

# Annet Kirabo, D.V.M., M.Sc., Ph.D. F.A.H.A

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## PERSONAL DATA

Place of Birth: Iganga, Uganda  
Citizenship: United States  
Marital Status: Married to Christopher Greg Church  
Children: 1. Jeremiah William Church, born on August 3<sup>rd</sup> 2014  
2. Eliana Kirabo Church, born on February 6<sup>th</sup> 2020

## EDUCATION

1997-2002: Doctor of Veterinary Medicine (D.V.M.), Makerere University, School of Veterinary Medicine, Kampala, Uganda  
Mentor: Dr. Ojok Lonzy.  
Dissertation Title: Prevalence of Johne's Disease in Uganda

2003-2004: Global Cow Veterinary Fellowship, California Polytechnic University, San Luis Obispo, California,

2004-2006: Master of Science (M.Sc.) in Cell and Molecular Biology, St. Cloud State University, St. Cloud, Minnesota  
Mentor: Dr. Oladele Gazal.  
Thesis Title: Leptin and N-methyl-D-aspartate (NMDA) Receptor Activation, as a Mechanistic link between Nutrition and Reproduction.

2007-2011: Doctor of Philosophy (Ph.D.) in Physiology and Functional Genomics. University of Florida, Gainesville, Florida  
Mentor: Dr. Peter Sayeski.  
Dissertation Title: Jak2 Tyrosine Kinase as a Potential new Target in the Treatment of Myeloproliferative Disorders and Cardiovascular Disease.

2011-2014: Post-Doctoral Fellowship in Cardiovascular Disease and Inflammation, Vanderbilt University School of Medicine, Nashville, Tennessee.  
Mentor: Dr. David G. Harrison

## ACADEMIC APPOINTMENTS

2015-2016: Research Instructor in Medicine, Vanderbilt University School of Medicine, Nashville, TN

2016-present Assistant Professor of Medicine, Department of Medicine, Division of Clinical Pharmacology, Vanderbilt University School of Medicine, Nashville, TN

2016-present Assistant Professor, Department of Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, TN

2018-present Adjunct Assistant Professor, Meharry Medical College, Nashville, TN

**EMPLOYMENT**

- 2000-2002: Undergraduate Student Researcher, Department of Pathology, School of Veterinary Medicine, Makerere University, Kampala, Uganda.
- 2004-2006: Graduate Teaching Assistant, Anatomy and Physiology, Department of Biological Sciences, St. Cloud State University, St. Cloud, Minnesota.
- 2007-2011: Graduate Teaching Assistant, Interdisciplinary Program in Biomedical Sciences, University of Florida College of Medicine, Gainesville, Florida.

**NATIONAL AND INTERNATIONAL PROFESSIONAL ORGANIZATIONS:**

- 2017-2018 Member, American Society of Nephrology (ASN)
- 2009-present: Member, American Physiological Society (APS)
- 2009-present: Member, American Heart Association (AHA)
- 2011-2012: Member, North American Vascular Biology Organization (NAVBO)
- 2012-2013: Member, Faculty 1000. Associate Faculty

**PROFESSIONAL ORGANIZATIONS AT VANDERBILT:**

- 2012-present: Vanderbilt University Women on Track.
- 2014 Vanderbilt University Women in Science.
- 2015 - present Vanderbilt University Diversity and Inclusion.
- 2015 – present Vanderbilt University Newman's Society

**EDITORIAL RESPONSIBILITIES**

- 2019 – present Associate Editor – *Circulation Research*
- 2018 – present *Hypertension* Editorial Board Member
- 2018 – present Section Editor for Inflammation and Cardiovascular Diseases - *Current Hypertension Reports*, Springer Nature
- 2021 – present AJP-Heart and Circulatory Physiology Editorial Board member

**Reviewer**

*Nature Reviews Nephrology, Circulation Research, Circulation, Hypertension, JCI Insight, Cardiovascular Research (fast-track reviewer), JAHA, Clinical Science, British Journal of Pharmacology, Pharmacological Research Journal American Journal of Physiology Heart and Circulation Physiology, American Journal of Physiology: Regulatory, Integrative and Comparative Physiology, BMC Cardiovascular Disorders, Bioscience Reports, Molecular Biology Reports, African Journal of Physiology and Pharmacology, American Journal of Hypertension, Integrated blood pressure control*

