

**Monte S. Willis, MD, PhD, MBA**

113 Ruskin Place  
Chapel Hill, NC 27516  
(919) 360-7599

**EDUCATION**

- 2012-2014      **Master of Business Administration (MBA) Executive Program**  
Kenan-Flagler Business School University of North Carolina at Chapel Hill  
Coursework in Healthcare Markets, Concentration in Entrepreneurship and  
strategy. <http://goo.gl/ADg7II>
- 2004-2005      **Clinical Pathology Resident**, Department of Pathology and Laboratory Medicine  
University of North Carolina at Chapel Hill
- 2001-2004      **Clinical Pathology Resident**, Department of Pathology  
*Inpatient/outpatient transfusion medicine, blood bank, chemistry, microbiology,*  
*hematopathology, molecular genetics pathology, cytogenetics*  
University of Texas Southwestern Medical Center
- 2002-2004      **Postdoctoral Fellow**  
Department of Surgery  
Research and Training Program in Burns, Trauma, and Critical Care  
University of Texas Southwestern Medical Center
- 1993-2001      **MD/PhD Scholars Program**  
Department of Pathology and Microbiology  
*Thesis title: "Binding of soluble proteins modified with malondialdehyde-*  
*acetaldehyde (MAA) to scavenger receptors induces apoptosis, necrosis, and*  
*enhances immune responses"*  
College of Medicine and College of Graduate Studies  
University of Nebraska Medical Center
- 1992            **BS, cum laude, Biology**  
College of Arts and Science Honors Program  
University of Nebraska-Lincoln

**Licensure and Certification**

North Carolina Medical License No. 2006-00107  
Diplomate, American Board of Pathology, Clinical Pathology, No. 08-602  
Director, CLIA ID #34D0667608

**PROFESSIONAL EXPERIENCE – EMPLOYMENT HISTORY**

- Feb. 2017-present      **Director**  
Student Health Services Laboratory  
North Carolina State University
- September 11, 2016      **Professor (with tenure)**, Department of Pathology & Laboratory Medicine,

Department of Pharmacology (Joint Appointment)  
University of North Carolina at Chapel Hill

May 6, 2016-present **Curriculum in Toxicology (CiT) Faculty**  
University of North Carolina at Chapel Hill

Jan. 29, 2016-  
Sept. 11, 2016 **Associate Professor (with tenure)**  
Department of Pharmacology (Joint Appointment)  
University of North Carolina at Chapel Hill

2014-present **Vice-Chair of Academic Affairs**  
Department of Pathology and Laboratory Medicine  
University of North Carolina at Chapel Hill

***Responsibilities & Oversight/Management Functions:***

- Assist with the recruitment, selection, mentoring, and promotion of tenure track and fixed term faculty with primary clinical missions
- Work with individual clinical faculty members to develop plans for career development, teaching, research, and service; including development and oversight of clinical faculty mentoring committees
- Coordinate, serve on and/or chair search committees for new clinical faculty hires
- Provide oversight of clinical faculty certification and maintenance of certification required for clinical practice
- Assist faculty with IRB (Institutional Review Board), MTA (Material Transfer Agreements), Conflict of Interest (COI) and External Professional Activities for Pay (EPAP) issues
- Work with the Chair and faculty to identify new areas of clinical research for the Department
- Provide oversight of the involvement of clinical faculty in medical student and resident education.
- Assist the Chair in developing strategic plans for the Department to attain and maintain a high level of excellence in clinical service and academic productivity of clinical faculty.
- Work with the Chair and the Vice Chair for Research to develop and implement strategic plans for the Department to attain and maintain a high level of excellence in research productivity and extramural funding.
- Aid in medical student curriculum development and implementation
- Facilitate Part B billable outreach by MD faculty
- Assist the Chair and other Departmental leaders in developing greater Health Care System Pathology and Laboratory Medicine physician integration

2011-2016 **Associate Professor (with tenure)**  
Department of Pathology and Laboratory Medicine  
University of North Carolina at Chapel Hill

2010-present      **Director**  
Campus Health Services Laboratory  
University of North Carolina at Chapel Hill

2006-present      **Director**  
Sweat Chloride Testing  
McLendon Clinical Laboratories  
University of North Carolina Hospitals

2006-present      **Assistant Director**  
Clinical Core (Chemistry) Laboratory  
McLendon Clinical Laboratories  
University of North Carolina Hospitals

2005-2010        **Assistant Professor**  
Department of Pathology and Laboratory Medicine  
University of North Carolina at Chapel Hill

## HONORS

2017                **Society of Endocrinology Journal Award.** Recognized by the Society of Endocrinology for excellence in endocrine research and practice and for contributions to the wider biomedical and biological sciences field. *Awarded on the basis of originality, scientific content, presentation and contribution to the field (2016 Journal of Endocrinology)*

“MuRF1 mono-ubiquitinates TR $\alpha$  to inhibit T3 induced cardiac hypertrophy in vivo”  
*J Mol Endocrinol.* 2016; 56(3):273-90

2011-2015        Jefferson-Pilot Fellowship in Academic Medicine, University of North Carolina School of Medicine

2011                American Society of Investigative Pathologists (ASIP) Cotran Early Career Investigator Award

2004-2012        NIH Pediatric Research Loan Repayment Program (LRP)

2007                American Heart Association Basic Cardiovascular Sciences Abstract Travel Grant to AHA Scientific Sessions 2007

2006                1st Place, Best Case Study Competition, *Laboratory Medicine*

2005                2nd Place, Best Case Study Competition, *Laboratory Medicine*

2004                1st Place, Resident Scientific Competition, Texas Society of Pathologists

2002-2004        NIH, National Institute of General Medical Studies (NIGMS), University of Texas Southwestern Research Training Program in Burns, Trauma, and Critical Care Postdoctoral Fellowship (T32)

2002, 2004        Trainee Travel Award, American Society of Investigative Pathologists (ASIP)

1997-2001        NIH National Institute on Alcohol Abuse and Alcoholism (NIAAA) MD/PhD Predoctoral Fellowship Grant (F30)

1994-1995        Dr. CC Tomlinson Memorial Scholarship Award, University of Nebraska Medical Center

## College of Medicine

**BIBLIOGRAPHY AND PRODUCTS OF SCHOLARSHIP****Books and Chapters**

1. McCudden CR, **Willis MS**: Post-analytical Issues in the Clinical Laboratory. In: *Clinical Core Laboratory Testing*, eds. Ross Molinaro, Christopher McCudden, Marjorie Bonhomme, Amy Saenger. Springer Nature. 1<sup>st</sup> Edition, 2017 (ISBN 978-1-4899-7792-2).
2. Klauber-DeMore N, **Willis MS**: Novel Cancer Therapies Targeting Angiogenesis. In: *The Molecular Basis of Human Cancer*, eds. William B. Coleman and Gregory J. Tsongalis. Springer Science + Business Media. New York. 2<sup>nd</sup> Edition, September 23, 2016, 880 pages (ISBN 978-1-934115-18-3).
3. Henderson MPA, Cotton SW, Roger MW, **Willis MS**, McCudden CR: Method Evaluation and Quality Control (Chapter 3), In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 8<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2018, pages 49-86.
4. Levtzow CB, Rogers MW, McCudden CR, **Willis MS**: Lean Six Sigma Methodology Basics and Quality Improvement in the Clinical Chemistry Laboratory (Chapter 4), In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 8<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2018, pages 87-100.
5. Henriquez RR, Durando M, Jensen BC, McCudden C, **Willis MS**: Laboratory Markers of Cardiac Damage and Function (Chapter 26), In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 8<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2018, pages 530-552.
6. McCudden CR, **Willis MS**: Circulating Tumor Markers: Basic Concepts and Clinical Applications (Chapter 32). In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 8<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2018, pages 646-661.
7. Parry T, Ledee D, **Willis MS**, Portman MA: Nuclear receptors and the adaptive response of the heart (Chapter 10), In: Schisler JC, Lang SH, Willis MS, eds, *Endocrinology of the Heart in Health and Disease: Integrated, Cellular, and Molecular Endocrinology of the Heart*. 1<sup>st</sup> edition. Academic Press (Elsevier), 2017, pages 249-284 (ISBN 978-0128031117).
8. Ranek MJ, Vu A, **Willis MS**, Lymperopoulos A: Neuronal hormones and the sympathetic/parasympathetic regulation of the heart (Chapter 8), In: Schisler JC, Lang SH, **Willis MS**, eds, *Endocrinology of the Heart in Health and Disease: Integrated, Cellular, and Molecular Endocrinology of the Heart*. 1<sup>st</sup> edition. Academic Press (Elsevier), 2016, (ISBN 978-0128031117).
9. Pizzo SV, Lundblad R, **Willis MS**: Book Title: *Proteolysis in the Interstitial Space* (Protein Science)(co-author on all 9 Chapters). CRC Press, Taylor & Francis Group, LLC. ISBN-13: 978-1466572072.
10. **Willis MS**, Sander T: The Genetic Basis and Molecular Diagnosis of Vascular Tumors and Developmental Malformations. In: *Vascular Tumors and Developmental Malformations: Pathogenic Mechanisms and Molecular Diagnosis*, eds. Paula E. North and Tara Sander. Pages 101-130 (ISBN 978-1-61779-742-2). Springer Science + Business Media. New York. 149 pages.

11. Brown DI, **Willis MS**, Berthiaume JM: Influence of Ischemia-Reperfusion Injury on Cardiac Metabolism. In: *The Scientist's Guide to Cardiac Metabolism*, eds. Michael Schwarzer and Torsten Doenst. November 2015, 227 pages (ISBN 978-0-12-802394-5).
12. Stansfield WE, Ranek M, Pendse A, Schisler JC, Wang S, Pulinilkunnit T, **Willis MS**: Chapter 4: The Pathophysiology of Cardiac Hypertrophy and Heart Failure. In: **Willis MS**, Homeister, JW, Stone JR, eds. *Cellular and Molecular Pathobiology of Cardiovascular Disease*. 1<sup>st</sup> ed. Academic Press, pages 51-78, January 2014.
13. McCudden CR, **Willis MS**: Chapter 32: Circulating Tumor Markers: Basic Concepts and Clinical Applications. In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 7<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2013, pages 664-679.
14. Henderson M, **Willis MS**, Cotten SW, Rogers MW, McCudden C: Chapter 3: Method Evaluation. In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 7<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2013, pages 52-89.
15. Durando M, Jensen B, **Willis MS**: Laboratory Chapter 26: Markers of Cardiac Damage and Function. In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 7<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2013, pages 545-567.
16. Cotten SW, McCudden CR, Rogers MW, **Willis MS**: Chapter 4: Lean Six Sigma Methodology for Quality Improvement in the Clinical Chemistry Laboratory. In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 7<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins, 2013, pages 90-99.
17. **Willis MS**, Portbury A, Ronnebaum S, Zungu M, Townley-Tilson D, Patterson C: Ubiquitylation- dependent signaling in heart disease. In: *Translational Cardiology: Molecular Basis of Cardiac Metabolism, Cardiac Remodeling, Translational Therapies and Imaging Techniques*. Edited by Willis MS, Patterson C. Springer Science+Business Media (New York, NY); July 5, 2012, 543 pages (ISBN: 978-1-61779-890-0).
18. Afenyi-Annan A, **Willis M**: Transfusion Medicine Overview. In: **Willis MS**, Wians FH, eds. *ASCP Caseset Laboratory Medicine*. Ohio: ASCP Press; 2011: 200-206.
19. Homeister, JW, **Willis MS**: (November 2010) Atherosclerosis: Pathogenesis, Genetics and Experimental Models. In: *ENCYCLOPEDIA OF LIFE SCIENCES 2010*, John Wiley & Sons, Ltd: Chichester <http://www.els.net/> [DOI: 10.1002/9780470015902.a0005998.pub2].
20. Samples J, **Willis M**, Klauber-DeMore N: Chapter 1: Targeting Angiogenesis and the Tumor Microenvironment. In: Translational Cancer Research for Surgeons. *Surg Oncol Clin N Am*. 2011, 22(4):629-39 (PMID 24012392).
21. McCudden CR, Rogers M, Erickson J, Erickson R, **Willis MS**. Method evaluation and quality management. In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 6<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins; 2009, 88-129.
22. McCudden CR, **Willis MS**. Circulating tumor markers: basic concepts and clinical applications. In: Bishop ML, Fody EP, Schoeff LE, eds. *Clinical Chemistry: Principles, Procedures, Correlations*. 6<sup>th</sup> ed. Baltimore, MD: Lippincott Williams & Wilkins; 2009, 637-650.
23. Grenache DG, **Willis MS**. Hypothalamic, pituitary, and gonadal disorders. In: *Contemporary Practice in Clinical Chemistry*. Clarke W, DuFour DR, eds. Washington, DC: AACCC Press; 2006:351-364.

#### **In press/Submitted (books and chapters only)**

N/A

**Refereed Papers/Articles**

24. Jensen BC, Parry TL, Huang W, Ilaiwy, Bain JR, Muehlbauer MJ, O'Neal SK, Johnson GL, **Willis MS**: Non-Targeted Metabolomics Analysis of the Effects of Tyrosine Kinase Inhibitors Sunitinib and Erlotinib on Heart, Muscle, Liver, and Serum Metabolism In Vivo. *Metabolites*. 7(30): 1-13 (PMID 28640223).
25. Jensen BC, Bultman SJ, Holley D, de Ridder G, Pizzo S, Bowles D, **Willis MS**: Upregulation of autophagy genes and the unfolded protein response in human heart failure. *Int J Clin Exp Med*. 2017; 10(1):1051-1058.
26. Brown DI, Parry TL, **Willis MS**: Ubiquitin Ligases and Posttranslational Regulation of Energy in the Heart: The Hand that Feeds. *Compr Physiol*. 2017;7(3):841-862 (PMID 28640445).
27. Wilson BA, **Willis MS**: 8th Annual Rare Disease Scientific Workshop: Evaluating Early Access Models for Patients: Flashpoints, Frameworks & Case Studies for Advancement: A Summary. *J Rare Dis Res Treat*. 2017; 2(2):6-17.
28. **Willis MS**, Ilaiwy A, Montgomery MD, Simpson PC, Jensen BC: The alpha-1A adrenergic receptor agonist A61603 reduces cardiac polyunsaturated fatty acid and endocannabinoid metabolites associated with inflammation in vivo. *Metabolomics*, 2016; 12(10):155. doi:10.1007/s11306-016-1097-3 (PMID 28533737).
29. Parry TL, **Willis MS**: Cardiac ubiquitin ligases: Their role in cardiac metabolism, autophagy, cardioprotection and therapeutic potential. *Biochim Biophys Acta*. 2016;1862(12):2259-2269 (PMID 27421947).
30. Ilaiwy A, Quintana MT, Bain JR, Muehlbauer MJ, Brown DI, Stansfield WE, **Willis MS**: Cessation of biomechanical stretch model of C2C12 cells model myocyte atrophy and anaplerotic changes in metabolism using non-targeted metabolomics analysis. *Int J Biochem Cell Biol*. 2016 Oct;79:80-92 (PMID: 27515590).
31. Jensen BC, **Willis MS**: The Head and the Heart: The Alzheimer's Connection. *J Am Coll Cardiol*. 2016 Dec 6;68(22):2408-2411 (PMID: 27908344).
32. Files DC, Ilaiwy A, Parry TL, Gibbs KW, Liu C, Bain JR, Delbono O, Muehlbauer MJ, **Willis MS**: Lung injury-induced skeletal muscle wasting in aged mice is linked to alterations in long chain fatty acid metabolism. *Metabolomics*, 2016 Aug;12(8). pii: 134 (PMID 28217037).
33. Shimomoto T, Collins LB, Yi X, Holley DW, Zhang Z, Tian X, Uchida K, Wang C, Hörkkö S, **Willis MS**, Gold A, Bultman S, Nakamura J: A purified MAA-based ELISA is a useful tool for determining anti-MAA antibody titer with high sensitivity. *PLOS One*. 2017 Feb 21;12(2): e0172172 (PMID 28222187).
34. **Willis MS**, Holley DW, Wang Z, Chen X, Quintana M, Jensen BC, Tannu M, Parker J, Jeyaraj D, Jain MK, Wolfram JA, Lee H, Bultman SJ: BRG1 and BRM Function Antagonistically with c-MYC in Adult Cardiomyocytes to Regulate Conduction and Contractility. *J Mol Cell Card*. 2017; 105:99-109 (PMID 28232072).
35. Quintana MT, Parry TL, He J, Yates CC, Sidorova TN, Murray KT, Bain JR, Newgard CB, Muehlbauer MJ, Eaton SC, Hishiya A, Takayama S, **Willis MS**: Cardiomyocyte-Specific Human Bcl2-Associated Anthanogene 3 P209L Expression Induces Mitochondrial Fragmentation, Bcl2-Associated Anthanogene 3 Haploinsufficiency, and Activates p38 Signaling. 2016, *Am J Pathol*, 186(8):1989-2007 (PMID 27321750).
36. Cruz-Topete D, Meyers PH, Foley JF, **Willis MS**, Cidlowski JA: Corticosteroids are Essential for Maintaining Cardiovascular Function in Male Mice. *Endocrinology*, 157(7):2759-2771 (PMID 27219275).

