology Section, American Journal of Physiology: Lung Cellular and Molecular Physiology, PLoS One, Cureus Journal of Medical Science, Biomed Central Cancer, LifeSciTRC*

### **MENTORING ACTIVITIES**

#### **Research Mentorship**

*2017-present; Dissertation Committee Member for Meredith Gwin, PhD Candidate*

<u>Trainees</u>	<u>Level</u>	<u>Year(s)</u>
Jessica Houston	Undergraduate	2011
Andrew Vincent	Medical	2011-2012
Kevin Lee	Graduate	2012
Sara Sigler	Graduate	2012
Matthew Robson	Undergraduate	2012-2016
Trevor Stevens	Undergraduate	2012-2016
Richard Huettemann	Undergraduate	2012
Holly Schwarzbauer	Undergraduate	2012
Rohan Palanki	High School	2013-2014
Nathan Bartz	High School	2013-2014
Reece Stevens	High School	2013-2015
William Harvey	Medical	2014
*Laura Cauthen	Medical	2014
Richard Huettemann	Medical	2015
Ezinne Agwaramgbo	Undergraduate	2016
Geri Langham	Undergraduate	2016
Rhandy Ceballos	Medical	2017
Nicholas Quigley	Medical	2017
Caleb Josephs	Medical	2017
†Victoria Brown	Medical	2017
#Ashley Carter	Medical	2018
Justin Cullifer	Medical	2018
\$Mayen Gonzalez	Medical	2018
^Heath Scott	Medical	2019
&Michael Miley	Medical	2019
Austin Bettridge	Medical	2020

Stephanie Lazo	Medical	2021-present
Aditi Patel	Medical	2021-present
Naved Salim	Medical	2021-present
Olivia Bee	Medical	2022-present

\*Denotes mentored medical student who served as co-author on manuscript 6 in “Original Publications” section above.

†Denotes mentored medical student who won Best Poster Presentation at 3<sup>rd</sup> Annual Alabama Osteopathic Medical Association Science and Management Conference in 2017.

#Denotes mentored medical student who won Best Poster Presentation at 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting in 2018.

§Denotes mentored medical student who won Best Oral Presentation at 96<sup>th</sup> Annual Meeting of the Alabama Academy of Science in 2019.

^Denotes mentored medical student who received 2<sup>nd</sup> place for Basic Science Poster Presentation at 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting in 2019.

&Denotes mentored medical student who received 4<sup>th</sup> place for Basic Science Poster Presentation at 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting in 2019.

## **INSTITUTIONAL SERVICE**

Advise 20-22 students per year

2022-present; Professionalism and Ethics Standards Board (PESB) Chair

2022-present; Biochemistry Discipline Representative to Curriculum Oversight Committee

2021-present; Medical School Admissions Committee Member

2020-present; Medical School Interviewer

2020-present; Faculty Senate Member 2008-present Poster judge for research day

## **GRANTS and CONTRACTS**

### **Completed**

The Role of Intracellular Osteopontin in Pulmonary Arterial Hypertension

Research Eureka Accelerator Program (Intramural)

Role: Principal Investigator

Dates: 07/01/2020 – 06/30/2022

Goal: The goal of this project was to determine whether loss of intracellular osteopontin promotes EndMT, which contributes to the hyperproliferative, invasive, and pro-inflammatory phenotype of pulmonary endothelium in PAH.

Principal Investigator: Audrey Vasauskas, Ph.D.

The Role Of FK506 Binding Protein 51 In Pulmonary Arterial Hypertension

1R15HL137135-01A1

NIH/NHLBI

Role: Collaborating Investigator

Dates: 06/01/2018 – 05/31/2021

Goal: The goal of this project was to determine whether FKBP51 is increased and contributes to pro-proliferative and anti-apoptotic phenotype of pulmonary artery endothelial cells in pulmonary arterial hypertension.

Principal Investigator: Audrey Vasauskas, Ph.D.

The Role Of FK506 Binding Protein 51 In Pulmonary Arterial Hypertension

17AIREA33680155

AHA AIREA

Role: Collaborating Investigator

Dates: 07/01/2017 – 05/31/2018

Goal: The goal of this project was to determine whether FKBP51 is increased and contributes to pro-proliferative and anti-apoptotic phenotype of pulmonary artery endothelial cells in pulmonary arterial hypertension.

