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EDUCATION

08/2000	BS in Biology/Chemistry, Trevecca University, Nashville, TN
05/2002	MS in Biology, Fisk University, Nashville, TN
05/2007	PhD in Biochemistry, University of Louisville, Louisville, KY
08/2009	Post-doctoral Fellowship in Mitochondrial Biology, University of Alabama-Birmingham (UAB), Birmingham, AL

ACADEMIC APPOINTMENTS

09/2003–05/2007	Doctoral Student Department of Biochemistry and Molecular Biology University of Louisville Louisville, KY
08/2007–08/2009	Postdoctoral Scholar Department of Pathology University of Alabama-Birmingham Birmingham, AL
09/2009–06/2017	Assistant Professor of Medicine Division of Cardiovascular Medicine University of Louisville Louisville, KY
07/2017–06/2021	Associate Professor of Medicine (Tenured) Department of Medicine Division of Environmental Medicine University of Louisville Louisville, KY
07/2021–present	Professor of Medicine (Tenured) Department of Medicine Division of Environmental Medicine University of Louisville Louisville, KY

OTHER POSITIONS AND EMPLOYMENT

05/2002–08/2002	Research Assistant, Fisk University – NASA Center for Photonic Materials and Devices, Departments of Physics and Biology, Nashville, TN
09/2002–08/2003	Research Technologist II, University of Louisville, Louisville, KY

01/2009–08/2009	Associate, UAB Center for Aging, University of Alabama-Birmingham, Birmingham, AL
03/2008–01/2010	English editor/consultant, Scientific Editing Service
2013–2015	Consultant, American Heart Association
2019–	Associate Director, Center for Cardiometabolic Science (CCS), University of Louisville, Louisville, KY
2023–	Member, Center for Integrative Environmental Health Sciences (CIEHS), University of Louisville, Louisville, KY

CERTIFICATION, TRAININGS, AND LICENSURE

2003 Kentucky Proteomics Training Program, Louisville, KY – Certification
2005 American Chemical Society: Chromatography and Mass Spectrometry Certification, University of the Pacific, Stockton, CA
2008 Seahorse Bioscience: Training in the non-invasive measurement of cellular bioenergetics using the Seahorse Extracellular Flux analyzer – Billerica, MA
2014 Isotope Tracers in Metabolic Research: Principles and practices of kinetic analysis; Mouse Metabolic Phenotyping Center (MMPC) Consortium, Nov. 10-14, Cleveland, OH.
2024 Nutrition Obesity Research Center (NORC) Calorimetry Workshop, July 15-16, University of Colorado Anschutz Medical Campus, Aurora, CO
2024 CIMER-Based Mentor Training, September 17-19, UL Health Equity & Engagement, University of Louisville, Louisville, KY

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

2003–present	American Heart Association, Member
2004–2007	American Chemical Society, Member
2008–present	4-hydroxynonenal (HNE) club, Member
2008–present	Society for Free Radical (Redox) Biology and Medicine, Member
2015–2022	American Diabetes Association, Member
2016–2019	American Society for Pharmacology & Experimental Therapeutics (Cardiovascular Pharmacology Division), Member
2017–present	American Physiological Society, Member
2019–present	International Society for Heart Research (ISHR)

HONORS AND AWARDS

2000 Scholar-Athlete Award
2004 American Heart Association Predoctoral Fellowship Award
2006 Research Presentation Award – University of Louisville Biochemistry Colloquium
2007 University of Louisville Graduate Dean's Citation
2008 Vascular Biology Postdoctoral Training Fellowship (T32)
2008 Oxidative Post-translational Protein Modification meeting Travel Award
2008 Young Investigator Award – Society for Free Radical Biology and Medicine
2009 UAB Post-doctoral research day – 1st prize
2010 Jewish Hospital and St. Mary's Foundation Faculty Award – Most Promising Basic Science Research
2014 Vanderbilt University MMPC Scientific Merit Award
2015 Outstanding Research Faculty Award – University of Louisville Cardiovascular Medicine
2016 American Diabetes Association Thomas R. Lee Award for top scored grant application
2017 Platinum Reviewer Award, Superior Editorial Consultant for *Circulation Research*
2017 University Scholar Award
2018 Elected Fellow of the American Heart Association (FAHA)
2018 Platinum Reviewer Award, Superior Editorial Consultant for *Circulation Research*

2019 Superior Editorial Consultant for *Circulation Research*
2022 Top Reviewer for JACC: Basic to Translational Science (2021; *JACC Basic Transl Sci* 7:192, 2022)

COMMITTEE ASSIGNMENTS AND ADMINISTRATIVE SERVICES

Intramural activities

07/01/2023–06/30/2026	University of Louisville School of Medicine Promotion and Tenure Committee
2024–2027	School of Medicine Graduate Council, Clinical Department Representative, University of Louisville, Louisville, KY
2019–2023	Chair, Faculty Search Committee, Center for Cardiometabolic Science, Department of Medicine, Division of Environmental Medicine, University of Louisville, Louisville, KY
2022–2024	Genomics Technology Center Advisory Committee, University of Louisville, Louisville, KY
2023–2024	Faculty Search Committee, Department of Biochemistry and Molecular Genetics, University of Louisville, Louisville, KY
2023–	Planning Committee, Environmental Medicine Grand Rounds, University of Louisville, Louisville, KY

Extramural activities

Grant review

08/2011 Medical Research Council (United Kingdom) – external reviewer
04/2012 American Heart Association, Vas Wall Bio AAGI Bsc1
10/2012 American Heart Association, Vas Wall Bio AAGI Bsc1
12/2012 Louisiana Board of Regents, Research Competitiveness Subprogram – external reviewer
12/2012 Netherlands Organization for Scientific Research (NOW), Innovational Research Incentives Scheme – VIDI external proposal reviewer
03/2013 UAB Center for Clinical and Translational Science Pilot Program – external reviewer
04/2014 Diabetes UK, British Diabetic Association – external reviewer
02/2015 Health Research Council of New Zealand, Annual Funding Round – external reviewer
05/2015 French National Research Agency–external reviewer
07/2015 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) Directive for Mitochondrial Disease – Scientist Pre-application Reviewer
12/2015 Peer Reviewed Medical Research Program for the CDRMP/DOD – Scientist Full Application Reviewer
04/2016 Wellcome Trust (United Kingdom), Sir Henry Dale Fellowship Award – Peer Reviewer
06/2016 British Heart Foundation Programme Grant – Peer Reviewer
07/2016 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) – Scientist Reviewer
12/2016 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) – Scientist Reviewer
01/2017 American Heart Association Strategically Focused Research Network (SFRN) Review Panel
03/2017 Poland National Science Center – external reviewer
05/2018 UAB Nutrition and Obesity Research Center Pilot Application Reviewer – external reviewer
07/2018 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) Directive for Mitochondrial Disease – Scientist Reviewer

