CURRICULUM VITAE

Alejandro R. Chade, MD, FAHA

# Personal Information

Place of Birth: Mendoza, Argentina (10/30/1970).

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# 1. Academic Appointments

# Present position

# Professor (07/01/2016-) with Tenure (2013-): Department of Physiology and Biophysics, Department of Medicine, Department of Radiology, University of Mississippi Medical Center

**Associate Director of Translational Research - COBRE 2P20GM104357 (2020-) Phase II**, Cardiorenal and Metabolic Diseases Research Center, awarded to Department of Physiology and Biophysics, University of Mississippi Medical Center (2018-2023)

# Previous position

# Associate Professor (07/01/2011-06/30/2016): Department of Physiology and Biophysics, Department of Medicine, Department of Radiology, University of Mississippi Medical Center

# Assistant Professor (06/01/2007-06-30-2011): Department of Physiology and Biophysics, Department of Medicine, University of Mississippi Medical Center.

**Associate Director** (2015-2018), Physiology Graduate Program, University of Mississippi Medical Center

# 2. Education

* **Research Associate** (07/2005-05/2007): Department of Internal Medicine - Division of Nephrology and Hypertension, Mayo Clinic, Rochester, MN, 55905, USA.
* **Senior Post-Doctoral Research Fellow** (07/2003-05/2005): Department of Internal Medicine - Division of Nephrology and Hypertension, Mayo Clinic, Rochester, MN, 55905, USA
* **Post-Doctoral Research Fellow** (07/2001-06/2003): Department of Internal Medicine - Division of Nephrology and Hypertension, Mayo Clinic, Rochester, MN, 55905, USA.
* **Residency and Fellowship in Cardiology**: Hospital Lagomaggiore, Ministerio de Salud y Bienestar Social, Provincia de Mendoza, Argentina. (1997-2001). **Degree**: MD-Cardiology
* **Medical school**: Facultad de Ciencias Médicas, Universidad Nacional de Cuyo, Mendoza, Argentina (1990-1996). **Degree**: MD

**Additional education and training during post-doctoral training (2001-2007)**

* CR5745: Cardiovascular Research Seminar, Fall 2002. Instructor: Robert D. Simari, MD.
* CR5600: Clinical Research Protocol Development, Winter 2003. Instructor: Gregory Poland, MD.
* BME 8600 AMN: Biomedical Engineering Seminars. 2001-2007. Course director: Armando Manduca, PhD.
* Apoptosis Journal Club. 2001-2007. Instructors: Drs. S.H. Kaufmann and G.J. Gores.
* **Visiting Physician at the Laboratory of Echocardiography at Mayo Clinic** (Rochester, Minnesota), during January, February and March of 2001. Observation and interpretation of approximately 600 studies of stress echocardiography.

**Additional professional experience during clinical training (1998-2001)**

* **Principal investigator:** in TASCA, clinical multi-centric study about the use of Atorvastatin in Unstable Angina.
* **Study coordinator** in: HERO-2, PARAGON B, and G.I.K-2.
* **Co-investigator**: in 2nd SIMPHONY.

# 3. Honors and Awards

* XV Inter-American Society of Hypertension/National Heart Lung and Blood Institute New Investigator Travel Award. XV Scientific Meeting of the IASH in San Antonio, Texas, April 2003.
* Mayo Clinic Alumni (2003-)
* XVI Inter-American Society of Hypertension/National Heart Lung and Blood Institute (NHLBI) Young Investigator Travel Award. XVI Scientific Meeting of the IASH in Cancun, Mexico, April 2005.
* Finalist of the Cardiovascular Young Investigator’s Forum at the Northwestern University Feinberg School of Medicine. Chicago, IL, October 2005, 2006, and 2008.
* Department of Medicine Outstanding Research Fellow/Special Project Associate Award, 2006.
* Edward C. Kendall Alumni Award for Highly Meritorious Research, Mayo Clinic Alumni Association, 2006.
* American Society of Hypertension Young Scholar Award, 2007.
* Two times winner of the Cardiovascular Young Investigator’s Forum at the Northwestern University Feinberg School of Medicine. Chicago, IL, 2007 and 2008.
* Second place at the Cardiovascular Young Investigator’s Forum at the Northwestern University Feinberg School of Medicine. Chicago, IL, 2009.
* American Physiological Society Renal Research Recognition Award, Experimental Biology Meeting 2008, San Diego, CA, April 2008.
* 2009, 2010, and 2011 Excellence in Research Award, University of Mississippi.
* 2010 Water and Electrolyte Homeostasis Section New Investigator Award (American Physiological Society).
* 2010 Lazaro J. Mandel Young Investigator Award (American Physiological Society)
* 2011 Harry Goldblatt New Investigator Award-American Heart Association-Council of Hypertension
* 2012 International Society of Hypertension New Investigator Award.
* 2013 - Tenure
* Established Investigator Award-American Heart Association (2014-2018)
* Fellow-American Heart Association, Council of Hypertension (2015-)
* 2016 - Full Professor with Tenure
* 2016 Mid-Career Award for Research Excellence-American Heart Association-Council of Hypertension
* 2016 Translational Research Team Award-University of Mississippi Medical Center

# 4. Research

# Research interests

* Cardiovascular / renal physiologic imaging
* Microcirculatory function
* Mechanisms of renal disease
* Renal involvement in cardiovascular disease
* Mechanisms of cardiac injury in chronic renal disease
* Discovery and development of new therapeutic strategies for chronic renal disease and cardiac failure

**Personal statement**

 My research has conceptual and practical significance since it has contributed to the basic understanding of renal physiology and pathophysiology of renal injury associated with renovascular hypertension, chronic renovascular disease, and chronic kidney disease (CKD) for the development of novel therapeutic strategies. I have a unique approach for investigating chronic renal diseases and their consequences, utilizing state-of-the-art imaging methods along with molecular and integrative physiological techniques. I use novel swine models of renovascular disease and CKD that develops much like that of human disease. I study the effects of this disease using fast multi-detector computerized tomography (MDCT) to non-invasively characterize in vivo renal regional volume, total renal blood flow, glomerular filtration rate, tubular fluid dynamics, and endothelial function, in combination with micro-CT imaging to reconstruct the 3D architecture of the renal microcirculation in the pre- and post-glomerular circulation *in situ*. I was part of the initial studies using the renovascular disease model and I designed and characterized the CKD model, as well as the application of the imaging techniques. My laboratory is now one of the two in the world using this models and approach. The combination of these techniques allows me to follow the time course of deterioration of renal hemodynamics and injury non-invasively with a level of accuracy that has not been possible previously.