Endothelial tau oligomerization causes transmissible vascular cytotoxicity

16POST27250139

AHA Greater Southeast Postdoctoral Fellowship

Role: Principal Investigator

Dates: 01/01/2016 – 08/08/2016

Goal: The goal of this project was to determine how the pathogenic mechanisms associated with *Pseudomonas aeruginosa* infection cause release of cytotoxic proteins from host cells.

*Pseudomonas aeruginosa* infection causes a tauopathy of the lung

14POST18080004

AHA Greater Southeast Postdoctoral Fellowship

Role: Principal Investigator

Dates: 01/01/2014 – 12/31/2015

Goal: This proposal tested the hypothesis that *P. aeruginosa* ExoY and ExoU induce release of oligomerized, hyperphosphorylated endothelial tau, which impedes lung repair and cognitive function following infection.

cAMP in Endothelial Permeability

Principal Investigator: Troy Stevens, Ph.D.

2P01HL066299-11A1

NIH/NHLBI

Role: Postdoctoral Fellow/Trainee

Dates: 06/01/2012 – 12/31/2013

Goal: This proposal tested the hypothesis that endothelium lining the lung's extra-alveolar and alveolar blood vessels is phenotypically distinct, and that the unique behavior(s) of cells from these different vascular locations is necessary for them to fulfill their site-specific function(s).

Molecular Determinants of Breast Cancer Malignancy

Principal Investigator: Lalita A. Shevde, Ph.D.

5R01CA138850-02

NIH/NCI

Role: Graduate Student/Trainee

Dates: 05/01/2011 - 05/31/2012

Goal: This proposal tested whether the tumor suppressor protein Merlin played a role in breast cancer.

### Active

Cytoprotective Endothelial Amyloids

Research Eureka Accelerator Program (Intramural)

Role: Co-principal Investigator

Dates: 07/01/2022 – 06/30/2023

Goal: The goal of this project is to determine the contribution of amyloid precursor protein to lung endothelial host defense and the mechanism of *Pseudomonas aeruginosa* Exoenzyme Y-mediated impairment of this defense.

### PUBLICATIONS

#### Peer-Reviewed Journal Articles

1. Balczon R, **Morrow KA**, Leavesley S, Francis CM, Stevens TC, Agwaramgbo E, Williams C, Stevens RP, Langham G, Voth S, Cioffi EA, Weintraub SE, Stevens T. Cystatin C regulates the cytotoxicity of infection-induced endothelial-derived  $\beta$ -amyloid. FEBS Open Bio. 2020 Oct 8;10(11):2464–77. PMID: 33030263
2. Lin MT, Balczon R, Pittet JF, Wagener BM, Moser SA, **Morrow KA**, Voth S, Francis CM, Leavesley S, Bell J, Alvarez DF, and Stevens T. Nosocomial Pneumonia Elicits an Endothelial Proteinopathy: Evidence for a Source of Neurotoxic Amyloids in Critically Ill Patients. American Journal of Respiratory and Critical Care Medicine. 2018 Dec 15;198(12):1575-1578. PMID: 30280916
3. Balczon R, **Morrow KA**, Edmonds B, Zhou C, Alexeyev M, Pittet JF, Wagener BM, Moser SA, Zha X, Frank DW, and Stevens T. *Pseudomonas aeruginosa* Infection Liberates Transmissible, Cytotoxic Prion Amyloids. FASEB J. 2017 Jul;31(7):2785-2796. PMID: 28314768
4. **Morrow KA**, Das S, Meng E, Menezes ME, Bailey SK, Metge BJ, Buchsbaum DJ, Samant RS, Shevde LA. Loss of tumor suppressor Merlin results in aberrant Wnt/ $\beta$ -catenin signaling in cancer. Oncotarget. 2016 Apr 5;7(14):17991-8005. PMID: 26908451
5. **Morrow KA**, Ochoa CD, Balczon R, Zhou C, \*Cauthen L, Alexeyev M, Schmalzer KM, Frank DW, Stevens T. The *Pseudomonas aeruginosa* exoenzymes U and Y induce a transmissible endothelial proteinopathy. American Journal of Physiology - Lung Cellular and Molecular Physiology. 2016 Feb 15;310(4):L337-53. PMID: 26637633
6. **Morrow KA**, Seifert R, Kaefer V, Britain AL, Sayner SL, Ochoa CD, Cioffi EA, Frank DW, Rich TC, Stevens T. Heterogeneity of Pulmonary Endothelial Cyclic Nucleotide Response to *Pseudomonas aeruginosa* ExoY Infection. American Journal of Physiology - Lung Cellular and Molecular Physiology. 2015 Nov 15;309(10):L1199-207. PMID: 26386118