02/2019 Partnership Research Grant: British Heart Foundation (BHF) and the German Centre for Cardiovascular Research (DZHK) – Grant Reviewer
06/20/2019 National Institutes of Health (NIH); Cardiac Contractility, Hypertrophy, and Failure (CCHF) Study Section – Grant Reviewer (*ad hoc*)
07/01/2019 American Diabetes Association Research Grant Review Committee (RGRC); 07/01/2019–06/30/2022
01/13/2020 University of Lisboa Group Leader evaluator for the Instituto de Medicina Molecular, João Lobo Antunes
10/07/2020 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) – Scientist Reviewer
07/13/2021 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) – Scientist Reviewer (asynchronous review from July 7-July 13)
02/04/2022 American Heart Association (AHA) Collaborative Sciences Award – Preproposal Grant Reviewer
03/03/2022 National Institutes of Health (NIH); Therapeutic Development and Preclinical Studies Study Section – Grant Reviewer (*ad hoc*)
05/11/2022 American Heart Association (AHA) Collaborative Sciences Award – Full Grant Proposal Reviewer
11/01/2022 American Heart Association (AHA) Cardiac Basic Sciences 3 Fellowship Committee – Grant Reviewer (*ad hoc*)
11/03/2022 National Institutes of Health (NIH); Mentored Clinical and Basic Sciences Study Section – Grant Reviewer (*ad hoc*)
03/06/2023 University of Lisboa Group Leader evaluator for the Instituto de Medicina Molecular, João Lobo Antunes
05/18/2023 Israel Science Foundation (ISF) – Grant Reviewer (*ad hoc*)
06/22/2023 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) – Scientist Reviewer; Mitochondrial Disease (MTD) panel
02/28/2024 National Heart, Lung, and Blood Program Project Study Section, Special Emphasis Panel (ZHL1 PPG-L)
06/13/2024 National Heart, Lung, and Blood Program Project Study Section, NHLBI Mentored Transition to Independence (MTI) Study Section
05/21/2025 National Heart, Lung, and Blood Program Project Workgroup, Special Emphasis Panel (ZHL1 PPG-L)
09/16/2025 Congressionally Directed Medical Research Program (CDMRP) / Department of Defense (DoD) – Scientist Reviewer; Mitochondrial Disease (MTD) panel (released from panel due to non-compliance issues on submitted applications)
12/06/2025 Pilot and Feasibility Funding Program, Washington University/University of Kentucky DRC and Pilot Feasibility program– Pilot grant revewer
03/26/2026 *National Institutes of Health Special Emphasis Panel*

<u>External Advisory Committees</u>

1/25-1/27 External Advisory Committee, Comprehensive Cardiovascular Center (CCVC), University of Alabama-Birmingham, Birmingham, AL

Intramural activities

2010	Presentation Judge	Research!Louisville
2013	Presentation Judge	Research!Louisville
2014	Presentation Judge	Louisville Area High School Science Fair
2014	Presentation Judge	Research!Louisville

2016–2021	Conference Director	Diabetes and Obesity Center Conference
2020–	Director	Academy Trainee Series (CCS)

EDUCATIONAL ACTIVITIES

Course Instruction

Fall 2001	Course Developer, Plant Physiology Laboratory Section, Fisk University, Nashville, TN
Fall 2013	Lecturer, BIOC 610 – Cellular Bioenergetics and Metabolomics, University of Louisville, Louisville, KY
Fall 2014	Lecturer, BIOC 610 – Cellular Bioenergetics and Metabolomics, University of Louisville, Louisville, KY
Spring 2016	Lecturer, M2 DIR student instruction on “Presentation Skills” (02-17-2016)
Summer 2016	Lecturer, T35DK072923 Summer Endocrine Research Training Seminar Series; Lecture title: “Hormone- and metabokine-mediated adaptations to exercise” (06-15-2016)
Spring 2017	Lecturer, M2 DIR student instruction on “Presentation Skills” (02-07-2017)
Spring 2017	Biochemistry and Molecular Genetics Qualifying Exam Committee
Summer 2017	Lecturer, T35DK072923 Summer Endocrine Research Training Seminar Series; Lecture title: “Hormone- and metabokine-mediated adaptations to exercise” (06-14-2017)
Spring 2018	Lecturer, M2 DIR student instruction on “Presentation Skills” (02-06-2018)
Summer 2018	Lecturer, T35DK072923 Summer Endocrine Research Training Seminar Series; Lecture title: “Hormone- and metabokine-mediated adaptations to exercise” (06-13-2018)
Spring 2019	Lecturer, M2 DIR student instruction on “Presentation Skills” (02-18-2019)
Summer 2019	Lecturer, T35DK072923 Summer Endocrine Research Training Seminar Series; Lecture title: “Hormone- and metabokine-mediated adaptations to exercise” (06-12-2019)
Summer 2023	Lecturer, Center for Cardiometabolic Sciences, Academy Sessions; Lecture title: “How do we figure out how things work?”
Summer 2024	Lecturer, Center for Cardiometabolic Sciences, Academy Sessions; Lecture title: “How do we figure out how things work?”

Other educational or service activities

Fall 2010	Presenter, U of L Post-doc appreciation day, “The Post-doc to Faculty Transition and the Red Queen’s Race” (02-24-2010)
Spring 2014	Presenter, Diabetes and Obesity Center Seminar Series, “Tips for Researching Topics in the Scientific Literature” (03-27-14)

Fall 2014	Presenter, Monday Cardiovascular Conference, "How to Review Manuscripts" (10-27-14)
Spring 2016	Presenter, Diabetes and Obesity Center Seminar Series, "Delivering Effective Research Presentations" (03-17-16)
Spring 2018	Resources for teaching cardiovascular biology; Grade level (Middle School: Grades 6–8). Citation: Metz CJ, Metz MJ, Schuschke DA, Maldonado CM, Gibb AA, Hill BG. (2017, April 3). *Resources for Cardiovascular Outreach: A Day in the Life of a Doctor.* From: http://www.lifescitrc.org/resource.cfm?submissionID=11054.
Summer 2018	Presenter, Diabetes and Obesity Center Training Series, "Endocrine-mediated responses and adaptations to exercise" (06-28-18)
Spring 2019	Abstract Grader for Basic Cardiovascular Sciences AHA Scientific Sessions, 2019 (Boston, MA, July 2019)
Summer 2019	Abstract Grader for AHA Scientific Sessions, 2019 (Philadelphia, PA, November 2019)
Fall 2019	Abstract Grader for the Society for Redox Biology and Medicine meeting, 2019 (Las Vegas, NV 2019)
Summer 2020	Abstract Grader for AHA Scientific Sessions, 2020 (Dallas, TX, November 2020)
Winter 2021	Bench Talk Live, Kentucky Academy of Science (Virtual Seminar, 01-21-2021)
Summer 2022	Abstract Grader, AHA Scientific Sessions, 2022 (Chicago, IL, November 2022)
Summer 2022	AHA Scientific Sessions Programming (Session Builder)
Summer 2022	Abstract Grader for AHA Late Breaking Abstracts, AHA Scientific Sessions (Chicago, IL, November 2022)
Summer 2023	Abstract Grader for AHA Basic Cardiovascular Sciences (BCVS; meeting, July 31–August 4, 2023)
Summer 2023	Late-breaking Abstract Grader for AHA Scientific Sessions (meeting, November 11-13, 2023)
Summer 2023	Presenter, University of Louisville Research Town Hall, "Metabolism as a conduit for cardiac remodeling"; 08-31-2023
November 2023	UofL Promotion and Tenure Workshop: Are you on the right path? Promotion from Associate Professor to Professor. Panelist.
November 2024	UofL Promotion and Tenure Workshop: Are you on the right path? Promotion from Associate Professor to Professor. Panelist.
August 2025	University of Louisville IPIBS Orientation – Panelist.
September 2025	New Faculty Research Orientation – Panelist.

Mentoring

MS Trainees

2018–2019	Mike Udoh, BA, MBA, University of Louisville, Department of Physiology
2019–2020	Benjamin Rood, BS, MS, University of Louisville, Department of Biochemistry and Molecular Genetics

2024 Jada Okhiria, BS, MS, University of Louisville, Department of Physiology (Thesis Masters)

Ph.D. Trainees

2009–2012 Joshua K. Salabei, MD, PhD, University of Louisville, Department of Biochemistry
Current Position: Cardiovascular Disease Fellow, Department of Medicine, Division of Cardiovascular Medicine, University of Louisville, Louisville, KY

2010–2014 Brian E. Sansbury, MS, PhD, University of Louisville, Department of Physiology
Current Position: Assistant Professor of Medicine, Center for Cardiometabolic Science, University of Louisville

2011–2014 Candice R. Holden, PhD, University of Louisville, Department of Physiology
Current Position: Clinical Research Coordinator, HudsonAlpha Institute for Biotechnology, Huntsville, AL

2013–2017 *Andrew A. Gibb, PhD, University of Louisville, Department of Physiology
Current Position: Assistant Professor of Medicine, Center for Cardiometabolic Science, University of Louisville
**Recipient of the John Richard Binford Memorial Award, presented to a doctoral degree recipient who excels in both scholarship and leadership.*

