Curriculum Vitae Thomas Benedict Bartnikas, MD PhD
June 2022

PERSONAL DATA

Brown University, Department of Pathology and Laboratory Medicine
Campus Box G-E5, 70 Ship St., Rm. 536, Providence, RI 02912
401-863-3478 (office); 401-863-9008 (fax); 401-863-5395 (lab)
thomas_bartnikas@brown.edu

EDUCATION

1996 B.A. *magna cum laude*, Biological Sciences, Cornell University
2004 M.D., Washington University in St. Louis School of Medicine
2004 Ph.D., Molecular and Cell Biology (Dr. Jonathan Gitlin), Washington University in St. Louis

PROFESSIONAL APPOINTMENTS

2004-05 Intern, Pediatrics, Children's Hospital Boston
2005-07 Postdoctoral fellow, Lab of Dr. Nancy Andrews, Children's Hospital Boston
2007-11 Postdoctoral fellow, Lab of Dr. Mark Fleming, Children's Hospital Boston
2011-12 Instructor, Lab of Dr. Mark Fleming, Children's Hospital Boston
2012-17 Assistant Professor, Department of Pathology and Laboratory Medicine, Brown University
2017-20 Manning Assistant Professor of Pathology and Laboratory Medicine, Brown University
2018-22 Associate Director, MD/PhD Program, Brown University
2020- Associate Professor, Department of Pathology and Laboratory Medicine, Brown University
2022- Director, MD/PhD Program, Brown University

PROFESSIONAL SOCIETIES

2008- International BioIron Society, Member
2012- American Society of Hematology, Member
2014- American Association for the Advancement of Science, Member
2014- Society of Toxicology, Full Member

REVIEWING ACTIVITY

2009- Ad hoc reviewer for journals including: *ACS Chemical Biology, American Journal of Hematology, Biochimica et Biophysica Acta, Blood, British Journal of Haematology, Communications Biology, Critical Reviews in Toxicology, Frontiers in Genetics, Frontiers in Pharmacology, Gastroenterology, Haematologica, Hepatology, Inorganic Chemistry, Journal of Biological Inorganic Chemistry, Journal of Cellular and Molecular Medicine, Journal of Clinical Investigation, Journal of Experimental Medicine, Journal of Hematology and Blood Disorders, Journal of Hepatology, Journal of Nutritional Biochemistry, Journal of Pediatric Biochemistry, Metallomics, Nanotoxicology, Nature Communications, Neurotoxicology, PLOS One, PLOS Genetics, PNAS, Toxicology Reports, Toxicological Sciences*
2011 Grant review, Portugese Foundation for Science and Technology
2012, 20 Grant review, Medical Research Council, United Kingdom

2012 Coordinating Reviewer and Co-Moderator, Session on “Regulation of Iron Metabolism: Molecular Mechanisms of Iron Uptake and Hepcidin Regulation”, American Society of Hematology Annual Meeting, Atlanta, Georgia
2013-14 Grant review, Czech Science Foundation
2014, 16 Grant review, French Foundation for Rare Diseases
2015 Grant review, Austrian Science Fund
2016, 21 Grant review, La Fondation pour la Recherche Médicale
2016 Grant Review, Epidemiology Scientific Review Group, Biomedical Laboratory Research and Development, U.S. Dept. of Veterans Affairs
2017 Grant review, Special Emphasis Panel, Neurotoxicology and Alcohol Study Section (NAL), Integrative, Functional, and Cognitive Neuroscience (IFCN) Center for Scientific Review, National Institutes of Health
2018 Grant Review, The Wellcome Trust DBT India Alliance
2018 Grant Review, Integrative Nutrition and Metabolic Processes Study Section, National Institutes of Health
2019 Grant Review, Integrative Nutrition and Metabolic Processes Study Section, National Institutes of Health
2019 External Peer Review, Agency for Toxic Substances and Disease Registry
2020 Grant Review, Special Emphasis Panel, Revolutionizing Innovative, Visionary Environmental Health Research (RIVER) R35, NIH
2020 Grant Review, NIDDK Cooperative Centers of Excellence in Hematology, NIH
2021-25 Member, Nutrition and Metabolism in Health and Disease Study Section, NIH
2022 Grant Review, U.S.-Israel Binational Science Foundation