**National Grant Review**

2017-present American Heart Association Vascular Wall Biology Peer Review Study Group  
 2018-present American Heart Association Career Development Award Basic Vascular Sciences Review Committee  
 2020-present NIH ECR (Early Career Reviewer) program  
 2020: Cellular and Molecular Immunology A (CMIA) study section, NIH.  
 2021: IVPP (Integrated Vascular Physiology and Pathology) Study Section, NIH  
 2021: Fellowship Vascular Endothelial Review committee, American Heart Association

**Intramural Grant Review**

2016-present Vanderbilt Institute for Clinical & Translational Research (VICTR) Reviewer  
 2018- Diabetes Research and Training Center (DRTC) Pilot and Feasibility Project Reviewer

**SERVICE AND LEADERSHIP****Abstract/Poster Review**

2009-2010: Judge, Alachua County Schools Science Fair, Gainesville, Florida.  
 2010-2011: Medical Guild Research Incentive Award Reviewer – University of Florida, College of Medicine.  
 2012-2014: F1000 Associate Faculty Reviewer. Division of Clinical Pharmacology, Vanderbilt University, Nashville, Tennessee.  
 2012-2014: Vanderbilt Summer Science Academy Poster Judging, Vanderbilt University, Nashville, Tennessee  
 2012: The 23rd Annual University of Alabama at Birmingham Vascular Biology and Hypertension Symposium - Poster Judging  
 2016: The 60<sup>th</sup> Annual Meharry Medical College Research Symposium - Poster Judging  
 2017: The 61st Annual Meharry Medical College Research Symposium - Poster Judging.  
 2017: Abstract Reviewer for the American Society of Nephrology (ASN) Kidney Week  
 2017: Abstract Reviewer for Experimental Biology 2017 American Physiology Society Translation Physiology Group  
 2018: Abstract Reviewer for Experimental Biology 2018 American Physiology Society Translation Physiology Group  
 2018: Poster Judge, Vanderbilt University Medical Center Annual Research Forum.

**Organization of Symposia and Featured Topics and National and International Conferences:**

2017: Vascular Biology and Dysfunction American Society of Nephrology (ASN) Kidney Week (November)  
 2018: Cell Physiology Symposium on Molecular Mechanisms for Salt-induced Cardiovascular Disease, Experimental Biology, San Diego (April)

2018: Oral New Advances in Levuglandins and Isolevuglandins Symposium, 17th International Winter Eicosanoid Conference (March)

### Scientific Session Chair/Moderator

2017: Abstract Category Chair for the American Society of Nephrology (ASN) Kidney Week

2017: Chair for Oral Session: Vascular Biology and Dysfunction  
American Society of Nephrology (ASN) Kidney Week (November)

2018: Chair for the Oral Cell Physiology Symposium on Molecular Mechanisms for Salt-induced Cardiovascular Disease, Experimental Biology, San Diego (April)

2018: Co-chair for the Oral New Advances in Levuglandins and Isolevuglandins Symposium, 17th International Winter Eicosanoid Conference (March)

2018: Chair for the Joint Hypertension 2018 Scientific Sessions, Inflammatory Cytokines in Hypertension - Chicago (September)

### Committees at National and International Level

2013-2016: American Physiology Society (APS) Cardiovascular Section Trainee Committee

2016-2019 Chair of the American Physiology Society Translation Physiology Group Awards Committee

2018-present American Heart Association Membership & Communications Committee of the Council on Hypertension.

2018-present AHA Council on Hypertension Nominating Committee

2020-2022 Newsletter Editor on the HTN Membership & Communications Committee of the Council on Hypertension.

2020-2022 Member on the HTN Leadership Committee of the Council on Hypertension

### Committees at Vanderbilt

2012: Vanderbilt University Post-Doctoral Association Symposium Organizing Committee.

2014: Vanderbilt University Career Symposium Organizing Committee.

2017: Faculty Search Committee Department of Pharmacology and Division of Clinical Pharmacology

2018: Interviewing for the Vanderbilt MPB PhD program

2020-present UNZA-Vanderbilt Partnership for HIV-Nutrition Research Training (UVP) leadership committee - Vanderbilt Institute for Global Health

2021: Interviewing for the MSTP and Harrison Society PSTP program

**Leadership**

2000-2002: Class of 2002 Representative, School of Veterinary Medicine, Makerere University, Kampala, Uganda.