I have made important contributions to the field of kidney research that have contributed for the understanding of basic renal physiology and the pathophysiology of renal injury driven by the damage of the renal microvasculature and inflammation. My studies were among the first to investigate the potential therapeutic application of cell progenitors or angiogenic cytokines to protect the kidney. For the past 8 years, I have worked on the application of new drug-delivery technologies to target the kidney. Indeed, my ongoing funded research program focuses on the development and application of therapeutic angiogenesis and anti-inflammatory strategies to recover the kidney and to also protect the heart using novel drug-delivery technologies never tested before for renal. Furthermore, part of my ongoing work also show that the CKD model develop a cardiac phenotype that is compatible with diastolic dysfunction and show features of heart failure with preserved ejection fraction. Such findings have opened new directions for research in my laboratory to elucidate the complex mechanisms of renal-cardio pathophysiology to possibly identify new therapeutic targets. Towards that goal, my work in progress is also employing unbiased state-of-the-art approaches using mRNA sequencing, proteomics, and metabolomics to identify novel mechanisms of renal and cardiac injury in these translational models that may serve for the development of bench to bedside treatment strategies.

# Research Grant Support

# Current

* 2RO1 HL095638-06 (Chade, AR, PI) 04/15/2010-06/30/2023 2.4 person/months

NIH/NHLBI $2,079,909 (direct+indirect)

*Microcirculation in Renovascular Hypertension.*

The major goal of the renewal of this project is to extend the previous cycle by developing, validating and determining feasibility, efficacy, and safety of a novel strategy to protect the kidney in chronic renovascular disease and renal disease using a kidney-specific bioengineered polymer-stabilized VEGF compound.

* 2P20GM104357 (Hall, JE, PI) 07/01/2018 - 06/30/2023 0.6 person/months

NIH/NHLBI $11,624,945 (direct+indirect)

*Cardiorenal and Metabolic Diseases Research Center*

The major overall objective of this project is to develop an internationally recognized Cardiorenal and Metabolic Diseases Research Center (CMDRC) that brings together a multidisciplinary group of basic, clinical and population scientists working on a common synergistic theme, and to facilitate their collaborations.

Role: Associate Director. Collaborating Investigator. Faculty.

**Pending**

* 1 R01 HL155025-01 (Chade AR and Eirin A, co- PIs)

04/01/2022-03/30/2026 2.4 person/months

NIH/NHLBI $2,790,483 (direct+indirect)

*Hypertension, inflammation, chronic kidney disease, and heart failure: a renal-cardio axis.*

The major goal of this project is to characterize a novel model of heart failure with preserved ejection fraction and define the feasibility of a novel intra-renal and intra-cardiac treatment for heart failure in a model of chronic kidney disease using a targeted anti-inflammatory strategy via drug-delivery technologies.

* R41 DK109737-B (Chade, AR, subcontract-PI) 12/01/2021-11/30/2024 1.8 person/months NIH-NIDDK. $737,059 (direct+indirect).

*Renal Therapeutic Angiogenesis Using the Novel Biologic ELP-VEGF. Phase II*

The major goal of the Phase II of this project is to develop good manufacturing practices (GMP) and good laboratory practices (GLP) toxicology and efficacy testing in translational swine models of chronic renovascular disease and chronic kidney disease of different severities. **Score on 07/08/2021: 30**

**Submitted-not funded**

* 20TPA35490277 (Chade, AR, PI) 07/01/2020-06/30/2023 1.2 person/months

2020 Transformational Project Award $300,000 (direct+indirect)

*A renal-cardio syndrome: an inflammatory axis in chronic kidney disease to induce heart failure.*

The major goal of this project is to define the feasibility of a novel treatment for heart failure with preserved ejection fraction in a model of chronic kidney disease using a targeted renal anti-inflammatory strategy via drug-delivery technologies.

**Completed**

* AHA, Post-Doctoral fellowship, “Mechanisms of renal impairment in atherosclerotic renal artery stenosis” (1/01/03 – 12/31/04). Principal Investigator, AR Chade, MD (LO Lerman, mentor, $77,000).
* Merck Pharmaceutical Company, “The potential beneficial effects of simvastatin to decrease renal injury in atherosclerotic renal artery stenosis” (4/1/2003- 7/31/2005). Principal Investigator, AR Chade, MD (LO Lerman, mentor, $70,000).
* NIH, RO1 HL-63282, “Mechanisms of renal impairment in hypercholesterolemia” (April 2000 - March 2006). Principal Investigator, LO Lerman.
* GlaxoSmithKline Research & Education Foundation for Cardiovascular Disease. “Utility of autologus progenitor cell delivery in atherosclerotic renovascular disease” (07/1/2006- 07/01/2008, $110,000). Principal Investigator, AR Chade, MD.
* Intramural research Grant-University of Mississippi Medical Center. Role of microvascular impairment in the recovery of the ischemic kidney” (11/01/2007-10/31/2008, $30,000). Principal Investigator, AR Chade, MD.
* AHA, Scientist Development Grant National Center (0830100N). “Role of microvascular impairment in the recovery of the ischemic kidney” (01/2008-12/2011, $308,000). Principal Investigator, AR Chade, MD.
* Abbott Laboratories: “Therapeutic Potential of Atrasentan in Renovascular Disease” (01/01/2012-12/31/2014, $94,764). Principal Investigator, AR Chade, MD.
* SC150037 (Raymond Grill, PI; 08/01/2016 –07/31/2018): “Acute and delayed systemic treatment with cannabinoid receptor 2 agonists to prevent or treat/reverse osteoporosis in a mouse model of SCI”. Department of Defense, $337,569 (direct+indirect, Role: Collaborating Investigator).
* Non-competitive intramural research support program (Chade, AR PI; 09/01/2017 –08/31/2018). “Microcirculation in Renovascular Hypertension-Bridge funds”. University of Mississippi Medical Center, $30,000 (direct+indirect)
* RO1 HL095638 (Chade, AR, PI) 04/15/2010-03/31/2016 $1,867,500

NIH/NHLBI: Microcirculation in Renovascular Hypertension.