37. Huang T, **Willis MS**, Meissner G: IL-6/STAT3 Signaling in Mice with Dysfunctional Type-2 Ryanodine Receptor. *JAK-STAT*, 4(4): e1158379 (PMID 27217982).
38. Brown DI, Cooley BC, Quintana MT, Lander C, **Willis MS**: Nebulized delivery of the MAPKAP kinase 2 peptide inhibitor MMI-0100 protects against ischemia-induced systolic dysfunction. *Int J Pept Res Ther*. 2016; 22(3):317-324. DOI: 10.1007/s10989-015-9507-3.
39. Schisler JC, Patterson C, **Willis MS**: Skeletal muscle mitochondrial alterations in carboxyl terminus of HSC70 interacting protein (CHIP)-/- mice. *Afr J Cell Pathol*, 6:28-36, 2016.
40. Ilaiwy A, Liu M, Parry TL, Bain JR, Muehlbauer, Despa F, **Willis MS**: Human amylin proteotoxicity impairs protein biosynthesis, and alters major cellular signaling pathways in the heart, brain and liver of humanized diabetic rat model in vivo. *Metabolomics*, 12(95):1-14. DOI 10.1007/s11306-016-1022-9.
41. Bultman SJ, Holley D, De Ridder G, Pizzo S, Sidorova TN, Murray KT, Jensen BC, Wang Z, Bevilacqua A, Chen X, Quintana MT, Tannu M, Rosson GB, Pandya K, **Willis MS**: BRG1 and BRM SWI/SNF ATPases redundantly maintain cardiomyocyte homeostasis by regulating cardiomyocyte mitophagy and mitochondrial dynamics in vivo. *Cardiovasc Pathol* 2016, 25(3):258-69 (PMID 27039070).
42. Kornegay JN, Bogan DJ, Bogan JR, Dow JL, Wang J, Fan Z, Liu N, Warsing, Grange RW, Ahn M, Balog-Alvarez CJ, Cotten SW, **Willis MS**, Brinkmeyer-Langford C, Zhu H, Palandra J, Morris CA, Styner MA, Wagner KR: Dystrophin-Deficient Dogs with Reduced Myostatin have Unequal Muscle Growth and Greater Joint Contractures. *Skeletal Muscle*, 2016, 6:14 (PMID 27047655).
43. Wadosky KM, Berthiaume J, Tang W, Zungu M, Portman MA, Gerdes M, **Willis MS**: MuRF1 mono-ubiquitinates TR $\alpha$  to inhibit T3 induced cardiac hypertrophy in vivo. *J Mol Endocrinol*. 2016; 56(3):273-90 (PMID 26862156).
44. Parry TL, Desai G, Schisler JC, Li L, Quintana MT, Stanley N, Lockyer P, Patterson C, **Willis MS**: Fenofibrate unexpectedly induces Cardiac Hypertrophy in Mice Lacking MuRF1. *Cardiovasc Pathol*. 2016; 25(2):127-140. (PMID 26764147).
45. Parry TL, Melehani JH, Ranek MJ, **Willis MS**: Functional amyloid signaling via the inflammasome, necrosome, and signalosome: New therapeutic targets in heart failure. *Front. Cardiovasc. Med*. 2015; 2:25 (PMID 26664897).
46. Han Y, **Willis MS**: The Role of PCSK9 in Lipid Metabolism and its Relationship to New Therapies for Lowering Cholesterol and Reducing Cardiac Disease. *J Cardiol Ther*. 2015; 2(5): 393-399.
47. Li J, Lange L, Sabourin J, Duan Q, Valdar W, **Willis MS**, Li Y, Wilson J, Lange EM: Genome- and Exome-wide Association Study of Serum Lipoprotein (a) in the Jackson Heart Study. *J Hum Genet*. 2015; 60(12):755-61. (PMID 26377243).
48. Banerjee R, Bultman BJ, Holley D, Spaniel C, Bain JR, Newgard CB, Muehlbauer MJ, **Willis MS**: Non-targeted metabolomics of Brg1/Brm double-mutant cardiomyocytes reveals a novel role for SWI/SNF complexes in metabolic homeostasis. *Metabolomics*. 2015; 11:1287-1301 (PMID 26392817).
49. He J, Quintana MT, Sullivan J, Parry T, Grevengoed T, Schisler J, Hill JA, Yates CC, Mapanga RF, Essop MF, Stansfield WE, Bain JR, Newgard CB, Muehlbauer MJ, Han Y, Clarke BA, **Willis MS**: MuRF2 regulates PPAR $\gamma$ 1 activity to protect against diabetic cardiomyopathy and enhance weight gain induced by a high fat diet. *Cardiovasc Diabetol*. 2015; 14:97 (PMID 26242235).
50. Quintana MT, He J, Sullivan J, Grevengoed T, Schisler J, Han Y, Hill JA, Yates CC, Stansfield WE, Mapanga RF, Essop MF, Muehlbauer MJ, Newgard CB, Bain JR, **Willis MS**: Muscle Ring Finger-3 Protects Against Diabetic Cardiomyopathy Induced by a High Fat Diet. *BMC Endocr Disord*. 2015; 15(1):36 (PMID 26215257).

51. Rodríguez JE, Liao J, He J, Schisler JC, Newgard CB, Drujan D, Glass DJ, Frederick CB, Yoder BC, Lalush DS, Patterson C, **Willis MS**: The Ubiquitin Ligase MuRF1 Regulates PPAR $\alpha$  Activity in the Heart by Enhancing Nuclear Export via Monoubiquitination. *Mol Cell Endocrinol.* 2015; 413:36-58 (PMID 26116825).
52. Schisler JC, Ronnebaum S, Madden M, Channell M, Campen M, **Willis MS**: Endothelial inflammatory transcriptional responses to an altered plasma exposome following inhalation of diesel emissions. *Inhal Toxic. Inhal Toxicol*, 2015; 27(5):272-280 (PMID 25942053).
53. Schisler JC, Grevengoed TJ, Pascual F, Cooper DE, Ellis JM, Paul DS, **Willis MS**, Patterson C, Jia W, Coleman RA: Cardiac Energy Dependence on Glucose Increases Metabolites Related to Glutathione and Activates Metabolic Genes Controlled by Mechanistic Target of Rapamycin. *JAHA.* 2015; 4(2). pii: e001136 (PMID 25713290).
54. Xie L, Pi X, Wang Z, He J, **Willis MS**, Patterson C: Depletion of PHD3 protects heart from ischemia/reperfusion injury by inhibiting cardiomyocyte apoptosis. *J Mol Cell Cardiol*, 2015; 80:156-165 (PMID 25633836).
55. McCormick ME, Collins C, Makarewich CA, Chen Z, Rojas M, **Willis MS**, Houser SR, Tzima E: Platelet endothelial cell adhesion molecule-1 mediates endothelial-cardiomyocyte communication and regulates cardiac function. *J Am Heart Assoc.* 2015; 4(1):e001210 (PMID 25600142).
56. Burk LM, Wang KH, Wait JM, Kang E, **Willis M**, Lu J, Zhou O, Lee YZ: Delayed Contrast Enhancement Imaging of a Murine Model for Ischemia Reperfusion with Carbon Nanotube Micro-CT. *PLoS ONE* 2015; 10(1): e0115607 (PMID 25635838).
57. Li J, Lange LA, Duan Q, Lu Y, Singleton AB, Zonderman AB, Evans MK, Li Y, Taylor HA, **Willis MS**, Nalls M, Wilson JG, Lange EM: Genome-wide admixture and association study of serum iron, ferritin, transferrin saturation and total iron binding capacity in African Americans. *Hum Mol Genet.* 2015; 24(2):572-581 (PMID 25224454).
58. Gwathmey TM, **Willis MS**, Tatreau J, Wang S, McCudden CR: Clinical Relevance of Trace Bands on Serum Electrophoresis in Patients without a History of Gammopathy. *J Int Fed Clin Chem.* 2015; 26(2):114-124.
59. Couch ME, Dittus K, Toth MJ, **Willis MS**, Guttridge DC, George JR, Chang EY, Gourin CG, Der-Torossian H: Cancer Cachexia Update in Head and Neck Cancer: Pathophysiology and Treatment. *Head Neck.* 2015; 37(7):1057-1072 (PMID 24634283).
60. Banerjee R, He J, Spaniel C, Quintana MT, Wang Z, Bain J, Newgard CB, Muehlbauer MJ, **Willis MS**: Non-targeted metabolomics analysis of cardiac Muscle Ring Finger-1 (MuRF1), MuRF2, and MuRF3 in vivo reveals novel and redundant metabolic changes. *Metabolomics.* 2015; 11:312-211 (PMID 28325996).
61. Skrzynia C, Berg JS, **Willis MS**, Jensen BC: Genetics and Heart Failure: A Concise Guide for the Clinician. *Curr Cardiol Rev.* 2015; 11(1):10-17 (PMID 24251456).
62. Xu L, Yates CC, Lockyer P, Xie L, Bevilacqua A, He J, Lander C, Patterson C, **Willis MS**: MMI-0100 inhibits cardiac fibrosis in myocardial infarction by direct actions on cardiomyocytes and fibroblasts via MK2 inhibition. *J Mol Cell Card.* 2014; 77:86-101 (PMID 25257914).
63. Mattox TA, Young ME, Rubel CE, Spaniel C, Rodríguez JE, Grevengoed TJ, Gautel M, Xu Z, Anderson EJ, **Willis MS**: MuRF1 activity is present in cardiac mitochondria and regulates reactive oxygen species production in vivo. *Journal of Bioenergetics and Biomembranes*, 2014 46(3):173-87 (PMID: 24733503).
64. Ellis J, Lange EM, Li J, Dupuis J, Baumert J, Walston JD, Keating BJ, Durda P, Fox ER, Palmer CD, Meng YA, Young T, Farlow DN, Schnabel RB, Marzi CS, Larkin E, Martin LW, Bis JC, Auer P, Ramachandran VS, Gabriel SB, **Willis MS**, Pankow JS, Papanicolaou GJ, Rotter JJ, Ballantyne CM, Gross MD, Lettre G, Wilson JG, Peters U, Koenig W, Tracy RP, Redline S,



- Reiner AP, Benjamin EJ, Lange LA: Large Multiethnic Candidate Gene Study for C-Reactive Protein Levels: Identification of a Novel Association at CD36 in African Americans. *Hum Genet.* 2014; 133(8):985-95 (PMID: 24643644).
65. Campen MJ, Paffett ML, Colombo ES, DeLuca M, Lucas SN, Gershman B, Hoppin J, Norenberg J, Anderson T, Nysus M, **Willis M**: Muscle RING Finger-1 promotes a maladaptive phenotype in chronic hypoxia-induced right ventricular remodeling. *PLoS One*, 2014; 9(5):e997084 (PMID 24811453).
66. Paul DS, Grevengoed TJ, Pascual F, Ellis JM, **Willis MS**, Coleman RA: Deficiency of cardiac Acyl-CoA synthetase-1 induces diastolic dysfunction, but pathologic hypertrophy is reversed by rapamycin. *Biochim Biophys Acta.* 2014; 1841(6):880-7 (PMID 24631848).
67. Yi F, Wang H, Chai Q, Wang X, Shen WK, **Willis MS**, Lee HC, Lu T: Regulation of BK Channel  $\beta$ 1 Subunit Expression by Muscle RING Finger Protein 1 in Diabetic Vessels. *J Biol Chem.* 2014; 289(15):10853-64 (PMID 24570002).
68. Wadosky KM, Rodríguez JE, Hite RL, Min J, Walton B, **Willis MS**: Muscle RING finger-1 attenuates IGF-1-dependent cardiomyocyte hypertrophy by inhibiting JNK signaling. *Am J Physiol Endocrinol Metab.* 2014; 306(7):E723-39 (PMID: 24425758).
69. Couch ME, Dittus K, Toth MJ, **Willis MS**, Guttridge DC, George JR, Barnes CA, Gourin CG, Der-Torossian H: Cancer cachexia update in head and neck cancer: Definitions and diagnostic features. *Head Neck.* 2014; 37(4):594-604 (PMID 24415363).
70. Cotten SW, Kornegay JN, Bogan DJ, Wadosky KM, Patterson C, **Willis MS**: Genetic myostatin decrease in the golden retriever muscular dystrophy model does not significantly affect the ubiquitin proteasome system despite enhancing the severity of disease. *Am J Trans Res.* 2014; 6(1):43-53 (PMID 24349620).
71. Duryee M, **Willis M**, Schaffert C, Reidelberger R, Dusad A, Anderson D, Klassen L, and Thiele G: Precision Cut Liver Slices from Diet-Induced Obese Rats Exposed to Ethanol are Susceptible to Oxidative Stress and Increased Fatty Acid Synthesis. *Am J Physiol Gastrointest Liver Physiol.* 2014; 306(3):G208-17 (PMID: 24284960).
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234. Moser WE, **Willis MS**. Predation on gastropods by *Placobdella* spp. (Clitellata: Rhynchobdellida). *Am Midl Nat.* 1994; 132(2):399-400.

#### In press/In Revision (Refereed articles only)

235. **Wilson Manuscript 1**  
 236. **Wilson Manuscript 2**  
 237. **Couch serum paper x 2**

238. **HSP70/90 Review**
239. **GRMD Metabolomics**
240. **Additional Starnes Paper**
241. **Jensen paper 1**
242. Meng Q, Bidur B, Osinska H, James J, Xu N, Shay-Winkler K, Gulick J, **Willis MS**, Lander C, Robbins J: MMI-0100 Inhibits Cardiac Fibrosis in a Model of Cardiac Myosin Binding Protein
243. C Heart Disease. *JAHA*. Revision under review (June 2017).
244. Abdullah M, Kornegay JN, Honcoop A, Parry TL, Balog C, O'Neal SK, Bain JR, Muehlbauer MJ, Newgard C, Patterson C, **Willis MS**: Non-targeted Metabolomics Analysis of Golden Retriever Muscular Dystrophy-Affected Muscles Reveals Alterations in Arginine and Proline Metabolism, and Elevations in Glutamic and Oleic Acid In Vivo. *Metabolites*. Revision under review (June 2017).
245. Ravi S, Schuck RN, Hilliard E, Lee CR, Dai X, Lenhart K, **Willis MS**, Jensen BC, Stouffer GA, Patterson C, Schisler JC: Clinical Evidence Supports a Protective Role for CXCL5 in Coronary Artery Disease. *Am J Pathol*. **Revision under review**. Initially submitted Dec. 2016, Revision submitted 15 June 2017.
246. Pu J, Albert MA, Anderson CAM, Bertoni AG, Mujahid MS, Palaniappan, LP, Taylor HA, Yancy CW, **Willis M**, Howard G: Cardiovascular Disease in African Americans. AHA Position Paper commission request to the African American CVD Writing Group. *Circulation*. Accepted June 24, 2017, in press.

#### Non-Refereed Papers/Articles

247. Eaton S, **Willis MS**: Discovery of Bag3-P209L signaling mechanism brings hope for therapeutic options currently in development. *Atlas of Science*. February 28, 2017. <http://atlasofscience.org>.

#### In press (Non-refereed articles only)

248. Wilson BA, **Willis MS**: Sheehan, Harold Leeming (1900-1989). *Encyclopedia of Pathology*, H.V. Krieken (ed.), Springer-Verlag Berlin Heidelberg. *In press* 8 May 2017.

#### Selected Posters, Abstracts, and Oral Presentations

1. Parry TL, Mota R, **Willis MS**: The muscle-specific ubiquitin ligase Atrogin-1 (MAFbx) inhibits age-associated cardiac fibrosis by enhancing MMP-9 levels in vivo. International Society for Heart Research-North American Section (ISHR-NAS) Annual Meeting, Poster Presentation, Wednesday, May 31, 2017 (12:30 to 2:00 pm), New Orleans, LA.
2. Parry TL, Starnes JW, Ilaiwy A, Bain JR, Muehlbauer M, Honcoop A, Newgard CB, Christopher P, **Willis MS**: Non-Targeted Metabolomics Identifies Exercise-Induced Cardioprotective Metabolic Pathways That Negate Ischemia Reperfusion Injury. American College of Sports Medicine, Poster Presentation, Tuesday, May 30, 2017, Denver, CO (May 30-June 3, 2017).
3. Ornelas L, Lantonio B, Jaynes J, Bodnar R, **Willis M**, Yates C: Small Peptide Antagonists Derived Based on in Silico Analysis Block CXCL10-CXCR3 Signaling and Function on Cardiac Fibroblasts and Cardiomyocytes. Abstract 984.1., Poster Presentation, Translational Science Session, Tuesday, Apr 25 9:00 AM.

