

**Cristal M. Hill, PhD**  
Assistant Professor of Gerontology

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**Education**

- 2010 - 16      PhD in Molecular Biology, Microbiology, Biochemistry (Biology of Aging) Southern Illinois University (SIU- School of Medicine, Springfield, Illinois)  
Dissertation: The metabolic effects of diet-induced obesity and growth hormone treatment in long-lived mice with altered insulin and insulin-like growth factor -1 signaling  
Department of Molecular Biology, Microbiology, Biochemistry, Carbondale, Illinois  
Advisor: Andrzej Bartke
- 2006 - 09      MS in Animal Science Tuskegee University, Tuskegee, AL  
Master's Thesis: Dietary fat and pro-inflammatory cytokine gene expression in turkeys with induced dilated cardiomyopathy  
Department of Animal Sciences  
Advisor: Michelle D. Corley
- 2001 - 06      BS in Animal Science, Tuskegee University, Tuskegee, AL

**Professional Research and Teaching Positions**

- 2023 -            Assistant Professor of Gerontology, Leonard Davis School of Gerontology, University of Southern California, Los Angeles, CA, USA
- 2020 - 2022    Visiting Lecturer, Bolstering a Reliable Educational Experience for Minorities (BREEM -STEM) US Dept of Ed Minority Science and Engineering Improvement Program (MSEIP), Stillman College, Tuscaloosa, AL, USA (Summer session)
- 2016 - 2022    Post-doctoral Fellow, Pennington Biomedical Research Center, Baton Rouge, LA, USA
- 2015 - 2016    Program Assistant, Illinois' Breast and Cervical Cancer Program (BCCP) – Urban League, Springfield, IL, USA
- 2009 - 2010    Research Assistant, Common Use - Center for Environmental and Signal Transduction Lab (CU-CEST-NSF), Dept. of Animal Science, Tuskegee University, Tuskegee, AL, USA  
Department of Agricultural and Environmental Sciences, Tuskegee University, Tuskegee, AL
- 2009 (sum)    Lab Assistant Tuskegee Caprine Research Station, Tuskegee University, Tuskegee, AL
- 2006 - 2009    Graduate Student (Masters) –Department of Agricultural and Environmental Sciences, Tuskegee University, Tuskegee, AL
- 2004 - 2006    Student Lab Assistant, Department of Animal Sciences, Avian Immunology Lab, Tuskegee University, Tuskegee, AL
- 2000 - 2010    Veterinary Technician Assistant, Red Mountain Animal Clinic - Birmingham, AL  
Supervisor: Jerome Williams DVM

**Honors and Awards**

- 2022            Pennington Biomedical Outstanding Postdoctoral Fellow of the Year Award - first recipient
- 2021            Dr. Norman Orentreich Award - Young Investigator in Aging
- 2021            MOSAIC - K99/R00 – NIA/NIH, Maximizing Opportunities for Scientific and Academic Independent Careers Postdoctoral Career Transition Award to Promote Diversity Pathway to Independence Award
- 2018            The Endocrine Society Intern for the 2019-2020 (Publications Core Committee)
- 2018            Co-organized Network of Minority Health Research Investigators (NMRI/NIDDK/NIH) South Regional Workshop, Meharry Medical College

- 2017 F32 – NIDDK/NIH, Ruth Kirschstein-NRSA postdoctoral fellowship
- 2017 American Diabetes Association Travel Award
- 2016 Research perspective to Louisiana State University (LSU) Board of Directors
- 2016 FASEB/MARC Travel Award
- 2016 Press conference, Perspectives on NIH funding with Senator Dick Durbin (Illinois)
- 2015 Carl Storm Diversity Fellowship - Gordon Research Society Travel Award IGF and Insulin System in Physiology and Disease
- 2007 Graduate USDA Fellowship, Tuskegee University
- 2002 Alabama Farmers Agriculture Federation Scholarship, Tuskegee University
- 2002 Lettie Pate Whitehead Scholarship, Tuskegee University