* 14EIA18490005 (Chade, AR, PI) 01/01/2014 –12/31/2018 $400,000

AHA-Established Investigator Award: *Novel Therapeutic Interventions in Renovascular Disease.*

* R41 DK109737 (Chade, AR, subcontract-PI-NCE) 04/01/2017 –03/31/2019). NIH-NIDDK. $225,000 (direct+indirect). *A Preclinical Trial of Therapeutic Angiogenesis Plus Angioplasty and Stenting for Renal Vascular Disease*
* 18TPA34220000 (Chade, AR, PI). 07/01/2018-06/30/2021. American Heart Association-Transformational Project Award. $300,000 (direct+indirect). *Precision medicine: Renal Targeted Biopolymer-delivered Therapeutic Angiogenesis (Relinquished on 07/20/2018 due to overlapping with renewal of R01 award).*
* P01HL51971-NHLBI Program Project Grant (Hall JE, PI). $10,203,625 (direct+indirect). *Cardiovascular dynamics and their control.* Role: Collaborating Investigator.
* 19PRE34380314 (Jason Engel, PI). 01/01/2019 –12/31/2020. American Heart Association-Predoctoral award. $60,000 (direct+indirect). *A Novel Strategy for Treatment of Renovascular Disease.* Role: Sponsor.
* 19PRE34380274 (Erika Guise, PI). 01/01/2019 –12/31/2020. American Heart Association-Predoctoral award. $60,000 (direct+indirect). *Renal angioplasty and therapeutic angiogenesis for renovascular hypertension.* Role: Sponsor
* 18IPA34170267 (Chade, AR, PI). 07/01/2018-06/15/2021. American Heart Association-Innovative Project Award. $200,000 (direct+indirect). *Selective renal targeting to counteract inflammation in chronic kidney disease via kidney-specific delivery technology.*

**Bibliography**

**h-index: 45 i10-index: 78 Citations (as 03/10/2022): 5685**

***Full-length articles***

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67. Chade AR and Bidwell GL: “Novel Drug Delivery Technologies and Targets for Renal Disease”. *Hypertension. 2022 (Invited review, in preparation)*.

# *Book chapters/edited:*

1. Chade AR: “Microvascular Disease”. Chapter 9 in ***Renal Vascular Disease***, edited by Lilach O. Lerman and Stephen C. Textor. Springer Verlag, London, 2014. *Contributor*
2. “Studies on Atherosclerosis: Oxidative Stress in Applied Basic Research and Clinical Practice". *Editors*: Rodriguez-Porcel M, Chade AR, and Miller JD. Springer. 2016
3. “Physiology Review”- Company of “Guyton and Hall-Textbook of Medical Physiology, 14th edition”. *Contributor*

# *Invited comments and Editorials*

1. Chade AR, Lerman A, and Lerman LO: “Atherosclerotic renovascular disease: Beyond the obstruction”. International Atherosclerosis Society. Published on-line (**http://www.athero.org**). August, 2003.
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## Abstracts