4. Mota R, Parry T, **Willis M**: Atrogin-1 Transgenic (AT1 Tg+) Mice Have Age-Dependent Cardiac Dysfunction With Atrogin-1 Mediated Glucocorticoid Receptor (GR) Expression Down Regulation. Abstract 59.5. Oral Presentation (Mota) Saturday, Apr 22 3:00 PM
5. Parry TL, Brown DI, Mwiza JM, **Willis MS**: Muscle Ring Finger-1 Knockout (MuRF1<sup>-/-</sup>) Mice are Resistant to LPS-induced Cardiac Dysfunction Due to Decreased NF- $\kappa$ B Activity. Abstract 59.6. Oral Presentation (Parry) Saturday, Apr 22 3:00 PM
6. Oakley R, Cruz-Topete D, Foley J, Myers P, Murphy E, Chambon P, **Willis M**, Cidlowski J: Alterations in the Balance of Cardiomyocyte Glucocorticoid and Mineralocorticoid Receptor Signaling Lead to Heart Failure. Abstract 687.3. Heart Failure Session. Sunday, Apr 23 9:00 AM.
7. Brown DI, **Willis MS**: MuRF1 Protects against the Functional and Metabolic Consequences of a Congenital Heart Defect That May Increase Susceptibility to Cardiovascular Toxins. Poster presentation, Abstract ID 3038/P626. Society of Toxicology 56<sup>th</sup> Annual Meeting, 1:15-4:30 p.m., March 15, 2017, Baltimore, MD.
8. Parry T, Kornegay J, **Willis MS**: Non-targeted Metabolomics Analysis of Muscular Dystrophy-Affected Muscles Reveals Alterations in Arginine and Proline Metabolism, and Elevations in Glutamic and Oleic Acid In Vivo. Poster Presentation March 9-10, 2017. Gainesville, FL.
9. Tang W, Parry T, **Willis MS**: Short-term unloading of myocytes reveals MuRF1's novel role in Phenylalanine/Valine metabolism and tRNA biosynthesis. Poster Presentation March 9-10, 2017. Gainesville, FL.
10. Beak JY, Kang HS, Jennen AM, **Willis MS**, Jensen BC: Retinoid-Related Orphan Receptor  $\alpha$  (ROR $\alpha$ ) Protects the Cardiac Function in Angiotensin II-Dependent Cardiac Hypertrophy In Vivo and in Vitro. Endocrine Society Annual Meeting. Poster Presentation West EXPO Hall B, 1-3 p.m., Monday April 3, 2017. Chicago, IL.
11. Young ME, Virag JA, **Willis MS**: Circadian regulation of the myocyte-specific ubiquitin ligase MuRF1 is dependent upon CLOCK and BMAL1 in vivo. Society of Heart and Vascular Metabolism Annual Meeting, Poster Presentation (P2.18), Beijing, China. October 10, 2016.
12. Files DC, **Willis MS**: Lung injury-induced skeletal muscle wasting in aged mice is linked to alterations in long chain fatty acid metabolism. Society of Heart and Vascular Metabolism Annual Meeting, Poster Presentation (P3.18), Beijing, China. October 11, 2016.
13. **Willis MS**, Jensen JC, Parry TL, Brown DI: Inhibiting the Myocyte-Specific Ubiquitin Ligase MuRF1 (Muscle Ring Finger-1) Attenuates Acute Doxorubicin-Induced Cardiomyopathy In Vivo. American Society of Investigative Pathology Annual PISA Meeting. Poster Presentation (CM1), Houston, TX. October 20, 2016.
14. Parry TL, Brown DI, **Willis MS**: Muscle Ring Finger-1 Knock-out (MuRF1<sup>-/-</sup>) Mice are Resistant to LPS-induced Cardiac Dysfunction In Vivo Due Partly to Significantly Increased Cardiac PPAR $\alpha$  Activity Competitively Inhibiting NF- $\kappa$ B. American Society of Investigative Pathology Annual PISA Meeting. Poster Presentation (CM2), Houston, TX. October 20, 2016.
15. Parikh C, Kobayashi S, Gerdes M, **Willis MS**, Liang Q: Overexpression of Muscle Ring Finger 1 Reduces Mitochondrial Volume in Cardiomyocytes. Experimental Biology 2016 poster presentation (L.E.), San Diego, CA. *FASEB J.* 30(1): Supplement 1015.3.
16. Espinoza L, Jaynes J, Bodnar R, **Willis MS**, Yates CC: Inhibiting cardiac fibrosis in myocardial infarction by CXCL10 agonist peptide. Experimental Biology 2016 oral and poster presentation (L.E.), San Diego, CA. *FASEB J.* 30(1): Supplement 1178.1.
17. Lenhart KC, McDonough H, Ronnebaum SM, An J, Newgard CB, **Willis MS**, Patterson C, Schisler JC: Loss of CHIP expression perturbs glucose homeostasis and leads to type II diabetes through defects in microtubule polymerization and glucose transporter localization. Experimental Biology 2016 presentation, San Diego, CA. *FASEB J.* 30(1): Supplement 307.7.

18. Ravi S, **Willis MS**, Lockyer P, Patterson C, Schisler JC: Fenofibrate Induces Cardiac Fibrosis in Mice Lacking the Co-chaperone and E3-ubiquitin ligase CHIP. Experimental Biology 2016 presentation, San Diego, CA. *FASEB J.* 30(1): Supplement 306.8.
19. Files DC, Ilaiwy A, Parry TL, Gibbs KW, Liu C, Bain JR, Delbono O, Muehlbauer MJ, **Willis MS**: Lung Injury-Induced Skeletal Muscle Wasting in Aged Mice is Linked to Alterations in Long-Chain Fatty Acid Metabolism. Poster presentation. Claude D. Pepper Older Americans Independence Center 2016 Annual Meeting. April 18-19, 2016. Arlington, VA.
20. Files DC, Ilaiwy A, Liu C, Parry T, Bain JR, Muehlbauer MJ, **Willis MS**: Failed Recovery Of Muscle Function In Aged Mice With Lung Injury Is Linked To Specific Metabolic Alterations By Non-Targeted Metabolomics In Vivo. Poster discussion session. Wednesday May 18 (1:30-3:30 p.m.), Room 3011 (West Building, Level 3, Moscone Center. *Am J Respir Crit Care Med.* 193:A7929, 2016.
21. Parry TL, **Willis MS**: Regulation of Cardiac Autophagic Flux In Vivo by the Ubiquitin Ligase Muscle Ring Finger-1 (MuRF1). Accepted, Oral Presentation (TLP). April 2016. Experimental Biology 2016, San Diego, CA. *FASEB J.* 30(1): Supplement 444.2.
22. Eaton SC, Takayama S, Sidorova TN, Murray KT, **Willis MS**: Pharmacological Inhibition of p38/MAPK Improves Cardiac Function in Cardiac specific Bag3-P209L Transgenic Mice. Experimental Biology 2016 Oral and Poster Presentation (SCE). *FASEB J.* 30(1): Supplement 306.5.
23. Brown DI, Cooley BC, Quintana MT, Lander C, **Willis MS**: Nebulized delivery of the MAPKAP kinase 2 peptide inhibitor MMI-0100 protects against ischemia-induced systolic dysfunction. Accepted, Oral Presentation (DB). Experimental Biology 2016 oral presentation (D.B.), San Diego, CA. *FASEB J.* 30(1): Supplement 306.3.
24. Ilaiwy A, Parry TL, Bain JR, Muehlbauer MJ, **Willis MS**, Files C: Muscle function recovery after acute lung injury is impaired in aged mice, linked in part, to metabolic alterations attributed to MuRF1 by quantitative targeted metabolomics analysis of acylcarnitines. Experimental Biology 2016 Late breaking abstract poster presentation (AI). *FASEB J.* 30(1): Supplement Ib460. Experimental Biology 2016, San Diego, CA.
25. Ilaiwy A, Liu M, Parry TL, Bain JR, Muehlbauer, **Willis MS**, Despa F: Human amylin proteotoxicity impairs protein biosynthesis, and alters major cellular signaling pathways in the heart, brain and liver of humanized diabetic rat model in vivo. Experimental Biology 2016 Late breaking abstract poster presentation (AI). *FASEB J.* 30(1): Supplement Ib461. Experimental Biology 2016, San Diego, CA.
26. Files DC, Parry TL, Bain JR, Muehlbauer MJ, **Willis MS**: Failed recovery of muscle function in aged mice with lung injury is linked to specific metabolic alterations by non-targeted metabolomics in vivo. American Thoracic Society Annual Meeting. Late breaking abstract poster presentation (DCF), May 13-18, 2016. San Francisco, CA
27. Cruz-Topete D, Myers P, Foley J, **Willis M**, Cidlowski J: Both Glucocorticoids and Mineralocorticoids Are Essential for Maintaining Cardiac Function in Mice. Poster presentation (DC), Presentation Number: SUN-400. Endocrine Society ENDO 2016, Sunday April 3, 2016. Boston, MA.
28. Parry TL, Hill HA, **Willis MS**: Regulation of Cardiac Autophagic Flux In Vivo by the Ubiquitin Ligase Muscle Ring Finger-1 (MuRF1). Poster Presentation. Advances in Skeletal Muscle Biology, University of Florida, Gainesville, FL, January 21-22, 2016.
29. Parry TL, Quintana MT, Schisler JC, **Willis MS**: Cardiac Muscle Ring Finger-1 (MuRF1) Regulates Fenofibrate's Pleiotropic Effects In Vivo. Poster Presentation. Advances in Skeletal Muscle Biology, University of Florida, Gainesville, FL, January 21-22, 2016.

30. Quintana MT, Eaton SC, Yates CC, Takayama S, **Willis MS**: Cardiomyocyte-specific Bag3+ Mutation P209L Induces Mitochondrial Fragmentation, Increased Apoptosis, and Activates p38 Signaling In Vivo. Poster Session APS.55.02, Title: Cardiac Amyloidosis. Sunday November 8, 2015. Orlando, FL. *Circulation*. 2015; 132: A18238.
31. Oakley RH, Cruz-Topete D, Foley JF, Myers PH, Chambon P, **Willis MS**, Cidlowski JA: Genetic Deletion of Cardiomyocyte Mineralocorticoid Receptors Prevents Cardiac Dysfunction and Premature Death in Mice Lacking Glucocorticoid Receptors in the Heart. Poster 216. Basic Cardiovascular Sciences July 13-16, 2015, New Orleans, LA.
32. **Willis M**: MuRF1 inhibits cardiac thyroid hormone signaling by TR $\alpha$  mono-ubiquitination and localization to CAP350. ISHR-North American Section Meeting. Poster Presentation. Oral Abstract Presentation. Tuesday June 9, 2015. Seattle, WA.
33. **Willis M**, Berthiaume J, Wadosky K, Tang W, Gerdes M, Portman M: MuRF1 inhibits cardiac thyroid hormone signaling by TR $\alpha$  mono-ubiquitination and localization to CAP350. ISHR-North American Section Meeting. Poster Presentation (Abstract 043). June 7, 2015. Seattle, WA.
34. Parry T, Quintana M, Hill J, **Willis M**: Muscle Ring Finger-1 (MuRF1) Enhances Autophagic Flux In vivo. ISHR-North American Section Meeting. Poster Presentation (Abstract 117). June 8, 2015. Seattle, WA.
35. Quintana M, Hill J, **Willis M**: Loss of MuRF-3 Up-regulates Cardiac PPAR- $\beta$  Activity and Exaggerates Diabetic Cardiomyopathy. Oral presentation at the UNC Hospital Second Annual George F. Sheldon Resident Research Symposium. Friday, May 15th, 2015 12:00pm - 1:25pm, Kirkland Auditorium, Koury Oral Health Sciences Building.
36. Parry T, Quintana M, Hill J, **Willis M**: Muscle-Specific Ubiquitin Ligase MuRF1 Regulates Myocardial Autophagic Flux in vivo. *FASEB J*. April 2015 29:148.8. Experimental Biology 2015, Boston, MA.
37. Brown D, Robbins J, **Willis M**: The absence of MuRF1 protects against Calpain1-induced systolic dysfunction in vivo. *FASEB J*. April 2015 29:46.1. Experimental Biology 2015, Boston, MA.
38. He J, Quintana M, Sullivan J, Han Y, **Willis M**: MuRF2 attenuates the severity of high-fat diet-induced diabetic cardiomyopathy by regulating cardiac PPAR- $\gamma$ . *FASEB J*. April 2015 29:46.4. Experimental Biology 2015, Boston, MA.
39. Cruz-Topete D, Myers P, Foley J, **Willis M**, Cidlowski J: Stress Hormones are Critical in Maintaining Cardiac Gene Expression and Function in Mice. *FASEB J*. April 2015 29:1037.1. Experimental Biology 2015, Boston, MA.
40. Quintana M, Yates C, Takayama S, **Willis M**: Bag3+ P209L Transgene Provides a Cardiac-Specific Murine Model of Protein Misfolding and Aggregation. *FASEB J*. April 2015 29:46.6. Experimental Biology 2015, Boston, MA.
41. Quintana, He J, Sullivan J, Han Y, Stansfield W, **Willis M**: Cardiac Peroxisome Proliferator-activated Receptor- $\beta$  Activity is Up-regulated in the Absence of Muscle RING Finger-3, and Exaggerates High-fat Diet-induced Cardiomyopathy. *FASEB J*. April 2015 29:1037.2. Experimental Biology 2015, Boston, MA.
42. Parry T, Desai G, Stanley N, Schisler J, **Willis M**: Cardiac MuRF1 regulates PPAR- $\alpha$  agonist-induced spontaneous cardiac hypertrophy in vivo. *FASEB J*. April 2015 29:1043.12. Experimental Biology 2015, Boston, MA.
43. Kornegay JN, Bogan DJ, Bogan JR, Dow JL, Wang J, Fan Z, Warsing LC, Liuf N, Grange RW, Ahnd M, Balog-Alzarezh CJ, Cotton SW, **Willis MS**, Brinkmeyer-Langford, Zhug CH, Styner MA, Wagnerf KR: Dystrophin-Deficient Dogs with Reduced Myostatin have Unequal Muscle Growth and Greater Joint Contractures. MDA Scientific Conference, Washington, DC March 11-14, 2015.

44. Mattox TA, Young ME, Gautel M, Anderson EJ, **Willis MS**: Muscle Ring Finger-1 (MuRF1) activity is present in cardiac mitochondria and regulates reactive oxygen species production and function in vivo. 13<sup>th</sup> International Congress on Neuromuscular Diseases. PS1-5/ #488 Poster presentation. July 7, 2014. Nice, France.
45. Mattox TA, Young ME, Gautel M, Anderson EJ, **Willis MS**: Muscle Ring Finger-1 (MuRF1) activity is present in cardiac mitochondria and regulates reactive oxygen species production and function in vivo. 13<sup>th</sup> International Congress on Neuromuscular Diseases. Oral Presentation Flash Session. July 7, 2014. Nice, France.
46. **Willis MS**, Bain J, Newgard CB, Banerjee R, Muehlbauer: Non-targeted metabolomics analysis of Muscle Ring Finger-1 (MuRF1), MuRF2, and MuRF3 in vivo. 13<sup>th</sup> International Congress on Neuromuscular Diseases. PS1-5 / #487 Poster presentation. July 7, 2014. Nice, France.
47. Schisler J, Grevengoed T, Ellis J, Paul D, **Willis M**, Patterson C, Coleman R: Cardiac energy dependence on glucose increases metabolites related to glutathione and activates metabolic genes controlled by mTOR. *Frontiers in CardioVascular Biology* 2014, Barcelona. Poster Session 3, 6 July 2014. Congress of the ESC Council on Basic Cardiovascular Science. *Cardiovasc Res* (2014) 103 (suppl 1): S121 (PMID 25020391).
48. He J, Quintana M, Stansfield B, Wang Z, **Willis M**: MuRF2 and MuRF3 attenuate the severity of high fat diet-induced diabetic cardiomyopathy by regulating cardiac peroxisome proliferator-activated receptor- $\gamma$  (PPAR- $\gamma$ ) and PPAR- $\beta$  activity. 12<sup>th</sup> Annual Scientific Sessions Society of Heart and Vascular Metabolism (SHVM). Poster Presentation (A.44), June 26, 2014. Tromsø, Norway.
49. Schisler J, Grevengoed T, Ellis J, Paul D, **Willis M**, Coleman R: mTOR inhibition reverses cardiac metabolic derangement caused by the inactivation of fatty acid oxidation. 12<sup>th</sup> Annual Scientific Sessions Society of Heart and Vascular Metabolism (SHVM). Poster Presentation (A.36), June 26, 2014. Tromsø, Norway.
50. Banerjee R, He J, Quintana M, Bain J, Newgard CB, Muehlbauer MF, **Willis MS**: Non-targeted metabolomics analysis of cardiac Muscle Ring Finger-1 (MuRF1), MuRF2, and MuRF3 in vivo reveals novel and redundant metabolic changes. XXXIV Annual Meeting of the North American Section of the International Society for Heart Research. Poster Presentation May 14, 2014, Miami, FL.
51. **Willis M**, Madden MC, Schisler J, Campen MJ: Transcriptional endothelial biosensor response to diesel-induced plasma compositional changes. Poster presentation, American Thoracic Society; May 16-21, 2014; San Diego, CA. *Am J Respir Crit Care Med*. A49. Air Pollution: Cardiovascular and Pulmonary Effects. May 1, 2014, A1674-A1674.
52. Li J, Lange LA, Duan Q, **Willis MS**, Li Y, Taylor HA, Wilson JG, Lange EM: Abstract P254: Genome-wide Association and Admixture Study of Iron-related Phenotypes in African Americans. American Heart Association 2014 Scientific Sessions, Cardiovascular Disease, Epidemiology and Prevention Nutrition, Physical Activity and Metabolism. March 18-21, 2014. San Francisco, CA.
53. Cruz-Topete D, Oakley R, Ren R, **Willis MS**, Cidlowski JA: Knockout of the Glucocorticoid Receptor in Cardiomyocytes Leads to Spontaneous Cardiovascular Disease and Death. Saturday June 15, 2013. Endo 2013, San Francisco, CA. The Endocrine Society. Glucocorticoids & Glucocorticoid Actions Symposium.
54. Ren R, Fedoriw Y, **Willis MS**: The molecular pathophysiology, differential diagnosis, and treatment of myeloperoxidase deficiency. 2nd International Conference and Exhibition on Pathology. August 5-7, 2013, Las Vegas, NV.
55. Huang T, Lee J, Zou M, Pasek DA, **Willis MS**, Meissner G: STAT3 activation in cardiac hypertrophy induced by ryanodine receptor 2 mutation. Tuesday April 23, 2013. Experimental Biology 2013 Boston, MA, *FASEB J* April 9, 2013 27:386.5.