### **Trainings/Courses**

- 2021- Pres. AAMC (American Association of Medical Colleges) NIH/MOSIC Scholars program
- 2021 NIH-NIA Summer Training Course hosted by University of Washington (Virtual)
- 2019 NIH Future Research Leaders Conference (FRLC), presented data to selected staff of NIDDK Campus in Bethesda, Maryland
- 2019 Future Leaders Advancing Research in Endocrinology (FLARE) program- the Endocrine Society
- 2018 Annual Biomedical Science Careers Program (BSCP)/ Harvard Medical School Minority Faculty Development Program, the New England Board of Higher Education and the Massachusetts Medical Society, Boston Massachusetts
- 2017- Pres. NIDDK- Network of Minority Health Research Investigators (NMRI)/ Office of Minority Health (annual participation)
- 2017 NIA Workshop: Nutritional Interventions to Promote Healthy Aging/ CALERIE
- 2010 National Institute of Aging (NIH/NIA) Grant Writing Session, New Orleans, LA
- 2014 Fellow, the Molecular Biology of Aging Summer Course at Marine Biology Laboratory/Ellison Medical Foundation - Woods Hole, MA
- 2016 Postdoctoral Preparation Institute Workshop, Bethesda, Maryland
- 2015 Butler Williams Scholar Program; NIH-NIA office of Special Populations and Health Disparities

### **Service to Sciences**

- 2023 - USC-Lenard Davis School of Gerontology – GEMSTEM Mentor “Gerontology Enriching MSTEM to Enhance Diversity in Aging”
- 2023 - USC-Lenard Davis School of Gerontology – Diversity, Equity, and Inclusion Committee
- 2022 - Dog Aging Project - Diversity, Equity, Inclusion, & Belonging Working Group
- 2021 - AGE-TC Chair for the Diversity, Equity, and Inclusion Outreach Committee
- 2021 - 2022 The “Obecity” Campaign and Website Working Group (<https://visitobecity.org/>)
- 2020 AGE Goes Virtual Organizing Committee (American Aging Association)
- 2018 - 2021 The American Aging Association (AGE) Trainee Chapter Vice Chair and Secretary
- 2014 Liaison Committee on Medical Education (LCME) Institutional Setting Subcommittee member- SIU School of Medicine- Springfield, Illinois (Ad Hoc reviewer for academic accreditation, composed graduate school environment narrative)
- 2011 - 2016 Community Leadership Board Member, American Diabetes Association (ADA)-Greater Illinois

### **Teaching and Mentoring Experience**

- 2023 - present Guest Lecturer, GERO 600 (*yearly internal integrative course*), USC- Leonard Davis School of Gerontology
- 2007 - 2009 Teaching Assistant, Animal Immunology 405, Tuskegee University, Tuskegee, AL

### **Undergraduate Students**

- 2023 - Jolaiya Aldridge USC - Dornsife School, Biological Sciences '25/GEMSTEM
- 2023 - Ryan Wisniewski USC - Dornsife School, Neuroscience '25
- 2023 - Michael Donkor USC - Dornsife School, Biological Sciences '26/GEMSTEM
- 2022 Isabella S Florian LSU Biology Major, '23
- 2021 - 2022 Jada Ransom Southern University, Biological Sciences '24 - American Heart Association

		HBCU Scholars Program
2019 - 2020	Lucia G. Coco	LSU Biological Engineering Major, '21
2017 - 2018	Madeleine Dehner	LSU Biology Major, '20
2015 - 2016	Oluwatobi Oyeniyi	UIS Biomedical Sciences Major (University of Illinois-Springfield campus), '17

### Graduate/Medical/Veterinary Students

2018	Shantavia Hayes	Tuskegee University School of Vet-Med (LSU Summer Research Fellow)
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### Editorial/ Reviewer Activities

2020 -	Interventions in Aging-Frontiers in Aging - Review Editor
2019 - 20	The Endocrine Society- Intern for the 2019-2020 year for Publications Core Committee (PCC)
2016 - present	<i>Ad hoc</i> manuscript reviewer for <i>Geroscience, Journal of Gerontology: The Biological Sciences, Aging Cell, Ageing Mechanisms and Development, Nature Metabolism, Obesity, Experimental Biology and Medicine, Molecular and Cellular Endocrinology, European Journal of Clinical Nutrition, Nutrients.</i>

### Conference Abstracts-Posters

#### Master's Training

- Hill CM, Ndegwa E, Moore L, Egnin M, Corley MM. Dietary Fat and Pro-inflammatory Cytokine Gene Expression in Turkeys with Induced Dilated Cardiomyopathy, Basic Cardiovascular Sciences Conference Molecular Mechanisms of Cardiovascular Disease, American Heart Association, Lake Las Vegas, Nevada, 2009.