2009-2010: Student Government Senate Representative for Graduate Family Housing, University of Florida, Gainesville, Florida.

2009-2010: Discussion Group Coordinator, Fundamentals of Physiology & Functional Genomics (GMS 6008), Interdisciplinary Program in Biomedical Sciences, University of Florida, Gainesville, Florida.

2009-2010: CO-Leader in the Student Science Training Program (SSTP), Physiology and Disease, University of Florida, Gainesville, Florida.

2009-2010: Physiology and Pharmacology Representative, Graduate Students Organization (GSO), Interdisciplinary Program in Biomedical Sciences, University of Florida, Gainesville, Florida.

2011-2013: Division of Clinical Pharmacology Department Representative, Post-Doctoral Association, Vanderbilt University, Nashville, TN

2012-2013: Junior Co-Chair, Vanderbilt University Medical Center Post-Doctoral Association, Vanderbilt University, Nashville, TN

2016-2019 Chair, American Physiology Society Translational Physiology Interest Group Awards Committee

**Mentoring**

2005-2006: Student Mentor, Scientific Discovery Program for Minority High School Students, St. Cloud State University, St. Cloud, Minnesota.

2011: University of Florida Summer Research Students Mentor

2012-present: Mentor of Minority Travel Fellowship - American Physiology Society and the National Institute of Diabetes and Digestive and Kidney Diseases (APS/NIDDK).

2012 -2013: Experimental Biology 2012 Tour Guide for High School Students.

2013: Vanderbilt Summer Science Academy (VSSA) mentor, Vanderbilt University, School of Medicine, Nashville Tennessee.

2013-2014: Mentor in the NeXXt Scholars Program conducted by The New York Academy of Sciences

2017-present Mentor for the Renal Section PI-trainee mixer at Experimental Biology.

2019 - Visiting Lecturer and Mentor, University of Zambia – Vanderbilt Partnership for HIV-Nutrition Research Training

2020 - International Society of Hypertension Mentor

### **Trainees in the laboratory**

2016-present:	Natalia R. Barbaro, BPharm., PhD	Post-doctoral Research Fellow
2016-2017:	Jason D. Foss, PhD	Post-doctoral Research Fellow
2016:	Kala Dixon, MSc	Summer Research Intern
2016:	Shivani Kumaresan	High School Summer Research Intern
2016:	Anica Mohammadkhah	High School Summer Research Intern
2016:	Jazmin Ewers	Undergraduate Research Experience
2017:	Vivian T. Wanjohi	Undergraduate Research Experience
2017:	Nikita Tsyba	Graduate Rotation Student - Vanderbilt
2017:	Zoe McDowell	Graduate Rotation Student – Meharry
2017-present	Sepiso K. Masenga	Graduate Student – UNZA/Vanderbilt
2018-present	Luul Aden	Research Assistant
2018	Wayne Birch	Frontiers in Physiology Research Fellow
2018-present	Ashley Pitzer	Post-doctoral Research Fellow
2019	Samantha Grimes	Graduate Rotation Student – Vanderbilt
2018-present	Jeanne Ishimwe	Post-doctoral Research Fellow

### **Mentoring Committees**

2017-present	Heather Beasley	Graduate Student - Meharry
2018-present	Van Beusecum	Post-doctoral Research Fellow
2018-present	David Patrick	Post-doctoral Research Fellow

### **Teaching Assistant/Fellow**

2004-2006:	Graduate Teaching Assistant, Anatomy and Physiology, Department of Biological Sciences, St. Cloud State University, St. Cloud, Minnesota.
2006-2007:	Graduate Teaching Assistant, Physiology of Reproduction, Department of Animal Sciences, Texas A&M University, College Station, Texas.
2009-2010:	Graduate Teaching Assistant, Fundamentals of Physiology & Functional Genomics (GMS 6008), Interdisciplinary Program in Biomedical Sciences, University of Florida, Gainesville, Florida.
2009-2010:	Student Science Training Program (SSTP), Physiology and Disease, University of Florida, Gainesville, Florida.
2009-2010:	Graduate Teaching Assistant, Science for Life Seminar, University of Florida, Gainesville, Florida.
2010-2011:	Graduate Teaching Assistant, Interdisciplinary Program in Biomedical Sciences, University of Florida, Gainesville, Florida.
2013:	Career Development Teaching Fellow for Vanderbilt Summer Science Academy Vanderbilt University, School of Medicine, Nashville Tennessee.
2012-present:	Teaching of summer students, graduate students and postdocs in the laboratory

