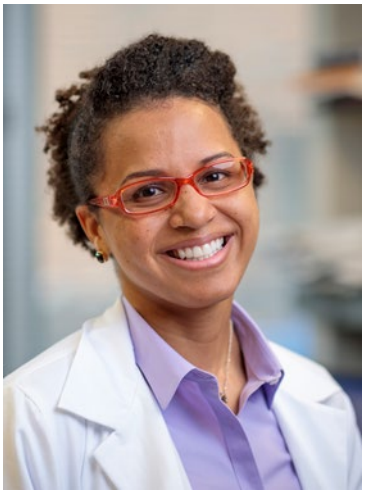
CURRICULUM VITAE
RITA THOMAS BROOKHEART, PH.D.



DATE: August 29, 2022

PERSONAL INFORMATION:
Date of Birth: February 9, 1981
Place of Birth: Long Beach, CA

CITIZENSHIP: USA

ADDRESS AND TELEPHONE NUMBERS:
Office: Department of Medicine
Washington University School of Medicine
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PRESENT POSITION: Assistant Professor
Division of Geriatrics and Nutritional Science
Department of Medicine
Washington University School of Medicine
St. Louis, Missouri

EDUCATION:

Undergraduate:

2001-2002 University of St. Andrews, Scotland, Junior Year Abroad Program

2003 B.A. (*magna cum laude*), Sweet Briar College, Sweet Briar, Virginia

Graduate:

2009 Ph.D., Washington University in St. Louis School of Medicine, St. Louis, Missouri

Postgraduate:

2009-2013 Post-Doctoral Fellow, Department of Cell Biology, Johns Hopkins University School of Medicine, Baltimore, Maryland

2014-2015 Post-Doctoral Research Associate, Department of Pediatrics, Washington University in St. Louis School of Medicine, St. Louis, Missouri

ACADEMIC POSITIONS/EMPLOYMENT:

2015-2016 Research Instructor, Developmental Biology and Genetics Research Unit, Department of Pediatrics, Washington University School of Medicine, St. Louis, Missouri

2016-2018 Research Instructor, Division of Geriatrics and Nutritional Science, Department of Medicine, Washington University School of Medicine, St. Louis, Missouri

2018-2021 Research Assistant Professor, Division of Geriatrics and Nutritional Science, Department of Medicine (primary appointment), and Department of Pediatrics, Washington University School of Medicine, St. Louis, Missouri

2021-present Tenure-Track Assistant Professor, Division of Geriatrics and Nutritional Science, Department of Medicine (primary appointment), and Department of Pediatrics, Washington University School of Medicine, St. Louis, Missouri

UNIVERSITY AND HOSPITAL APPOINTMENTS AND COMMITTEES:

2019-present	Member, HHMI Gilliam Fellowship Nomination Selection Committee
2020-present	Chair, HHMI Gilliam Fellowship Nomination Selection Committee
2020-present	Institutional Representative, HHMI Gilliam Fellowship WU
2021-present	Assistant Director, Animal Model Research Core, NORC

HONORS AND AWARDS:

2003	Phi Beta Kappa
2003	*magna cum laude*
2006-2008	NRSA Minority Individual Pre-Doctoral Fellowship, NIDDK-NIH
2011-2013	NRSA Individual Postdoctoral Fellowship, NHLBI-NIH
2015-2016	BIRCWH Scholar, NIH/Washington University in St. Louis
2021-2022	Harvard Medical School NORC Diversity Scholar

EDITORIAL RESPONSIBILITIES

Ad hoc Reviewer: Scientific Reports, AJP – Endocrinology and Metabolism, Journal of Functional Foods, American Journal of Medical Genetics: Part A.