#### Doctorate Training

- Hill CM**, Fang Y, Sun LY, Masternak M, Bartke A. The Metabolic Effects of Diet-Induced Obesity by High-Fat Feeding in Male Ames dwarf Mice. IGF and Insulin System in Physiology and Disease-Gordon Research Conference, Ventura, California, 2015.
- Hill CM**, Fang Y, Sun LY, Wang F, Masternak M, Bartke A. The Metabolic Effects of Diet-Induced Obesity by High-Fat Feeding in Long-Lived Mice. 7th Congress International Society of Nutrigenetics/Nutrigenomics (ISNN), Quebec, Canada, 2013.
- Hill CM**, Arum O, Wang F, Boparai R, Fang Y, Spong A, Westbrook R, Masternak MM and A Bartke. The dietary effects of high-fat/high-sucrose feeding in female PAPP-A (-/-) mice. Mouse Health-span: Why Lifespan Is No Longer Enough –Nathan Shock Center Conference on Aging, Bandera, Texas, 2012.
- Hill CM**, Arum O, Wang F, Boparai R, Fang Y, Spong A, Westbrook R, Masternak MM, Conover CA, and Bartke A. Dietary Effects of High-Fat/ High-Sucrose Feeding in PAPP-A (-/-) Mice: "Window of Opportunity for Estrogen and Progestin Intervention During Aging and Alzheimer's Disease"- 41st Annual Meeting of the American Aging Association. Dallas, TX, 2012.
- Hill CM** and Bartke A. Inflammatory Effects of High-Fat Diet Feeding in Growth Hormone Receptor Deficient Mice. National Institute of Aging Grants Workshop, New Orleans Louisiana, 2010.

#### Postdoc Training

- Hill CM**, Albarado DC, Dehner M, McDougal DH, Berthoud HR, Münzberg H, Morrison CD. Neuronal FGF21 Signaling: A sensor of dietary protein restriction. 76th American Diabetes Association, poster presentation, Orlando Florida. June 2018.
- Hill, CM**, Laeger, T, Albarado, DC, Mcdougal DH, Berthoud HR, Münzberg H, Morrison CD. Dietary low protein-induced FGF211 regulates UCP1-dependent metabolic but not thermoregulatory endpoints. Society for the Study of Ingestive Behavior 25th Annual Meeting, Montreal-Quebec, Canada, July 2017.
- Hill, CM**, Laeger, T, Albarado,DC, Mcdougal DH, Berthoud HR, Münzberg H, Morrison CD. Low protein-induced increases in FGF21 induces thermoregulatory endpoints not dependent on UCP1. "The Answer" Pennington Biomedical Research Center Annual Fundraiser, Baton Rouge LA, May 2016

### Invited Talks, Seminar and Lectures

2023 - Jun	<i>Upcoming</i> - Nathan Shock Centers Directors' Symposium at the 2023 AGE Annual Meeting, Oklahoma City, OK.
2023 - May	<i>Upcoming</i> - Postdoc to PI Transition Panelist, 2023 AAMC-MOSAIC In-Person Networking & Learning Event, Washington DC.