### **Didactic Faculty Lectures/Courses**

- 2015: Clinical Pharmacology Fellows Conference (1 hr panel discussion) – “Pearls for Successful Grant Writing.”
- 2016: Lecture for the Clinical Pharmacology Fellows (1 hr) – “The K word - Developing a Successful Career Development Award.”
- 2017: Lecture for the Clinical Pharmacology Fellows (1 hr) The role of the Immune System in Hypertension
- 2018: Lecture for the Clinical Pharmacology Fellows (1 hr) –Developing a Successful Career Development Award.
- 2018: Harrison Society – Obtaining Foundation Funding
- 2018: Directed and Independent Studies in Biological Sciences (BSCI3861, 3 credit hours).
- 2018: Research Independent Study (2 credits) MLI-6025, section 02
- 2018: American Physiological Society Physiology Understanding Week at Big Picture High School (3 hours).
- 2019: Directed and Independent Studies in Biological Sciences (BSCI3861, 5 credit hours)
- 2019: Lecture for the Clinical Pharmacology Fellows (1 hr) ENaC Regulation and its role in Immune Salt-Sensitivity and Salt-Sensitive Hypertension
- 2019: Research Independent Study (2 credits) MLI-6025, section 02

**Honors & Awards**

- 1997-2002: Uganda Government Full Scholarship for University Education, Best students graduating from high school in the country, as well as the valedictorian in the class of 1997, Iganga Secondary School, Iganga, Uganda.
- 2000: Dean’s list Award, School of Veterinary Medicine, Makerere University, Kampala, Uganda.
- 2001: Dean’s list Award, School of Veterinary Medicine, Makerere University, Kampala, Uganda.
- 2002: Dean’s list Award, School of Veterinary Medicine, Makerere University, Kampala, Uganda.
- 2002: Degree in Veterinary Medicine with Honors.
- 2006: Best Poster Award, Honorable Mention, Students’ Research Colloquium, St. Cloud State University.
- 2009: Travel Fellowship Award - American Physiological Society, Professional Skills Training Workshop, Orlando, Florida.

- 2011: International Honorary for Leaders in University Apartment Communities (IHLUAC). University of Florida and Department of Housing and Residence Education.
- 2010: Pre-Doctoral Caroline tum Suden/Francis Hellebrandt and Steven M. Horvath Professional Opportunity Award, American Physiological Society.
- 2010: Greater Southeast Affiliate American Heart Association (AHA) Pre Doctoral Fellowship
- 2011: American Physiology Society and the National Institute of Diabetes and Digestive and Kidney Diseases (APS/NIDDK) Minority Travel Fellowship Award.
- 2012: American Physiology Society and the National Institute of Diabetes and Digestive and Kidney Diseases (APS/NIDDK) Minority Travel Fellowship Award.
- 2013: Post-Doctoral Caroline tum Suden/Francis Hellebrandt and Steven M. Horvath Professional Opportunity Award, American Physiological Society.
- 2013: Greater Southeast Affiliate AHA Post-Doctoral Fellowship
- 2013: American Physiology Society Travel Fellowship Award.
- 2014: Best Poster Award, AHA High Blood Pressure Research Conference
- 2015: NIH NHLBI K01 Career Development Award
- 2016: Clinical Pharmacology Service Award, Vanderbilt University Medical Center
- April 2016: Distinguished service as Trainee Committee Representative, The American Physiological Society Cardiovascular Section
- 2017 Elected as a Fellow of the American Heart Association (FAHA) conferred by the Council Hypertension Council (HTN)
- 2017 New Investigator Review Award, American Journal of Physiology (Regulatory, Integrative and Comparative Physiology)
- June 2018: Certificate of Recognition for participation in VICTR Studios, Vanderbilt Research Institute for Clinical and Translational Program
- April 2019: Frontiers in Physiology Research Community Leader Professional Development Fellowship Award, American Physiology Society
- June 2019: Clinical Pharmacology Faculty Teaching Award, Vanderbilt University Medical Center
- 2020 AHA Harry Goldblatt Award for Early Career Investigators
- 2020 *Hypertension* High Impact Top Paper Award