UNIVERSITY PANELS:

2021	Panelist, WUSM New Faculty Orientation
2021	Speaker and Panelist, NIH PRIDE CVD-CGE Summer Institute Program in the Division of Biostatistics
2022	Panelist, WUSM New Faculty Orientation
2022	Discussion Leader, WUSM MEDA-IMSD partnership
2022	Inventor Panelist, Office of Technology Transfer

NATIONAL SCIENTIFIC PANELS/LEADERSHIP:

2020	NIDDK-NIH NORC Underrepresented in Academia Junior Faculty, NIH
2020	Office of Diversity, Equity, and Inclusion, Yale School of Medicine
2021	Reviewer, Intersections Science Fellows Symposium, Yale University
2021	Advisor, Steering Committee, Intersections Science Fellows Symposium, Yale University
2021-present	NIDDK-NIH NORC Working Group on DEI, NIH
2022	Early Career Reviewer, POMD Study Section, NIH
2022	Discussion Leader, NIDDK STEP UP Symposium, NIH
2022-present	Co-Organizer, NIDDK STEP UP Symposium, NIH

MAJOR INVITED PROFESSORSHIPS AND LECTURESHIPS:

Institute for Diabetes, Obesity and Metabolism. University of Pennsylvania. May 2009.

Cell Biology Department, Harvard University. June 2009.

Division of Rheumatology, Department of Medicine, Harvard University. June 2009.

Department of Radiation Oncology. Dana-Farber Cancer Institute. June 2009.

NIH Washington-Area Yeast Meeting, NIH. December 2012.

Department of Biology and Biomedical Sciences, Yale School of Medicine. September 2020.

Dr. John Russell Symposia, Washington University. September 2020. (*Postponed due to COVID-19)*

Cell Biology and Physiology Seminar, Washington University. September 2021.

Institute of Human Nutrition, Columbia University. March 2022.

Discovery Science Emerging Scholar Lecture, Department of Molecular Physiology & Biophysics, Vanderbilt University School of Medicine. September 2022.

Molecular Medicine, University of Iowa Medical Research Center. December 2022.

Medical University of South Carolina. March 2023.

RESEARCH SUPPORT:

ACTIVE

a. Governmental

2019-2023 K01HL145326-01 Brookheart (PI)
NIH/NHLBI – Mentored Career Development Award
Site-1 Protease in the regulation of skeletal muscle metabolism and exercise endurance

2020-2021 P30 DK056341 Klein (PI)/Brookheart (JIT PI)
NIH/WUSM - NORC Just-In-Time Core Laboratory Funding Program
F*unctional studies of obesity-associated changes in skeletal muscle function and metabolism*

2020-2022 P30 DK056341 Klein (PI)/Brookheart (Diversity PI)
NIH/WUSM – NORC Diversity Award
Obesity-associated skeletal muscle dysfunction and regenerative capacity after injury

2022-2027 R25 DK132966 Brookheart (Co-I)
NIH/NIDDK
Summer Program for the Advancement of Research Relevant to NIDDK (SPARK)

PAST

a. Governmental

2003-2006 T32GM007067 Brookheart (Trainee)
NIGMS/WUSM - Institutional Training Grant

2006-2008 F31DK077583 Brookheart (PI)
NIH/NIDDK - NRSA Minority Individual Pre-doctoral Fellowship
Regulation of lipotoxicity by the non-coding RNA gadd7

2008-2009 R01DK064989-04A2S1 Brookheart (Trainee)
NIH/NIDDK - Supplement to Promote Diversity in Health-Related Research

2011-2013 F32HL106971 Brookheart (PI)
NIH/NHLBI - NRSA Individual Postdoctoral Fellowship
The role of PGRMC1 in hepatic cholesterol homeostasis

2015-2016 K12HD001459 Semenkovich (PI)/Brookheart (Scholar)
NIH / WUSM - Building Interdisciplinary Research Careers in Women's Health (BIRCWH)
Impact of insulin signaling on ovarian mitochondrial function and offspring metabolism

2016-2018 UL1TR000448 Brookheart (JIT PI)
ICTS JIT Core Usage Funding
Evaluation of ER stress in PCOS