7. Stevens TC, Ochoa CD, **Morrow KA**, Robson MJ, Prasain N, Zhou C, Alvarez DF, Frank DW, Balczon R, Stevens T. The *Pseudomonas aeruginosa* exoenzyme Y impairs endothelial cell proliferation and vascular repair following lung injury. *American Journal of Physiology - Lung Cellular and Molecular Physiology*. 2014 May 15;306(10):L915-24. PMID: 24705722
8. **Morrow KA**, Das S, Metge BJ, Ye K, Mulekar MS, Tucker JA, Samant RS, Shevde LA. Loss of tumor suppressor Merlin in advanced breast cancer is due to post-translational regulation. *The Journal of Biological Chemistry*. 2011 Nov 18;286(46):40376-85. PMID: 21965655

#### **Book chapters and review articles (peer reviewed)**

1. **Morrow KA**, Frank DW, Balczon R, and Stevens T. The *Pseudomonas aeruginosa* exoenzyme Y: A promiscuous nucleotidyl cyclase edema factor and virulence determinant. In: *Handbook of Experimental Pharmacology*. Editor: Roland Seifert. 2017;238:67-85. PMID: 28181005
2. **Morrow KA** and Shevde LA. Merlin: The wizard requires protein stability to function as a tumor suppressor. *Biochim Biophys Acta*. 2012 Dec;1826(2):400-6. PMID: 22750751

#### **Non-Peer reviewed publications**

1. Traumatic Brain Injury: More Than a Kick in the Head. American Physiological Society iSpyPhysiology Blog <https://ispyphysiology.com/2017/10/04/traumatic-brain-injury-more-than-a-kick-in-the-head/> October 2017.
2. In May, Take Steps to Prevent Melanoma. American Physiological Society iSpyPhysiology Blog <https://ispyphysiology.com/2017/05/17/in-may-take-steps-to-prevent-melanoma/> May 2017.

#### **Intellectual Property**

Voth S, Balczon R, **Morrow KA**, and Stevens T. International patent cooperation number WO/2020/051473. *Infection-induced endothelial amyloid compositions as antimicrobials*. December 03, 2020. <https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2020051473&tab=PCTBIBLIO>

#### **PROFESSIONAL PRESENTATIONS**

1. "The Role of Intracellular Osteopontin in Pulmonary Arterial Hypertension" September 23, 2021. Research Rounds, Monroe, Louisiana.
2. **(INVITED)** "Bacterial Infection Leads to an Endothelial Proteinopathy" August 29, 2021. Louisiana Osteopathic Medical Association, New Orleans, Louisiana.
3. **(INVITED)** "Loss of Osteopontin Promotes EndMT in PAH" November 7, 2019. University of South Alabama College of Medicine, Mobile, Alabama.
4. **(INVITED)** "Alzheimer's Disease-Associated  $\beta$ -Amyloid is Rapidly Seeded by *Herpesviridae* to Protect against Brain Infection" April 4, 2019. Alabama College of Osteopathic Medicine, Dothan, Alabama.