2018–2022 *Kyle Fulghum, MS, PhD, University of Louisville, Department of Physiology
Current Position: Post-doctoral Fellow, Department of Medicine, University of Minnesota, Minneapolis, MN (Post-doctoral mentor: Peter Crawford, MD).
**Recipient of the John Richard Binford Memorial Award, presented to a doctoral degree recipient who excels in both scholarship and leadership.*

2021–2023 Andrew Orwick, PharmD, MS, PhD, University of Louisville, Department of Pharmacology
Current Position: Postdoctoral Fellow, University of Louisville, Louisville, KY

2020–2025 *Collin Wells, PhD. University of Louisville, Department of Biochemistry and Molecular Genetics
Current Position: Postdoctoral Fellow, University of Colorado Anschutz Medical Campus, Aurora, CO (Post-doctoral mentor: Timothy McKinsey, PhD).
**Recipient of the Dean's Citation, presented to a doctoral degree recipient in recognition of superior accomplishment in their graduate studies beyond the achievement of a high grade point average.*

2023– Tyler Jobe, BS, University of Louisville, Department of Physiology (co-mentorship with Dr. Marcin Wysoczynski)

2025– Lianay Gutierrez Luque, BS, University of Louisville, Department of Biochemistry and Molecular Genetics

M.D./Ph.D. Trainees

2018, 2020 Mallory Zaino, MD, University of Louisville School of Medicine (Summer Student; Winter Rotation)
Current Position: Resident Physician, Division of Dermatology, University of Louisville, Louisville KY

2021–2025 *Daniel Nguyen, PhD, University of Louisville School of Medicine (MD/PhD student in Department of Physiology)
**Recipient of the John Richard Binford Memorial Award, presented to a doctoral degree recipient who excels in both scholarship and leadership.*

2023–2025 Kara Gouwens, PhD, University of Louisville School of Medicine (MD/PhD student in the Department of Physiology)

Postdoctoral Trainees

2011–2013 Timothy D. Cummins, PhD, University of Louisville, Division of Cardiovascular Medicine
Current Position: Assistant Professor, University of Louisville

2012–2015 Joshua K. Salabei, PhD, MD, University of Louisville, Diabetes and Obesity Center
Current Position: Cardiovascular Disease Fellow, Department of Medicine, Division of Cardiovascular Medicine, University of Louisville, Louisville, KY

2015–2018 Parul Mehra, PhD, University of Louisville, Diabetes and Obesity Center
Current Position: Principal Scientist at Bristol-Myers Squibb, Philadelphia, PA

2019–2020 Tariq Altamimi, PhD, University of Louisville, Diabetes and Obesity Center

2019–2023 Riham Abouleisa, PhD, University of Louisville, Center for Cardiometabolic Science and Department of Cardiovascular Medicine
Current Position: Assistant Professor, Department of Surgery, Baylor College of Medicine, Houston, TX

2021–2023 Zimple Kurlawala, PhD, University of Louisville, Center for Cardiometabolic Science
Current Position: Associate Director, Research, The Michael J. Fox Foundation for Parkinson's Research

M.S. Thesis Committee Member

2024 Michael LaRoche, MS, University of Louisville, Department of Chemical Engineering

Ph.D. Thesis Committee Member

2012–2013 Alden Klarer, PhD, University of Louisville, Department of Biochemistry

2012–2015 Nagma Zafar, MD, PhD, University of Louisville, Department of Physiology

2013–2016 Shuba Ghosh, PhD, University of Louisville, Department of Biochemistry and Molecular Genetics

2013–2016 Sujith Dassanayaka, PhD, University of Louisville, Department of Physiology

2014–2015 Patrick Van Hoose, PhD, University of Louisville, Department of Biochemistry and Molecular Genetics

2016–2017 Yihong Li, PhD, University of Louisville, Department of Pharmacology and Toxicology

2017–2020 Lindsey (Reynolds) Conroy, PhD, University of Louisville, Department of Biochemistry and Molecular Genetics

2017–2021 Jordan Noe, PhD, University of Louisville, Department of Biochemistry and Molecular Genetics

2017–2021 Marc Dwenger, PhD, University of Louisville, Department of Pharmacology and Toxicology

2018–2021 Timothy Audam, PhD, University of Louisville, Department of Biochemistry and Molecular Genetics

2019–2022 Sean M. Raph, PhD, University of Louisville, Department of Pharmacology and Toxicology

2020–2024 Ernesto Pena Calderin, PhD, MS, University of Louisville, Department of Physiology

2021–2022 Kennedy Marie Walls, PhD, University of Louisville, Department of Pharmacology and Toxicology

2021–2023 Andrew J. Orwick, PhD, University of Louisville, Department of Pharmacology and Toxicology

2024– Leanne Price, University of Louisville, Department of Biochemistry and Molecular Genetics

2025– Kajol Thapa, University of Cincinnati, Cincinnati, OH (external dissertation committee member)

Undergraduate Research Mentees

2011–2014 Matthew A. Harbeson, University of Louisville

2016 Ernesto Calderin Pena, University of Louisville, Louisville, KY (Undergraduate Cardiovascular Summer Research Program)

2017 Edie A. Osuma, Wesleyan College, Cottondale, AL (Undergraduate Cardiovascular Summer Research Program)

2018 Obadiah Issachar Kirk, Western Kentucky University, Bowling Green, KY (Undergraduate Cardiovascular Summer Research Program)

2021 Jack Bozik, Bellarmine University, Louisville, KY (Diabetes and Obesity Center Summer Internship in Biomedical Sciences)

2023 Abigail Joyce, University of Kentucky, Lexington, KY (AHA-funded undergraduate research intern)

2023 Rebecca Pierre, University of Louisville undergraduate research intern (Undergraduate Cardiovascular Summer Research Program)

High School Mentees

2019-2020 Gita Jaikumar, DuPont Manual High School, Louisville, KY

2024–2025 Adarsh Kannappan, DuPont Manual High School, Louisville, KY

2025 – 2026 Shriyans Boya, DuPont Manual High School, Louisville, KY

Faculty Mentees

2017–2018 Jason Hellmann, PhD, University of Louisville
Current position: Associate Professor of Medicine, University of Louisville, Louisville, KY

2018–2024 Ming Song, PhD, University of Louisville
Current position: Assistant Professor of Medicine, University of Louisville, Louisville, KY

2019–2022 Helen Collins, PhD, University of Louisville
Current position: Assistant Professor of Medicine, University of Louisville, Louisville, KY

2020–2021 Damian Guerra, PhD, University of Louisville
Current Position: Senior Scientist Group Lead, KBI Biopharma, Louisville, Colorado.

2024– Sadia Ashraf, PhD, University of Texas Health Science Center, McGovern Medical School, Houston, TX

Faculty host

2017 Stephen A. Steiner, PhD, Professor of Chemistry, Hanover College, Hanover, IN.
Sabbatical Project/Theme: *Metabolic regulation of regeneration in planarians*

GRANTS AND CONTRACTS

Extramural

Active grant support

As PI/Project leader

NIH – R01 AG084688 (MPI: Hill and Nystoriak)
Metabolic regulation of myocardial perfusion in the aging heart
09/04/2024–08/31/2029
Total Direct Costs: $2,045,000
Role: PI

NIH – R01 HL168198 (PI: Hill)
Role of the PEP cycle in cardiac fibrosis
12/01/2023–11/30/2027
Total Direct Costs: $1,450,242
Role: PI

AHA – 23TPA1141824 (PI: Hill)
Physiologic regulation of metabolons in the heart
07/01/2023–06/30/2026
Total Direct Costs: $272,727
Role: PI

As Co-Investigator

NIH – R01 HL163272 (PI: Jones)
Extracellular matrix dynamics during remodeling
04/01/2022–03/31/2026
Total Direct Costs: $1,441,948
Role: Co-investigator (5% effort)

NIH – R01 HL163003 (PI: Collins)
Mechanisms Contributing to Pregnancy-induced Cardiac Remodeling
12/15/2022–11/30/2027
Total Direct Costs: $1,750,000
Role: Co-investigator (5% effort)