56. **Willis MS**, Liao J: Muscle Ring Finger-1 (MuRF1) inhibits PPAR $\alpha$  through mono-ubiquitination of specific lysines adjacent to a novel nuclear export sequence (NES). Wednesday April 24, 2013. Experimental Biology 2013 Boston, MA, *FASEB J* April 9, 2013 27:1202.19.
57. **Willis MS**, Min J, Wang S, Wadosky KM, CP: Carboxyl terminus of Hsp70-interacting protein (CHIP) is required to modulate cardiac hypertrophy and attenuate autophagy during exercise. Sunday April 21, 2013. Experimental Biology 2013 Boston, MA, *FASEB J* April 9, 2013 27:711.7.
58. **Willis MS**, Wadosky K, Patterson C: Muscle Ring Finger 1 (MuRF1) and MuRF2 Regulate Gene Expression Mediated by the E2F Transcription Factors and are Necessary but Functionally Redundant During Developmental Cardiac Growth In Vivo. Tuesday April 23, 2013. Experimental Biology 2013 Boston, MA, *FASEB J* April 9, 2013 27:1085.10.
59. Wadosky KM, Hite RL, Portman MA, Gerdes AM, **Willis MS**: Muscle RING finger-1 (MuRF1) inhibits thyroid hormone-dependent cardiomyocyte growth in vitro and in vivo. Monday April 22, 2013. Experimental Biology 2013 Boston, MA, *FASEB J* April 9, 2013 27:936.5.
60. Wadosky K, **Willis MS**: Muscle RING Finger-1 (MuRF1) inhibits insulin-like growth factor-1 (IGF-1)-dependent cardiomyocyte hypertrophy by reducing Akt nuclear activity. Saturday April 20, 2013. Experimental Biology 2013 Boston, MA, *FASEB J* April 9, 2013 27:386.4
61. Lu T, Fu Y, **Willis MS**, Lee H: Regulation of BK Channel  $\beta$ 1 Subunit Expression by Muscle Ring Finger-1 Protein in Diabetic Vessels. Poster presentation. International Stroke Conference. February 7, 2013, Honolulu, HI.
62. Der-Torossian H, Wysong A, Shadfar, **Willis MS**, McDunn J, Couch ME: Metabolic derangements in the gastrocnemius and the effect of selective NF- $\kappa$ B inhibition in a murine model of cancer cachexia. Poster presentation. 8<sup>th</sup> International Conference on Head and Neck Cancer. July 22-24, 2012.
63. Der-Torossian H, Asher SA, Wysong A, Yin X, **Willis MS**, O'Connell TM, Couch ME: Cancer cachexia's metabolic fingerprint in a murine model confirms a distinct entity. Poster presentation. 8<sup>th</sup> International Conference on Head and Neck Cancer. July 22-24, 2012.
64. Lockyer P, Pi X, Schisler JC, Timothy D, Chen Z, Tzima E, **Willis MS**, Homeister JW, Patterson C: Bmper inhibits expression of inflammatory adhesion molecules and protects against atherosclerosis. Poster presentation. NAVBO Workshops in Vascular Biology. Oct. 14-18, 2012. Asilomar, CA.
65. Wadosky KM, Zungu M, Portman M, **Willis MS**: Muscle RING finger-1 inhibits thyroid receptor $\alpha$  transcriptional activity and thyroid hormone-dependent cardiac hypertrophy. Oral (and poster) presentation, April 22, 2012, American Society of Investigative Pathology, Experimental Biology Annual Meeting San Diego, CA
66. Wadosky KM, Rodríguez JE, **Willis MS**: Muscle RING finger-1 inhibits IGF1-dependent Akt activation and exercise-induced cardiac hypertrophy. Oral presentation, April 24, 2012, American Physiology Society, Experimental Biology Annual Meeting San Diego, CA
67. Cotten SW, Wadosky KM, Bogan D, Kornegay JN, **Willis MS**: Regulation of the calpain and ubiquitin proteasome system in a canine model of muscular dystrophy with myostatin inhibition. Oral (and poster) presentation, April 25, 2012, American Society of Investigative Pathology, Experimental Biology Annual Meeting San Diego, CA
68. Paffett M, Lucas S, Anderson T, Nysus M, Norenberg J, **Willis M**, Campen M: Loss of Cardiac Muscle Ring Finger-1 Augments Right Ventricular Hypertrophy Following Chronic Hypoxia-Induced Pulmonary Hypertension. Poster presentation, April 24, 2012, Experimental Biology Annual Meeting San Diego, CA. *FASEB J* March 29, 2012 26:1036.9.
69. Paffett M, Colombo ES, Lucas S, Anderson T, Nysus M, Norenberg J, **Willis M**, Campen M: Atrophic muscle ring finger-1 modulates right ventricular remodeling in response to chronic



- hypoxia. Poster presentation. 2012 Annual Meeting Thomas L. Petty Aspen Lung Conference 55th Annual Meeting. June 6-9, 2012 “Mechanics and Mechanisms of Pulmonary Hypertension”.
70. Makivić B, **Willis M**, Djordjević-Nikić: Heart rate variability (HRV) as a diagnostic and monitoring tool in sport”. International Scientific Conference Effects of Physical Activity Application to Anthropological Status with Children, Youth, and Adults. December 2011. Republic of Serbia, Belgrade.
  71. Wadosky KM, Rodríguez JE, Min J, McDonough H, Lockyer P, Walton B, Patterson C, Willis MS: The ubiquitin Ligases CHIP and MuRF1 inhibit physiological cardiac growth (hypertrophy) in response to exercise. Poster presentation at: Sigma Xi Annual Meeting, Nov. 11-12, 2011; Raleigh, NC.
  72. Young ME, Willis MS: MuRF1 regulates cardiac function, glucose, and fatty acid oxidation in the working heart. Poster presented at: Ninth Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; June 19-20, 2011. Brussels, Belgium.
  73. Rodríguez JE, Li L, **Willis MS**: Muscle Ring Finger-1 (MuRF1) Inhibits Cardiac PPAR $\alpha$  Activity by Directing Its Nuclear Export and Not Its Degradation. Poster presentation at: Experimental Biology, April 13, 2011; Washington, DC. *FASEB J*, March 17, 2011 25:1104.2.
  74. Wadosky KM, Rodríguez JE, Li L, Bogan D, Kornegay JN, **Willis MS**: Regulation of the Calpain and Ubiquitin Proteasome Systems in a Canine Model of Muscular Dystrophy. Poster presentation at: Experimental Biology, April 12, 2011; Washington, DC. *FASEB J*, March 17, 2011 25:1000.8.
  75. **Willis MS**, Rodríguez JE, Anderson E: Cardiac Muscle Ring Finger-1 (MuRF1) alters myocardial ROS production *in vivo*. Poster presentation at: Experimental Biology, April 12, 2011; Washington, DC. *FASEB J*, March 17, 2011 25:1000.7.
  76. Rodríguez JE, Li L, **Willis MS**: Muscle Ring Finger-1 (MuRF1), MuRF2, and MuRF3 Differentially Regulate the transcription factors PPAR $\alpha$ , PPAR $\gamma$ , and PPAR $\beta/\delta$ , respectively, *in vivo*. Experimental Biology, April 12, 2011; Washington, DC. *FASEB J*, March 17, 2011 25:365.2.
  77. Burk LM, Wang K, Kang E, Rojas M, **Willis M**, Lee YZ, Lu J Zhou O: Imaging of myocardial infarction using carbon nanotube micro-computed tomography and delayed contrast enhancement. *Proc. SPIE 7965*, Medical Imaging 2011: Biomedical Applications in Molecular, Structural, and Functional Imaging, 79651N (March 08, 2011); doi:10.1117/12.878168.
  78. Wang K, Burke L, Kang E, Lee YZ, Cao G, Lu J, Rojas M, **Willis MS**, Zhou O: Carbon nanotube micro-computed tomography imaging of myocardial infarction using delayed contrast enhancement. *Circulation*, 23 November 2010; 122: A18892.
  79. Shadfar S, Couch M, McKinney, Yin X, Weinstein L, Guttridge, **Willis M**: Cancer Cachexia: NF- $\kappa$ B inhibition protects against tumor induced cardiac atrophy *in vivo* using the novel compound Resveratrol. American Head and Neck Society Research Workshop on Biology, Prevention and Treatment of Head & Neck Cancer. October 28-30, 2010.
  80. Zungu M, Rodríguez JE, Li L, **Willis MS**: Cardiac Muscle Ring Finger-1 (MuRF1) alters myocardial mitochondria function *in vivo*. Paper presented (oral) at: Eighth Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 25, 2010; Kananaskis, Alberta, Canada.
  81. Rodríguez JE, **Willis MS**: MuRF1 regulates PPAR $\alpha$  activity by specific nuclear interactions requiring nuclear export machinery. Poster presented at: Eighth Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 24, 2010; Kananaskis, Alberta, Canada.
  82. Schisler JC, **Willis MS**, Kang E, Patterson C: CHIP directly regulates AMPK activity and its critical regulator of the cardiac stress response to metabolic challenge. Poster presented at: Eighth Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 24, 2010; Kananaskis, Alberta, Canada.

83. Rodríguez JE, Li L, **Willis MS**: Muscle ring finger-1 regulates cardiac fatty acid and glucose metabolism via its interaction with PPARalpha. Oral presentation at: Experimental Biology April 24, 2010; Anaheim, CA. *FASEB J*, April 6, 2010 24:38.3.
84. **Willis MS**, Li L, Schisler JC, Lockyer P, Patterson C: Muscle ring finger-1 (MuRF1) inhibits spontaneous cardiac hypertrophy induced by the PPARalpha agonist fenofibrate in vivo. Oral presentation at: Experimental Biology April 25, 2010; Anaheim, CA. *FASEB J*, April 6, 2010 24:110.11.
85. Schisler JC, **Willis MS**, Patterson C: CHIP mono-ubiquitination activity – effects on cardiovascular metabolism and AMPK activity. Oral presentation at: Experimental Biology April 22-26, 2010; Anaheim, CA. *FASEB J*, April 6, 2010 24:115.1.
86. **Willis MS**, Rodríguez JE, Zungu M: Cardiac MuRF1 expression alters mitochondrial oxidative phosphorylation function in vivo. Late breaking abstract presented at: Experimental Biology April 22-26, 2010; Anaheim, CA. *FASEB J*, April 6, 2010 24:lb408.
87. Rodríguez JE, Li L, Schisler JC, Patterson C, **Willis MS**. The cardiac ubiquitin ligase muscle ring finger-1 (MuRF1) ubiquitinates and degrades PPAR-alpha to regulate fatty acid and glucose metabolism. *Circulation*. 2009; 120:S854-855.
88. Rodríguez JE, Li L, Patterson C, **Willis MS**. MuRF1 and MuRF2 are necessary but functionally redundant during developmental cardiac growth in vivo. *Circulation*. 2009; 120: S761.
89. Rodríguez JE, Schisler JC, **Willis MS**. The cardiac ubiquitin ligase muscle ring finger-1 (MuRF1) regulates fatty acid and glucose metabolism through its interaction with PPAR- $\alpha$ . Paper presented orally at: Seventh Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 23-26, 2009; Padova, Italy.
90. **Willis MS**, Schisler JC, Li L, Rodríguez JE, Patterson C. The cardiac ubiquitin ligase muscle ring finger-1 (MuRF1) inhibits creatine kinase activity in vivo. Poster presented at: Seventh Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 23-26, 2009; Padova, Italy.
91. **Willis MS**, Schisler JC, Lockyer P, Rodríguez JE, Patterson C. The role of muscle ring finger-1 (MuRF1) in fenofibrate-induced cardiac hypertrophy in vivo. Poster presented at: Seventh Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 23-26, 2009; Padova, Italy.
92. Schisler JC, **Willis MS**, Lockyer P, Patterson C: Activation of PPAR $\alpha$  in mice lacking CHIP expression develop spontaneous cardiac hypertrophy. Paper presented at: Seventh Annual Scientific Sessions of the Society for Heart and Vascular Metabolism meeting; August 23-26, 2009; Padova, Italy.
93. Parchen MC, Dai DF, Percival JM, **Willis M**, Froehner SC, Beavo JA: Sildenafil ameliorates cardiomyopathy in dystrophin-null (mdx) mice. *BMC Pharmacology*. 2009; 9(S1): P53. Regensburg, Germany June 19-21, 2009.
94. **Willis MS**, Jearawiriyapaisarn N, Kole K. Long-term improvement in MDX cardiomyopathy after therapy with peptide-conjugated morpholino oligomers. *FASEB J*. 2008; 23:LB350.
95. **Willis MS**, Wysong A, Rodríguez JE, Baldwin A, Couch M. NF- $\kappa$ B inhibition protects against tumor-induced cardiac atrophy in vivo. *FASEB J*. 2008; 23:LB351.
96. Rodríguez J, Case N, Li L, Rubin J, **Willis MS**. Transcriptional regulation of cardiomyocyte PPAR-alpha by stretch. *FASEB J*. 2008; 23:928.4.
97. Rodríguez JE, Li L, Lockyer P, Patterson C, **Willis MS**. Spontaneous cardiac hypertrophy results from the loss of muscle ring finger 1 and 2. *FASEB J*. 2008;22:466.11.

98. **Willis MS**, Li H, Rodríguez JE, Li L, Rojas M, Lockyer P, Patterson C. MuRF1 inhibits JNK signaling in cardiac ischemia reperfusion injury by degrading phosphorylated cJun *FASEB J.* 2008;22:751.11.
99. Rojas M, Meredith D, Kylander J, Barrick D, Corn D, Lockyer P, Patterson C, **Willis MS**. Echocardiography under isoflurane anesthesia affects heart rate and function in commonly utilized mouse strains *FASEB J.* 2008;22:970.44.
100. **Willis MS**, Schisler JC, Lockyer P, McDonough, Patterson C: Cardiac muscle ring finger-1 (MuRF1) is cardioprotective in ischemia/reperfusion injury in vivo. Marie Curie Symposium: The ubiquitin proteasome system in cardiovascular disease. Hamburg, Germany June 8-9, 2007.
101. **Willis MS**, Rojas M, Li L, Ike C, Patterson C. Muscle ring finger-1 (MuRF1) expression is essential for the reversal of cardiac hypertrophy in vivo. *Circulation.* 2007;116(16):II-258.
102. **Willis MS**, Ren R, Patterson C. Bmper (BMP-binding endothelial cell precursor-derived regulator) is critical to cardiac muscle mass regulation during development and pressure overload induced hypertrophy. *Circulation.* 2007;116(16):II-253.
103. **Willis MS**, Schisler JC, McDonough H, Patterson C. Muscle ring finger-1 (MuRF1) expression shifts cardiomyocyte substrate utilization from fatty acids to glucose. *Circulation.* 2007;116(16):II-120.
104. **Willis MS**, Rojas M, Lockyer P, Meredith D, Hampton TG, Li L, Patterson C. Cardiac specific muscle ring finger-1 (MuRF1) protects against ischemia/reperfusion injury in vivo. *Circulation.* 2007;116(16):II-200.
105. Ren R, **Willis MS**, McDonough H, Kelley R, Wu Y, Patterson C. Deletion of Bmper in mice identifies a novel Bmp-dependent pathway for regulating cardiomyocyte hypertrophy. *Circulation.* 2007;116(16):II-49.
106. McCudden CR, Mathews SP, Chapman JF, Hammett-Stabler CA, **Willis MS**, Grenache DG. Performance comparison of capillary zone electrophoresis and immunotyping with agarose gel electrophoresis and immunofixation for characterization of monoclonal immunoglobulins. *Clin Chem.* 2007;53(6 suppl):A79.
107. **Willis M**, Ike C, Li L, Zhang C, Patterson C. Muscle ring finger-1 (MuRF1) expression modulates proteins of the cardiac myofibrillar complex and metabolism in vivo. *Circulation.* 2006;114(18):II54.
108. Ike C, **Willis M**, Li L, Patterson C. Muscle ring finger-2 (MuRF2), implicated in M-Line mechano-sensing, does not modulate cardiac hypertrophy in vivo. *Circulation.* 2006;114(18):II114.
109. Snyder JA, **Willis MS**, and Grenache DG. Immunofixation reveals an apparent alpha heavy chain caused by precipitation of fibrinogen with IgA antisera. *Clin Chim Acta.* 2006;368(1-2):192-194 (PMID: 16466648).
110. **Willis M**, Arya R, Li H, Zhang C, Ike C, Patterson C. The role of muscle ring finger-1 (MuRF1) in cardiac hypertrophy in vivo. Presented at: Northwestern University Feinberg School of Medicine Cardiovascular Young Investigators' Forum; October 20-23, 2005; Chicago, Ill.
111. **Willis M**, Arya R, Li H, Zhang C, Ike C, Patterson C. The role of muscle ring finger-1 (MuRF1) in cardiac hypertrophy in vivo. *Circulation.* 2005;112(17):II406- II407.

## Books Edited

1. *Endocrinology of the Heart in Health and Disease: Integrated, Cellular, and Molecular Endocrinology of the Heart.* Edited by Schisler JC, Lang C, and **Willis MS**; 1<sup>st</sup> edition, Summer 2016, ~300 pages (ISBN 978-0128031117). <https://goo.gl/uhrZKa>

2. *Cellular and Molecular Pathobiology of Cardiovascular Disease*. Edited by **Willis MS**, Homeister JW, Stone JR. Academic Press; 1<sup>st</sup> edition, Spring 2014, 338 pages (ISBN 9780124052062).
3. *Molecular and Translational Vascular Medicine*. Edited by **Willis MS**, Homeister JW. Springer Science+Business Media (New York, NY); July 29, 2012, 335 pages (ISBN: 978-1-61779-905-1).
4. *Translational Cardiology: Molecular Basis of Cardiac Metabolism, Cardiac Remodeling, Translational Therapies and Imaging Techniques*. Edited by **Willis MS**, Patterson C. Springer Science+Business Media (New York, NY); July 5, 2012, 543 pages (ISBN: 978-1-61779-890-0).
5. *ASCP Caseset Laboratory Medicine*. Edited by: **Willis MS** and Wians FH. ASCP Press; 2011, 694 pages (ISBN: 9780891895978).