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21. Chade AR, Textor, S, Lerman A, Lerman LO. Endothelin-A receptor blockade improves renal microvascular architecture and function in experimental hypercholesterolemia. Presented at the American Society of Nephrology- Scientific Session, Renal Week, San Diego, CA, November 2006.
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48. Chade AR: Atrasentan Therapy Enhanced Recovery of Renal Function After Renal Angioplasty in Experimental Renovascular Disease. 50th ERA-EDTA Congress, Istanbul, Turkey, May 21st, 2013.
49. Chade AR, Stewart NJ: Renal angioplasty, endothelin receptor blockers, and recovery of renal function: A, not B. American Society of Nephrology-Kidney Week 2013, Atlanta, GA, November 2013.
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53. Chade AR, Harvey TW: Potential Mechanisms of Renoprotection in the Stenotic Kidney After Endothelin-type A Receptor Antagonism: Podocytes, VEGF and sFlt-1. Experimental Biology 2015, Boston, MA, April 2015.
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55. Bidwell GL, Chade AR: A kidney-targeted protein biopolymer drug delivery system. Experimental Biology 2015, Boston, MA, April 2015.
56. Chade AR, Bidwell GL: “Therapeutic Angiogenesis in Renal Artery Stenosis: Intra-renal Therapy Using a Biopolymer-delivered VEGF Construct Ameliorates Microvascular Damage and Renal Dysfunction”. 52th ERA-EDTA, London, UK, May 2015.
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61. Warrington JP, Spradley FT, Chade AR, Ryan MJ, Granger JP, DrummondHA: “Altered Placental Vascular Remodeling in a Mouse Model of Reduced beta-ENaC”. Experimental Biology 2017, Chicago, IL, April 2017.
62. Chade AR, Guise E, Williams M, Harvey T: A novel swine model of chronic renal disease. 54th ERA-EDTA, Madrid, Spain, June 2017*.* *Nephrol Dial Transplant (2017) 32 (suppl\_3): iii450. DOI: https://doi.org/10.1093/ndt/gfx162.MP068*
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64. Chade AR, Williams M, Bidwell GL: “Therapeutic angiogenesis in CKD”. American Society of Nephrology-Kidney Week 2017, New Orleans, LA, November 2017*.*
65. Kuna M, Mahdi F, McGowan JWD, Chade AR, Bidwell GL: “Pharmacokinetics and Intra-Renal Accumulation of the Drug Delivery Biopolymer Elastin-Like Polypeptide is Dependent on its Molecular Weight”. American Society of Nephrology-Kidney Week 2017, New Orleans, LA, November 2017.
66. Guise E, Pruett WA, Chade AR: “A Boolean Model of Microvascular Rarefaction to Predict Renal Outcomes in Renovascular Disease”. Experimental Biology 2018, San Diego, CA.
67. Engel JE, Williams ML, Guise E, Drummond H, Chade AR: “Translational Traits of a Swine Model of CKD: Inflammation”. Experimental Biology 2018, San Diego, CA.
68. Chade AR, Engel JE, Williams ML, Bidwell GL: “Therapeutic Angiogenesis Promotes Renal Recovery in CKD Partly by Shifting Macrophage Phenotype”. 55th ERA-EDTA, Copenhagen, Denmark, May 2018.
69. Grill R., Sereduck S., Pride Y., Chade AR: “Acute but Sustained Treatment with Cannabinoid Receptor-2 Agonist Preserves Hind Limb Bone Density in Mice after SCI”. Scientific Sessions of the Society for Neuroscience, San Diego, CA, November 2018.
70. Guise E, Engel JE, Williams ML, Bidwell GL, Chade AR: “Bioengineered VEGF therapy following renal angioplasty in renovascular disease: More and better microvessels”. Experimental Biology 2019, Orlando, FL.
71. Engel JE, Guise E, Bidwell GL, Chade AR: “VEGF Therapy Shifts Macrophage Phenotype and Improves Renal Recovery in Chronic Kidney Disease”. Experimental Biology 2019, Orlando, FL.
72. Chade AR, Engel JE, Williams E, Bidwell GL: “Molecular Targeting of Renal Inflammation Using Drug-Delivery Technology in Chronic Kidney Disease”. 56th ERA-EDTA, Budapest, Hungary, June 2019.
73. Chade AR, Engel JE, Williams E, Bidwell GL: “A novel kidney-targeted bioengineered carrier for VEGF delivery in experimental renovascular disease: Proof of concept”. 56th ERA-EDTA, Budapest, Hungary, June 2019.
74. Chade AR, Engel JE, Williams E, Williams M, Howell J, Bidwell GL: “Anti-inflammatory therapy in chronic kidney disease using drug-delivery technology: mechanisms and effects of renal NFkB inhibition”. American Society of Nephrology-Kidney Week 2019, Washington, DC, November 2019.
75. Grayson B, Pride Y, Sereduck S, Chade AR, Grill R, Tucci M: “Systemic Treatment with Cannabinoid Receptor 2 Agonist to Treat Osteoporosis in a Rodent Model of SCI”. Experimental Biology 2020, San Diego, CA, April 4-7 2020.
76. Waller J, Burke S, Engel J, Chade AR, Bidwell GL: “Determining the effects of pro-angiogenic ELP-VEGF therapy on tumor growth and progression”. Experimental Biology 2020, San Diego, CA, April 4-7 2020.
77. Chade AR, Williams E, Engel JE, Hall M: “A novel model of heart failure with preserved ejection fraction”. 57th ERA-EDTA, Milan, Italy, June 2020.
78. Chade AR, Engel JE, Williams E, Bidwell GL: “Chronic kidney disease, inflammation, and heart failure with preserved ejection fraction: A renal-cardio axis?”. 57th ERA-EDTA, Milan, Italy, June 2020.
79. Bidwell GL, Waller J, Engel J, Chade AR: “Dose Escalating Toxicology Study of ELP-VEGF, a Novel Biologic for Renal Therapeutic Angiogenesis”. 57th ERA-EDTA, Milan, Italy, June 2020.
80. Chade AR, Williams E, Engel JE, Hall M: “A novel model of chronic kidney disease and heart failure with preserved ejection fraction”. American Society of Nephrology-Kidney Week 2020, Denver, CO, October 2020.
81. Chade AR, Hall M, Fortenberry D, Bossier D, Bidwell GL: “A Renal-Cardio Inflammatory Axis Mediates Cardiac Dysfunction in CKD via IL-33-ST2: A Novel Mechanism”. 58th ERA-EDTA, Berlin, Germany, June 2021.
82. Collett JA, Hyuk B, Ullah M, Mehotra P, Chade AR, Bidwell GL, Basile DP: “ELP-VEGF 121 improves renal function, decreases inflammation, and induces vascular protection from ischemia-reperfusion injury in mice”. American Society of Nephrology-Kidney Week 2021, San Diego, CA.
83. Chade AR, Mohamed TMA, Eirin A: “Cytokines of Kidney Origin are retained in the Heart and Induce Cardiac Injury in CKD: A Renal-cardio Axis”. American Society of Nephrology-Kidney Week 2021, San Diego, CA.
84. Farahani RA, Ferguson CM, Zhu X-Y, Tang H, Jordan KL, Saadiq IM, Herrmann SM, Chade AR, Lerman A, Lerman LO, Eirin A: “Renal revascularization attenuates myocardial mitochondrial damage and improves diastolic function in pigs with metabolic syndrome and renovascular hypertension”. American Society of Nephrology-Kidney Week 2021, San Diego, CA.
85. Chade AR, Eirin A, Bidwell GL:” Feasibility and Efficacy of Targeted Cardiac NF-kB Inhibition in Experimental Diastolic Dysfunction Using Drug-Delivery Technology: A Proof-of-Concept Study”. Scientific Sessions of the American Heart Association 2021, Boston, MA.
86. Chade AR, Eirin A:” HFpEF in CKD is Associated with Elevated TNF-α/IL-6 Inflammatory Signaling from the Kidney”. Experimental Biology 2022, Philadelphia, PA.
87. Chade AR, Mohamed TMA, Eirin A:” Renal inflammatory signaling alters cardiomyocyte kinetics and lead to HFpEF in CKD: A mechanistic proof of concept study”. Experimental Biology 2022, Philadelphia, PA.