NIH – P01 AA029542 (MPI: Freiberg and Barve)
Microbiome, Metabolites, and Alcohol in HIV to Reduce CVD (Meta HIV CVD)
09/01/2021–08/31/2026
Total Costs (UofL): $2,307,620
Role: Co-investigator (5% effort)

As Mentor

NIH F31 HL165826 (PI: Wells)

Role of Pck2 in cardiac fibrosis
09/01/2022–08/01/2026
Total Direct Costs: $134,760
Role: Sponsor

NIH F30HL165813 (PI: Nguyen)
Fibroblast TAK1 signaling in cardiac fibrosis
01/01/2023–12/31/2026
Total Direct Costs: $159,110
Role: Sponsor

American Heart Association 24DIVSUP1291349 (PI: Gouwens)
Regulation of Myocardial Perfusion Following Sleep Deprivation
04/01/2024–03/31/2026
Total Direct Costs: $67,388
Role: Sponsor

Pending support

NIH – R01 HL179184-01 (PI: Tan)
Cardiokine FGF16 prevents diabetic cardiomyopathy
04/01/2025–03/31/2030
Total Direct Costs: $2,473,993
Role: Co-I
Pending: Council review, 2%

NIH – 1P20 GM161999-01 (MPI: Cave and Hill)
Nutrition and Metabolic Health Center
12/01/2025–11/30/2030
Total Direct Costs: $7,800,000
Role: PI (MPI – Cave M and Hill BG)
Pending: Council Review, Impact Score – 28

AHA IPA LOI 2025

AHA Predoctoral Fellowship (PI: Jobe)
Role of the glycerol 3-phosphate shuttle in neutrophil biology
01/01/2026–12/31/2027
Role: Sponsor (co-sponsor with Marcin Wysoczynski)
Pending: 6.32%

Completed grant support

NIH – R01 HL147844 (MPI: Hill and Jones)
Biosynthetic pathways in cardiac remodeling
08/01/2019–07/31/2024 (NCE)
Total Direct Costs: $2,150,548
Role: PI

NIH – R01 ES028268 (Multi-PI: Haberzettl and Hill)
Effect of air pollution on stem cell health
08/15/2018–04/30/2023 (NCE)

Total Direct Costs: $1,434,230
Role: PI

NIH – R01 HL142710 (PI: Nystoriak)
Regulation of coronary blood flow
07/20/18-06/30/2023 (NCE)
Total Direct Costs: $2,347,925
Role: Co-investigator (5% effort)

NIH – P30GM127607 (Overall PI – Jones)
Pilot Project Program
Center of Excellence in Diabetes and Obesity Research
07/01/18–06/30/23 (NCE)
Total Direct Costs: $820,105
Role: Pilot Project Program Director

JHFE Research Enhancement Award (UofL)
Role of the PEP cycle in cardiac fibrosis
03/01/23–02/28/24
Total Direct Costs: $75,000
Role: PI

AHA – 1018548 (PI: Nguyen)
Fibroblast TAK1 signaling in cardiac fibrosis
01/01/2023–12/31/2024
Total Direct Costs: $65,106
Role: Sponsor
Note: returned due to acquisition of NIH F30

NIH – F32 HL149140 (PI: Abouleisa)
Deciphering the relationship between cardiomyocyte metabolic configuration and cell cycle re-entry
01/01/2021-12/31/2023
Total Direct Costs: $151,716
Role: Sponsor

NIH – 1R01HL130174-01A1 (PI: Hill)
Metabolic optimization of cell therapy
06/01/2016–05/31/2021 (NCE)
Total Direct Costs: $1,250,000
Role: PI

NIH – P01HL078825 (Overall PI: Bolli)
Protection of the Ischemic Myocardium
Project 4: “Metabolic regulation of myocardial repair”
09/01/2017–08/31/2022
Total Direct Costs (Project 4): $1,121,275
Role: PD of Project 4

ADA – 1-16-JDF-041(Hill)
Diabetic dysfunction of stem cells
01/01/2016–12/31/2019
Total Costs: $551,996

Role: PI

NIH – R01AR059810 (PI: Kumar)
TAK1 signaling in skeletal muscle
08/07/2011–08/30/2019
Total Costs: $868,677
Role: Co-investigator

NIH – 1R56HL122580-01A1 (Hill)
Metabolic regulation of cardiac stem cells
09/11/2015–08/30/2016
Direct Costs: $250,000
Role: PI

NIH F31 DK130690 (PI: Orwick)
The role of PGC1α in repeated low-dose cisplatin-induced kidney injury and the progression to chronic kidney disease
05/06/2022–04/31/2025
Total Direct Costs: $105,740
Role: Sponsor

NIH – R01HL131647 (PI: Jones)
Regulation of metabolic genes in the heart
06/01/16-05/31/20
Total Direct Costs: $1,364,996
Role: Co-Investigator (5% effort)

NIH – 2P20GM103492 (Overall PI – Bhatnagar; Project 3 PI – Hill)
Center of Excellence in Diabetes and Obesity Research
Project 3: “Regulation of Metabolism by Nitric Oxide”
08/01/13–06/30/18
Total Costs/yr: $244,011
Role: Director of Project 3

NIH – F31 HL154663-01 (PI: Fulghum)
Metabolic regulation of exercise-induced adaptations in striated muscle
08/07/20-05/31/23
Total Direct Costs: $105,740
Role: Mentor/Sponsor

AHA Predoctoral Fellowship – 16PRE31010022 (Gibb)
Metabolic Regulation of Myocardial Adaptations to Exercise
07/01/2016 – 12/31/2017
Total Costs: $51,920
Role: Sponsor

NIH – R01HL55477 (PI: Bhatnagar)
Detoxification and Toxicity of 4-Hydroxyalkenals in Heart
12/01/1998–05/31/2016
Direct Costs/yr: $240,996
Role: Co-Investigator

NIH – R01 HL089380 (PI: Conklin)
Cardioprotective Mechanisms of Glutathione S-transferase P
04/11/08–03/31/13
Direct Costs/yr: $247,500
Role: Co-investigator

NIH – R01 HL083320 (PI: Jones)
Metabolic Mechanisms of Cardiac Injury and Protection
07/15/2005–06/30/2013
Total Direct Costs: $1,125,000
Role: Co-Investigator

NIH – R01 HL094419 (PI: Jones)
O-GlcNAc Signaling in Heart Failure
08/01/2009–06/30/2013
Total Direct Costs: $1,000,000
Role on project: Co-investigator

NIH – T32HL007457 (PI: Oparil)
Mechanisms of Hypertension and Cardiovascular Diseases
06/01/1980–06/30/2016
Direct Costs: $339,174
Role on project: Trainee

American Heart Association 0415165B (PI: Hill)
Ischemic modification of mitochondrial proteins in the heart
07/01/2004–06/30/2006
Role: PI (Training fellowship)

Clinical and Translational Science Pilot Grant Program (U of L)
Bioenergetic regulation of human cardiac progenitor cells
06/01/2010–09/31/2011
Total Costs: $50,000
Role: PI

EDITORIAL WORK

Editorial Board

2009–2020	*Free Radical Biology and Medicine*
2013–present	*Redox Biology*
2013–present	*Frontiers in Mitochondrial Research*
2013–present	*Frontiers in Striated Muscle Physiology*
2014–present	*Circulation Research*
2019–present	*American Journal of Physiology – Heart and Circulatory Physiology*
2020–present	*Journal of Molecular and Cellular Cardiology*
2020–present	*Frontiers in Aging, Metabolism and Redox Biology*

PRESENTATIONS

Oral Presentations

Invited Seminars/Symposia/Grand Rounds (excludes abstract oral presentations)