- 2023 - Apr Healthy Aging Dietetic Practice Group - 2023 Virtual Conference, The Anti-Aging Diet: Macronutrient Balance and Healthy Aging.
- 2023 - Jan Pennington/Louisiana Nutrition and Obesity Research Center Day 2023, University Medical Center New Orleans, New Orleans, Louisiana.
- 2022 - Nov 17<sup>th</sup> Annual Colloquium UMaine Clinical Geriatrics Colloquium (Virtual), University of Maine Panelist - Alternative Perspectives on Geroscience, Life Span, and Longevity: Lifestyle Medicine, Biological Aging, Research Career Accessibility and Institutional Inclusion, Longevity Fitness and Economics”.
- 2022 - Oct Black in Gerontology and Geriatrics (BIGG) 2<sup>nd</sup> Annual Virtual Week. “*Finding community and thriving in grad school*” – Panelist.
- 2022 - May American Aging Association (AGE) 50th Annual meeting, Session 7- Neuroendocrine control of aging, “Protein restriction and aging”. San Antonio, Texas.
- 2022 - May PATH511 Biology of Aging Spring Semester Seminar Course, University of Washington, Seattle, “Improvements in Metabolic Health and Aging during Dietary Protein Restriction Requires FGF21”. Seattle, Washington.
- 2022 - Apr Columbia University Medical Center - Institute of Human Nutrition, Graduate Lecture Series “The impact of brain FGF21-signaling on metabolic health during dietary protein restriction”, Virtual-Zoom.
- 2022 - Mar University of Connecticut – HEALTH, Center on Aging Grand Rounds 2022 (Virtual), Farmington, Connecticut, “Linking brain FGF21 signaling to improvements in metabolic health during dietary protein restriction”, Virtual- Zoom.
- 2022 - Apr Network of Minority Health Research Investigators Annual Workshop (NMRI/NIDDK/NIH) (Virtual) “Journey, Lessons Learned and Paths Forward: Membership in NMRI”, Virtual- Zoom.
- 2021 - Dec Orentreich Foundation for the Advancement of Science (OFAS) Virtual Symposium on Healthy Aging, “Dietary protein restriction benefits health and lifespan through FGF21 signaling”, Virtual-Zoom.
- 2021 - Nov UAB Heersink School of Medicine, “Less is More: Improvements in Metabolic Health during Low-Protein Diets”, Birmingham, Alabama.
- 2021 - Oct USC Leonard Davis - School of Gerontology, “The Impact of Diet and Neuroendocrine Signaling on Aging”. Los Angeles, California.
- 2021- Sept Southern Illinois School of Medicine, Molecular Biology, Microbiology & Biochemistry Graduate Program Seminar - The Interaction of Dietary Protein Restriction and FGF21 Signaling on Aging”, Springfield, Illinois. Virtual- Zoom.
- 2021 - Jul American Aging Association 49th Annual meeting "Metabolism of Aging" conjoined with the Nathan Shock Centers Summit, “Lifelong effects of dietary protein restriction: A case for FGF21”, Madison, Wisconsin.
- 2021 - Apr Pathways of Longevity: The Neuroendocrine Effects of Diet on Metabolic Health During Aging, NIA/NIH Diversity in Aging Research Pipeline Program (DARP-program). Virtual-Zoom.
- 2020 - Oct. University of Washington Geroscience Symposium, “Dietary protein restriction effects on metabolism: A case for FGF21 signaling”. Virtual-Zoom.
- 2019 - Nov Gerontological Society of American (GSA) Annual Scientific Meeting: Cell non- autonomous mechanisms of aging, “Neuronal FGF-21 Signaling: A Sensor of Dietary Protein”, Austin, Texas.
- 2019 - Oct Alabama A&M University Health Careers Week; Career Choices in Biomedical Research Panel, “Navigating through Graduate School”, Huntsville, Alabama.
- 2019 - Mar Keynote Speaker for the 7th Annual Stillman College Research Symposium, “A Career in the Wonderland of Biomedical Research”, Stillman College, Tuscaloosa, Alabama.
- 2018 - Dec LSU-College of Science Saturday Science Lecture Series, “Food Choice: How does the brain help you decide what to eat”, Baton Rouge, Louisiana.
- 2018 - Mar Gordon Research Conference on FGF in Development and Disease, “Protein Restriction and FGF21 Signaling”, Ventura, California.
- 2017 - Mar Guest speaker for Talk Radio 107.3’s Community Concerns for the National Nutrition Month, Baton Rouge, Louisiana.
- 2016 - Mar Joint Annual Research Symposium (JARS), “The metabolic Effects of Diet-Induced Obesity in Hypopituitary Ames dwarf Mice”, Tuskegee University, Tuskegee, Alabama.