2016-2018 P30 DK056341 Klein (PI)/Brookheart (JIT PI)
NIH/WUSM - NORC Pilot & Feasibility Program
Site-1 Protease and the obese ovary

2018-2019 P30 DK056341 Klein (PI)/Brookheart (JIT PI)
NIH/WUSM - NORC Just-In-Time Core Laboratory Funding Program
Functional studies of S1P in mitochondria

2018-2019 P30 AR057235 Silva (PI)/Brookheart (JIT Co-PI)
NIH/WUSM - Musculoskeletal Research Center Just-in-Time Core Usage
The role for S1P in skeletal muscle function

2019-2020 UL1 TR002345 Evanoff (PI)/Brookheart (JIT PI)
NIH/WUSM - ICTS Just-in-Time Core Usage Funding Program
RNASeq analysis of S1P-regulated gene expression in skeletal muscle

b. Private/Foundation

2020 Research Donation Brookheart (PI)
Private Donor
Unrestricted funds for Dr. Rita Brookheart Laboratory

PATENTS:

Rita Brookheart and Brian Finck.
"METHODS AND COMPOSITIONS FOR IMPROVING EXERCISE ENDURANCE OR TOLERANCE"
U.S. Non-Provisional Pat. Ser. No. 16/732,740 filed 02 January 2019

Rita Brookheart.
"MUSCLE RETENTION IN AGING AND DUCHENNE MUSCULAR DYSTROPHY (DMD) THROUGH S1P INHIBITION" U.S. Provisional Pat. Serial No. 63/370,712 filed 08 August 2022

TRAINING / MENTEE RECORD:

Current Trainees / Mentees

Name	Position	Yrs Mentored
Carmela, Unnold Cofre	Graduate Student, WUSM	2022-present
Juan Gallardo Pinera	Graduate Student, WUSM	2022-present
Miguel Rodriguez	Graduate Student, WUSM	2022-present
Meredith Kelly	Undergraduate, Cal Poly	2021-present
Muhammad Mousa	Post-bac, Washington University	2021-present
Yasmin Rai	Undergraduate, Washington University	2022-present
Isha Sharma	Undergraduate, Washington University	2022-present

Past Trainees / Mentees

Name	Position (Previous/Current)	Yrs Trained
Alison Swearingen	Undergraduate, Washington University/ PhD student, University of Colorado	2014-2016
Efrain Rovira	Undergraduate, Washington University/ Business Dev. Rep., VMware	2017
Connie Gan	Undergraduate, Washington University/ Gen. Surgery Resident, Oregon Health & Science University	2016-2017
Shelby Ek	Post-bac, Washington University/ PharmD student, University of Missouri-Kansas City School of Pharmacy	2019-2020
Lahari Vuppaladhadiam	Undergraduate, Washington University/MD student, Univ Chicago	2019-2021

BIBLIOGRAPHY:

Peer-reviewed manuscripts

1. **Brookheart, RT.**, Michel, CI., Listenberger, LL., Ory, DS., Schaffer, JE. The non-coding RNA gadd7 is a regulator of lipid-induced oxidative and ER stress. *J Biol Chem.* 2009: 284: 7446-7454. doi: 10.1074/jbc.M806209200 PMID: 19150982

2. Michel, CI., Holley, CL., Scruggs, BS., Sidhu, R., **Brookheart, RT.**, Listernberger, LL., Behlke, MA., Ory, DS., Schaffer, JE. Small nucleolar RNAs U32a, U33, and U35a are critical mediators of metabolic stress. *Cell Metab.* 2011: 14: 33-44. doi: 10.1016/j.cmet.2011.04.009 PMID: 21723502

3. **Brookheart, RT.**, Lee, CYS., Espenshade, PJ. Casein kinase 1 regulates sterol regulator element-binding protein (SREBP) to control sterol homeostasis. *J Biol Chem.* 2014: 289: 2725-2735. doi: 10.1074/jbc.M113.511899 PMID: 24327658