1. 09/24/2009: "Insights into cardiomyocyte bioenergetic dysfunction caused by oxidized lipids." Society for Heart and Vascular Metabolism: Seventh Annual Scientific Sessions. Padova, Italy. Invited talk.
2. 01/20/2010: "Importance of the mitochondrial reserve capacity in cardiovascular cells exposed to oxidative stress." Seahorse Bioscience invited webinar (http://www.seahorsebio.com/learning/webinars/details.php?wID=24).
3. 05/18/2010: "Insights into the role of oxidative protein modifications in regulating cellular bioenergetics." The 6th International Conference on the Biology, Chemistry, and Therapeutic Applications of Nitric Oxide. Kyoto, Japan. Invited talk.
4. 11/17/2010: "Relating insult to injury: Measuring oxidative modification and bioenergetics in cardiovascular cells." Society for Free Radical Biology and Medicine. Orlando, FL. Invited talk.
5. 12/01/2010: "Supply vs. Demand: A fundamental regulator of mitochondrial damage." Cardiology Grand Rounds, Louisville, KY. Invited talk.
6. 05/05/2011: "Supply vs. Demand: A fundamental regulator of mitochondrial damage and disease." University of Alabama-Birmingham, Birmingham, AL. Invited talk.
7. 11/29/2011: "Adipose tissue remodeling and its impact on diet-induced obesity and diabetes." Cardiovascular Innovation Institute, Louisville, KY. Invited talk.
8. 08/15/2012: "Hitchhiker's Guide to XF Bioenergetic Assays." Seahorse Biosciences invited webinar.
9. 09/09/2012: "Implications of autophagy for the smooth muscle cell." Society for Free Radical Research International, London, England. Invited talk.
10. 09/04/2012: "Metabolic phenotype of the failing heart." American Heart Association Meeting, San Francisco, CA. Invited talk.
11. 09/14/2012: "How to determine the impact of oxidative stress on metabolism and bioenergetics." Society for Free Radical Biology and Medicine, Pre-meeting workshop. San Diego, CA. Invited seminar.
12. 02/06/2013: "Insights into the advancement of cellular bioenergetics measurements and assays." Seahorse Bioscience, Billerica, MA. Invited talk.
13. 11/05/2013: "Adipose tissue remodeling in obesity: Role of nitric oxide." Harvard University, Boston, MA. Invited Talk.
14. 11/17/2013: "Nitric Oxide and Obesity." American Heart Association meeting, Dallas, TX. Invited talk (based on top downloaded article in *Circ Res*).
15. 10/30/2014: "Insights into adipocyte whitening and browning programs." University of Alabama-Birmingham, Birmingham, AL. Invited talk.
16. 11/17/2014: "Metabolism in Cardiac Stem Cells." American Heart Association meeting, Chicago, IL. Invited talk.
17. 12/05/2014: "Insights into whitening and browning of adipose tissue in obesity." Vanderbilt University, Nashville, TN. Invited talk.
18. 03/03/2015: Plenary speaker: "Metabolic regulation of cardiac progenitor cells," Mitochondrial Symposium on Translational and Applied Bioenergetics and XF users meeting, University of Alabama-Birmingham, Birmingham, AL. Invited plenary talk.
19. 05/11/2015: "Stem cell metabotyping for personalized medicine." University of Pittsburgh, Pittsburgh, PA. Invited speaker.
20. 09/12/2015: "Integrating mitochondrial activity measurements with high resolution central carbon metabolomics data." American Physiological Society (APS) Conference: Physiological Bioenergetics – From Bench to Bedside, Tampa, FL. Invited Speaker.

21. 11/20/2015: “Metabolic control of cardiac adaptations to stress” Society for Free Radical Biology and Medicine Annual Conference, Boston MA. Invited Speaker.
22. 02/09/2016: “Metabolic regulation of adaptations to exercise” Diabetes and Obesity Center Seminar Series, University of Louisville, Louisville, KY. Invited Speaker.
23. 10/21/2016: “Cardiometabolic adaptations to systemic energy state”; Canadian Hypertension Congress, Montreal, Canada. Invited Speaker.
24. 11/15/2016: “Exercise-induced changes in cardiac metabolism”; Session Title: Exercise and Cardiovascular Health, American Heart Association Scientific Sessions, New Orleans, LA. Invited Speaker.
25. 02/21/2017: “Endothelial NOS in obesity and exercise”; Nitric Oxide Gordon Research Conference, Ventura Beach, CA. Invited Speaker.
26. 04/12/2017: “Engineering metabolism to improve cardiac health”; University of Louisville, Department of Bioengineering, Louisville, KY. Invited Speaker.
27. 04/21/2017: “Metabolic regulation of cardiac health and repair”; University of Pittsburgh, Endocrine Grand Rounds, Department of Medicine, Division of Diabetes, Endocrinology, and Metabolism, Pittsburgh, PA. Invited Speaker.
28. 06/02/2017: “Metabolic regulation of cardiac growth”; International Society for Heart Research (ISHR), New Orleans, LA. Invited Speaker.
29. 09/28/2017: “Role of metabolism in cardiac health and repair”; Temple University, Lewis Katz School of Medicine, Philadelphia, PA. Invited Speaker.
30. 11/12/2017: “Reflexive glucose metabolism in the heart” changed to “Glucose metabolism and myocardial autopoiesis”; American Heart Association Scientific Sessions, Anaheim, CA. Invited Speaker.
31. 01/25/2018: “Role of glucose metabolism in myocardial autopoiesis and health”; Yale University, School of Public Health, New Haven, CT. Invited Speaker.
32. 02/28/2018: “Glucose metabolism-mediated remodeling of the heart”; Department of Medicine/Endocrinology Multidisciplinary Endocrine conference, University of Louisville, Louisville, KY. Invited Speaker.
33. 03/05/2018: “Stable isotope metabolomics under controlled metabolic states”; VDU Metabolism Mini-symposium, University of Alabama-Birmingham, Birmingham, AL. Invited Speaker.
34. 04/02/2018 “Relational biology”; Senior Biochemistry Student Seminar Series, Hanover College, Hanover, IN. Invited Speaker.
35. 04/17/2018 “Metabolic determinants of cardiac remodeling”; Physiology Research Seminar Series, Department of Physiology, University of Louisville, Louisville, KY. Invited Speaker.
36. 07/31/2018: “Metabolism and myocardial autopoiesis”; American Heart Association Basic Cardiovascular Sciences (BCVS) meeting, San Antonio, TX. Invited Speaker.
37. 11/11/2018 “Cardiac hypertrophy and exercise adaptation”; American Heart Association Scientific Sessions Sunday Program, Chicago, IL. Invited Speaker.
38. 11/14/2018 “Integration of flux methodologies for understanding metabolism”; Society for Redox Biology and Medicine (SfRBM) meeting, Chicago, IL. Invited Speaker.
39. 01/24/2019: “Metabolic causes of cardiac remodeling”; Oklahoma Medical Research Foundation (OMRF), Oklahoma City, OK. Invited Speaker.