5. **(INVITED)** “Pseudomonas Infections Cause Release of Cytotoxic Amyloids from Lung Endothelium” November 14, 2018. Alabama College of Osteopathic Medicine, Dothan, Alabama.
6. **(INVITED)** “Pathophysiological Consequences of Genetic Mutations” June 24, 2016. Alabama College of Osteopathic Medicine, Dothan, Alabama.
7. **(INVITED)** “*Pseudomonas aeruginosa* induces a proteinopathy of the lung” May 20, 2016. Arkansas College of Osteopathic Medicine, Fort Smith, Arkansas.
8. Research in Progress: “*Pseudomonas aeruginosa* Exo(wh)Y do we care?” March 01, 2016. University of South Alabama Center for Lung Biology, Mobile, Alabama.
9. **(INVITED)** University of South Alabama Biomedical Sciences – Introduction to Research Course: “*Pseudomonas aeruginosa* propagates damage through endothelial cytotoxic protein release” November 12, 2015. University of South Alabama College of Allied Health, Mobile, Alabama.
10. **(INVITED)** University of South Alabama College of Medicine Research Forum: “*Pseudomonas* type 3 secretion system effectors induce a transmissible endothelial tauopathy” October 31, 2014. University of South Alabama College of Medicine, Mobile, Alabama.
11. **(INVITED)** 5th annual Trainee Highlights Breakfast at EB 2014 presented by the Respiration Section of the American Physiological Society: “*Pseudomonas aeruginosa* infection causes endothelial Tau aggregation: evidence for an endothelial Tauopathy” April 27<sup>th</sup>, 2014. San Diego, CA.
12. Research in Progress: “Pulmonary endothelium displays elevated cyclic nucleotide levels in response to *Pseudomonas aeruginosa* ExoY” March 25, 2014. University of South Alabama Center for Lung Biology, Mobile, Alabama.
13. Research in Progress: “Tau oligomers can be propagated and impair cognitive function in mice” February 5, 2013. University of South Alabama Center for Lung Biology, Mobile, Alabama.
14. **(INVITED)** 132<sup>nd</sup> Annual Meeting of the Association of Clinical Scientists: “Post-translational regulation leads to loss of tumor suppressor Merlin in breast cancer” May 25, 2012. Mobile, Alabama.
15. Dissertation Defense: “Elucidating the role of the tumor suppressor protein Merlin in breast cancer” March 19, 2012. University of South Alabama College of Medicine, Mobile, Alabama.
16. Data in Progress: “The tumor suppressor Merlin inhibits Wnt signaling in breast cancer” January 17, 2012. University of South Alabama Mitchell Cancer Institute, Mobile, Alabama.
17. Data in Progress: “Elucidating the role of the tumor suppressor protein Merlin in breast cancer” May 31, 2011. University of South Alabama Mitchell Cancer Institute, Mobile, Alabama.
18. **(INVITED)** UCA Chemistry Seminar Series: “Merlin: A True Wizard” March 17, 2011. University of Central Arkansas, Conway, Arkansas.
19. **(INVITED)** University of South Alabama College of Medicine Research Forum: “The tumor suppressor Merlin suppresses Wnt signaling in breast cancer” December 9, 2011. University of South Alabama College of Medicine, Mobile, Alabama.

20. Data in Progress: "Uncovering the role of the novel breast cancer tumor suppressor protein Merlin" October 5, 2010. University of South Alabama Mitchell Cancer Institute, Mobile, Alabama.
21. Fall Chalk Talk: "Purification of recombinant ADAM-7 from insect cells" October 2007. University of Central Arkansas, Conway, Arkansas.