**Current Research Support****K99/R00 AG070273****09/01/2021 - 08/31/2025**

Project Title: "Dietary Protein Restriction Remodels Adipose Tissue to Defend Against Age-Related Metabolic Decline"

Adipose tissue is a critical endocrine mediator of metabolic health that is functionally altered during aging and obesity. Our preliminary data demonstrate that dietary protein restriction (DPR) improves metabolic health and remodels adipose tissue. This application tests the hypothesis that the remodeling of adipose tissue during dietary protein restriction directly improves metabolic health during aging. ([NIHMOSAIC](#))

Role: PI

**P120A200045****08/01/2021- 08/31/2023**

US Dept of Ed Minority Science and Engineering Improvement Program (MSEIP). Bolstering a Reliable Educational Experience for Minorities (BREEM -STEM) Program - Stillman College, Tuscaloosa

Role: Collaborator/ Lecturer

**Completed Research Support****NORC Pilot and Feasibility Grant****05/01/2019 - 08/01/2020**

Project Title: "Dietary protein restriction impacts metabolic health in middle-aged mice"

Diet interventions such as protein restriction are reported to increase hormones, including FGF21, improves metabolic health. This project will mainly focus the contribution on the effects of dietary protein restriction and subsequent changes in energy expenditure, glucose metabolism in middle-aged aging mice.

Role: PI

**F32 DK115137****08/01/2017- 07/30/2020**

Project Title: "Neuronal FGF21 signaling in the detection of dietary protein restriction"

The central nervous system is well documented to contribute to whole body energy and glucose metabolism. Furthermore, diet interventions such as protein restriction are reported to increase hormones, including FGF21, to maintain whole body homeostasis. This project will focus the specific role of CNS FGF21 signaling in the detection of protein restriction and resulting changes in energy expenditure and glucose metabolism.

Role: PI

**NIH Administrative Diversity Supplement to R01DK105032-01A1S1****06/20/2016-07/01/2017**

Project Title: FGF21 is an endocrine signal of protein restriction.

PI: Christopher D. Morrison

Role: Post Doc

**NIH Administrative Diversity Supplement to R01AG019899****06/20/2010-07/01/2011; 13'-15'**

Project Title: Interaction of caloric restriction with longevity genes

PI: Andrzej Bartke

Role: Graduate Student

**Contributions to Science (Full List). [Link to my NCBI Bibliography](#)**

1. Hill, CM\*, Albarado, DC, Coco, LG, Spann, R A, Quails- Creekmore, E, Burke, SJ, Collier, JJ, Sangho Y, McDougal, DH, Berthoud HR, Münzberg H, Bartke A, Morrison CD\*. FGF21 is Required for Protein Restriction to Extend Lifespan and Improve Metabolic Health. *Nat Commun.* 2022 Apr 7;13(1):1897. doi: 10.1038/s41467-022-29499-8. PMID: 35393401; PMCID: PMC8991228.
2. Lee MB, Hill CM, Bitto A, Kaeberlein M. Antiaging diets: Separating fact from fiction. *Science.* (2021). PMID: 34793210.
3. Morrison CD, DuVall MA, Hill CM, Spann RA, McDougal DH. Leptin receptor signaling is required for intact hypoglycemic counter regulation: A study in male Zucker rats. *J Diabetes Complications.* (2021). PMC8435018.
4. DuVall MA, Coulter CE, Gosey JL, Herrera MJ, Hill CM, Jariwala RR, Maisano LE, Moldovan LA, Morrison CD, Nwabueze NV, Sikaffy HX, McDougal DH. Leptin treatment prevents impaired hypoglycemic counter regulation induced by exposure to severe caloric restriction or exposure to recurrent hypoglycemia. *Auton Neurosci.* (2021) PMC34358845.
5. Jonsson WO, Margolies NS, Mirek ET, Zhang Q, Linden MA, Hill CM, Link C, Bithi N, Zalma B, Levy JL, Pettit AP, Miller JW, Hine C, Morrison CD, Gettys TW, Miller BF, Hamilton KL, Wek RC, Anthony TG. Physiologic Responses to Dietary Sulfur Amino Acid Restriction in Mice Are Influenced by Atf4 Status and Biological Sex. *J Nutr.* (2021). PMCPMC8030708.