## TEACHING ACTIVITIES

### Courses

- 2017                    **Laboratory Management Lecture Series**  
**Pathology Residents**  
 University of North Carolina, Chapel Hill, NC
- Topics:** Affordable Care Act, Financial management and accounting, Negotiating your first job
- May 15, 2017: *Financial Management and Accounting (1 contact hour)*  
 May 17, 2017: *Negotiating your first job and career development in academics (1 contact hour)*  
 May 26, 2017: *Affordable Care Act (1 contact hour)*
- 2016-present        **Pathology 767 Molecular and Cellular Biology of Cardiovascular Disease**  
 PhD Graduate Students  
 University of North Carolina, Chapel Hill, NC  
 Course Co-Directors: Jonathon Homeister, MD, PhD and Chris Mack, PhD
- Topics:** Cardiac Metabolism, Inflammation, and Metabolic Syndrome
- February 25, 2016: *Cardiac Metabolism: Title (1.5 contact hours, 6 students)*  
 March 1, 2016: *Inflammation, Biomechanical, and Fibrotic Responses in the heart (1.5 contact hours)*  
 April 21, 2016: *Obesity and Metabolic Syndrome I (1.5 contact hours, 6 students)*  
 April 26, 2016: *Obesity and Metabolic Syndrome II (1.5 contact hours, 6 students)*
- 2016-present        **Pathology 715 Systemic Pathology**  
 PhD Graduate Students  
 University of North Carolina, Chapel Hill, NC  
 Course Co-Directors: Jonathon Homeister, MD, PhD and William Coleman, PhD
- Topics:** Inflammation in Cardiovascular disease, Gastrointestinal Pathology

March 3, 2017: *Normal and Abnormal Gastrointestinal Pathology*  
 (1.0 contact hours, 15 students)  
 January 13, 2017: *Overview of Cardiovascular Disease and Blood Cells*  
 (1.0 contact hours, 15 students)  
 March 2, 2016: *Normal and Abnormal Gastrointestinal Pathology*  
 (1.0 contact hours, 17 students)  
 January 13, 2016: *Overview of Cardiovascular Disease and Blood Cells*  
 (1.0 contact hours, 17 students)

2015-present

**Pathology 766: Current Topics in Cardiovascular Biology**

PhD Graduate Students

University of North Carolina, Chapel Hill, NC

Course Director: Chris Mack, PhD

**Topics:** Cardiac Contractility, Cardiac Electrophysiology

November 22, 2016: *Cardiac Contractility* (1.5 hours, 8 students)  
 November 29, 2016: *Cardiac Contractility* (1.5 hours, 8 students)  
 November 5, 2015: *Cardiac Contractility* (1.5 hours, 6 students)  
 November 12, 2015: *Cardiac Electrophysiology* (1.5 hours, 6 students)

Spring 2011

**Pathology 667: Pathobiology of Cardiovascular Disease**

PhD Graduate Students

University of North Carolina, Chapel Hill, NC

January 25, 27: *Myocyte Structure and Function* (3.0 contact hours, ~8 students)February 1, 3: *Cardiovascular Signal Transduction* (3.0 contact hours, ~8 students)**Pathology 723: Translational Pathology and Laboratory Medicine**

PhD Graduate Students

University of North Carolina, Chapel Hill, NC

January 11: *Introduction to Translational Medicine* (2.0 contact hours, ~10 students)

Fall 2010

**Fall 2010 Nutrition 600: Human Metabolism: Macronutrients**

PhD Graduate &amp; Senior Undergraduate Students

University of North Carolina

**Instructor**

November 1: *Lipoproteins, Cholesterol Metabolism, and Atherosclerosis*  
 (1.0 contact hour, ~50 students)

November 2: *Atherosclerosis and Heart Disease (Myocardial Infarction)*  
 (1.0 contact hour, ~50 students)

Course Director: Terry Combs, PhD

Fall 2010

**Second Year Medical Student Cardiovascular Block****University of North Carolina**

September 15: *Molecular (& Genetic) Basis of Cardiomyopathies*  
 (1.0 contact hour, 125 students)

Course Director: Park Willis, MD

- Spring 2009      **Pathology 667: Pathobiology of Cardiovascular Disease**  
 PhD Graduate Students  
 University of North Carolina, Chapel Hill, NC  
 January 13, 15: *Myocyte Structure and Function (3.0 hours, ~8 students)*  
 February 10, 12: *Cardiac Genetics and Arrhythmias (3.0 hours, ~8 students)*
- Pathology 723: Translational Pathology and Laboratory Medicine Lecture**  
 PhD Graduate Students  
 University of North Carolina, Chapel Hill, NC  
 January 13: *Introduction to Translational Medicine (1.0 hour, ~10 students)*
- Spring 2008      **Pathology 723: Translational Pathology and Laboratory Medicine Lecture**  
 PhD Graduate Students  
 University of North Carolina, Chapel Hill, NC  
 January 15: *Basics of Translational Pathology and Laboratory Medicine*
- Second Year Medical Student Endocrinology Block**  
 University of North Carolina, Chapel Hill, NC  
 March 4: *Lipids and Lipoprotein Disorders (1.0 hours, ~125 students)*  
 Course Director: Catherine Hammett-Stabler, PhD
- 2007-2008      **Organizer/Moderator, Carolina Cardiovascular Biology Center (CCBC) Journal Club**  
 Bi-monthly journal club for postdoctoral fellows, graduate students, research scientists, residents, and technicians in training in the CCBC (now the McAllister Heart Institute) (~25 contact hours total, 15-20 students)
- 2006-2010      **Pathology 713/715 Pathophysiologic Basis of Disease**  
 Instructor, PhD Graduate Students  
 University of North Carolina, Chapel Hill, NC  
 Course Directors: Jon Homeister, MD, PhD/Alisa Wolberg, PhD (Path 713); Bill Coleman, PhD (Path 715)
- Topics:** Diabetes, Exocrine Pancreas, Cystic Fibrosis, Hypertension, and Atherosclerosis  
                     November 6, 2006: *Pathophysiology of Diabetes Mellitus (1.0 contact hours, ~20 students)*  
                     February 23, 2007: *Exocrine Pancreas I: Acute and Chronic Pancreatitis (1.0 contact hours, ~20 students)*  
                     February 25, 2007: *Exocrine Pancreas II: Neoplasms and Cystic Fibrosis (1.0 contact hours, ~20 students)*  
                     November 9, 2007: *Pathophysiology of Diabetes Mellitus (1.0 contact hours, ~20 students)*  
                     February 22, 2008: *Exocrine Pancreas I: Acute and Chronic Pancreatitis (1.0 contact hours, ~20 students)*  
                     February 25, 2008: *Exocrine Pancreas II: Neoplasms and Cystic Fibrosis*

- (1.0 contact hours, ~20 students)  
 November 21, 2008: *Atherosclerosis*  
 (1.0 contact hours, ~20 students)  
 November 24, 2008: *Pathophysiology of Diabetes Mellitus*  
 (1.0 contact hours, ~20 students)  
 February 27, 2009: *Acute and Chronic Pancreatitis*  
 (1.0 contact hours, ~20 students)  
 March 2, 2009: *Exocrine Pancreas II: Neoplasms and Cystic Fibrosis*  
 (1.0 contact hours, ~20 students)  
 December 7, 2009: *Pathophysiology of Diabetes Mellitus*  
 (1.0 contact hours, ~20 students)  
 December 9, 2009: *Etiology and Pathogenesis of Systemic Hypertension*  
 (1.0 contact hours, ~20 students)  
 December 3, 2010: *Etiology and Pathogenesis of Systemic Hypertension*  
 (1.0 contact hours, ~20 students)  
 December 6, 2010: *Pathophysiology of Diabetes Mellitus*  
 (1.0 contact hours, ~20 students)

### Graduate students supervised

- 2015- **Mentoring Post-Doctoral, MD, MD/PhD, PhD Students via MentorNet**  
<http://www.mentornet.net/>
- Geetika Nehra, PhD Student, Pharmaceutical Sciences, University of Wisconsin-Madison (2016)
  - Xiang Wang, Undergraduate Student, University of California at San Deigo (2015)
- 2010-2013 **Mentoring Post-Doctoral, MD, MD/PhD, PhD Students via MentorNet**  
<http://www.mentornet.net/>
- Jonathan Lowery, PhD., Post-Doctoral Fellow, Harvard University, Dept. Of Developmental Biology, USA
  - Bojan Makivic, BS, PhD student, University of Vienna, Department of Sport and Physical Education, Austria
  - Farah Shareef, MD/PhD student, University of Illinois at Chicago, Medical Scientist Training Program (MSTP), USA
  - Harold Gomez, BS student, St. Thomas University, Miami, FL. Biology Major.
  - Grzegorz Gmyrek, Post-Doctoral Fellow, Washington University, St. Louis, MO. Biological Sciences – Microbiology and Immunology, USA
- 2007-present **Mentoring PhD Doctoral Students and Post-Doctoral Trainees in Graduate and Clinical Fellowship Programs**  
 University of North Carolina at Chapel Hill
- Toxicology Curriculum MS Program  
 – MS student / research mentor: Aubree Honcoop, BS (June 1, 2016-present)
  - Muhammad Abdullah, BS (Dec. 2016-June 2017). Supported by the International Research Support Initiative Program, Pakistan Higher Education Commission (Award IRSIP 31 BMS 54)

- Roberto Mota, MD (Aug. 1, 2016-present). Supported by the Leducq Foundation Grant
- Pharmacology Graduate Program
  - PhD student: Samuel C. Eaton, BS (February 2015-present). Supported by UNC NIH T32 Training Grant in Pharmacological Sciences February 2015-June 2016
  - Supported by UNC NIH T32 Integrated Vascular Biology Training Grant July 2016-present
- Molecular and Cellular Pathology Graduate Program
  - PhD student: Kristine Wadosky, BS (May 2011-March 2014). Supported by AHA Predoctoral Grant (2012-2014).
- Visiting Physician Scientists
  - Jun He, MD, PhD (September 2012-June 2014): Tongji Medical College, Huazhong University of Science & Technology, Wuhan China
  - Lei Xu, MS, MD (August 2013-March 2014): Cardiac and Thoracic Surgery, School of Medicine, Shandong University
  - Xin Chen, MD (January-May 2014): Neurology, School of Medicine, Shandong University
- Post-Doctoral Fellows
  - Post-Doctoral Fellow: Bryan Wilson, PhD, MBA (September 1, 2016-May 31, 2017)
    - Funded by the UNC/NIH SPIRE Program
  - Post-Doctoral Fellow: Roberto Mota, MD (August 2016-present)
  - Post-Doctoral Fellow: Amro Ilaiwy, MD (August 2015-June 2016)
  - Post-Doctoral Fellow: Wei Tang, MD, PhD (August 2014-present)
  - Post-Doctoral Fellow: David I. Brown, PhD (September 2014-May 2017)
    - Funded by the UNC Toxicology Program Training Grant (July-Dec. 2016)
    - Funded by a AHA Post-Fellowship grant entitled “Developing a cardiac specific therapeutic peptide inhibitor of the MuRF1-PPAR $\alpha$  interaction to treat heart failure” (Jan 2017-May 2017)
  - Post-Doctoral Fellow: Traci L. Parry (July 2014-present)
    - Funded by a AHA Post-Fellowship grant entitled “Protein Quality Control: MuRF1's Regulation of Autophagic Flux” (Jan 2017-Dec 2019)
  - Post-Doctoral Fellow: Zhongjing Wang, MD (February 2013-May 2015)
- UNC Toxicology Post-Doctoral Fellowship Program
  - David I. Brown, PhD (July 2016-May 2017)
- UNC Seeding Postdoctoral Innovators in Research and Education (SPIRE) Post-Doctoral Fellowship Program
  - Bryan Wilson, PhD, MBA (September 2016-May 2017)
- UNC Clinician-Scientist Training Program in Cardiovascular Medicine (an NIH supported T32 post-doctoral training program)
  - Post-Doctoral Trainees:
    - Megan Quintana, MD (Surgery, July 2013-June 2015)
    - Wendi O'Connor, MD (Nuclear Medicine, July 2010-June 2012)
    - Eunice Kang, MD (Cardiology, July 2009-June 2011)
- Translational Medicine Program (an HHMI-supported program):
  - PhD student: Jessica Rodríguez (May 2006-Dec 2011)



- Director and Principal Investigator: Virginia Miller, PhD
- Integrated Vascular Biology Training Program (an NIH supported T32 pre-doctoral training program)
  - PhD student: Jessica Rodríguez (May 2007-May 2011)
  - Director and Principal Investigator: Nobuyo Maeda, PhD
  - Director and Principal Investigator: George Stouffer, MD
- UNC Department of Pathology & Laboratory Medicine Clinical Chemistry Fellows
  - PhD Fellows: Laura M. Bender, Steven Cotton (July 2010-June 2012)
  - Fellowship Director: Catherine Hammett-Stabler, PhD

2006-present

**Graduate Student Committee Member**

University of North Carolina at Chapel Hill

**Current Committees**

Raquel Martinez Chacin, Department of Pharmacology Comprehensive Exam Committee, PhD Candidate

Sam Eaton, Department of Pharmacology, Mentor and Committee member, PhD Candidate

Ian McDonald, Department of Pharmacology Comprehensive Exam Committee, PhD Candidate

**Completed Committees**

Jason Melehani, Department of Pharmacology, PhD Candidate, Completed PhD Spring 2016 (MD/PhD Student)

Jin Li, Biochemistry and Biophysics, PhD Candidate, Completed PhD

Kristine Wadosky, Molecular and Cellular Pathology, Completed PhD (Committee Chair)

Maggie McCormick, Cell and Molecular Physiology, Completed PhD

Jackie Ellis, Curriculum in Genetics and Molecular Biology, Completed PhD

Rudo Fiona Mapanga, Stellenbosch University, South Africa, Completed PhD

Lisa Samuelson, Molecular and Cellular Pathology, Completed MS

Alex Carll, Public Health/Environmental Science and Engineering, Completed PhD

Jessica Rodríguez, Molecular and Cellular Pathology. Completed PhD (Committee Chair)

Ginny Hogle, Genetics and Molecular Biology, Completed MS

Jessica Ellis, Department of Nutrition, Completed PhD

Jason Doherty, Molecular and Cellular Pathology, Completed PhD

2005-present

**Laboratory/Research Teaching**

University of North Carolina at Chapel Hill

One on one and small group teaching of small animal echocardiography, laboratory techniques, scientific writing, scientific presentation, and scientific methods to a diversity of undergraduate students, medical students, and post-doctorate trainees from both clinical and PhD backgrounds.

***Trainees:***

- Paul Brocklebank II (August 2016-May 2017). University of North Carolina Undergraduate student.
- Deepthi Tulasi (January 2017-present). University of North Carolina Undergraduate student.
- Benjamin Xiongzhen Huang (December 2015-May 2016). University of North Carolina Undergraduate Student.
- Yipin Han (June-August 2014). East Chapel Hill High School Student, Summer Internship.
- Jenyth Sullivan (May-August 2014). University of North Carolina, UNC’s HHMI-Future Scientists & Clinicians Summer Fellowship Program
- Gopal Desai (January-December 2014). University of North Carolina, Department of Biology.
- Lei Xu, MS, MD (August 2013-March 2014). Cardiac and Thoracic Surgery, School of Medicine, Shandong University
- Jun He, MD, PhD (September 2012-August 2015). Tongji Medical College, Huazhong University of Science & Technology, Wuhan
- Megan Quintana, MD (Surgery, July 2013-June 2015) Full time Postdoctoral Research Fellow (Break from UNC Surgery Residency)
- Jie-ying Liao, PhD, Postdoctoral Research Fellow, Department of Pathology & Laboratory Medicine (January, 2013-October, 2013)
- Alexa Hartman (Rollins College), Sigma Xi Summer Research Internship (Summer 2012)
- Rebecca Hite (Chapel Hill High School Science Director), American Physiology Society Frontiers in Physiology Research Teacher Fellowship Program (Summer 2012).
- Katelyn Williams, FASEB Minority Access to Research Career (MARC)/American Society of Investigative Pathology Supported (Summer 2011)
- Makhosi Zungu, PhD, Postdoctoral Research Fellow, Department of Pathology & Laboratory Medicine (December 1, 2010-October 31, 2011)
- Eunice Kang, MD, Postdoctoral Research Fellow/Cardiology Fellow, Department of Internal Medicine (July 1, 2009-June 2011)
- Wendi O’Connor, MD, Postdoctoral Research Fellow, Department of Internal Medicine, McAllister Heart Institute (July 1, 2010-June 2012)
- Evan Keith, Undergraduate Student, UNC Department of Biology (Fall, 2010)
- Jennifer Henderson, Undergraduate Student, UNC Department of Mathematics (Fall, 2010)
- Kristine Wadosky, BS, PhD Student, Molecular and Cellular Pathology Program (July 1, 2010-March 2014)
- Scott Shadfar, MD, Otolaryngology/Head and Neck Surgery Resident, University of North Carolina (July 2009-June 2010)
- Jason Gonzalez, Undergraduate Student, UNC Exercise and Sport Science (Summer, 2009)
- Joe Durand, Undergraduate Student, Grambling State University Biology Department (Summer, 2009)
- Ashley Wysong, MD, Medical Student/HHMI Fellow, Duke University College of Medicine (January-August 2008)
- Nancy Moss, MD, General Surgery Resident, University of North Carolina (July

- 2007-June 2008)
- William Stansfield, MD, General Surgery Resident, University of North Carolina (July 2005-June 2007)
  - Sung Wai Chui, Undergraduate Student, UNC Department of Chemistry (2005-2006)
  - Jessica Rodríguez, BS, PhD Student, Molecular and Cellular Pathology Program (July 1, 2006-December 2011).
  - Christopher Ike, MD, Postdoctoral Research Fellow/Cardiology Fellow, Department of Internal Medicine (July 1, 2005-January 1, 2008)

### Courses Directed

- Spring 2011**      **Pathology 767: Pathobiology of Cardiovascular Disease**  
**\*\*Commissioning Course Director\*\***  
 PhD Graduate Students, University of North Carolina, Chapel Hill, NC
- Pathology 723: Translational Pathology and Laboratory Medicine Lecture**  
**\*\*Course Director\*\***  
 PhD Graduate Students, University of North Carolina, Chapel Hill, NC
- Spring 2009**      **Pathology 767: Pathobiology of Cardiovascular Disease**  
**\*\*Commissioning Course Director\*\***  
 PhD Graduate Students, University of North Carolina, Chapel Hill, NC
- Pathology 723: Translational Pathology and Laboratory Medicine Lecture**  
**\*\*Course Director\*\***  
 PhD Graduate Students, University of North Carolina, Chapel Hill, NC
- Spring 2008**      **Pathology 723: Translational Pathology and Laboratory Medicine Lecture**  
**\*\*Course Director\*\***  
 PhD Graduate Students, University of North Carolina, Chapel Hill, NC

### Grand Rounds at UNC

1. **UNC Curriculum in Toxicology Seminar November 28, 2016.** Talk entitled: Misfolded Proteins and Autophagy in the Pathogenesis of Heart Failure: An Environmental Exposure Perspective. Host: Ilona Jaspers, PhD. Monday, November 28, 2016.
2. **UNC Department of Pathology & Laboratory, Annual Research Symposium.** Talk entitled: The Critical Role of Microscopic Morphology (and Expert Morphologists) in the Molecular Delineation of Cardiac Disease. *Lectures Honoring Professor Marila Cordeiro-Stone and Professor C. Robert Bagnell, Jr.* Host: William K. Kaufmann, PhD. Friday, 3:10-4:50 p.m., Friday, September 25, 2015.
3. **UNC Department of Pharmacology, Seminar Series.** Talk entitled: Proteotoxicity and Cardiac Dysfunction: New Therapeutic Ideas from a Model of Human Familial Cardiomyopathy. Host: Mike Emanuele, PhD. Tuesday, September 8, 2015.
4. **UNC Pathology & Laboratory Medicine Grand Rounds.** Talk entitled: Novel therapeutic approaches targeting fibrosis in post-myocardial infarction remodeling and heart failure. November 20, 2014.