**Invited Lectures at Vanderbilt**

- 2012: Activation of T Cells by Dendritic Cells in Hypertension: A Potential Role of Isoketal-modified Proteins. Clinical Pharmacology Grand Rounds, Vanderbilt University School of Medicine, Nashville Tennessee.
- 2013: Communication Skills in a Research Laboratory: Vanderbilt Summer Science Academy (VSSA), Vanderbilt University, School of Medicine, Nashville Tennessee.
- 2015: Role of excess Salt in Mediating Lipid Oxidation Leading to Inflammation and Hypertension. Clinical Pharmacology Grand Rounds, Vanderbilt University School of Medicine.
- 2015: Pearls for Successful Grant Writing. Fellow's Conference. Division of Clinical Pharmacology, Vanderbilt University School of Medicine
- 2016: Excess Salt, Lipid Oxidation, Inflammation and Hypertension Clinical Pharmacology Grand Rounds, Vanderbilt University School of Medicine.
- 2016: A Novel Mechanism for Salt-induced Lipid Oxidation in Inflammation and Hypertension. Department of Molecular Physiology and Biophysics, Vanderbilt University.
- 2016: Oxidative Lipid-modifications, Inflammation and Hypertension. Translational Research Forum, Vanderbilt University Medical Center
- 2017: Effect of Excess Dietary Salt on the Gut Microbiome Leading to Hypertension. Departments of Biological Sciences and Pathology, Microbiology, and Immunology, Vanderbilt University
- 2017: Oxidative Lipid Modifications, Inflammation and Hypertension. Show-casing Vanderbilt - VU EDGE Pre-VU event
- 2019: ENaC Regulation and its role in Immune Salt-Sensitivity and Salt-Sensitive Hypertension, Clinical Pharmacology Fellows Seminar, Vanderbilt University Medical Center
- 2019: Immune Salt-Sensitivity in Hypertension and Renal Inflammation: A role of Oxidative Lipid Modifications, Renal Research Conference, Vanderbilt University Medical Center
- 2019: Lipid Peroxidation and the Gut Microbiome in Salt-Sensitivity and Cardiometabolic Disease. 2019-2020 Vanderbilt Digestive Disease Research Center (VDDRC) Retreat Progenitor Cells, Development, Regeneration and pre-malignant lesions (PC)
- 2019: ENaC Regulation and its Role in Salt-induced Lipid Oxidation, Inflammation and Hypertension. Clinical Pharmacology Grand Rounds, Vanderbilt University School of Medicine.
- 2019: Salty issues: The Roman Legion, epidemiology and inflammation. Medicine Grand Rounds, Vanderbilt University School of Medicine.

**Invited Lectures at National Level**

- 2011: Symposium Speaker, Outstanding Graduate Student during the Interdisciplinary Program in Biomedical Sciences Ph.D. Interviews. The role of Jak2 in human diseases. University of Florida, Gainesville.
- 2011: Vascular smooth muscle Jak2 expression and the pathogenesis of cardiovascular disease, Georgia Health Sciences University.
- 2011: Vascular smooth muscle Jak2 expression and the pathogenesis of cardiovascular disease, University of Mississippi Medical Center.
- 2011: Vascular smooth muscle Jak2 expression and the pathogenesis of cardiovascular disease, Emory University.
- 2011: Vascular smooth muscle Jak2 expression and the pathogenesis of cardiovascular disease, Vanderbilt University School of Medicine
- 2012: Inflammation, Immunity and Hypertension, the 23rd Annual University of Alabama at Birmingham Vascular Biology and Hypertension Symposium.
- 2017: A Novel Mechanism for Excess Dietary Salt-induced Lipid Peroxidation in Dendritic Cells leading to Inflammation and Hypertension. Meharry Medical College
- 2017: Invited Guest Speaker for Women in Science. Pfeiffer University, North Carolina.
- 2018: Hypertension and its links to Immunity in the Vasculature in Disease Session. Vasculata 2018, Washington University School of Medicine. St. Louis, Missouri
- 2018: Lipid Peroxidation and Immune Salt-sensitivity in Hypertension, University of Mississippi Medical Center.
- 2019: The SCOPE – from microscopes to the stethoscopes. A community outreach event to discussing gut health. Nashville Tennessee.
- 2019: Myeloid Cell ENaC Regulation and its role in Renal Inflammation and Salt-Sensitive Hypertension, University of Pittsburg Medical Center.
- 2020: Dendritic cell ENaC Regulation and its Role in Sodium-induced Renal Inflammation and Hypertension, Emory University School of Medicine.
- 2020: Immune Salt-Sensing and Oxidative Protein Modifications in Hypertension and Kidney Disease. Tulane University, Department of Pharmacology, Tulane School of Medicine.
- 2020: Renal versus Immune cell Sodium Sensing in Hypertension and Kidney Damage. University of Kentucky, Department of Pharmacology and Nutritional Sciences.
- 2020: Inaugural Diversity Roundtable. University of Kentucky, Department of Pharmacology and Nutritional Sciences