***Invited presentations***

1. “Sincope: clinical presentation, diagnosis and treatment.” Circulo Medico de Mendoza. Mendoza, Argentina. October 22, 2000.
2. “An experimental model of atherosclerotic renal artery stenosis.” Department of Internal Medicine and Cardiovascular Diseases, Hospital L.C. Lagomaggiore, Mendoza, Argentina. April 10, 2002.
3. “Mechanisms of renal injury in atherosclerotic “ischemic nephropathy.” Presented at the Department of Internal Medicine – Division of Hypertension, Mayo Clinic, Rochester, MN. May 2002.
4. “Renovascular Disease: mechanisms of hypertension and ischemic nephropathy.” Textor S, Lerman LO and Chade AR. Medical Grand Rounds, Department of Internal Medicine, Mayo Clinic, Rochester, MN. July 17, 2002.
5. “Mechanisms of injury in atherosclerotic renovascular disease.” Department of Cardiovascular Diseases, Hospital L.C. Lagomaggiore, Mendoza, Argentina. November 19, 2003.
6. “The kidney in early atherosclerosis: An Overview.” Department of Internal Medicine, Division of Nephrology and Hypertension. Mayo Clinic, Rochester, MN. June 17, 2004.
7. “The kidney in early atherosclerosis.” Department of Internal Medicine, Cardiovascular Research Seminar Series. Mayo Clinic, Rochester, MN. December 2, 2004.
8. “Simvastatin Promotes Angiogenesis and Prevents Microvascular Remodeling in Chronic Renal Ischemia.” Northwestern University Feinberg School of Medicine, Cardiovascular Young Investigator’s Forum. Chicago, IL, October 2005.
9. “Experimental Renovascular disease: Beyond the Obstruction.” Dept. of Physiology, University of Mississippi Medical Center, Jackson, MS. June 27, 2006.
10. “Endothelin-A receptor blockade improves renal microvascular architecture and function in experimental hypercholesterolemia.” Northwestern University Feinberg School of Medicine, Cardiovascular Young Investigator’s Forum. Chicago, IL, October 2006.
11. “Endothelin-A receptor blockade improves renal microvascular architecture and function in experimental hypercholesterolemia.” Chade AR, Textor SC, Lerman A, Lerman LO. The American Society of Nephrology-Renal Week, Poster Discussion Session, November 2006.
12. “Utility of Autologous Progenitor Cell Delivery in Atherosclerotic Renovascular Disease.” Chade AR and Lerman LO. Presented at the Milestones in Cardiovascular Diseases, Scientific Sessions of the AHA, Chicago, IL, November 2006.
13. “Atherosclerotic Renovascular Disease: Beyond the Vessels.” Scientific Sessions of the American Society of Hypertension. Chicago, IL, May 2007.
14. “Intra-renal Infusion of Endothelial Progenitor Cells Restores Microvascular Architecture and Function in the Ischemic Kidney.” Northwestern University Feinberg School of Medicine, Cardiovascular Young Investigator’s Forum. Chicago, IL, October 2007 (1st prize).
15. “Pathways of Renal Injury in Renovascular Disease.” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. February, 2008.
16. “Enfermedad Renovascular: Mechanismos de injuria renal y alternativas terapéuticas.” Department of Internal Medicine, Hospital L.C. Lagomaggiore, Mendoza, Argentina. March 5, 2008.
17. ” Pathways of Renal Injury in Experimental Renovascular Disease.” Oschner Clinic, New Orleans, LA, May 28th 2008.
18. “Time-Dependent Microvascular Loss and Progression of Renal Injury in Renovascular Disease: Renoprotective Effects of VEGF.” Northwestern University Feinberg School of Medicine, Cardiovascular Young Investigator’s Forum. Chicago, IL, October 2008 (1st prize).
19. “Dyslipidemia, microcirculation, and the kidney.” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. February 2009.
20. “The Poor Responses of the Stenotic Kidney to Revascularization: Is Microvascular Disease the Cause.” Northwestern University Feinberg School of Medicine, Cardiovascular Young Investigator’s Forum. Chicago, IL, September 2009 (2nd prize).
21. “Renal Microvascular Disease and the Responses of the Stenotic Kidney to Revascularization.” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. April 2010
22. “The Renal Microcirculation: How Important Those Small Vessels are for the Kidney.” Water, Electrolytes, and Homeostasis New Investigator Award, Experimental Biology 2010.
23. “Hypercholesterolemia and Renal Injury.” 2010 APS Renal Hemodynamics Meeting, Saxtons River, VT.
24. “VEGF and the Microcirculation.” Common Signaling Pathways in the Heart and Kidney II-2010 Scientific Sessions of the American heart Association. Chicago, IL, November 2010.
25. “Microvascular Disease and the Outcomes of Renal Revascularization: The Missing Link?” Northwestern University, Feinberg Cardiovascular Research Institute Fall Seminar Series, January 2011.
26. “Renovascular Disease, Microcirculation and the Progression of Renal Injury.” Department of Pharmacology-Seminar series, University of Mississippi Medical Center. February 2011.
27. “An Attempt to Understand the Mechanisms and Role of Microvascular Damage and Repair in Renovascular Disease.” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. May 2011
28. “Potential Mechanisms of VEGF-induced Renoprotection in Renovascular Disease.” Council of High Blood Pressure Research-Harry Goldblatt Award. Orlando, FL, September 2011.
29. “ET-A Blocker Administration on Renovascular Disease: A Potential Therapeutic Application.” American Society of Nephrology-Renal Week 2011, Philadelphia, PA, November 2011.
30. “Renovascular Hypertension: Microvascular Dysfunction and Potential Treatments.” Experimental Biology 2012-Physiology in Focus. San Diego, CA, April 2012.
31. “Targeting the Renal Microcirculation: Potential Therapeutic Applications of Angiogenic Cytokines in Renovascular Hypertension.” American Society of Hypertension-Scientific Sessions 2012. New York, NY, May 2012.
32. “VEGF-induced Renoprotection in Renovascular Disease: a Potential Therapeutic Approach.” International Society of Hypertension-Scientific Sessions 2012. Sidney, Australia, October 2012 *(Keynote Invited speaker).*
33. “Angiogenesis therapeutica en enfermedad renovascular: evidencia pre-clinica”. Department of Internal Medicine, Hospital L.C. Lagomaggiore, Mendoza, Argentina. March 13th, 2013.
34. “Therapeutic Angiogenesis in Experimental Renovascular Disease”. Department of Physiology, Tulane University Health Science Center. March 25th, 2013.
35. “Potential Therapeutic Applications of Angiogenic Cytokines in Experimental Renovascular Disease”

Annual Congress of the Romanian Society of Physiology, Iasi, Romania, May 9th, 2013.