5. **University of North Carolina Molecular and Cellular Physiology Department Seminar Series.** Chapel Hill, NC. Talk entitled: “Regulation of Cardiac Hypertrophy, Energy Metabolism, and Mitochondrial Function by the Ubiquitin Ligase Muscle Ring Finger-1 (MuRF1)”. Sept. 17, 2012.
6. **University of North Carolina Department of Internal Medicine, Section of Endocrinology Research Conference.** Chapel Hill, NC. Talk entitled: “The role of ubiquitin proteasome system in regulating PPAR $\alpha$ -mediated energy metabolism and cardiac mass”. August 23, 2012.
7. **University of North Carolina, Department of Pathology Ground Rounds,** Chapel Hill, NC. Talk entitled: “Muscle Ring Finger-1 regulation of cardiomyocyte size and oxidative metabolism by its interactions with nuclear receptors”. February 24, 2011.

#### **Grand Rounds/Invited Presentations Outside of UNC**

8. **Heart Failure: Inflammasome, Necrosome and Signalosome.** Società Italiana di Patologia e Medicina Traslazionale (SIPMeT) Symposium: Metabolism and Prevention of Disease Sponsored by ASIP and SIPMeT (Italian Society of Pathology and Translational Medicine). 9:30 a.m.-10:30 a.m. Tuesday, April 25, 2017.
9. **Parlaying Social Networks to Market Yourself Effortlessly.** Workshop and Breakfast talk at ASIP Annual Meeting, Experimental Biology 2017. Sponsored by the Committee on Career Development and Diversity, 7:15-7:45 a.m. Sunday, April 23, 2017.
10. **North Carolina A&T, Pre-Professional Scholars Program.** Class panel participant. Host: Checo Rorie, PhD. April 5, 2017, 1:30-3:00 p.m.
11. **North Carolina A&T, Department of Biology Seminar.** Talk entitled: “Myocyte-specific ubiquitin ligase-mediated regulation of protein synthesis, inflammation, and metabolism in muscle atrophy”. Host: Misty Thomas, PhD April 5, 2017, 12-1 p.m.
12. **University of North Carolina at Chapel Hill, Campus Health Services Provider CME.** Talk entitled: “Interpreting the CBC”. Hosts: Sonia Hussain, MD and Thevy Chai, MD. April 5, 2017, 8-9 a.m.
13. **Indiana University Medical Center, Indiana Center for Musculoskeletal Health and Department of Otolaryngology Hosted Seminar.** Talk entitled: “The Role of Myocyte-Specific Ubiquitin Ligases (MuRF1) in Regulating Protein Synthesis, Inflammation, and Metabolism in Cancer Cachexia/Muscle Atrophy”. Host: Dr. Marion Couch, MD, PhD, MBA. February 23, 2017, 2-3 p.m.
14. **Duke University Medical Center, Division of Endocrinology, Metabolism, and Nutrition Grand Rounds Series.** Talk entitled: “The Role of Myocyte-Specific Ubiquitin Ligases in Mediating Cardiomyopathy, Protein Synthesis, and Inflammation in Diabetes and Muscle Atrophy”. Hosts: Drs. Matt Crowley and James R. Bain. Durham, NC, January 27, 2017, 1-2 p.m.
15. **University of Pittsburgh, Injury, Repair & Regenerative Medicine Seminar Series.** Talk entitled: “Therapeutic Targeting Proteotoxicity and Muscle-Specific Metabolism/Inflammation in Heart Failure: Two New Ideas”. Host: Dr. Cecelia Yates. Pittsburgh, PA. October 18, 2016 1-2 p.m.
16. **Tuskegee University, Department of Biology and Center for Cancer Research Seminar.** Talk entitled: “The Pathophysiology of Myocardial Infarction (heart attack) and the Development of Novel Therapeutic Strategies Targeting Fibrosis”. Hosts: Clayton Yates, PhD and Jesse Jaynes, PhD. Tuskegee, AL, Sept. 26, 2016 1:30-4 p.m.
17. **University of Nebraska Medical Center MD-PhD Program Annual Retreat.** Invited Keynote Speaker, talk entitled: Creativity, Entrepreneurship, and Business Management in Biomedical Research and Medical Practice. Lied Convention Center, Nebraska City, NE. 8 p.m. August 12, 2016.

18. **2016 Postdoctoral Preparation Institute: Career Transitions. Advancing Biomedical Research Workforce Diversity.** Talk entitled: Negotiating the Job Offer: 15 Things to Consider. Bethesda Marriott Hotel and Conference Center, Bethesda, MD. Host: FASEB Minority Access to Research Careers (MARC) and NIGMS. 10:45-11:30 a.m. June 3, 2016.
19. **Duke Molecular Physiology Institute Seminar.** Talk entitled: “The metabolic impact of proteotoxicity and protein quality control alterations in various rodent models of diabetes and ageing?” Host: Christopher Newgard, PhD (DMPI Director) and James Bain, PhD. 5 p.m. May 31, 2016.
20. **Elizabeth City State University, Graduate Research Fellowship Program, Current Issues in Science Seminar Series.** Talk entitled: Biomedical Research at a Major Institution: An Introduction to Careers in Biomedical Research and Applying to a PhD Graduate Program.” Hosts: Drs. Gloria Payne and Margaret Young, PhD. 5 p.m. 28 April 2016.
21. **Duke-NUS Signature Research Programme in Cardiovascular and Metabolic Disorders and the National Heart Center Singapore, Signature Seminar Series.** Talk entitled: The of role of cardiac-specific ubiquitin ligases and proteotoxicity in heart failure. Singapore. Host: Shirish Shenolikar, PhD. 12 p.m. Tuesday April 12, 2016.
22. **Experimental Biology 2016 Symposium: Cytokine Signaling in the Heart.** American Physiology Society sponsored symposium entitled “Thyroid Hormone Modulation of Cardiac Function and Remodeling: Bench to Bedside”. Talk entitled: Posttranslational Regulation of thyroid hormone receptors during cardiac hypertrophy and remodeling. San Diego, CA. Sunday April 4, 2016, 10:30-12:30 p.m.
23. **Experimental Biology 2016 Symposium: Cytokine Signaling in the Heart.** American Society of Investigative Pathology/Society of Cardiovascular Pathology sponsored talk entitled: The Role of Cardiac Innate Immunity in Cardiac Injury. San Diego, CA. Sunday April 3, 2016, 8:30-9:15 a.m.
24. **Cell Injury Workshop: Proteotoxicity and Cell Injury.** Talk entitled: Proteotoxicity and Cell Injury. Sunday, 3 April 2016 2 p.m. Experimental Biology 2016, San Diego, CA.
25. **XVIth Annual Workshop on Graduate Education in Pathology: Integrating Clinical and Anatomic Pathology.** Talk entitled: The evolving workforce issues in graduate education and pathology’s unique position. Saturday, 2 April 2016 11:45 a.m.-1:45 p.m. Experimental Biology 2016, San Diego, CA.
26. **55th Society of Toxicology Annual Meeting Workshop: Breaking Bad: Cardiovascular Autophagy Gone Rogue: A Putative Mechanism of Toxicity and a Drug Target in Disease.** Talk entitled: Clinical Perspective on Cardiovascular Autophagy. New Orleans, Louisiana. Host: Leslie Thompson, PhD. Wednesday, March 16, 2016.
27. **Auburn University, Dept. of Drug Discovery and Development, Harrison School of Pharmacy Seminar.** Therapeutic Targeting of Metabolism and Proteotoxicity in Heart Failure: Two New Ideas. Host: Raj Amin, PhD. Auburn, AL, January 19, 2016.
28. **AHA Scientific Sessions Annual Meeting.** Talk entitled: Interaction of Proteotoxicity and Autophagy in Cardiac Pathology. Session Title: Protein Degradation Pathways in Cardiomyopathy and Heart Failure. Orlando, FL, November 8, 2015.
29. **Department of Physiology, Pathology and Pathophysiology Seminar, Beijing Chaoyang Hospital, Capital Medical University, Beijing, People’s Republic of China.** Talk entitled: Role of the Ubiquitin Ligase MuRF1 in Regulating Cardiac Metabolism and Autophagy *in vivo*. October 29, 2015. Host: Hui-Hau Li, MD, PhD, Professor, Department of Physiology, Pathology and Pathophysiology (School of Basic Medical Sciences) and Department of Cardiology (Beijing Chaoyang Hospital).

30. **President Forum Seminar, Tianjin Medical University, Tianjin, People's Republic of China.** Talk entitled: Role of the muscle-specific ubiquitin ligase MuRF1 in regulating cardiac metabolism and susceptibility to heart failure. September 27, 2015. Host: Dr. Zhelong Xu, Dean School of Basic Medical Sciences, Distinguished Professor and Chair Department of Physiology and Pathophysiology.
31. **2015 International Conference on Geriatric Medicine & The Tenth Anniversary Celebration of the Heart Institute.** Talk entitled: Role of the Muscle-Specific Ubiquitin Ligase MuRF1 in Regulating Cardiac Metabolism and Susceptibility to Heart Disease. North China University of Science and Technology, International Academic Hall, Science Building, Tangshan City, Hebei Province, People's Republic of China. September 26, 2015. Host: Zhelong Xu, MD, PhD, Director Cardiovascular Institute, North China University of Science and Technology.
32. **East Carolina University, Department of Physiology Seminar Series.** Talk entitled: Protein Quality Control in Heart Failure: Lessons from Bag3-Related Myofibrillar Cardiomyopathy and Diabetic Cardiomyopathy. Greenville, NC. May 28, 2015.
33. **Experimental Biology 2015, Cell Injury Workshop: Scars and Souvenirs: Inflammation and Fibrosis in the Heart, Lung, and Skin.** Talk entitled: Scars on my Heart: Understanding the Molecular Pathogenesis of Cardiac Fibrosis as a Therapeutic Target. Tuesday, March 31, 2015. 10 a.m. Experimental Biology 2015, Boston, MA.
34. **Wake Forest University Baptist Medical Center, Critical Care Medicine Seminar.** Talk entitled: Cardiac Muscle Ring Finger-2 in the regulation of diabetic cardiomyopathy and metabolism in vivo. Winston-Salem, NC. December 19, 2014.
35. **AHA Scientific Sessions Annual Meeting.** Talk entitled: The ubiquitin proteasome system in the heart. Session Title: The Alzheimer's Theory of Heart Failure. Chicago, IL, November 18, 2014.
36. **Case Western Reserve Department of Physiology & Biophysics Seminar.** Talk entitled: The role of Muscle Ring Finger (MuRF) proteins in the regulation of diabetic cardiomyopathy and metabolism in vivo. Cleveland, OH. December 1, 2014.
37. **2014 Postdoctoral Preparation Institute: Career Transitions. Advancing Biomedical Research Workforce Diversity.** Talk entitled: Negotiating the Job Offer: 15 Things to Consider. Bethesda Marriott Hotel and Conference Center, Bethesda, MD. Host: FASEB Minority Access to Research Careers (MARC) and NIGMS. 11 a.m.-12 p.m. June 6, 2014.
38. **XXXIV Annual Meeting of the North American Section of the International Society for Heart Research (ISHR) 2014.** Thursday, May 15, 2014, Session XVI Stem Cells. Talk entitled: Role of Cardiac Muscle Ring Finger-1 (MuRF1), MuRF2, and MuRF3 in Regulating PPAR transcription factors in vivo and Non-targeted analysis of novel and redundant metabolomic changes. 12-12:30 p.m. Miami, FL.
39. **Experimental Biology / ASIP Annual Meeting 2014.** Committee on Career Development, Women, and Minority (CCDWM) symposium. Talk entitled: Negotiation Basics: A Practical Discussion on Getting What You Want, When You Want It. Sunday, April 27, 2014, 7-7:30 a.m.
40. **Experimental Biology / American Society of Investigative Pathology Annual Meeting 2014.** Talk entitled: Repairing "Misfolded" Proteins as a Therapy for Heart Failure. San Diego, CA. April 29, 2014.
41. **Experimental Biology / American Physiological Society Annual Meeting 2014.** Symposium: New Mechanisms of Heart Failure Based on Protein Misfolding. Talk entitled: Role of the ubiquitin proteasome system in heart failure. April 30, 2014.
42. **American Heart Association Scientific Sessions 2013.** Symposium titled: Dynamics of protein degradation machinery in cardiac function. Dallas, TX. Talk entitled: Proteasome-dependent regulation of cardiac signal transduction. November 18, 2013.

43. **Myocarditis Foundation Satellite Meeting, 17th Annual Scientific Meeting of the Heart Failure Society of America.** Peabody Convention Center, Orlando, FL. Talk entitled: Future of Myocarditis. Sept. 22, 2013.
44. **University of Vermont, Otolaryngology Head & Neck Surgery Research Grand Rounds.** Burlington, VT. Talk entitled: The Emerging Role of the Ubiquitin Proteasome System in Heart Failure and Ischemic Heart Disease. August 14, 2013.
45. **University of Vermont, Department of Surgery Grand Rounds.** Burlington, VT. Talk entitled: Mechanisms of Cardiac and Skeletal Atrophy in Cancer Cachexia. August 15, 2013.
46. **East Carolina University Department of Pathology Grand Rounds.** Greenville, NC. Talk entitled: The regulation of cardiac mass and metabolism in cardiac pathology. May 13, 2013.
47. **Pediatric Academy of Sciences Annual Meeting.** Washington, DC. Talk entitled: Regulation of Protein Turnover in the Heart and its Relationship to Cardiac Hypertrophy. Symposium: Mechanisms of Fetal and Neonatal Cardiac Growth. May 4, 2013.
48. **Duke University Department of Pathology Grand Rounds.** Durham, NC. Talk entitled: The emerging role of the ubiquitin proteasome system in heart failure and ischemic heart disease. March 8, 2013.
49. **Cancer Cachexia Conference / Society of Sarcopenia, Cachexia, and Wasting Disorders.** Boston, MA. Talk entitled: “Mechanisms of cardiac atrophy in cancer”. Sept. 23, 2012.
50. **NIEHS Receptor Mechanisms Discussion Group,** Research Triangle Park, NC. Talk entitled: “The regulation of nuclear receptors and physiological hypertrophy by the ubiquitin proteasome system”. July 3, 2012.
51. **Lerner Research Institute, The Cleveland Clinic,** Cleveland, OH. Talk entitled: “Muscle Ring Finger 1(MuRF1)’s regulation of cardiac hypertrophy and energy metabolism”. June 6, 2012.
52. **International Society of Heart Research (ISHR)/North American Section,** Banff, Alberta, Canada. Talk entitled: “The role of the Ubiquitin proteasome system in heart failure”. Invited Speaker/Faculty. May 29, 2012.
53. **12th Annual Career Development Program: Fundamental Basics for Success: How to Write Award-Winning Grants. April 22, 2012. American Society of Investigative Pathology. Experimental Biology, San Diego, CA.** Talk entitled: Developing ideas into fundable research grant proposals.
54. **Elizabeth City State University Graduate Seminar Series,** Department of Biology, Elizabeth City, NC. Talk entitled: Regulating cardiomyocyte size and energy metabolism by the ubiquitin proteasome system. March 21, 2012.
55. **American Heart Association Scientific Sessions 2011.** Symposium titled: “Post-translational Regulation in Cardiac Physiology and Disease”. Orlando, FL. Invited by chair Dr. Heinrich Taegtmeyer. Talk entitled: The role of ubiquitin ligases in the regulation of cardiac metabolism and mitochondrial biology in cardiac disease. November 14, 2011.
56. **Cotran Early Career Investigator Award Presentation,** Experimental Biology, Washington, DC. Talk entitled: “Muscle Ring Finger 1(MuRF1)’s Regulation of Cardiac Hypertrophy, Energy Metabolism, and Mitochondrial Function”. April 12, 2011.
57. **Annual New England Cancer Cachexia Forum,** University of Vermont, Division of Otolaryngology - Head & Neck Surgery, Stoweflake Mountain, Stowe, Vermont. Talk entitled: “Cardiac manifestations of cancer cachexia”. March 19, 2011.
58. **University of New Mexico, Department of Pharmacology Seminar Series,** Albuquerque, NM. Talk entitled: “Regulating cardiomyocyte size and energy metabolism by the ubiquitin proteasome system”. Feb. 28, 2011.