2021: The role of ENaC in immunity and salt-sensitive hypertension. University of Utah, Division of Nephrology and Hypertension.

### Invited Lectures at International Level

- 2017: Invited Keynote Speaker, Oxidative Protein Modifications, Inflammation and Hypertension in Cellular Mechanisms of Stress and Inflammation, Experimental Biology Conference 2017, Chicago, Illinois
- 2017: Invited Symposium Speaker, Isoketals: Inflammation and Hypertension, American Heart Association Scientific Sessions, Anaheim, California (November)
- 2018: Invited Speaker, New Advances in Levuglandins and Isolevuglandins Symposium, 17th International Winter Eicosanoid Conference, Baltimore, Maryland (March)
- 2019: Invited lecturer, Mechanisms of cardiovascular disease, with emphasis on hypertension. Cardiovascular Disease Research in Zambia - Priorities, Programs and Progress UNZA Public Health Lecture Theatre Lusaka, Zambia
- 2019: Invited lecturer, Immune mechanisms of salt-sensitive hypertension. Cardiovascular Disease Research in Zambia - Priorities, Programs and Progress UNZA Public Health Lecture Theatre Lusaka, Zambia - UNZA-Vanderbilt Training Partnership for HIV-Nutrition-Metabolic Research (UVP, D43TW009744, funded through 2020 and focused solely on building HIV/NCD research capacity with and at UNZA SOM)
- 2019: Invited Symposium Speaker, Dendritic Cell Activation by Oxidative Stress in Cardiovascular Disease, American Heart Association Scientific Sessions, Philadelphia, Pennsylvania (November)
- 2020: AHA Harry Goldblatt Award for Early Career Investigators Lecture, American Heart Association, Scientific Sessions on Hypertension.
- 2020: Strategies for Work-Life Continuum: Panelist at American Society of Nephrology 2020 conference. Kidney Week.
- 2020: Journey to Becoming a Fellow of American Heart Association (FAHA). 2020 American Heart Association, Scientific Sessions

## RESEARCH PROGRAM

### Current Research Support

#### ACTIVE

**5R01HL147818-22** (Kleyman) 04/01/2019 – 03/31/2024 2.76 calendar months  
National Heart, Lung, and Blood Institute (\$195,000/yr subcontract in direct costs, \$308,100 total)  
*ENaC regulation and its role in blood pressure homeostasis*

Dr. Kirabo will be responsible for the overall administration and development of the proposed studies in Aim 1 including analysis/interpretation of the results, and publication of the findings in form of presentations at national meetings and in manuscripts.

**1K01HL130497-01** (PI) 12/01/2015 - 11/30/2020, 11.76 calendar months (no cost extension)  
National Heart, Lung, and Blood Institute  
Role of Salt, Isoketal-modified Proteins and Dendritic Cells in Hypertension

**Pilot Vanderbilt Institute for Clinical and Translational Research** (PI) 2019 – 2021, (\$75,360) Salt-Sensitivity and Immunity Cell Activation

**1K08HL153789-01** (Patrick) 07/01/2020 – 06/30/2025 0.00 calendar months  
NHLBI \$146,700 **Mentor/JIT**

*A Role of Isolevuglandin Adducts in Essential Hypertension and Systemic Lupus Erythematosus*

Hypertension and lupus are autoimmune conditions that are devastating and for which there are no curative therapies. This project is designed to study the function of isolevuglandins, a product of reactive oxygen species, in both conditions. These discoveries are directly applicable to the design of novel diagnostic and therapeutic approaches for cardiovascular disease and systemic autoimmunity.