OTHER PROFESSIONAL ACTIVITIES

2013-15 Member, Scientific Committee on Iron and Heme, American Society of Hematology
2014- Judge, New England Science Symposium, Harvard Medical School, Boston, Massachusetts
2014 Moderator and Presenter, Session on “Animal Models for Trace Element Research Relevant to Human Disease”, Trace Elements in Man and Animals, Orlando, Florida
2016, 18 Career Workshop Panel, FASEB Scientific Research Conference: Trace Elements in Biology and Medicine
2016-19 *Blood* Editorial Board, Member
2016 Moderator, Session on “Regulation of Iron Metabolism: Hepcidin and the Regulation of Iron Homeostasis”, American Society of Hematology Annual Meeting, San Diego, California
2017 Moderator, Session on “Iron: The Good, The Bad, and The Ugly”, Seventh Congress of the International BioIron Society, Los Angeles, California
2018 Elected to serve as co-vice-chair in 2020 and co-chair in 2022 of FASEB Trace Elements in Biology and Medicine conference; due to pandemic, served co-vice-chair in 2022 and co-chair in 2024
2019 Moderator, Session on Metals in Physiology and Disease, Gordon Research Conference on Cell Biology of Metals, Castelldefels, Spain
2021 Elected to serve as co-vice-chair in 2023 and co-chair in 2025 of Gordon Research Conference on Cell Biology of Metals

UNIVERSITY ACTIVITIES

2012-13 Faculty Search Committee, Dept. of Pathology and Laboratory Medicine

2012-14, 16 Graduate Admissions Committee, Pathobiology Graduate Program
2013, 15 T32 Training Grant Postdoctoral Search Committee, Dept. of Pathology and Laboratory Medicine
2013-17 Search Committee for Director of Division of Pediatric Hematology/Oncology, Rhode Island Hospital
2015-16 Faculty Search Committee, Dept. of Pathology and Laboratory Medicine
2017-18 Faculty Search Committee, Dept. of Pathology and Laboratory Medicine
2017 Search Committee for Dept. Manager, Dept. of Pathology and Laboratory Medicine
2019- Radiation Safety Committee
2020- Institutional Animal Care and Use Committee
2021- Library Advisory Board
2022-23 Search Committee, Associate Dean for Medical Education, Program in Liberal Medical Education
2022 Undergraduate Teaching and Research Award application review

PUBLICATIONS

Peer-reviewed

1. Prajapati M, Conboy HL, Hojyo S, Fukada T, Budnik B, **Bartnikas TB**. Biliary excretion of excess iron in mice requires hepatocyte iron import by Slc39a14. J. Biol Chem 2021; 297(1):100835.
2. De A, Chen W, Li H, Wright JR, Lamendella R, Lukin DJ, Szymczak WA, Sun K, Kelly L, Ghosh S, Kearns DB, He Z, Jobin C, Luo X, Byju A, Chatterjee S, Yeoh BS, Vijay-Kumar M, Tang JX, Prajapati M, **Bartnikas TB**, Mani S. Bacterial swarmers enriched during intestinal stress ameliorate damage. Gastroenterology 2021; 161(1):211-224.
3. Prajapati M, Pettiglio MA, Conboy HL, Mercadante CJ, Hojyo S, Fukada T, **Bartnikas TB**. Characterization of in vitro models of SLC30A10 deficiency. Biometals. 2021; 34(3):573-588.
4. McDonald EA, Gundogan F, Olveda RM, **Bartnikas TB**, Kurtis JD, Friedman JF. Iron transport across the human placenta is regulated by hepcidin. Pediatr Res. 2020 [in press]
5. Mercadante CJ, Prajapati M, Conboy HL, Dash ME, Herrera C, Pettiglio MA, Cintron-Rivera L, Salesky MA, Rao DB, **Bartnikas TB**. Manganese transporter Slc30a10 controls physiological manganese excretion and toxicity. J Clin Invest. 2019; 129(12):5442-5461.
6. Zhao L, **Bartnikas T**, Chu X, Klein J, Yun C, Srinivasan S, He P. Hyperglycemia promotes microvillus membrane expression of DMT1 in intestinal epithelial cells in a PKCα-dependent manner. FASEB J. 2019; 33:3549-61.
7. Mercadante CJ, Prajapati M, Parmar JH, Conboy HL, Dash ME, Pettiglio MA, Herrera C, Bu JT, Stopa EG, Mendes P, **Bartnikas TB**. Gastrointestinal iron excretion and reversal of iron excess in a mouse model of inherited iron excess. Haematologica 2019; 104:67-89.
8. Traeger L, Gallitz I, Sekhri R, Bäumer BN, Kuhlmann T, Kemming C, Holtkamp M, Müller MJ, Karst U, Canonne-Hergaux F, Muckenthaler MU, Bloch DB, Olschewski A, **Bartnikas TB**, Steinbicker AU. ALK3 undergoes ligand-independent homodimerization and BMP-induced heterodimerization with ALK2. Free Radic Biol Med. 2018; 129:127-37.
9. Foster ML, **Bartnikas TB**, Maresca-Fichter HC, Mercadante C, Dash M, Miller C, Dorman DC. Neonatal C57BL/6J and parkin mice respond differently following developmental manganese exposure: result of a high dose pilot study. Neurotoxicology 2018; 64:291-299.
10. Foster ML, **Bartnikas TB,** Maresca-Fichter HC, Mercadante C, Dash M, Miller C, Dorman DC. Interactions of manganese with iron, zinc, and copper in neonatal C57BL/6J and Parkin mice following developmental oral manganese exposure. Data Brief 2017; 15:908-15.