1. “A Potential Therapeutic Approach in Renovascular Disease”.University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Romania. May15th, 2013.
2. “The endothelin pathway in chronic renovascular disease: a potential therapeutic target?” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. June 2013
3. “Translational therapeutic strategies in chronic renovascular disease”. Abbvie Park, August 8th, 2013.
4. “Searching for novel therapeutic approaches in renovascular disease”. Indiana University School of Medicine, October 22nd, 2013.
5. “Therapeutic strategies in experimental renovascular disease”. Department of Radiology Seminar Series, University of Mississippi Medical Center. January 15th, 2014.
6. “Renal Artery Stenosis:  Clinical and Translational Implications”. Department of Physiology-Physiology in Medicine Seminar Series, University of Mississippi Medical Center. May 7th, 2014.
7. “Enfermedad renovascular cronica: angioplastia renal, tratamiento medico, o los dos?” Department of Internal Medicine, Hospital L.C. Lagomaggiore, Mendoza, Argentina. August 14th, 2014.
8. “Renal Therapeutic Angiogenesis for the Stenotic Kidney: Novel Application of Bioengineered Polymer-stabilized VEGF Constructs” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. February 4th 2015.
9. “Therapeutic Angiogenesis for the Kidney: Any Chance?”. Nephrology Grand Rounds - Weill Cornell Medical Center/Memorial Sloan Kettering Cancer Center, NY. April 8th, 2015.
10. “Targeting the Renal Microcirculation: Therapeutic Angiogenesis in Renovascular Disease”. University of Manchester, Salford Royal Hospital, Manchester, UK. May 27th, 2015.
11. “Animal Models of Renovascular Hypertension: From Swine to Pearls.” American Society of Nephrology-Kidney Week 2015, San Diego, CA, November 2015.
12. “Renal Microcirculation in Dyslipidemia and Obesity.” American Society of Nephrology-Kidney Week 2015, San Diego, CA, November 2015.
13. “Therapeutic Angiogenesis to Protect the Kidney: More than a wishful thinking?”. Institute of Cardiovascular Sciences, University of Manchester, Manchester, UK. February 3rd, 2016.
14. “Targeting the Renal Microcirculation: Prevent the loss of, protect the damaged, create new ones” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. February 17th 2016.
15. “Angiogenesis Terapeutica en Enfermedad Renal Cronica” Department of Internal Medicine, Hospital L.C. Lagomaggiore, Mendoza, Argentina. March 16th, 2016.
16. “A Novel Biopolymer-Delivered VEGF for Therapeutic Angiogenesis in Renovascular Disease: Targeting the Kidney Via Systemic Administration”. Free communication-53th ERA-EDTA, Vienna, Austria, May 2016.
17. “Small vessels, big role: Renal microcirculation and progressive renal injury”. Council of High Blood Pressure Research-Mid-Career Award for Research Excellence. Orlando, FL, September 2016.
18. “Therapeutic angiogenesis for the renal microcirculation: Small vessels, big role”. University of Aachen, Aachen, Germany. May 31st 2017.
19. “Reversal of renal dysfunction and injury by therapeutic angiogenesis in chronic renal disease: not everything is lost”. 54th ERA-EDTA, Madrid, Spain, June 5th 2017*.*
20. “Therapeutic angiogenesis for the kidney: Can we?” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. August 30th 2017.
21. “Small Vessels with a Big Role: Renal Microcirculation, Progression of Renal Injury, Therapeutic angiogenesis”. The British and Irish Hypertension Society Annual Scientific Meeting 2017. Glasgow, Scotland, September 12th 2017.
22. Chade AR, Williams M, Bidwell GL: “Therapeutic angiogenesis in CKD”. American Society of Nephrology-Kidney Week 2017, New Orleans, LA, November 2017*.*
23. “Angiogenesis terapeutica en enfermedad renal: una nueva estrategia?”. School of Medicine, Universidad Nacional de Cuyo, Mendoza, Argentina. March 13th, 2018.
24. “Angiogenesis Terapeutica en Enfermedad Renal: Bioingenieria Aplicada”. Department of Internal Medicine, Hospital L.C. Lagomaggiore, Mendoza, Argentina. March 14th, 2018.
25. “Developing New Therapies for renal disease”. Pathology-Research Day, University of Mississippi Medical Center. May 11th, 2018.
26. “Therapeutic Angiogenesis Promotes Renal Recovery in CKD Partly by Shifting Macrophage Phenotype”. Free Communication- 55th ERA-EDTA, Coppenhagen, Denmark, May 2018.
27. “Biotechnology and renal disease: *An update about the search for novel therapies*?” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. August 22nd 2018.
28. "Bioengineered Polymers for Renal Therapeutic Angiogenesis" American Society of Nephrology-Kidney Week 2018, San Diego, CA, November 2018.
29. “Developing Biologics for Kidney Therapies: A work in progress" Division of Nephrology Grand Rounds-University of Mississippi Medical Center. January 18th, 2019.
30. “Biotechnology and therapeutic targets in cardiovascular and renal disease". 82nd Annual Mississippi Academy of Sciences Meeting. February 21-22, 2019
31. “Molecular Targeting of Renal Inflammation Using Drug-Delivery Technology in Chronic Kidney Disease”. Free Communication-56th ERA-EDTA, Budapest, Hungary, June 2019.
32. “A novel kidney-targeted bioengineered carrier for VEGF delivery in experimental renovascular disease: Proof of concept”. Free Communication-56th ERA-EDTA, Budapest, Hungary, June 2019.
33. “Applied biotechnology for chronic kidney disease: Therapeutic angiogenesis and anti-inflammatory strategies?” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. August 7th 2019.
34. “Applied biotechnology and therapeutic targets in cardiovascular and renal disease: work in progress and future directions” CardioPulmonary Vascular Biology Seminar Series, Brown University, Providence, RI. December 13th 2019.
35. “Progression of chronic kidney disease in obesity”. Scientific Sessions of the Mexican Society of Nutrition and Endocrinology. Mexico City, Mexico. February 22nd 2020.
36. Chade AR, Engel JE, Williams E, Bidwell GL: “Chronic kidney disease, inflammation, and heart failure with preserved ejection fraction: A renal-cardio axis?”. Free Communication-Invited talk. 57th ERA-EDTA, Milan, Italy, June 8th 2020.
37. “Applied biotechnology to treat cardiovascular and renal disease” Medical Students Research Program-Seminar Series, University of Mississippi Medical Center. July 24th 2020.
38. “Treating the kidney, helping the heart: *A renal-cardio axis in CKD?*” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. August 5th 2020.
39. “Treating the kidney and helping the heart: work in progress inexperimental CKD?” Department of Physiology, School of Medicine, Tulane University, New Orleans, LA. September 14th 2020
40. “Applied biotechnology in CKD: Novel therapies targeting microvessels and inflammation”. Scientific Sessions of the Romanian Society of Physiology. October 22nd 2020.
41. “Comprension y manejo de la enfermedad renovascular aterosclerotica
Biotecnologia aplicada al desarrollo de nuevos tratamientos”. Scientific Sessions of the Mexican Society of Nutrition and Endocrinology. Mexico City, Mexico. Novembe 17th 2020.
42. “Novel biotechnology to treat the kidney (and help the heart?). Work in progress in experimental CKD”. Invited Talk, Hospital Privado Universitario, Cordoba, Argentina. November 20th, 2020.
43. “Novel therapeutic strategies to treat kidney and (hopefully) help the heart in chronic renal disease. Work in progress”. Invited speaker, Seminar Series-Renal Division, School of Medicine, Emory University. Atlanta, GA. April 2nd 2021.
44. “Emerging Topics on Nutrition, Exercise, and Metabolism in Fluid and Electrolyte Homeostasis” Featured Topic-Chair. Experimental Biology 2021.
45. “A Renal-Cardio Inflammatory Axis Mediates Cardiac Dysfunction in CKD via IL-33-ST2: A Novel Mechanism”. Free Communication-58th ERA-EDTA, Berlin, Germany, June 2021.
46. “Renal-cardio pathophysiology in CKD” Department of Physiology and Biophysics-Seminar series, University of Mississippi Medical Center. August 11th 2021.
47. ” Feasibility and Efficacy of Targeted Cardiac NF-kB Inhibition in Experimental Diastolic Dysfunction Using Drug-Delivery Technology: A Proof-of-Concept Study”. Scientific Sessions of the American Heart Association 2021, Boston, MA.