59. **NIEHS Laboratory of Signal Transduction Seminar Series**, Research Triangle Park, NC. Talk entitled: “The Role of Muscle Ring Finger-1 (MuRF1) in the regulation of cardiomyocyte size and oxidative Metabolism”. Jan. 24, 2011.
60. **University of Washington School of Medicine, Special Seminar**, Seattle, WA. Talk entitled: Muscle Ring Finger 1(MuRF1)’s regulation of cardiac hypertrophy, energy metabolism, and mitochondrial function. Oct. 25, 2010.
61. **Seattle Children’s Research Institute, Seminar**, Seattle, WA. Talk entitled: The use of animal models of Duchenne Muscular Dystrophy cardiomyopathy to test novel experimental therapies. Oct. 25, 2010.
62. **University of Nebraska Medical Center, Omaha Veteran’s Affairs Medical Center Seminar**, Omaha, NE. Talk entitled: “The Role of Ubiquitin Ligase MuRF1 in regulating cardiac mass and PPAR $\alpha$  mediated energy metabolism”. October 12, 2010.
63. **University of South Dakota, Graduate Student Association Invitation**, Vermillion, SD. Talk entitled: “Regulation of cardiac hypertrophy and metabolism by the ubiquitin ligase MuRF1.” October 8, 2010.
64. **University of Calgary, Department of Physiology & Libin Cardiovascular Institute Seminar**, Calgary, Alberta, Canada. Talk entitled: “Regulation of cardiac hypertrophy and metabolism by MuRF-family of ubiquitin ligases.” August 26, 2010.
65. **King’s British Heart Foundation Centre of Research Excellence Symposium**: “Stress signaling in the cardiovascular system” at King’s College London. Talk entitled: “Ubiquitylation-dependent signaling in heart disease.” June 14, 2010.
66. **Second International Conference on Cardiomyopathy in Children**, Session entitled: Molecular Mechanisms in Cardiomyopathy (Washington, D.C.). Talk entitled: Cardiac Dystrophin Treatment in Duchenne Muscular Dystrophy”. May 13, 2010.
67. **American Physiology Society Cardiovascular Section sponsored Symposium** entitled: The Role of the Ubiquitin Proteasome System in Cardiac Disease, Diabetes, and Aging at Experimental Biology 2010 (Anaheim, CA). Talk entitled: Transcriptional regulation of cardiac ischemia reperfusion injury and metabolism by muscle-specific ubiquitin ligases. April 28, 2010.
68. **American Society of Investigative Pathology sponsored Workshop** entitled: Ubiquitination, SUMOylation, and the Unfolded Protein Response in Disease at Experimental Biology 2010 (Anaheim, CA). Talk entitled: Regulation of cardiac hypertrophy and metabolism by the ubiquitin ligase muscle ring finger-1. April 25, 2010.
69. **Ubiquitin Drug Discovery and Diagnostics 2009**. Philadelphia, PA “The Ubiquitin Ligase Muscle Ring Finger-1 (MuRF1) Protects Against Cardiac Ischemia Reperfusion Injury In Vivo”. Oct. 14, 2009.
70. **University of Texas Houston Medical School, Cardiology Research Seminar**, Houston, Tex. “Myocyte-Specific Regulation of Fatty Acid and Glucose Metabolism.” January 29, 2009.
71. **University of Washington, Center for Cardiovascular Regenerative Biology**, Seattle, Wash. “Regulation of Cardiac Disease and Metabolism by Muscle Ring Finger-1 (MuRF1).” December 15, 2008.
72. **Institute of Experimental and Clinical Pharmacology**, Eppendorf University Hospital, Hamburg, Germany. “Regulation of Cardiac Hypertrophy and Metabolism by Muscle Ring Finger-1 (MuRF1).” December 1, 2008.
73. **East Carolina University, Dr. Neuffer Metabolism Group**. “Muscle Ring Finger-1 (MuRF1) in Cardiac Metabolism.” November 21, 2008.
74. **East Carolina University, Department of Physiology Seminar Series**. “Beyond Size Regulation: Muscle Ring Finger-1 (MuRF1) in Cardiac Physiology and Disease.” September 25, 2008.



## Continuing Education Lectures at UNC

2007-present Director, Sweat Chloride Testing  
 UNC Cystic Fibrosis Foundation Center  
 University of North Carolina Hospitals  
 Didactic teaching of the role of sweat chloride testing in the diagnosis of cystic fibrosis to pathology residents and medical technicians in the UNC Hospitals Core (Clinical Chemistry) Laboratory. Focus: integration of sweat chloride testing with molecular diagnostics and newborn screening; sweat chloride testing as the gold standard of cystic fibrosis diagnosis.

December 6, 2010: Role of Sweat Chloride Testing in the Diagnosis and Screening for Cystic Fibrosis

December 12, 2007: Role of Sweat Chloride Testing in the Diagnosis of Cystic Fibrosis

December 6, 2011 (7:30 a.m.): Diagnosis of Cystic Fibrosis by Sweat Testing in the era of New Born Screening / Molecular Diagnosis

December 6, 2011 (3:30 p.m.): Diagnosis of Cystic Fibrosis by Sweat Testing in the era of New Born Screening / Molecular Diagnosis

2005-present Assistant Director, Clinical Chemistry (Core) Laboratory  
 University of North Carolina Hospitals  
 Teaching diagnostic applications of serum, urine, and cerebrospinal fluid electrophoresis to pathology residents on the Clinical Chemistry service.

July 28, 2016: Interpreting Serum, Urine, and CSF Protein Electrophoresis Gels in Clinical Chemistry

January 3, 2011: Syphilis Testing Update

June 6, 2011: Chemical Analysis of Lipids and Lipoprotein Metabolism

Fall 2010-present Director, Campus Health Services Laboratory  
 University of North Carolina Campus Health Services Laboratory  
 Continuing education lectures to Medical Technicians, focusing on new aspects of the diagnosis of disease and the related clinical management of disease.

September 22, 2010: Continuing Education Talk entitled: "Screening for Sexually Transmitted Diseases 2010"

September 1, 2010: Continuing Education Talk entitled: "An update on the diagnosis of *Treponema pallidum*"

May 25, 2011: Continuing Education Talk entitled: "Agranulocytosis in the setting of cocaine use"

May 1, 2012: Continuing Education Talk entitled: "A clinical and diagnostic review of Babesiosis"

May 18, 2012: Continuing Education Talk entitled: "Bedbugs in the 21<sup>st</sup> century-The reemergence of an old foe"

June 1, 2012: Continuing Education Talk entitled: "Human Ehrlichiosis and

Anaplasmosis”  
 July 13, 2012: Continuing Education Talk entitled: “Sickle Cell Trait and Athletic Screening Programs”  
 August 31, 2012: Continuing Education Talk entitled: “Microbiology, Pathogenesis, and Epidemiology of Anthrax”  
 September 28, 2012: Continuing Education Talk entitled: “West Nile Virus: Epidemiology, Pathogenesis, Treatment and Prevention”

***Continuing education lectures to Providers (MD, PA, NP) focusing on using in house and send out laboratory tests***

November 10, 2011. Talk entitled: “Clinical utility of using absolute white blood cell counts in treating the UNC CHS population.”

**GRANTS**

**Current**

Sept 1, 2010-May 31, 2019 National Heart, Lung, and Blood Institute, NIH (2015: \$1.52M/4 years)  
 Title: Myocyte specific regulation of metabolism and the response to biomechanical force (R01HL104129)  
 Role: Principal Investigator (50% Effort)

Jan. 1, 2012-Dec. 31, 2016 Foundation Leducq (\$1.8M/4 years)  
 Title: Proteotoxicity: an unappreciated mechanism of heart disease and its potential for novel therapeutics (Grant Number: 11CVD04).  
 (<http://www.fondationleducq.org/nivel2.aspx?idsec=1195>)  
 Role: Principal Investigator (10% Effort)

**Completed**

January 16, 2014-June 2014 National Science Foundation, STTR Phase I Program (Subcontract)  
 Title: Novel Molecularly Targeted Tracers for Specific and Sensitive Imaging of Cancer (IIP-1321424)  
 Role: Principal Investigator (5% Effort)

Dec. 2010-Dec. 2012 UNC University Cancer Research Fund, 2010 Dec Innovation Award  
 Title: Inhibition of the DNA Repair Enzyme Rad18 as a Novel Strategy for Sensitizing Tumor Cells  
 Role: Co-PI (Janzen, Vaziri, Willis)

June 1, 2010-Aug 31, 2011 North Carolina Translational and Clinical Sciences Institute (\$10,000)  
 Title: Identification of Novel BMPER mutations leading to left ventricular non-compaction (LVNC) cardiomyopathy in humans  
 Role: Principal Investigator (2% Effort)

July 1, 2008-August 31, 2010 American Heart Association Scientist Development Grant (\$308,000)

|                                 |  |                  |
|---------------------------------|--|------------------|
|                                 | Title: Myocyte-specific regulation of fatty acid and glucose metabolism by mechano-sensing   |                  |
|                                 | Role: Principal Investigator   | (19% Effort)     |
| January 1, 2008-January 1, 2009 | Children's Cardiomyopathy Foundation   | (\$50,000)       |
|                                 | Title: The role of MuRF1 in MyBP-c turnover and its effects on cardiac energy metabolism in familial hypertrophic cardiomyopathies |                  |
|                                 | Role: Principal Investigator   | (20% Effort)     |
| March 2008-September 2009       | UNC Radiology Research Committee   | (\$5,000)        |
|                                 | Title: Feasibility of cardiac imaging in murine models with <sup>124</sup> I labeled tracers using microPET-CT                     |                  |
|                                 | Role: Co-Investigator  | (2% Effort)      |
| January 2007-December 2007      | UNC Foundation–RJ Reynolds Faculty Development Award (\$7,500)   |                  |
|                                 | Title: The role of muscle ring finger-1 (MuRF1)-dependent AMPK Activation in the development of cardiac hypertrophy                |                  |
|                                 | Role: Principal Investigator   | (5% Effort)      |
| February 2006- February 2008    | UNC University Research Council Small Grant Program (\$4,000)  |                  |
|                                 | Title: The role of Muscle Ring Finger-2 (MuRF2) in the development of cardiac hypertrophy  |                  |
|                                 | Role: Principal Investigator   | (5% Effort)      |
| July 2002-June 2004             | Institutional Training Grant (T32)   | (~\$40,000/year) |
|                                 | NIH NIGMS Award: T32 GM008593  |                  |
|                                 | Title: University of Texas Southwestern Research Training Program in Burns, Trauma, and Critical Care                              |                  |
|                                 | Role: Postdoctoral Fellow  |                  |
|                                 | Training program director: Jureta Horton, PhD  | (100% effort)    |
| April, 1997-April, 2001         | MD/PhD Predoctoral Fellowship (F30)  | (~\$25,000/year) |
|                                 | NIH NIAAA Award: F30 AA005487  |                  |
|                                 | Title: Antigenicity of proteins modified by alcohol metabolites  |                  |
|                                 | Role: Principal Investigator   |                  |
|                                 | Mentor: Geoffrey M. Thiele, PhD  | (100% effort)    |

## PROFESSIONAL SERVICE

### To discipline

1. Co-Chair, Peter Harrive Award Lecture, "Sarcomeres as hubs of signaling" (R. John Solaro, University of Chicago). International Society of Heart Research-North American Section (ISHR-NAS). June 1, 2017 8-9 a.m. New Orleans, LA.

2. Councilor-at-Large (Elected April 2017), American Society of Investigative Pathology (ASIP), July 2017-present (Elected 4-year term).
3. Scientific Advisory Board Member, Moerae Matrix, LLC. A clinical stage biopharmaceutical company involved in the development of novel peptide therapies for fibrotic and inflammatory diseases (<https://goo.gl/KBDJ2l>).
4. Moderator: Session Title: Protein Misfolding in the Heart: History and New Developments. AHA Scientific Sessions. November 15, 2016, 9 a.m.-10:15 a.m. New Orleans Convention Center, Room 210, New Orleans, LA.
5. Committee member, ASIP Committee for Career Development and Diversity (CCDD). July 2015-present.
6. Co-chair, Sugar, Sugar, awwww, Honey, Honey... Pathophysiology of Diabetes, Obesity, and Metabolic Complications. Monday, 4 April 2016. 2-5 p.m., San Diego, CA.
7. Co-chair, Cell Injury Workshop: Proteotoxicity and Cell Injury. Sunday, 3 April 2016 2-5 p.m. Experimental Biology 2016, San Diego, CA.
8. Co-chair, XVIth Annual Workshop on Graduate Education in Pathology: Integrating Clinical and Anatomic Pathology. Saturday, 2 April 2016 11:45 a.m.-1:45 p.m. Experimental Biology 2016, San Diego, CA.
9. Editorial Board, *Military Medical Research*, January 2016-present.
10. Editorial Board, *American Journal of Physiology – Endocrine and Metabolism*, July 1, 2015-present.
11. Board of Advisors, Sonovol, LLC, UNC Startup developing proprietary hardware and software solutions for cardiac ultrasound imaging (<https://goo.gl/kfiCwI>). March 2015-June 2017.
12. Panelist, F-Troop: Experimental Biology 2015: Roadmap to fellowship grant applications. Saturday, March 28, 2015.
13. Co-Chair, Cell Injury Workshop: Scars and Souvenirs: Inflammation and Fibrosis in the Heart, Lung, and Skin. Tuesday, March 31, 2015. 8:30-11:30 a.m. Experimental Biology 2015, Boston, MA.
14. Co-Chair: Society of Cardiovascular Pathology Symposium: Protein Misfolding in the Heart: Conformation Cardiomyopathies. Tuesday, March 31, 2015. 2-5 p.m. Experimental Biology 2015, Boston, MA.
15. Co-Chair: Der Schadenklub (Cell Injury) Scientific Interest Group Poster Discussion and Networking Session. Tuesday, March 31, 2015. 5:30-8:30 p.m. Experimental Biology 2015, Boston, MA.
16. Councilor, North American Section of the International Society for Heart Research (ISHR), Elected December 2014 to 6-year term (2015-2021).
17. Chair-Elect/Chair of the Education Committee, American Society of Investigative Pathology (ASIP), July 2014-June 2018 (Elected 4-year term). Includes service on the ASIP Council and Program Committees.
18. Co-Chair, Session IX: Mitochondria (Co-chair Matt Hori). XXXIV Annual Meeting of the North American Section of the International Society for Heart Research (ISHR) 2014. Wednesday, May 14, 2014, Session XVI Stem Cells. Miami, FL.
19. Panelist, F-Troop: Experimental Biology 2014: Roadmap to fellowship grant applications. Saturday, April 26, 2014.
20. Co-Chair, Symposium, Experimental Biology 2014: Stem Cells for Cardiac Repair. Sponsored by ASIP and the Society for Cardiovascular Pathology. Sunday, April 27, 2014.
21. Co-Chair, Symposium, Experimental Biology 2014: Diabetes-related Contractile Dysfunction of the Heart: Clinical Implications, Underlying Molecular Mechanisms, and Exercise-Related Cardio-protection. Sponsored by APS Endocrine and Metabolism Section. Sunday, April 27, 2014.