40. 02/07/2019: “Causal links between metabolism and cardiac adaptations to stress”; James T. Willerson, M.D. Cardiovascular Seminar Series, Texas Heart Institute, University of Texas, McGovern Medical School, Houston, TX. Invited Speaker.
41. 03/11/2019: “Causal roles of metabolism in cardiac remodeling”; Senior Biochemistry Student Seminar Series, Hanover College, Hanover, IN. Invited Speaker.
42. 03/19/2019: “Insights into the role of glucose metabolism in cardiac health”; Oxidative Stress and Disease Gordon Research Conference: From Integrated Omics to Interventions, Ventura, CA. Invited Speaker.
43. 04/24/2019: “Metabolic mechanisms of cardiac remodeling and repair”; Vascular Biology Center, Medical College of Georgia at Augusta University, Augusta, GA. Invited Speaker.
44. 07/30/2019: “Deep network tracing for understanding cardiac metabolism (Note: Changed to “Influence of metabolism on cardiomyocyte proliferation)”; AHA BCVS meeting, Boston, MA. Invited Speaker.
45. 12/12/2019: “Exploring the role of metabolism in cardiac remodeling”; Envirome Seminar Series, University of Louisville, Louisville, KY. Invited Speaker.
46. 02/07/2020: “Exploring metabolic mechanisms of cardiac remodeling”; National Institutes of Aging, Baltimore, MD. Invited Speaker.
47. 03/17/2020 (cancelled due to COVID-19): “Glucose metabolism as a central controller of cardiomyocyte fate and remodeling”; Society for Free Radical Research International (SFRRI) meeting, Taoyuan, Taiwan. Invited Speaker.
48. 04/30/2020 (cancelled due to COVID-19): “TBA”; West Virginia University, Morgantown, WV. Invited Speaker.
49. 06/22/2020 (cancelled due to COVID-19): “Novel metabolic signatures in cardiovascular health and disease”; Society for Heart and Vascular Metabolism (SHVM), Halifax, Canada. Invited Speaker.
50. 01/21/2021: “Metabolism-mediated changes in cardiac remodeling and function”; Bench Talk Live, Kentucky Academy of Science (Virtual)
51. 02/15/2021: “Branchpoint decisions in cardiac metabolism” Cardiovascular Biology Seminar Series, Emory University, Atlanta, GA (Virtual). Invited Speaker.
52. 03/24/2021: “Mechanisms of metabolism-mediated cardiac remodeling” Multidisciplinary Endocrine Conference, University of Louisville, Louisville, KY (Virtual and in-person, i.e., hybrid). Invited Speaker.
53. 04/19/2021: “Role of metabolism in cardiac remodeling” King’s College London, British Heart Foundation Center of Excellence Seminar Series, London, UK (Virtual). Invited Speaker.
54. 05/27/2021: “Metabolism-mediated cardiac remodeling” Queen Mary University, QMUL Cardiovascular Seminar Series, London, UK (Virtual). Invited Speaker.
55. 06/25/2021: “Critical roles of glucose metabolism in cardiac remodeling” Cleveland Clinic Lerner Research Institute Seminar Series, Cleveland, OH (Virtual). Invited Speaker.
56. 09/15/2021: “Metabolic channeling in the heart” International Society of Heart Research (ISHR) meeting, Denver, CO. Invited Speaker.
57. 11/15/2021: “Causal links between metabolism and cardiac adaptations to stress” AHA Scientific sessions, Boston, MA (Virtual). Invited Speaker.
58. 12/09/2021: “Metabolic cycles and channeling: spatioregulatory processes involved in cardiac remodeling” University of Louisville Environmental Medicine Grand Rounds, Louisville, KY (Virtual). Invited Speaker.
59. 04/29/2022: “Role of metabolic cycles in cardiac remodeling and repair”; 2nd Olympiad in Cardiovascular Medicine Conference, Heraklion, Crete, Greece (In person). Invited Speaker.

60. 09/08/2022: “The fibroblast PEP cycle as a modulator of infarct-induced heart failure”; International Society of Heart Research, North American Section, meeting, Winnipeg, Manitoba, Canada (In person; cancelled trip due to flight/illness issues). Invited Speaker.
61. 11/30/2022: “Role of metabolic cycles in the heart”; Department of Medicine/Endocrinology Multidisciplinary Endocrine conference, University of Louisville, Louisville, KY. Invited Speaker.
62. 03/30/2023: “(Over)fulfillment of the metabolic and material demands for (patho)physiological cardiac growth and remodeling”; Distinguished Lecture Series, University of Washington, Seattle, WA. Invited Speaker.
63. 04/14/2023: “Metabolic mechanisms of age-dependent reductions in myocardial perfusion and function”; 2nd Preventative Health of Adipose Tissue (PHAT) Symposium, The Ohio State University, Columbus, OH. Invited Speaker.
64. 06/27/2023: “Fundamentals of metabolomics and flux assessments”; International Society of Heart Research (ISHR) meeting, Early Career Investigator workshop on metabolomics, Madison, WI. Invited Speaker.
65. 11/07/2023: “Metabolic mechanisms of myocardial perfusion across lifespan”; TriMAD-X Mitochondrial Medicine Meeting, Pittsburgh, PA. Invited Speaker.
66. 11/30/2023: “Metabolic control of cardiac function and growth” Department of Pathology, Grand Rounds, University of Alabama-Birmingham, Birmingham, AL. Invited Speaker.
67. 04/02/2024: “Insights into mechanisms of cardiac fibrosis” Department of Physiology, University of Louisville, Louisville, KY. Invited Speaker.
68. 04/25/2024: “Metabolic and inflammatory mechanisms of fibrosis” Center for Integrative Environmental Health Sciences (CIEHS), Mechanistic and Translational Toxicology Research Interest Group (MOTRIG) presentation series, University of Louisville, Louisville KY. Invited Speaker.
69. 08/21/2024: “Role of inflammatory fibroblasts in post-infarct cardiac remodeling”, International Society of Heart Research (ISHR), Long Beach, CA. Invited Speaker.
70. 09/18/2024: “Metabolic mechanisms of myocardial hyperemia and implications for the aging heart” Research!Louisville 2024, Louisville, KY. Invited Speaker.
71. 09/19/2024: “Insights into the role of fibroblasts in cardiac remodeling after myocardial infarction” 11th Annual International Academy of Cardiovascular Sciences – North America Section (IACS-NAS), Houston, TX (cancelled trip due to personal issues). Invited Speaker.
72. 11/13/2024: “Inflammatory fibroblasts as key players in cardiac remodeling after myocardial infarction” Distinguished Lectures in Pharmacology, Physiology, and Neurobiology series, University of Cincinnati, Department of Pharmacology & Systems Physiology, Cincinnati, OH. Invited Speaker.
73. 04/01/2025: “Metabolic mechanisms of myocardial hyperemia and implications for exercise and the aging heart” Vascular Biology Center, Medical College of Georgia, Augusta University, Augusta, GA. Invited Speaker.
74. 10/02/2025: “Metabolic mechanisms of myocardial perfusion and implications for exercise, aging, and chronic disease” Department of Medicine Grand Rounds, University of Louisville, Louisville, KY. Invited Speaker.
75. 01/23/2026: “Metabolic control of the coronary circulation” Environmental Medicine Grand Rounds, University of Louisville, Louisville, KY. Invited Speaker.
76. *Date TBD (spring 2026): “Metabolic regulation of fibroblast differentiation and fibrosis” University of Virginia, Robert M. Berne Cardiovascular Research Center Symposia series, Charlottesville, VA. Invited Speaker.*

77. *04/16/2026: "TBD" University of Louisville Optimal Aging Conference, Trager Institute, Louisville, KY. Invited session speaker.*

78. *05/01/2025: "TBD" International Society of Heart Research meeting, Minneapolis, MN. Invited session speaker.*

79. *05/03/2026: "Metabolic control of myocardial perfusion and exercise capacity: implications for healthy aging" 3rd Olympiad in Cardiovascular Medicine International Symposium, Kalamata and Ancient Olympia, Greece. Invited Speaker.*

Chair/Moderator/Organizer at National/International Conferences

1. 11/19/2010: Chair/Organizer: "Role of Mitochondria and Reactive Species in Stem Cell Biology." Society for Free Radical Biology and Medicine meeting, Orlando, FL.
2. 09/09/2012: Chair/Organizer: "Autophagy and Oxidative Stress in Health and Disease." Society for Free Radical Research International, London, England.
3. 11/17/2014: Moderator/Organizer: Metabolism and Stem Cells. AHA Scientific Sessions, Chicago, IL.
4. 09/11/2015: Invited Chair: "It's not just ATP! Signaling and Mitochondrial Function"; APS Conference: Physiological Bioenergetics - From Bench to Bedside, Tampa, FL.
5. 11/20/2015: Chair/Organizer: "Convergence of redox state and intermediary metabolism in health and disease." Society for Free Radical Biology and Medicine meeting, Boston, MA.
6. 04/05/2016: Chair: "New insights into the role of autophagy in cardiac disease" Experimental Biology meeting, Cardiovascular Section, San Diego, CA.
7. 11/14/2017: Moderator: "Protein degradation mechanisms: A compartmentalized affair in cardiac muscle and disease?" American Heart Association (AHA) Scientific Sessions, Anaheim, CA.
8. 03/19/2019: Chair, Discussion Leader: Oxidative Stress and Disease Gordon Research Conference, Ventura, CA.
9. 03/27/2019–03/29/2019: American Diabetes Association (ADA) Call to Congress 2019, Washington, D.C.
10. 04/07/2019: Chair: "Cardiovascular Metabolism in Diabetes" Experimental Biology (EB) meeting, Orlando, FL
11. 11/17/2019: Moderator: "Cardiac remodeling is all about metabolism!" American Heart Association (AHA) Scientific Sessions, Philadelphia, PA
12. 08/25/2021: Moderator: "Bench to Bedside, Epigenetic Approaches and Metabolism" AHA Basic Cardiovascular Sciences (BCVS) meeting (Virtual event)
13. 11/07/2025: Moderator: "Innovative Therapeutic Strategies in Cardiovascular Health: Translating Research into Practice" AHA Scientific Sessions, New Orleans, LA.
14. 11/21/2025: Chair/Organizer: "The Extraordinary Reach of Metabolism – From Redox Regulation to (Patho)physiology" Society for Redox Biology and Medicine, Washington, DC.