## PUBLISHED ABSTRACTS

1. Voth SB, Choi C-S, **Morrow KA**, Gwin M, Knighten J, Francis CM, Lin M, Gautam S, Frank DW, Audia JP, Stevens T, Sharma L, and Cruz CD. Amyloid-beta precursor protein: Essential to lung capillary barrier defense during acute infection. Experimental Biology Annual Meeting. Philadelphia, Pennsylvania April 2022 FASEB J, 36: S1, 2022. doi:10.1096/fasebj.2022.36.S1.R5635
2. **Morrow KA**, Brown JR, Morrow RL, Snyder EA, Vasauskas AA. Evidence of Endothelial-to-Mesenchymal Transition in an Animal Model of Pulmonary Arterial Hypertension. Experimental Biology Annual Meeting. Orlando, Florida April 2019 FASEB J April 2019 33:lb579.
3. Josephs CA, Ceballos R, Vasauskas AA, Morrow RL, **Morrow KA**. Loss of BMP2 Confers Proliferative Advantage on Pulmonary Artery Endothelial Cells by Decreasing Dependence on Growth Suppressor Merlin. Experimental Biology Annual Meeting. San Diego, California April 2018 FASEB J April 2018 32:917.7.
4. Brown JR, Morrow RL, **Morrow KA**, Vasauskas AA. FK506-binding Protein 51 Plays a Role in Pulmonary Endothelial Cell Phenotype Switching. Experimental Biology Annual Meeting. San Diego, California April 2018 FASEB J April 2018 32:917.8.
5. **Morrow KA**, Carter RF. Building a Pedigree: Utilization of Patient Encounters to Strengthen Genetics Foundation. Experimental Biology Annual Meeting. San Diego, California April 2018 FASEB J April 2018 32:629.11.
6. Francis CM, **Morrow KA**, Renema P, Teague DA, Agwaramgbo E, Langham G, Stevens TC, Williams CC, Alvarez DF, Audia JP, Balczon R, Stevens T. An Automated, Label-free Method for Quantifying Intercellular Gap Formation in Images of Cell Monolayers. Experimental Biology Annual Meeting. Chicago, Illinois April 2017 FASEB J April 2017 31:837.11.
7. **Morrow KA**, Stevens TC, Agwaramgbo E, Langham G, Francis M, Balczon R, Stevens T. Studies on the Physical Properties of the *Pseudomonas aeruginosa*-induced Endothelial Prion Cytotoxin(s). Experimental Biology Annual Meeting. Chicago, Illinois April 2017 FASEB J April 2017 31:1074.1.
8. Lin MT, Balczon R, **Morrow KA**, Wagener BM, Pittet JF, Stevens T. *Pseudomonas aeruginosa*-induced pulmonary endothelial amyloid proteins impair long-term plasticity. Experimental Biology Annual Meeting. Chicago, Illinois April 2017 FASEB J April 2017 31:861.3.
9. Williams CC, **Morrow KA**, Stevens TC, Francis CM, Balczon R, Stevens T. Effect of Phenol on Prion Endothelial Cytotoxin Secondary to *Pseudomonas*. American Thoracic Society Annual Meeting. Washington D.C. 2017 Am J Respir Crit Care Med 2017;195:A4375.
10. **Morrow KA**, Balczon R, Frank DW, Stevens T. Pulmonary Endothelial Heterogeneity in Response to Infection-induced Cytotoxic Supernatant.

Experimental Biology Annual Meeting. San Diego, California April 2016 FASEB J April 2016 30:980.7.