6. **Hill, CM** and Kaeberlein M Anti-ageing effects of protein restriction unpacked. *Nature*. (2021). PMC33446907
7. Morrison CD, **Hill CM**, DuVall MA, Coulter CE, Gosey JL, Herrera MJ, Maisano LE, Sikaffy HX, McDougal DH. Consuming a ketogenic diet leads to altered hypoglycemic counter-regulation in mice. *J Diabetes Complications*. (2020). PMC7299499
8. Morrison CD, **Hill CM**, DuVall MA, Coulter CE, Gosey JL, Herrera MJ, Maisano LE, Sikaffy HX, McDougal DH. Consuming a ketogenic diet leads to altered hypoglycemic counter-regulation in mice. *J Diabetes Complications*. (2020). PMC7299499
9. **Hill, CM** and Morrison, CD. (2019) The Protein Leverage Hypothesis. *Obesity*. 10.1002/oby.22568.
10. **Hill, CM**, Laeger, T, Dehner, M, Albarado, DC, Clarke, B, Wanders D., Burke, SJ, Collier, JJ, Quails-Creekmore, E., Solon-Biet, S, Simpson, SJ, Berthoud HR, Münzberg, H, Morrison, CD FGF21 signals protein status to the brain and adaptively regulates food choice and metabolism. *Cell Rep*. (2019). PMC6579533
11. Allard C, Bonnet F, Xu B, Coons L, Albarado D, **Hill C**, Fagherazzi G, Korach KS, Levin ER, Lefante J, Morrison C, Mauvais-Jarvis F Activation of hepatic estrogen receptor- $\alpha$  increases energy expenditure by stimulating the production of fibroblast growth factor 21 in female mice. *Mol Metab*. (2019). PMC6437689
12. **Hill, CM**, Berthoud HR, Münzberg H, Morrison CD. Homeostatic sensing of dietary protein restriction: A case for FGF21. *Front Neuroendocrinol*. (2018). PMC6175661
13. **Hill CM**, Morrison CD Dietary branched chain amino acids and metabolic health: when less is more. *J Physiol*. (2018). PMC5813618
14. **Hill, CM**, Laeger, T, Albarado, DC, Mcdougal DH, Berthoud HR, Münzberg H, Morrison CD Low protein-induced increases in FGF21 drive UCP1-dependent metabolic but not thermoregulatory endpoints. *Sci Rep*. (2017). PMC5557875
15. Fang Y, **Hill CM**, Darcy J, Reyes-Ordoñez A, Arauz E, McFadden S, Zhang C, Osland J, Gao J, Zhang T, Frank SJ, Javors MA, Yuan R, Kopchick JJ, Sun LY, Chen J, Bartke A. Effects of rapamycin on growth hormone receptor knockout mice. *Proc Natl Acad Sci U S A*. (2018). PMC5816183
16. Sun LY, Fang, Y, **Hill, CM**, Patki A, Allison, DB, Koopman, JJ, Masternak, M, Darcy, J, Wang, J, McFadden, S, Bartke, A Longevity is impacted by growth hormone action during early postnatal period. *Elife*. (2017). PMC5515575
17. Fang Y, McFadden S, Darcy J, **Hill CM**, Huber JA, Verhulst S, Kopchick JJ, Miller RA, Sun LY, Bartke A. Differential effects of early-life nutrient restriction in long-lived GHR-KO and normal mice. *Geroscience*. (2017). PMC5505892
18. Gonzalez L, Miquet JG, Irene PE, Díaz ME, Rossi SP, Sotelo AI, Frungieri MB, **Hill CM**, Bartke A, Turyn D Attenuation of epidermal growth factor (EGF) signaling by growth hormone (GH). *Journal of Endocrinology* (2017). PMC28223314
19. Darcy J, Fang Y, **Hill CM**, McFadden S, Sun LY, Bartke A. Original Research: Metabolic alterations from early life thyroxine replacement therapy in male Ames dwarf mice are transient. *Exp Biol Med (Maywood)* (2016) PMC5027943
20. **Hill CM**, Fang Y, Miquet JG, Sun L, Masternak MM and Bartke A. Long-Lived Hypopituitary Ames dwarf Mice are Resistant to the Detrimental Effects of High Fat Diet on Metabolic Function and Energy Expenditure. *Aging Cell*. (2016) PMC4854906
21. Matzkin ME, Miquet JG, Fang Y, **Hill CM**, Turyn D, Calandra RS, Bartke A, Frungieri MB Alterations in oxidative, inflammatory, and apoptotic events in short-lived and long-lived mice testes. *Aging (Albany NY)*. (2016). PMC4761716
22. Bartke A, Sun L, Fang Y, **Hill CM**. Growth hormone actions during development influence adult phenotype and longevity. *Exp Gerontol*. (2016) PMC4930735
23. **Hill CM**, Arum O, Boparai R, Fang Y, Sun L, Masternak MM and Bartke A. Female PAPP-A knock-out mice are resistant to metabolic dysfunction induced by high-fat/ high-sucrose feeding at middle age. *Geroscience (AGE)* (2015). PMC4424199
24. Sun LY, Spong A, Swindell WR, Fang Y, **Hill C**, Huber JA, Boehm JD, Westbrook R, Salvatori R,