PUBLICATIONS

Metrics of productivity

Google Scholar: h-index: 55, i10-index: 100
(https://scholar.google.com/citations?user=RlRhdqMAAAAJ&hl=en&oi=ao)

Peer-reviewed (Trainees are underlined; *indicates corresponding author)

1. Zhao C, Wang J, Cao M, Zhao K, Shao J, Lei T, Yin J, **Hill BG** (GG), Xu N, and Liu SQ. Proteomic changes in rice leaves during development of field-grown rice plants. *Proteomics* 5:961–972, 2005.

2. **Hill BG**, Barski O, and Bhatnagar A. Getting to the heart of pollution: Is pollution a new risk factor for cardiovascular disease? *Sustain* 13, Fall/Winter 2006.

3. West MB[#], **Hill BG[#]**, and Bhatnagar A. Protein glutathiolation by nitric oxide: An intracellular mechanism regulating redox protein modification. *FASEB J* 20(10):1715–1717, 2006.
[#]indicates equal contribution by the authors

4. Awe SO, **Hill BG**, Hoetker JD, Srivastava S, and Bhatnagar A. Metabolism of the lipid peroxidation product – 4-hydroxy-*trans*-2-nonenal (HNE) in the ischemic heart. In *Enzymology and Molecular Biology of Carbonyl Metabolism 12.* Weiner, H. Ed. Purdue University Press. 2006.

5. **Hill BG** and Bhatnagar A. Role of glutathiolation in preservation, restoration, and regulation of protein function. *IUBMB Life* 59(1):21–26, 2007.

6. Srivastava S, Chandresekar B, Gu Y, Luo J, Hamid T, **Hill BG**, and Prabhu SD. Downregulation of CuZn-superoxide dismutase contributes to β-adrenergic receptor-mediated oxidative stress in the heart. *Cardiovasc Res* 74(3): 445–455, 2007.

7. Cai J, **Hill BG**, Bhatnagar A, Pierce Jr. WM, and Prough RA. Bioactivation and protein modification reactions of unsaturated aldehydes. In *Advances in Bioactivation Research*. Elfarra A., Ed. Springer Science + Business Media, New York, NY. 2007.

8. Luo J**, Hill BG**, Gu Y, Cai J, Srivastava S, Bhatnagar A, and Prabhu SD. Mechanisms of acrolein-induced myocardial dysfunction: implications for environmental and endogenous aldehyde exposure. *Am J Physiol Heart Circ Physiol* 293(6):H3673–H3684*,* 2007.

9. **Hill BG,** Srivastava S, Feldman A, and Bhatnagar A. Metabolism of HNE-modified proteins in vascular smooth muscle cells. In *Enzymology and Molecular Biology of Carbonyl Metabolism 13.* Weiner, H. Ed. Purdue University Press. 2007.

10. **Hill BG**, Srivastava S, Haberzettl P, Ahmed Y, and Bhatnagar A. Unsaturated lipid peroxidation-derived aldehydes activate autophagy in vascular smooth muscle cells. *Biochem J* 410(3): 525–534, 2008.

11. Jones SP, Zachara NE, Ngoh GA, **Hill BG,** Teshima Y, Bhatnagar A, Hart GW, and Marban E. Cardioprotection by *N*-acetylglucosamine linkage to cellular proteins. *Circulation* 117:1172–1182, 2008.

12. **Hill BG** and Darley-Usmar VM. S-nitrosation and thiol switching in the mitochondrion: a new paradigm for cardioprotection in ischemic preconditioning. *Biochem J* 412(2): 11–13, 2008.

13. West MB, Rokosh G, Obal D, Velayutham M, Xuan YT, **Hill BG**, Keith R, Schrader J, Guo Y, Conklin DJ, Prabhu SD, Zweier JL, Bolli R, and Bhatnagar A. Cardiac myocyte-specific expression of inducible nitric oxide synthase protects against ischemia/reperfusion injury by preventing mitochondrial permeability transition. *Circulation* 118(19): 1970–1978, 2008.

14. **Hill BG**, Awe SO, Vladykovskaya E, Ahmed Y, Liu SQ, Bhatnagar A, and Srivastava S. Myocardial ischemia inhibits mitochondrial metabolism of 4-hydroxy-*trans*-2-nonenal. *Biochem J* 417(2): 513–524, 2009.

15. Laczy B, **Hill BG**, Wang K, Paterson A, White CR, Darley-Usmar VM, Oparil S, and Chatham JC. Protein O-GlcNAcylation: A new signaling paradigm for the cardiovascular system. *Am J Physiol Heart Circ Physiol* 296: H13–H28, 2009.

16. Keith R, Haberzettl P, Vladykovskaya E, **Hill BG**, Kaiserova K, Srivastava S, Barski OA, and Bhatnagar A. Aldose reductase decreases ER stress in ischemic hearts. *Chem Biol Interact* 178 (1–3): 242–9, 2009.

17. Preston A, Dranka BP, **Hill BG**, Landar A, and Darley-Usmar VM. Methods for detecting and quantifying modification of proteins by reactive lipid species. *Free Rad Biol Med* 47 (3):201–12, 2009.

18. **Hill BG**, Reily C, Oh JY, Johnson MS, and Landar A. Methods for the determination and quantification of the reactive thiol proteome. *Free Radic Biol Med.* 47 (6):675–83, 2009.

19. **Hill BG**, Dranka BP, Zou LY, Chatham JC, and Darley-Usmar VM. Importance of the bioenergetic reserve capacity in response to cardiomyocyte stress induced by 4-hydroxynonenal. *Biochem J* 424(1):99–107, 2009.

20. **Hill BG** and Bhatnagar A. Beyond ROS: Aldehydes as arbitrators of alarm and adaptation. *Circ Res* 105(11):1044–1046, 2009.

*21. **Hill BG***, Higdon AN, Dranka BP, and Darley-Usmar VM. Regulation of vascular smooth muscle cell bioenergetics by protein glutathiolation. *Biochim Biophys Acta.* 1797: 285–295, 2010.
**corresponding author*

22. Dranka BP, **Hill BG**, and Darley-Usmar VM. Mitochondrial reserve capacity in endothelial cells: the impact of nitric oxide and reactive oxygen species on reserve capacity. *Free Radic Biol Med.* 48:905–914, 2010.

23. Perez J[#], **Hill BG[#]**, Dranka BP, and Darley-Usmar VM. Role of bioenergetics in smooth muscle cell proliferation induced by PDGF. *Biochem J* 428(2):255-67, 2010.
#indicates equal contribution by the authors

24. **Hill BG**, Ramana KV, Cai J, Bhatnagar A, and Srivastava SK. Measurement and identification of S-glutathiolated proteins. *Methods Enzymol.* 473C:179-197, 2010.

25. **Hill BG**, Dranka BP, Bailey SM, Lancaster Jr JR, and Darley-Usmar VM. What part of NO don't you understand? Some answers to the cardinal questions in nitric oxide biology. *J Biol Chem* 285:19699–19704, 2010.

*26. Sansbury BE, Riggs DW, Salabei JK, Jones SP, and **Hill BG**. Responses of hypertrophied myocytes to stress: Implications for glycolysis and electrophile metabolism. *Biochem J* 435:519–528, 2011.

*27. Sansbury BE, Jones SP, Riggs DW, Darley-Usmar VM and **Hill BG**. Bioenergetic function in cardiovascular cells: the importance of the reserve capacity and its biological regulation. *Chem Biol Interact* 191:288-295, 2011.