### **PENDING**

**1R03HL155041-01** (Kirabo) 09/01/2020 – 08/31/2022 0.12 calendar months  
NHLBI \$50,000 **JIT**

*Deep phenotypic and functional characterization of salt-responsive immune cells in human salt sensitive hypertension using CTE-Seq*

Excess dietary salt contributes to inflammation and aggravates cardiovascular disease. A major problem with excess salt consumption is that 50% of the hypertensive and 25% of the normotensive population exhibits salt-sensitivity of blood pressure which is an independent predictor of death due to cardiovascular disease. Proposed studies will determine if immune cell activation correlates with salt-sensitivity of blood pressure and may lead to more targeted diagnosis and therapy for salt-induced hypertension.

**Johnson & Johnson** (Kirabo) 01/01/2021 – 12/31/2023 0.24 calendar months  
Johnson & Johnson \$50,000

*Intersection between Dietary Salt, Viral Infection, Immunity and Cardiovascular Outcomes*

**1R01HL157584-01** (Shibao) 04/01/2021 – 03/31/2026 3.60 calendar months  
NHLBI \$439,023 **JIT**

*Enhancing parasympathetic activity to reduce vascular oxidative stress and endothelial dysfunction*

**Sub w/ Uni of Zambia** (Heimbürger) 04/01/2021 – 03/31/2026 1.20 calendar months  
John E Fogarty International Center \$171,412 **JIT**

*UNZA-Vanderbilt Training Partnership for HIV-NCD Research (UVP-2)*

**1R01HL144941-01A1** (Kirabo)\* 04/01/2021 - 03/31/2026 3.00 calendar months  
NHLBI \$411,225 **JIT**

*Immune Mechanisms of Salt-Sensitive Hypertension*

**1R01HL158791-01** (Ferguson) 07/01/2021 – 06/30/2025 1.80 calendar months  
NHLBI \$461,612

*The Gut Microbiome and Salt-Sensitivity of Blood Pressure*

### **Completed Research Support**

**Student Research Award** (PI) 2005-2006

St. Cloud State University, St. Cloud, Minnesota. To understand the mechanistic link between obesity and reproduction.

**Medical Guild Research Incentive Award (PI) 2009–2010**

University of Florida, College of Medicine. To determine the role of Jak2 signaling in cardiovascular disease.

**10PRE4310065 (PI) 07/01/2010-08/15/2011**

Jak2 and Cardiovascular Disease

Greater Southeast Affiliate American Heart Association (AHA) Pre Doctoral Fellowship: to determine the specific involvement of vascular smooth muscle cell expression of Jak2 in the pathogenesis of cardiovascular disease.

**13POST14440041 (PI) 01/01/2013-12/31/2014**

Effect of hypertension on dendritic cells and a potential role of isoketals

Greater Southeast Affiliate American Heart Association (AHA) Post-Doctoral Fellowship.

**5P01 GM015431-48 (Co-investigator) 09/30/2011 - 06/30/2016**

NIH/NIGMS. Research Center for Pharmacology and Drug Toxicology

**Venture Pilot Funding (PI) Vanderbilt Microbiome Initiative (VMI) and Vanderbilt Institute for Infection, Immunology, and Inflammation (VI4) 08/24/2017 – 03/01/2018**

**5R01HL039006-26 (Co-investigator) 02/01/2013 – 01/31/2018**

NHLBI. Immunity, Inflammation and Hypertension

**14SFRN20420046 (Co-investigator) 07/01/2014 - 06/30/2018 (no cost extension to 2019), American Heart Association, Vanderbilt University Strategically Focused Prevention Research Center**

**1R01HL125865-01 (Co-investigator) 07/01/2015 - 06/30/2020**

National Heart, Lung, and Blood Institute. The role of T cells in the genesis of hypertension