- Bartke A. Growth hormone-releasing hormone disruption extends lifespan and regulates response to caloric restriction in mice. *Elife*. (2013). PMC3810783
25. Fang Y, Westbrook R, Hill C, Boparai RK, Arum O, Spong A, Wang F, Javors MA, Chen J, Sun LY, Bartke A Duration of rapamycin treatment has differential effects on metabolism in mice. *Cell Metabolism*. (2013). PMC3658445

**Other contributions include advocating for career development and activities that support diversity, equity and, inclusion in the biomedical professions, particularly in the Geroscience professions.**

26. Lee MB, Datta D, Hill CM, Bitto A. The importance of diversity and outreach in geroscience research: Insights from the Annual Biomedical Research Conference for Minority Students. *Geroscience*. 2020 Jun;42(3):1005-1012. PMC7287005
27. Bitto A, Lee MB, Hill CM, Korstanje R, Kaeberlein M.A. The AGE Presents Introduction to Geroscience video lecture series. GE presents lecture series. *Geroscience*. 2021 Jun 15. Online ahead of print. PMID: 34129171. The AGE Presents lecture series is a presentation series of lectures that expound the on the seven hallmarks of aging. These lectures are uploaded to the AGE YouTube Channel weekly. As part of the AGE trainee chapter leadership, my role provided communication among invited lecturers as well as editing of content. AGE YouTube channel (<https://www.youtube.com/watch?v=QISVinoWdcw>).

**Routinely Applied Skills/ Surgical Techniques**

1. Indirect calorimetry (TSE systems and Sable Promethion), Rodent NMR and DEXA
2. Behavioral and physical test (Research Diets BioDAQ; Exercise and performance analysis including home cage running wheels, treadmill, rotarod, gate analysis, grip strength)
3. Anxiety and Cognitive testing (marble burying test, elevated plus maze)
4. SAS and JMP software package (SAS Institute), Prism (Graph Pad)

**Community/Service Involvement**

- 2010-16 Community matched big sister with Big Brother, Big Sister, Springfield, Illinois.
- 2011-16 SIU-School of Medicine Info Group Volunteer (community presentations focusing on nutrition.
- 2012-16 4-H Youth Development Organization (volunteer/instructor for animal science, nutrition, and STEM); 4-H Volunteer of the Year for the State of Illinois-2014.
- 2016 The state of Louisiana STEM Expo, judge for statewide science festival.
- 2021 American Heart Association (AHA)-HBCU Scholars Program Mentor.