22. Co-Chair, Symposium, Experimental Biology 2014: Necessary Evils: The Responsibility and Process to Protect Human and Animal Subjects in Research. Tuesday, April 29, 2014.
23. Guest Editor, *J Mol Cell Cardiol.*, Special Issue: Protein Quality Control, the Ubiquitin Proteasome System, and Autophagy. Spring 2014 Publication.
24. Faculty/Moderator, 17<sup>th</sup> Annual Scientific Meeting of the Heart Failure Society of America. Symposium on Myocarditis. Sept. 22, 2013. Peabody Convention Center. Orlando, FL.
25. Chair, Der Schadenklub (Cell Injury Scientific Interest Group) Poster Discussion and Networking Session. April 23, 2013. American Society of Investigative Pathology. Experimental Biology, Boston, MA.
26. Chair, Pathophysiology of Cardiac Disease Symposium. April 23, 2013. American Society of Investigative Pathology. Experimental Biology, Boston, MA.
27. Panelist, F-Troop! F-Grants: Five Components. Introduction to NIH, Fellowship Applications, and Peer Review. FASEB / MARC (Federation of American Societies for Experimental Biology / Minority Access to Research Careers). April 20, 2013. Experimental Biology, Boston, MA.
28. Vice President, Board of Directors, Myocarditis Foundation ([myocarditisfoundation.org](http://myocarditisfoundation.org)). January 1, 2013-December 31, 2014.
29. Councilor, Society for Cardiovascular Pathology, March 3, 2013-present (3 year term).
30. Section Editor, *Archives of Pathology & Laboratory Medicine*, Clinical Effectiveness and Economics, September 1, 2012-present.
31. Editorial Board, *American Journal of Physiology – Endocrine and Metabolism*, July 1, 2012-June 30, 2015.
32. Chair, Der Schadenklub (Cell Injury Scientific Interest Group) Poster Discussion and Networking Session. April 22, 2012. American Society of Investigative Pathology. Experimental Biology, San Diego, CA.
33. Co-Chair, Mechanisms of Cardiac Pathobiology Minisymposium, April 22, 2012. American Society of Investigative Pathology. Experimental Biology, San Diego, CA.
34. Chair, Protein Misfolding and Chaperonopathies Symposium. April 24, 2012. American Society of Investigative Pathology. Experimental Biology, San Diego, CA.
35. Editorial Board, *Expert Opinion on Medical Diagnostics*. March 1, 2012-July 2013.
36. International Society for Heart Research (ISHR), North American Section, Cardiac Metabolism Special Interest Group Steering Committee. Elected Dec 2011. Term: 2012-2014.
37. Board of Directors, Myocarditis Foundation ([myocarditisfoundation.org](http://myocarditisfoundation.org)). January 1, 2012-December 31, 2013.
38. Immediate Past Chair, North Carolina Section, American Association of Clinical Chemistry (AACC). January 1, 2012-December 31, 2013.
39. Editorial Board, *Cardiovascular Pathology*. January 1, 2012-present (2<sup>nd</sup> 3 year term).
40. Editorial Board, *American Journal of Pathology*. July 2011-present (2<sup>nd</sup> 3 year term).
41. Chair-Elect/Chair of the Committee for Career Development, Women and Minorities (CCDWM), American Society of Investigative Pathology (ASIP), July 2011-June 2015 (Elected 4-year term). This capacity includes service as an ex officio member on ASIP Council, Education, and Program Committees.
42. Symposium Chair, American Society of Investigative Pathology, Experimental Biology 2011: “Mechanisms of Cardiac Pathobiology.” April 12, 2011.
43. Symposium Chair, American Society of Investigative Pathology, Experimental Biology 2011: “Mechanisms of Cellular Stress in Disease.” April 13, 2011.
44. Secretary-Treasurer (Elected), Member/Steering Committee, Endocrinology & Metabolism Section, American Physiology Society, April 2011-April 2014.

45. Associate Editorial Board, *American Journal of Cardiovascular Disease*, March 2011-present.
46. Editorial Board, *Journal of Molecular and Cellular Cardiology*, January 1, 2011-July 2016.
47. Editorial Board, *American Journal of Physiology – Heart and Circulatory Physiology*, January 1, 2011-January 31, 2014.
48. Editorial Board, *Skeletal Muscle*, July 2010-March 2014.
49. Chair, North Carolina Section, American Association of Clinical Chemistry (AACC). January 1, 2010-December 31, 2011.
50. Editorial Board, *Journal of Microbial & Biochemical Technology*, November, 2010-May 2013.
51. Assistant Editor, Editorial Board, *Laboratory Medicine*. September 2008-July 2012.
52. Ad hoc Manuscript Peer-Reviewer 2008-Present
  - a. *American Journal of Physiology: Lung Cellular and Molecular Physiology*
  - b. *British Journal of Pharmacology*
  - c. *Cardiovascular Research*
  - d. *Circulation*
  - e. *Clinical Biochemistry*
  - f. *Genetics in Medicine*
  - g. *Journal of the American College of Cardiology*
  - h. *Journal of Visualized Experiments*
  - i. *Journal of Veterinary Medicine*
  - j. *Neuromuscular Disorders*
  - k. *PLOsONE*
53. Member, Program Committee for Experimental Biology, American Society of Investigative Pathology, August 2007-present.
54. Nominations Committee, Elected Southeast Section Representative. National Sigma Xi Research Society. November 2009-January 2011.
55. Symposium Chair, American Society of Investigative Pathology, Experimental Biology 2010: “Trends in Experimental Pathology: The Interplay of Autophagy and the Proteasome in Pathogenesis Symposium.” April 25, 2010.
56. Symposium Chair, American Society of Investigative Pathology, Experimental Biology 2010: “Pathobiology of Cardiac Disease Mini-Symposium” April 25, 2010.
57. Symposium Chair, American Society of Investigative Pathology, Experimental Biology 2010: “Ubiquitination, SUMOylation, and the Unfolded Protein Response in Disease Workshop” April 25, 2010.
58. Symposium Chair, American Physiological Society, Cardiovascular Section, Experimental Biology 2010: “The Role of the Ubiquitin Proteasome System in Cardiac Disease, Diabetes, and Aging Symposium”, April 28, 2010.
59. Symposium Chair, American Society of Investigative Pathology, Experimental Biology 2009: “Pathogenesis of Cardiac Disease.” April 21, 2009.
60. Treasurer, American Association of Clinical Chemistry (AACC), North Carolina Section. January 2008-December 2009.
61. Editorial Review Board, *Laboratory Medicine*. July 2006-September 2008.

### **Within UNC-Chapel Hill**

1. Being a better faculty research mentor (BBFRM), Training Co-Sponsored by: Center for Faculty Excellence (CFE) and NC TraCS Institute. Curriculum: National Research Mentoring Network (2<sup>nd</sup> Edition). April 2017 Cohort, April 12, 17, 20, 2017 (10 hours total).

2. Financial Exigency and Program Change Committee: Division of Health Affairs. Elected April 2016 (July 1, 2016-June 30, 2017).
3. Reviewer, Gillings Innovation Laboratory 2015-2016 Awards, Gillings School of Global Public Health, January 2016.
4. UNC School of Medicine Conflict of Interest Committee December 2015-June 2017 (Meets monthly).
5. Faculty Judge, Poster Presentation Session, John B. Graham Medical Student Research Society, 48<sup>th</sup> Annual Medical Student Research Day, UNC School of Medicine. November 30, 2015.
6. Faculty Grievance Committee Alternate, Associate Professor, University of North Carolina, Fall 2014-Spring 2015.
7. Faculty Judge, Oral and Poster Presentation Sessions, John B. Graham Medical Student Research Society, 47<sup>th</sup> Annual Medical Student Research Day, UNC School of Medicine. January 16, 2014.
8. Safe Zone Faculty Ally, LGBTQ Center, UNC Student Affairs. Dec. 2, 2013-present.
9. Association for Women Faculty and Professionals, University of North Carolina. March 26, 2013-present.
10. Faculty Judge, Oral Presentations, University Research Day, Graduate and Professional Student Federation, University of North Carolina. February 26, 2013.
11. Faculty Judge, Poster Presentation Sessions, John B. Graham Medical Student Research Day, UNC School of Medicine. January 17, 2013.
12. Lean Six Sigma Purple Belt Training (27 contact hours). Awarded Oct. 16, 2013. UNC Health Care, UNC Center for School Leadership and Development. April 10, 11, 12, 2012.
  - a. Lean assessment of Clinical Flow Cytometry Laboratory (Kaizen Project Sept. 8-14, 2013)
13. Organizer, Poster and Oral Presentation judging, Integrated Vascular Biology/McAllister Heart Institute Annual Symposium, March 15, 2011; March 20, 2012.
14. Academic Advisor, Beta Theta Pi, Eta Chapter, UNC at Chapel Hill, November 2010-July 2013.
15. Chair, PhD Preliminary Examination Committee, UNC Molecular and Cellular Pathology Graduate Program. 2010-2012.
16. Faculty Co-Organizer, Integrated Vascular Biology/McAllister Heart Institute Annual Symposium, March 15, 2011.
17. Poster judging (Undergraduate/Physiology) and UNC BBSP Recruiting at ABRCMS (Annual Biomedical Research Conference for Minority Students) Annual Meeting, Charlotte, NC. Nov 11-13, 2010.
18. Academic Advisor, Beta Theta Pi, Eta Chapter, UNC at Chapel Hill, November 2010-present.
19. Lean Six Sigma Blue Belt Training (Classroom training: 16 contact hours), UNC Health Care, UNC Center for School Leadership and Development. January 20 and April 14, 2010. Projects Oct 2010-March 2011.
  - a. Project 1 (Six Sigma): Reduce lab billing write-offs (non-billed): January-October, 2010
  - b. Project 2 (Lean): Lean assessment of Outreach Laboratory Section (Kaizen Project July 19-23, 2010)
  - c. Project 3 (Lean): Lean assessment of Molecular Pathology Section (Kaizen Project March 15-19, 2011)
20. Distinguished Dissertation Award Committee, UNC Molecular and Cellular Pathology Graduate Program. Spring 2009-present.
21. McAllister Heart Institute Executive Committee member, University of North Carolina. June 2009-May 2013.
22. McAllister Heart Institute Mouse Core Advisory Committee Chair, University of North Carolina. August 2011-April 2013.

23. Poster judging (Post-Doctoral/Undergraduate) and UNC BBSP Recruiting at SACNAS (Advancing Hispanics/Chicanos & Native Americans in Science) Annual Meeting, Anaheim, CA. Oct 1-2, 2010.
24. Lean Six Sigma Yellow Belt Training (7.5 contact hours), UNC Health Care, UNC Center for School Leadership and Development. June 18, 2009.
25. Member, PhD Preliminary Examination Committee, UNC Molecular and Cellular Pathology Graduate Program. 2007-2009.
26. Co-Organizer, Annual Research Symposium, UNC Department of Pathology and Laboratory Medicine. August 24, 2007, September 19, 2008.
27. UNC Department of Pathology and Laboratory Medicine Graduate Program Admissions Committee. 2006-2008.

#### Other (site visits, review panels, etc.)

1. Study Section Chair (and Reviewer), American Heart Association. Cardiac Biology BCT3. Meeting held April 28, 2017. **BCT3 Co-Chair:** Il-Man Kim, MD; **BCT3 AHA Peer Review Program Manager:** Angela Johnson, MPH.
2. Study Section, Ad hoc Reviewer, NIH ZRG1 CVRS-L (03), IAR Nov. 30-Dec. 1, 2016.
3. Study Section Co-Chair, American Heart Association. Cardiac Biology BCT3. Meeting held October 20, 2016.
4. Study Section Co-Chair, American Heart Association. Cardiac Biology BCT3. Meeting held April 15, 2016.
5. Ad hoc Study Section Reviewer, University of Nebraska 2015 Food for Health Collaboration Initiative, January 2016.
6. Ad hoc Study Section Reviewer, Florida Department of Health, Panel 1. Bankhead-Coley Cancer Research Review, James and Esther King Biomedical Research Program. Nov. 15-Dec. 15, 2015.
7. Study Section Reviewer, American Heart Association. Cardiac Biology BCT2. Meeting held Oct. 10, 2015.
8. Ad hoc grant reviewer, Fondazione Telethon. 6 May 2015.
9. Special Emphasis Panel, National Institutes of Health Internet Assisted Review (IAM) Panel ZRG1 CB-G 55. SRO: Raya Mandler, PhD. March 10, 2015.
10. Study Section Co-Chair, American Heart Association. Cardiac Biology BCT3. Meeting held April 17, 2015 Spring Study Section.
11. Study Section Reviewer. American Heart Association. Cardiac Biology BCT5. Meeting held Oct. 6, 2014.
12. Ad hoc grant reviewer, Fondazione Telethon. 23 May 2014.
13. Ad hoc grant reviewer, L'Agence nationale de la Recherche (ANR). 9 June 2014.
14. Study Section Reviewer. American Heart Association. Cardiac Biology BCT5. Meeting held March 31, 2014.
15. Special Emphasis Panel, National Institutes of Health Internet Assisted Review (IAM) Panel 2014/05 ZRG1 CB-J (55). SRO: Jonathan Aries, PhD. March 19 & 20, 2014.
16. Ad hoc grant reviewer, L'Agence nationale de la Recherche (ANR). March 2012.
17. Study Section Reviewer. American Heart Association. Cardiac Biology BCT5. Meeting held March 20, 2012.
18. Molecular and Developmental Biology grant review panel, National Science Foundation Graduate Research Fellowship Program. January 2012.
19. Contributor. Clinical and Laboratory Standards Institute (CLSI) Subcommittee on Newborn Screening for Cystic Fibrosis, September 2009-September 2011.



20. Study Section Reviewer. American Heart Association. Cardiac Biology BCT5. Meeting held April 21, 2011.
21. Molecular and Developmental Biology grant review panel, National Science Foundation Graduate Research Fellowship Program. February 2011.
22. Ad hoc grant reviewer, South African Medical Research Council, September 2010.
23. Ad hoc grant reviewer, The Wellcome Trust, September 2010.
24. Study Section Reviewer. NIH American Recovery and Reinvestment Act (ARRA) National Heart, Lung and Blood Institute (NHLBI) grant opportunities—unsolicited topics ZHL1 CSR-A (O2) 2. Baltimore, MD. August 4-5, 2009.
25. Stage 1 Study Section Reviewer. NIH ARRA RC1 challenge grant applications on cancer biomarkers assigned to the Biology of Development and Aging (BDA) Initial Review Group (IRG) panel ZRG1 BDA-A (58). June 2009.
26. Grant reviewer, University of North Carolina College of Medicine Study Section for the Carolina Medical Student Research Program (CMSRP). March 2005, March 2006, March 2007, February 2009.
27. Molecular and Developmental Biology grant review panel, National Science Foundation Graduate Research Fellowship Program. February 2009.
28. Physiology Evaluation Panel, Sigma Xi Grants in Aid of Research (GIAR) review panel. April 2007, December 2007.
29. Neurosciences and Physiology grant review panel, National Science Foundation Graduate Research Fellowship Program. February 2007.

### Professional Memberships

|              |  |
|--------------|--|
| 2016-present | Member, Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)     |
| 2016-present | Member, Association of Pathology Chairs  |
| 2015-present | Member, International Academy of Cardiovascular Sciences   |
| 2015-present | Member, American Society for Pharmacology and Experimental Therapeutics                            |
| 2015-present | Member, Society of Physician Entrepreneurs, North Carolina Chapter                                 |
| 2014-present | Member, History of Pathology Society   |
| 2014-present | Senior Member, International Society for Applied Cardiovascular Biology                            |
| 2012-present | Member, Cardiac Muscle Society   |
| 2012-present | Member, Association for European Cardiovascular Pathology  |
| 2009-present | Member, International Society for Heart Research   |
| 2008-2014    | Member, North American Vascular Biology Association  |
| 2006-present | Member, American Association for Clinical Chemistry  |
| 2006-present | Member, Academy of Clinical Laboratory Physicians and Scientists                                   |
| 2006-present | Member, Society for Cardiovascular Pathology   |
| 2003-present | Member, American Physiological Society, Cardiovascular Section, Endocrinology & Metabolism Section |
| 2003-present | Fellow Member, American Heart Association, Council on Basic CV Sciences                            |
| 2001-present | Fellow Member, College of American Pathologists  |
| 2001-present | Fellow Member, American Society of Clinical Pathology  |
| 2001-present | Member, United States and Canada Academy of Pathology  |
| 2001-present | Member, American Society for Investigative Pathologists  |
| 1995-present | Member, Sigma Xi Research Society  |

## Patents

1. European Patent 16170803.7 – 1412 / 3078386, Method of treatment and bioassay involving macrophage migration inhibitory factor (MIF) as a cardiac-derived myocardial depressant factor. Effective 9/11/16.
2. US Provisional Application No. 62/143,348. Title: BRG1/BRG Therapy for Cardiac Conduction Defects in Heart Failure Inventor: Willis et al. UNC Ref: 15-0037; MBSS Ref: 5470-739PR. Submitted April 28, 2015.
3. US Pat No. 7,445,886 (Issued on Nov 04, 2008): Macrophage Migration Inhibitory Factor as a Marker for Cardiovascular Risk.

## Patent applications, Submitted

1. Small chemokine agonist peptides for cardiovascular disease. *Co-Inventors:* Cecelia C. Yates-Binder, Monte S. Willis, Richard J. Bodnar, Jess Jaynes. Submitted via University of Pittsburgh. Pending July 2017.
2. Small peptide antagonists block CXCL10-CXCR3 signaling and cardiac disease cellular function. *Co-Inventors:* Cecelia C. Yates-Binder, Monte S. Willis, Richard J. Bodnar, Jess Jaynes. Submitted via University of Pittsburgh. Pending July 2017.

## EXTRACURRICULAR ACTIVITIES

Personal Cross-Training, Yin Yoga, Hot Vinyasa Yoga, Distance Running and Obstacle Events (below).

2013 Completed: Nov 2013 Gobble and Gorge 8K (Thanksgiving Day)

2014 Completed: Myrtle Beach 1/2 Marathon (Feb 15, 2014); Rock N Roll Raleigh Marathon (April 13, 2014); Carrboro 10K (October 4, 2014); Bull City 1/2 Marathon (October 19, 2014); Outer Banks Full Marathon (Nov 9, 2014); Carrboro Gallop and Gorge 8K (November 27, 2014 Thanksgiving Day)

2015 Completed: Charleston SC Marathon (Jan 15, 2015); Tar Heel 10 Miler (April 18, 2015) New River Marathon (May 1, 2015); Pilot Mountain to Hanging Rock Ultra 50K (Oct 10, 2015); Bull City 1/2 Marathon (October 18, 2015); Carrboro Gallop and Gorge 8K (Nov 26 2015, Thanksgiving Day); Derby Ultra 50K (Nov 28, 2015)

2016 Completed: Charleston SC Marathon (Jan 15, 2016); Tobacco Road ½ Marathon (Mar 13, 2016); Tar Heel 10 Miler (Apr 23, 2016); Ninja Challenge Obstacle Course and 5K (May 21, 2016); Four on the Fourth 4 miler (July 4, 2016); Historic Hillsborough Half-Marathon (October 2, 2016); Bull City 1/2 Marathon (October 16, 2016); Carrboro Gallop and Gorge 8K (Nov 24, 2016, Thanksgiving Day)

2017 Completed: Charleston Marathon (Jan 14, 2017); Crystal Coast Half-Marathon (March 4, 2017), New River Half-Marathon (May 7, 2017)