**ARTICLES IN PEER-REVIEWED JOURNALS (\*Corresponding Author)**

1. McDoom I, Ma X, **Kirabo A**, Lee KY, Ostrov DA, and Sayeski PP. Identification of Tyrosine 972 as a Novel Site of Jak2 Tyrosine Kinase Phosphorylation and its Role in Jak2 Activation. *Biochemistry* 47:8326–8334, 2008 Jul. PMID: PMC3636534
2. Kiss R, Polgár T, **Kirabo A**, Sayyah J, Figueroa NC, List AF, Sokol L, Zuckerman KS, Gali M, Bisht KS, Sayeski PP, Keserü GM. Identification of a novel inhibitor of JAK2 tyrosine kinase by structure-based virtual screening. *Bioorg Med Chem Lett*. 2009 May. PMID: PMC2812898.
3. **Kirabo A**, Park SO, Majumder A, Gali M, Reinhard MK, Wamsley HL, Zhao ZJ, Cogle CR, Bisht KS, Keserü GM, Sayeski PP. The Jak2 Inhibitor, G6, Alleviates Jak2-V617F-Mediated Myeloproliferative Neoplasia by Providing Significant Therapeutic Efficacy to the Bone Marrow. *Neoplasia*. 2011 Nov;13(11):1058-68. PMID: PMC3223609.
4. **Kirabo A**, Kearns PN, Jarajapu YP, Sasser JM, Oh SP, Grant MB, Kasahara H, Cardounel AJ, Baylis C, Wagner KU, and Sayeski PP. Smooth Muscle Jak2 Tyrosine Kinase Mediates Angiotensin II-induced Hypertension by Increasing the Levels of Reactive Oxygen Species. *Cardiovasc Res*. 2011 Jul 1;91(1):171-9. Epub 2011 Feb. PMID: PMC3112021.

5. **Kirabo A**, Oh SP, Kasahara H, Wagner KU and Sayeski PP. Vascular Smooth Muscle Jak2 Deletion Prevents Angiotensin II-mediated Neointima Formation Following Injury in Mice. *J Mol Cell Cardiol*. 2011 Jun. PMID: PMC3092026.
6. **Kirabo A**, Embury J, Kiss R, Polgár T, Gali M, Majumder A, Bisht KS, Cogle CR, Keserú GM, and Sayeski PP. The Jak2 tyrosine kinase inhibitor, G6, suppresses Jak2-V617F mediated human pathological cell growth. *J Biol Chem* 286(6):4280-91, 2011 Feb. PMID: PMC3039371.
7. Majumder A, Magis AT, Park SO, Figueroa NC, Baskin R, **Kirabo A**, Allan RW, Zhao ZJ, Bisht KS, Keserú GM, Sayeski PP. A46, a benzothioephene-derived compound, suppresses Jak2-mediated pathologic cell growth. *Exp Hematol*. 2012 Jan;40(1):22-34. Epub 2011 Oct. PMID: PMC3237899.
8. Majumder A, **Kirabo A**, Karrupiah K, Tsuda S, Caldwell-Busby J, Cardounel AJ, Keserú GM, Sayeski PP. Cell death induced by the Jak2 inhibitor, G6, correlates with cleavage of vimentin filaments. *Biochemistry*. 2011 Sep 13;50(36):7774-86. Epub 2011 Aug. PMID: PMC3168676.
9. **Kirabo A**, Park S, Majumder A, Kiss R, Polgár T, Gali M, Bisht KS, Cogle CR, Keserú GM, and Sayeski PP. The Small Molecule Inhibitor, G6, Significantly Reduces Bone Marrow Fibrosis and the Mutant Burden in a Mouse Model of Jak2-mediated Myelofibrosis. *Am J Pathol*. 2012 Jul. PMID: PMC3432437.
10. Wu J, Thabet SR, **Kirabo A**, Trott DW, Saleh MA, Xiao L, Madhur MS, Chen W, Harrison DG. Inflammation and mechanical stretch promote aortic stiffening in hypertension through activation of p38 mitogen-activated protein kinase. *Circ Res*. 2014 Feb. PMID: PMC4186716.
11. Jin X, Zhao W, **Kirabo A**, Park SO, Ho WT, Sayeski PP, Zhao ZJ. Elevated Levels of Mast Cells Are Involved in Pruritus Associated with Polycythemia Vera in JAK2V617F Transgenic Mice. *The Journal of Immunology*. 2014 Jul. PMID: 24920845.
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**Patents:**

Methods for Treating Inflammation and Hypertension with Gamma-Ketoaldehyde Scavengers  
**U.S. Patent # 14/232,615**