4. **Brookheart, RT**., Swearingen, AR., Collins, C., Cline, L., Duncan, JG. High-sucrose-induced maternal obesity disrupts ovarian function and decreases fertility in Drosophila melanogaster. *Biochim Biophys Acta.* 2017: 1863:1255-1263. doi: 10.1016/j.bbadis.2017.03.014 PMID: 28344128

5. **Brookheart, RT.**, Lewis, WG., Peipert, JF., Lewis, AL., Allsworth, JE. Association between obesity and bacterial vaginosis as assessed by Nugent score. *American Journal of Obstetrics and Gynecology*. 2019:220:476.e1-476.e11. doi: 10.1016/j.ajog.2019.01.229 PMID: 30707966

6. Schweitzer G, Gan C, Bucelli R, Wegner DJ, Schmidt R, Shinawi M, Finck BN, **Brookheart RT.** A mutation in Site-1 Protease is associated with a complex phenotype that includes episodic hyperCKemia and focal myoedema. *Molecular Genetics & Genomic Medicine.* 2019 Jul;7(7):e00733. doi: 10.1002/mgg3.733. PMID: 31070020

7. Franczyk, MP., Qi, N., Stromsdorfer, KL., Li, C., Yamaguchi, S, Itoh, H., Mihoko Yoshino, Sasaki, Y., **Brookheart, RT.,** Finck, BN., DeBosch, BJ., Klein, S., Yoshino, J. Importance of adipose tissue NAD^+ biology in regulating metabolic flexibility. *Endocrinology.* 2021 Mar 1;162(3):bqab006. doi: 10.1210/endocr/bqab006. PMID: 33543238

8. Chambers, KT., Cooper, MA., Swearingen, AR., **Brookheart, RT.**, Schweitzer, GG., Weinheimer, C., Kovacs, A., Koves, TR., Muoio, DM., McCommis, KS., Finck, BN. Myocardial lipin 1 knockout in mice approximates cardiac effects of human LPIN1 mutations. *JCI Insights.* 2021 May;6(9):134340. doi: 10.1172/jci.ingisht.134340. PMID: 33986192

9. McGuire, MR., Mukhopadhyay, D., Myers, SL., Mosher, EP., **Brookheart, RT**., Kammers, K., Sehgal, A., Selen, ES., Wolfgang, MJ., Bumpus, NN., Espenshade, PJ. Progresterone receptor membrane component 1 (PGRMC1) binds and stabilizes cytochromes P450 through a heme-independent mechanism. *J. Biol Chem*. 2021 Nov;297(5):101316. doi: 10.1016/j.jbc.2021.101316. PMID: 34678314

10. Mousa MG., Vuppaladhadiam L., Kelly KO., Pietka T., Ek S., Shen KC., Meyer GM., Finck BN., Brookheart RT. Site-1 Protease inhibits mitochondrial metabolism by controlling the TGF-β target gene MSS51. bioRxiV 2022. BIORXIV/2022/504591.

Invited Reviews

1. **Brookheart, RT.**, Michel, CI., Schaffer, JE. As a Matter of Fat. *Cell Metab*. 2009: 10: 9-12. doi: 10.1016/j.cmet.2009.03.011 PMID: 19583949

2. **Brookheart, RT**. and Duncan, JG. Drosophila melanogaster: An emerging model of transgenerational effects of maternal obesity. *Molecular and Cellular Endocrinology.* 2016: 435:20-8. doi: 10.1016/j.mce.2015.12.003 PMID: 2668706

3. **Brookheart, RT**. and Duncan, JG. Modeling dietary influences on offspring metabolic programming in *Drosophila melanogaster*. *Reproduction*, 2016: 152: R79-R90. doi: 10.1530/REP-15-0595 PMID: 27450801