11. Thomason RT, Pettiglio MA, Herrera C, Kao C, Gitlin JD, **Bartnikas TB**. Characterization of trace metal content in the developing zebrafish embryo. PLoS One 2017; 12:e0179318.
12. Mercadante CJ, Herrera C, Pettiglio MA, Foster ML, Johnson LC, Dorman DC, **Bartnikas TB.** The effect of high dose oral manganese exposure on copper, iron and zinc levels in rats. Biometals 2016; 29:417-22.
13. Pettiglio MA, Herrera C, Foster ML, Dorman DC, **Bartnikas TB.** Liver metal levels and expression of genes related to iron homeostasis in rhesus monkeys after inhalational manganese exposure. Data Brief 2016; 6:989-97.
14. Foster ML, **Bartnikas TB**, Johnson LC, Pettiglio MA, Herrera C, Keene AM, Taylor MD, Dorman DC. Pharmacokinetic evaluation of the equivalency of gavage, dietary and drinking water exposure to manganese in F344 rats. Toxicol Sci 2015; 145:244-51.
15. Gutschow P, Schmidt PJ, Han H, Ostland V, **Bartnikas TB,** Butler JS, Nemeth E, Ganz T, Fleming MD, Westerman W. A competitive enzyme-linked immunosorbent assay specific for murine hepcidin-1: correlation with hepatic mRNA expression in established and novel models of dysregulated iron homeostasis. Haematologica 2015; 100:167-77.
16. Herrera C, Pettiglio MA, **Bartnikas TB.** Investigating the Role of Transferrin in the Distribution of Iron, Manganese, Copper and Zinc. J Biol Inorg Chem 2014; 19:869-77.
17. Zhang Z, Guo X, Herrera C, Tao Y, Wu Q, Wu A, Wang H, **Bartnikas TB**, Wang F. Bmp6 expression can be regulated independently of liver iron in mice. PLOS One 2014; 9:e84906.
18. **Bartnikas TB**, Wildt SJ, Wineinger AE, Schmitz-Abe K, Markianos K, Cooper DM, Fleming MD. A novel rat model of hereditary hemochromatosis due to a mutation in transferrin receptor 2. Comp Med 2013; 63:143-55.
19. **Bartnikas TB**, Steinbicker AU, Campagna DR, Blevins S, Woodward LS, Herrera C, Bloch KD, Justice MJ, Fleming MD. Identification and characterization of a novel murine allele of Tmprss6. Haematologica 2013; 98:854-61.
20. **Bartnikas TB**, Parker CC, Cheng R, Campagna DR, Lim JE, Palmer AA, Fleming MD. QTLs for murine red blood cell parameters in LG/J and SM/J F2 and advanced intercross lines. Mamm Genome 2012;23: 356-66.
21. **Bartnikas TB**, Fleming MD. Hemojuvelin is essential for transferrin-dependent and –independent hepcidin expression in mice. Haematologica 2012; 97:189-92.
22. Steinbicker AU, **Bartnikas TB**, Lohmeyer LK, Leyton P, Mayeur C, Kao SM, Pappas AE, Peterson RT, Bloch DB, Yu PB, Fleming MD, Bloch KD. Perturbation of hepcidin expression by BMP type I receptor deletion induces iron overload in mice. Blood 2011; 118:4224-30.
23. **Bartnikas TB**, Andrews NC, Fleming MD. Transferrin is a major determinant of hepcidin expression in hypotransferrinemic mice. Blood 2011; 117:630-7.
24. **Bartnikas TB,** Campagna DR, Antiochos B, Mulhern H, Pondarre C, Fleming MD. Characterization of mitochondrial ferritin-deficient mice. Am J Hematol 2010; 85:958-60.
25. Rooijakkers SH, Rasmussen SL, McGillivray SM, **Bartnikas TB**, Mason AB, Friedlander AM, Nizet V. Human transferrin confers serum resistance against bacillus anthracis. J Biol Chem 2010; 285:27609-13.
26. Caruano-Yzermans AL, **Bartnikas TB**, Gitlin JD. Mechanisms of the copper-dependent turnover of the copper chaperone for superoxide dismutase. J Biol Chem 2006; 281:13581-7.
27. **Bartnikas TB**, Gitlin JD. Mechanisms of biosynthesis of mammalian copper/zinc superoxide dismutase. J Biol Chem 2003; 278:33602-8.
28. Subramaniam JR, Lyons WE, Liu J, **Bartnikas TB**, Rothstein J, Price DL, Cleveland DW, Gitlin JD, Wong PC. Mutant SOD1 causes motor neuron disease independent of copper chaperone-mediated copper loading. Nat Neurosci 2002; 5:301-7.