11. **Morrow KA**, Ochoa CD, Balczon R, Cauthen L, Alexeyev M, Schmalzer KM, Frank DW, Stevens T. *Pseudomonas aeruginosa* Exoenzymes U and Y Induce a Transmissible Endothelial Tauopathy. Experimental Biology Annual Meeting. Boston, Massachusetts FASEB J April 2015 29:661.5.
12. **Morrow KA**, Seifert R, Britain AL, Ochoa CD, Alexeyev M, Frank DW, Rich TC, Stevens T. Heterogeneity of pulmonary endothelial cyclic nucleotide response to *Pseudomonas aeruginosa* infection. Experimental Biology Annual Meeting. Boston, Massachusetts FASEB J April 2015 29:661.6.
13. **Morrow KA**, Seifert R, Britain AL, Ochoa CD, Alexeyev M, Frank DW, Rich TC, Stevens T. Heterogeneity of pulmonary endothelial cyclic nucleotide response to *Pseudomonas aeruginosa* infection. Endothelial Cell Phenotypes in Health and Disease Gordon Research Conference. Girona, Spain July 2014.
14. **Morrow KA**, Ochoa CD, Alexeyev M, Frank DW, Balczon R, Stevens T. Pulmonary infection by *Pseudomonas aeruginosa* causes endothelial cell Tau aggregation: evidence for a Tauopathy of the lung. Experimental Biology Annual Meeting. San Diego, California May 2014 FASEB J April 2014 28:1176.5.
15. **Morrow KA**, Ochoa CD, Alexeyev M, Frank DW, Audia JP, Balczon R, Stevens T. The *Pseudomonas aeruginosa* Exotoxin U Causes Endothelial Cell Tau Aggregation: Evidence For An Acute Infectious Tauopathy Of The Lung. American Thoracic Society Annual Meeting. Philadelphia, Pennsylvania May 2013 Am J Respir Crit Care Med 187;2013:A3715.
16. **Morrow KA**, Stevens TC, Ochoa CD, Frank DW, Balczon R, Stevens T. The *Pseudomonas aeruginosa* exotoxin Y induces aggregated endothelial tau release as a putative mechanism of cell growth suppression and impaired angiogenesis. American Thoracic Society Annual Meeting. Philadelphia, Pennsylvania May 2013 Am J Respir Crit Care Med 187;2013:A5921.
17. **Morrow KA**, Frank DW, Shevde LA, Stevens T. *Pseudomonas aeruginosa* decreases Merlin phosphorylation in pulmonary endothelium as a mechanism of growth suppression. American Thoracic Society Annual Meeting. Philadelphia, Pennsylvania May 2013 Am J Respir Crit Care Med 187; 2013:A3706.
18. Stevens TC, Ochoa CD, Robson MJ, Zhou C, **Morrow KA**, Alvarez DF, Frank DW, Balczon R, Stevens T. The *Pseudomonas aeruginosa* exotoxin Y impairs endothelial cell proliferation, angiogenesis, and vascular repair following lung injury. American Thoracic Society Annual Meeting. Philadelphia, Pennsylvania May 2013 Am J Respir Crit Care Med 187; 2013:A5916.
19. **Morrow KA**, Das S, Mulekar MS, Tucker JA, Samant RS, Shevde LA. Post-translational regulation leads to loss of tumor suppressor Merlin in breast cancer. The University of South Alabama, Mobile, AL. (Abstract #23) Abstracts of Presentations at the Association of Clinical Scientists 132<sup>nd</sup> Meeting Mobile, Alabama May 2012 *Ann Clin Lab Sci* Spring 2012 42:203-225.
20. **Morrow KA**, Metge BJ, Ye K, Mulekar MS, Tucker JA, Samant RS, Shevde LA. Osteopontin mediates loss of tumor suppressive activity of Merlin in breast cancer. (Abstract # 1012) 102<sup>nd</sup> AACR Annual Meeting. Orlando, Florida April 2011.

21. Shevde LA, **Morrow KA**, Metge BJ, Das S, Ye K, Samant RS. Osteopontin Foils Merlin's Wizardry. FASEB Science Research Conference: Osteopontin Biology. Steamboat Springs, Colorado August 2010.

#### **OTHER ABSTRACTS**

1. Bettridge A, Morley T, Iyer G, Vasauskas AA, **Morrow KA**. Osteopontin Levels are Decreased in Pulmonary Artery Endothelial Cells that Show Evidence of Endothelial to Mesenchymal Transition. 5<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama November 7, 2020.
2. Miley MC, Hamilton C, Morrow RL, Brown JR, Vasauskas AA, **Morrow KA**. *Pseudomonas aeruginosa* Infection Reveals Endothelial Heterogeneity of Cells Predisposed to Pulmonary Arterial Hypertension. (Abstract #36) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
3. Pace-Patterson AM, Brown JR, Hamilton C, **Morrow KA**, Vasauskas AA, Morrow RL. The Effects of TGF- $\beta$  on EndMT in PAH Cells. (Abstract #38) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
4. Johnson J, Vasauskas AA, Hamilton C, Morrow RL, **Morrow KA**, Brown JR. Pulmonary Endothelial Cells from the Sugen5416/hypoxia PAH model exhibit hyperproliferation and elevated Akt activation. (Abstract #40) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
5. West B, Brown JR, Morrow RL, **Morrow KA**, Hamilton C, Vasauskas AA. Nuclear localization of FKBP51 may alter inflammatory signaling in pulmonary arterial hypertension through the NF $\kappa$ B pathway. (Abstract #48) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
6. Koch SA, Brown JR, **Morrow KA**, Morrow RL, Vasauskas AA, Hamilton C. Dexamethasone Impairs Wound Resealing in Pulmonary Artery Endothelial Cells. (Abstract #52) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
7. Guice KC, Hamilton C, Morrow RL, **Morrow KA**, Brown JR, Vasauskas AA. Pulmonary artery endothelial cells exhibit reduced glucocorticoid responsiveness in pulmonary arterial hypertension. (Abstract #53) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
8. Scott H, Morrow RL, Brown JR, Vasauskas AA, **Morrow KA**. Decreased Intracellular Osteopontin in Pulmonary Arterial Endothelial Cells is a Potential Driver of Pulmonary Arterial Hypertension (Abstract #55) 4<sup>th</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 11, 2019.
9. Green HM, **Morrow KA**, Johnson EB. Simulation and Evaluation of Variant of Unknown Significance in Zinc Finger Protein ZNF462. 1<sup>st</sup> Annual CODE Student Symposium. HudsonAlpha, Huntsville, Alabama April 29, 2019.
10. Goldberg SS, **Morrow KA**, Johnson EB. *In Silico* Analysis of the Human Variant of Unknown Significance Ser900Phe in the Nucleotide-Binding Oligomerization Domain Containing Protein 2 (NOD2). 1<sup>st</sup> Annual CODE Student Symposium. HudsonAlpha, Huntsville, Alabama April 29, 2019.