***Patents***

1. Chade A.R. and Bidwell, G.L. III. “Kidney-Targeted Drug Delivery Systems.” PCT full utility patent filed to the United States Patent and Trademark Office on November 12th, 2015. PCT/US15/60438.

U.S. Patent Application No. 15/517,805, filed April 7, 2017.

**USA patent allowed on 03/14/2019. US patent issued on 06/18/2019.**

**EU patent allowed on 06/08/2021**. Patent validated in France, United Kingdom, Ireland, and Germany.

2. Bidwell, G.L. III and Chade, A.R. “Molecular size of elastin-like polypeptide delivery system for therapeutics modulates intrarenal deposition and bioavailability”. PCT Full Utility patent filed on March 29th, 2019. U.S. Patent Application Serial No. 62/826,413. In process.

**5. Service**

***National and International***

**Committee Member**

* Awards Committee of the American Physiological Society (2009-2011)
* Renal Section Awards Committee of the American Physiological Society (2010-2013)
* Translational Physiology Interest Group of the American Physiological Society (2010-2013) Cardiovascular Section Awards of the American Physiological Society (2015-2018)
* Program Committee on Scientific Sessions of the American Heart Association (2016-). Abstract Session Builder
* CVRI/PVD Vascular Imaging and Intervention Joint Committee of the Council on Cardiovascular Radiology & Intervention (CVRI) of the American Heart Association (2016-2018)
* **Chair** of the Steering Committee of the Translational Physiology Interest Group-American Physiological Society (2010-2013)

**Editorial Board Member**

* Hypertension (2010-)
* F1000 Research (2012-)
* Microcirculation (2015-)
* American Journal of Nephrology (2015-)
* Renal Failure (2020-)
* American Journal of Physiology-Renal Physiology (2020-)

**Member:** Scientific Committee, American Society of Hypertension Scientific Sessions (2012).

**Co-Chair**, American Heart Association Heart Walk, Rochester, June 2006.

**Professional Member**

* American Physiological Society (2007-)
* American Heart Association (2007-)
* American Society of Nephrology (2008-)
* European Renal Association (2013-)

**Journal Reviewer**:

* “Hypertension” and “Medicinal Chemistry”, Bentham Science Publishers, since 2004
* “American Journal of Kidney Disease” since 2005
* “Kidney International” since 2006
* “Heart and Vessels” since 2007
* “Expert Review of Cardiovascular Therapy”, “The Journal of Rheumatology”, and “American Journal of Hypertension” since 2008
* “Hypertension Research”, “Investigative Radiology”, “Expert Review of Anticancer Therapy ”, “Journal of Diabetes and Its Complications”, “Journal of Cardiovascular Pharmacology”, “American Journal of Physiology- Heart and Circulatory Physiology”, “American Journal of Physiology- Regulatory, Integrative and Comparative Physiology”, and “American Journal of Physiology- Renal Physiology” since 2009
* “Circulation Research” and “Journal of Cellular and Molecular Medicine” since 2010
* “Nature Reviews-Nephrology”, “BMC Nephrology”, “Apoptosis”, and “Atherosclerosis” since 2011
* “Journal of the American Society of Nephrology”, “Microcirculation”, “Annals of Medicine”, “Clinical and Experimental Pharmacology and Physiology”, “American Journal of Hypertension”, “BMC Research”, and “Stem Cells” since 2012
* “Acta Diabetologica”, “PLOS One” and “IConcept Press”, and “American Journal of Nephrology” since 2013
* “The Physiologist” and “Biomedicines” since 2014
* “Clinical Science”, “Journal of Urology”, “Journal of the American Society of Hypertension”, “Renal Failure”, and “Expert Reviews in Clinical Immunology” since 2015
* “Scientific Reports”, “Nephrology, Dyalisis, Transplantation”, and “Clinical Journal of the American Society of Nephrology” since 2016.
* “British Journal of Haematology” and “Current Diabetes Reviews” since 2017.
* “Experimental Physiology”, “Molecular Imaging and Biology”, “Biomaterials”, “Biomedicine & Pharmacotherapy”, “Cell Transplantation”, and “Science-Translational Medicine” since 2018.
* *“*Circulation” and “Journal of Basic and “Clinical Physiology and Pharmacology” since 2019
* “Journal of Cellular Physiology” and “Journal of the American College of Cardiology” since 2020.