28. Dranka BP, Benavides GA, Diers AR, Giordano S, Zelickson BR, Reily C, Zou L, Chatham JC, **Hill BG**, Zhang J, Landar A, and Darley-Usmar VM. Assessing bioenergetic function in response to oxidative stress by metabolic profiling. *Free Radic Biol Med* 51(9):1621-35, 2011.

29. **Hill BG** and Bhatnagar A. Protein S-glutathiolation: A redox-sensitive regulator of protein function. *J Mol Cell Cardiol* 52(3):559-67, 2012.

30. Vladykovskaya E, Sithu SD, Haberzettl P, Wickramasinghe NS, Merchant ML, **Hill BG**, McCracken J, Agarwal A, Dougherty S, Gordon SA, Schuschke DA, Barski OA, O'Toole T, D'Souza SE, Bhatnagar A, Srivastava S. The lipid peroxidation product, 4-hydroxy-trans-2-nonenal, causes endothelial activation by inducing endoplasmic reticulum stress. *J Biol Chem* 287(14):11398-409, 2012.

31. Ingram KH, Hill H, Moellering DR, **Hill BG**, Lara-Castro C, Newcomer B, Brandon LJ, Ingalls CP, Penumetcha M, Rupp JC, Garvey WT. Skeletal Muscle Lipid Peroxidation and Insulin Resistance in Humans. *J Clin Endocrinol Metab.* 97(7):E1182-6, 2012.

*32. Cummins TD, Hidgon AN, Kramer PA, Chacko BK, Riggs DW, Salabei JK, Dell'Italia LJ, Zhang J, Darley-Usmar VM and **Hill BG**. Utilization of fluorescent probes for the quantification and identification of subcellular proteomes and biological processes regulated by lipid peroxidation products. *Free Radic Biol Med* S0891-5849(12): 00503-5, 2012.

*33. Sansbury BE, Cummins TD, Tang Y, Hellman J, Holden CR, Harbeson M, Chen T, Patel RP, Spite M, Bhatnagar A, and **Hill BG**. Overexpression of endothelial nitric oxide synthase prevents diet-induced obesity and regulates adipose tissue phenotype. *Circ Res.* 111: 1176-1189, 2012.

34. **Hill BG**, Benavides G, Lancaster J, Ballinger S, Dell'Italia L, Zhang J, and Darley-Usmar VM. Integration of cellular bioenergetics with mitochondrial quality control and autophagy. *Biol Chem* 393(12):1485–1512, 2012.

35. Readnower R, Brainard R, **Hill BG**, and Jones SP. Standardized Bioenergetic Profiling of Adult Mouse Cardiomyocytes. *Physiol Genomics* 44:1208-13, 2012.

36. Zafir A, Readnower R, Long BW, McCracken J, Aird A, Alvarez A, Cummins TD, Li Q, **Hill BG**, Bhatnagar A, Prabhu SD, Bolli R, and Jones SP. Protein O-GlcNAcylation is a novel cytoprotective signal in cardiac stem cells. *Stem Cells* 31(4):765-75, 2012.

*37. Haberzettl P and **Hill BG**. Oxidized lipids activate autophagy in a JNK-dependent manner by stimulating the endoplasmic reticulum stress response. *Redox Biol* 1(1): 56-66, 2013.

*38. Salabei JK, Cummins TD, Singh M, Jones SP, Bhatnagar A, and **Hill BG**. PDGF-mediated autophagy regulates vascular smooth muscle cell phenotype transition and resistance to oxidative stress. *Biochem J* 451(3):375-388, 2013.

39. Sato S, Ogura Y, Shin J, Mishra V, Bhatnagar S, **Hill BG**, and Kumar A. TWEAK promotes exercise intolerance by decreasing skeletal muscle oxidative phosphorylation capacity. *Skelet Muscle* 3(1):18. 2013.

40. Ulasova E, Perez J, **Hill BG**, Dubuisson JG, Bradley WE, Garber DW, Landar A, Barnes S, Prasain J, Parks DA, Dell'Italia LJ, Darley-Usmar VM. Quercetin prevents left ventricular hypertrophy in the ApoE knockout mouse. *Redox Biol* 1(1):381-6, 2013.

*41. Salabei JK and **Hill BG**. Implications of autophagy for vascular smooth muscle cell function and plasticity. *Free Radic Biol Med* 65C:693-703, 2013.

*42. Salabei JK and **Hill BG**. Mitochondrial fission regulates platelet-derived growth factor-induced changes in cell proliferation and bioenergetics. *Redox Biol* 1(1):542–55, 2013.

*43. **Hill BG.** Recent advances in mitochondrial research. *Circ Res* 113(12):e107-10, 2013.

44. Reynolds M, Lane AN, Robertson B, Kemp S, Liu Y, **Hill BG**, Dean DC, Clem BF. Control of glutamine metabolism by the tumor suppressor Rb. *Oncogene* 33(5):556-66, 2014.

45. Watson LJ, Long BL, De Martino AM, Brittian KR, Readnower RD, Brainard RE, Cummins TD, Annamalai L, **Hill BG**, and Jones SP. Cardiomyocyte Ogt is essential for postnatal viability. *Am J Physiol Heart Circ Physiol* 306(1):H142-53, 2014.

*46. Salabei JK, Gibb AA, and **Hill BG**. Comprehensive measurement of respiratory activity in permeabilized cells using extracellular flux analysis. *Nat Protoc* 9(2): 421-438, 2014.

47. Levonen AL, **Hill BG**, Kansanen E, Zhang J, Darley-Usmar VM. Redox Regulation of Antioxidants, Autophagy and the Response to Stress: Implications for Electrophile Therapeutics. *Free Radic Biol Med* 71C:196-207, 2014.

*48. Sansbury BE, DeMartino AM, Xie Z, Brooks AC, Brainard RE, Watson LJ, Holden CR, DeFilippis AP, Cummins TD, Harbeson MA, Brittian KR, Prabhu SD, Bhatnagar A, Jones SP, and **Hill BG**. Metabolomic analysis of pressure-overloaded and infarcted mouse hearts. *Circ Heart Fail* 7:634-642, 2014.

*49. Sansbury BE and **Hill BG**. Regulation of obesity and insulin resistance by nitric oxide. *Free Radic Biol Med* 79: 383-399, 2014.

*50. Cummins TD, Holden CR, Sansbury BE, Gibb AA, Shah J, Zafar N, Tang Y, Hellmann J, Rai SN, Spite M, Bhatnagar A, and **Hill BG**. Metabolic remodeling of white adipose tissue in obesity. *Am J Physiol Endocrinol Metab* 307:E262-E277, 2014.

*51. Sansbury BE and **Hill BG**. Antiobesogenic role of endothelial nitric oxide synthase. *Vitam Horm* 96: 323-346, 2014.

52. Radde BN, Ivanova MM, Mai HX, Salabei JK, **Hill BG**, and Klinge CM. Bioenergetic differences between MCF-7 and T47D breast cancer cells and their regulation by estradiol and tamoxifen. *Biochem J* 465:49-61, 2014.

*53. **Hill BG*** and Schulze PC*. Insights into metabolic remodeling of the hypertrophic and failing myocardium. *Circ Heart Fail* 7: 874-8766, 2014.
*co-corresponding authors

*54. Sansbury BE, Bhatnagar A, and **Hill BG**. Impact of nutrient excess and endothelial nitric oxide synthase on the plasma metabolite profile in mice. *Front Physiol* 5:1-12, 2014.

*55. Salabei JK and **Hill BG**. Autophagic regulation of smooth muscle biology. *Redox Biol* 4C:97-103, 2014.

*56. **Hill BG**. Insights into an adipocyte whitening program. *Adipocyte* 4:1-6, 2015.

*57. Dassanayaka S, Readnower RD, Long BW, Aird AL, Zheng YT, Salabei JK, Facundo H, **Hill BG***, and Jones SP*. High glucose induces mitochondrial dysfunction independent of protein O-GlcNAcylation. *Biochem J* 467:113-124, 2015
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