11. Gonzalez M, Morrow RL, Brown JR, **Morrow KA**, Vasauskas AA. Pulmonary Arterial Hypertension. 96<sup>th</sup> Annual Meeting of Alabama Academy of Sciences. Tuskegee, Alabama February 20, 2019.
12. Gonzalez M, Carter AG, Cullifer JT, Vasauskas AA, Morrow RL, Brown J, **Morrow KA**. Altered Intracellular Osteopontin and Merlin Signaling May Drive Endothelial-to-Mesenchymal Transition in BMP2 Deficient Pulmonary Artery Endothelial Cells. 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama September 28, 2018.
13. Carter AG, Cullifer JT, Gonzalez M, Vasauskas AA, Morrow RL, Brown J, **Morrow KA**. Pulmonary Endothelial Cells Predisposed to PAH Have Increased Sensitivity to *Pseudomonas aeruginosa* Infection. 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama September 28, 2018.
14. Cullifer JT, Carter AG, Gonzalez M, Vasauskas AA, Morrow RL, Brown J, **Morrow KA**. BMP2 Knockdown Enhances Hyperproliferative Phenotype of Pulmonary Endothelium. 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama September 28, 2018.
15. Shoham S, Dukes D, Morrow RL, Brown J, **Morrow KA**, Vasauskas AA. Altered Balance of FKBP51 and FKBP52 in BMP2-deficient Pulmonary Artery Endothelial Cells May Influence Cellular Phenotype and Migration. 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama September 28, 2018.
16. Decker EP, Vasauskas AA, Morrow RL, **Morrow KA**, Brown J. FKBP51 Regulates Proliferation and TGF $\beta$  Production in Pulmonary Microvascular Cells. 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama September 28, 2018.
17. Kim EH, Mehindru A, **Morrow KA**, Hernandez M. Cytoskeletal Reorganization of the Astrocyte After Exposure to Cholesterol-depleting Detergent. 3<sup>rd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama September 28, 2018.
18. Quigley NR, Ceballos R, **Morrow KA**. Substrate stiffness alteration decreases pulmonary artery endothelial cell proliferation. (Abstract #33) 2<sup>nd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 31, 2017.
19. Ceballos R, Quigley NR, Josephs CA, **Morrow KA**. Pulmonary microvascular endothelial cells are resistant to substrate stiffness variation. (Abstract #40) 2<sup>nd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 31, 2017.
20. Josephs CA, Ceballos R, Morrow RL, **Morrow KA**. Merlin's wizardry commands pulmonary artery endothelial cells: you shall not proliferate. (Abstract #39) 2<sup>nd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 31, 2017.
21. Brown V, Vasauskas AA, **Morrow KA**, Brown JR, Morrow RL. Lipopolysaccharide differentially regulates occluding expression in pulmonary artery and microvascular endothelial cells. (Abstract #2) 2<sup>nd</sup> Annual Wiregrass Chapter Society of Hospital Medicine Meeting. Dothan, Alabama October 31, 2017.