**Grant Reviewer**

* NIH-Challenge Grants (2009)
* American Heart Association Cardiorenal Committee (2008-2011)
* National Institutes of Health-NIDDK. Ancillary studies in Kidney Disease and Complications-Special emphasis panel ZDK1-GRB-J 02 1, July 30th 2013.
* National Institutes of Health-NIDDK. NIDDK DKUHD Program Officers’ Note to Members of USRDS Special Emphasis Panel. RFA DK-13-008 United States Renal Data System (USRDS) Special Study Centers (U01), December 20th 2013.
* American Heart Association Cardiorenal I Committee (2014-)
* American Heart Association-Established Investigator Award Study Section (2014-)
* Medical Research Council Fellowship Program-United Kingdom (2014-)
* Romanian National Authority for Scientific Research and Innovation (2015-)
* **Co-Chair**-American Heart Association Cardiorenal III Committee (2015-)
* Department of Defense of the USA (2015-)
* NIH- SBIB-W (56) Study Section-SEP (2016-)
* NIH- ZRG1 DKUS P-54 Study Section-SEP (2016-)
* NIH- ZRG1 DKUS P-82 Study Section-SEP (2016-)
* Kidney Research UK (2017-)
* NIH-NHLBI NIH Support for Conferences and Scientific Meetings (Parent R13, 2018-)
* NIH Ancillary studies ZHL1 CSR-H (O3) (2018-2020)
* NIH-NIDDK-PBKD (Ad-Hoc, 2018-)
* American Heart Association-Paul Allen Brain Initiative-Phase I (2018)
* American Heart Association-Transformational Project Award (2019)
* NIH-NHLBI-HM (Ad-Hoc, 2019)
* American Heart Association-Innovative Project Award (2020)
* NIH-NHLBI-IVPP (former HM, Standing Member, 2020-2024)

**Abstract reviewer**

* American Physiological Society (2010-)
* Scientific Sessions of the American Heart Association (2011-)
* European Renal Association/European Dialysis Transplantation Association (ERA-EDTA, 2013-)
* Scientific Sessions of the American Society of Nephrology-Kidney Week (2013-)
* Council for High Blood Pressure Research (2014-)

**Consultant-Advisory Board Member**: Bench to Bedside, Actelion Pharmaceuticals, 2015-2016.

**Consultant-Advisory Board Member**: Caladrius Bioscience (2020-).

***Local***

**Member**:

* IACUC-University of Mississippi Medical Center (2009-)
* Graduate Faculty Committee, University of Mississippi Medical Center (2009-2021)
* Post-Doctoral Fellows Committee, University of Mississippi Medical Center (2013-2015)
* Physiology Faculty Search Committee, Department of Physiology, University of Mississippi Medical Center (2014-)
* Tenure and Promotions Committee, Department of Physiology, University of Mississippi Medical Center (2018-)
* Graduate Council, University of Mississippi Medical Center (2015-2020)
* Curriculum Committee, Physiology Graduate Program University of Mississippi Medical Center (2015-)
* **Director**: Physiology Seminar Series, Department of Physiology and Biophysics, University of Mississippi Medical Center (2011-2013)
* **Associate Director** COBRE 2P20GM104357 (2020-), Cardiorenal and Metabolic Diseases Research Center, awarded to Department of Physiology and Biophysics, University of Mississippi Medical Center (2018-2023)
* Community outreach: American Physiological Society, Phun week, Jackson, MS (2013-).

**6. Teaching**

**Current**

* Circulatory Physiology 717 (Part II, 2012-)
* Current Issues in Biomedical Sciences (ID 727, 2012-)
* Physiology 625/725 (2012-)
* Advanced Circulatory Physiology 717 (Part I-2015-)
* Advanced Renal Physiology (Physio 731, 2015-)
* Physiological Applications of Molecular Biology (2015-)
* Problem-based learning. Medical School (2015-)
* Medical Physiology (2019-)

**Past**

* Arterial Pressure Laboratory-Medical Physiology (2014)

# 7. Mentoring

* **Post-doctoral fellows**

**06/2013-08/2014:** Nathan Tullos, PhD (now an Assistant Professor at Mississippi College, Clinton, MS).

*Dr. Tullos published 2 abstracts and 3 manuscripts as result of his work in my laboratory (please see Bibliography). He also presented twice at UMMC Research Day (2013 and 2014) and received an award for his presentation at the 2014 UMMC Radiology Research Day.*

* **Graduate students**

**Physiology PhD program**

**2016-2019:** Erika Guise, PhD *(Now Assistant Professor at Michigan State University)*

**Physiology PhD Program-Summer research laboratory rotation-Supervised research**

**2009**: Mathew Dukes, Jeremy Freeman

**2010**: Deborah Davis, John Clemmer

**2011**: Joyee Estees

**2014**: Gwendolyn Davis

**2016:** Erika Guise

* **Dissertation Committee Member**: John Clemmer, PhD, Elena Dent (current), Erika Guise (completed). Tyler Lomax (current), Jason E. Engel (current), Subhi T. Younes (current)
* **Undergraduate**

**High-school students**

**2014**: Discovery U Laboratory rotation-Clinton High School: Sarah Brantley, Mary Hyer, Alex Jackson, Nia Simms, Sarah Grace Travis, Hannah Darnell, Kate Nye, Claire Everett, Jenny Loome, Khoula Daleem.

**2015**: Discovery U Laboratory rotation-Clinton High School: Sydney Thomas, Lane Wilson, Parker Maloney, Wyntom Sims, Anthony Scales, Javarcia Ivory, Simmi Kaur, Toni Petterson.

**2016**: Discovery U Laboratory rotation-Clinton High School: Haley Zetterholm, Maria Zamora, Chin Wen Yen, Siri Yarlagadda. Madison High School: Madison Carpenter, Anna Hill, Jared Tubertini, Prahar Patel.

**MD/PhD Program**

**2017-2021:** Jason Engel, MD, PhD *(Now Resident at UMMC Internal Medicine Program)*

**MD/PhD Program-Summer research laboratory rotation-Supervised research**

**2009**: Peter Mittwede

**2014**: Jason Engel

**2015:** Jason Engel, Ezekiel Gonzalez

**MD Program-Summer research laboratory rotation-Supervised research**

**2010**: S. Sai Veerisetty *(1 abstract published, please see Bibliography)*

**2011**: Patrick Peavy *(1 manuscript published, please see Bibliography)*

**2012**: Ryan Davidovich *(1 abstract and 1 manuscript published, please see Bibliography)*

**Medical Student Research Program**

**2016-2019:** Taylor W. Harvey

**2019**: Camille Azar

**MD Program-Advisor-Clinical Educator**

**2013**: Jeremy Archer, Daniel Krebs, Samuel Abbas, Summer Abraham

**2014**: Thomas Coleman, Gaylen Patterson, Rachel Yi

**2015:** Shelby Claire, Liddell Falan McKnight, Denise Powell

**2016**: Caroline Daggett, Rana Gordji, Caitlin Kutz Henley