22. Huetteman RE, **Morrow KA**, Balczon R, Stevens T. Characterization of cytotoxin induced endothelial inclusion bodies. (Abstract #23). 42<sup>nd</sup> Summer Medical Student Research Day. Mobile, Alabama July 31, 2015.
23. Stevens RP, **Morrow KA**, Hartman LJ, Balczon R, Stevens T. ExoY impairs the rapid growth of pulmonary microvascular endothelial cells. (Abstract #41). 42<sup>nd</sup> Summer Medical Student Research Day. Mobile, Alabama July 31, 2015.
24. **Morrow KA**, Ochoa CD, Balczon R, Cauthen L, Alexeyev M, Schmalzer KM, Frank DW, Stevens T. *Pseudomonas* type 3 secretion system effectors induce a transmissible endothelial tauopathy. University of South Alabama College of Medicine Research Forum. Mobile, Alabama October 31, 2014.
25. Cauthen L, **Morrow KA**, Robson MJ, Housley NA, Balczon R, Stevens, T. *Pseudomonas aeruginosa* infection causes release of a cytotoxic factor from pulmonary microvascular endothelial cells. (Abstract #25). 41<sup>st</sup> Summer Medical Student Research Day. Mobile, Alabama August 1, 2014.
26. Harvey W, Cauthen L, **Morrow KA**, Robson MJ, Stevens T. *Pseudomonas aeruginosa* release of monomeric and oligomeric endothelial tau as a putative mechanism of cytotoxicity. (Abstract #26). 41<sup>st</sup> Summer Medical Student Research Day. Mobile, Alabama August 1, 2014.
27. Bartz N, Palanki R, Stevens RP, **Morrow KA**, Robson MJ, Housley NA, Alvarez DF, Stevens T. *Pseudomonas aeruginosa* exoenzyme Y preferentially disrupts resident endothelial progenitor cell barrier integrity. (Abstract #37). 41<sup>st</sup> Summer Medical Student Research Day. Mobile, Alabama August 1, 2014.
28. **Morrow KA**, Ochoa CD, Alexeyev M, Frank DW, Audia JP, Balczon R, Stevens T. The *Pseudomonas aeruginosa* exoenzyme U stimulates endothelial cell tau oligomerization. (Abstract #22). University of South Alabama College of Medicine Research Forum. Mobile, Alabama December 13, 2012.
29. Huettemann RE, Stevens TC, Robson MJ, **Morrow KA**, Stevens T. The *Pseudomonas Aeruginosa* Exotoxin Y induces a Tau phosphorylation signature that coincides with endothelial cell gap formation. 39<sup>th</sup> Annual Medical Student Research Day. (Abstract # 23). Mobile, Alabama August 3, 2012.
30. **Morrow KA**, Das S, Menezes ME, Samant RS, Shevde LA. The tumor suppressor Merlin suppresses Wnt signaling in breast cancer. University of South Alabama College of Medicine Research Forum. Mobile, Alabama December 9, 2011.
31. **Morrow KA**, Das S, Menezes ME, Samant RS, Shevde LA. The tumor suppressor Merlin suppresses Wnt signaling. Mitchell Cancer Institute Research Colloquium. Mobile, Alabama October 14, 2011.

## OTHER

<u>Activity</u>	<u>Level</u>	<u>Year</u>	<u>Role</u>
Youth Soccer	2 <sup>nd</sup> – 4 <sup>th</sup> grade	2019	Coach
Church Leadership	Community	2018-2019	Deacon
Youth Soccer	3 <sup>rd</sup> -5 <sup>th</sup> Grade	2016	Coach
Youth Soccer	2 <sup>nd</sup> -3 <sup>rd</sup> Grade	2015	Coach
Bible School	College	2015-2016	Instructor
St. Luke's Episcopal School (9 <sup>th</sup> grade)	High School	2014	Laboratory Instructor

Effectiveness of antibiotic treatment on <i>E. coli</i>			
Gorgas Scholarship Competition	Statewide	2014	Judge
St. Luke's Episcopal School (9 <sup>th</sup> grade) Horizontal gene transfer in <i>E. coli</i>	High School	2013	Laboratory Instructor
Southern National Disc Golf Series	Regional	2013-2014	Board Member
Church Leadership Bible School	Community Middle School	2013-2016	Deacon Instructor
Youth Soccer	K-1 <sup>st</sup> grade	2012-2013	Coach
Camp Rap-A-Hope: Children who have or have had cancer	Elementary	2010	Volunteer