29. **Bartnikas TB**, Wang Y, Bobo T, Veselov A, Scholes CP, Shapleigh JP. Characterization of a member of the NnrR regulon in Rhodobacter sphaeroides 2.4.3 encoding a haem-copper protein. Microbiology 2002; 148:825-33.
30. McLoughlin DM, Standen CL, Lau KF, Ackerley S, **Bartnikas TB**, Gitlin JD, Miller CC. The neuronal adaptor protein X11alpha interacts with the copper chaperone for SOD1 and regulates SOD1 activity. J Biol Chem 2001; 276:9303-7.
31. **Bartnikas TB**, Waggoner DJ, Casareno RL, Gaedigk R, White RA, Gitlin JD. Chromosomal localization of CCS, the copper chaperone for Cu/Zn superoxide dismutase. Mamm Genome 2000; 11:409-11.
32. Waggoner DJ, Drisaldi B, **Bartnikas TB**, Casareno RL, Prohaska JR, Gitlin JD, Harris DA. Brain copper content and cuproenzyme activity do not vary with prion protein expression level. J Biol Chem 2000; 275:7455-8.
33. Wong PC, Waggoner D, Subramaniam JR, Tessarollo L, **Bartnikas TB**, Culotta VC, Price DL, Rothstein J, Gitlin JD. Copper chaperone for superoxide dismutase is essential to activate mammalian Cu/Zn superoxide dismutase. Proc Natl Acad Sci USA 2000; 97:2886-91.
34. **Bartnikas TB**, Tosques IE, Laratta WP, Shi J, Shapleigh JP. Characterization of the nitric oxide reductase-encoding region in Rhodobacter sphaeroides 2.4.3. J Bacteriol 1997; 179:3534-40.

Invited reviews

1. Dutt S, Hamza I, **Bartnikas TB.** Molecular Mechanisms of Iron and Heme Metabolism. Annu Rev Nutr. 2022 May 4. In press
2. **Bartnikas TB**. Cutting may not be key to TMPRSS6 activity. Blood 2020; 136:922-923.
3. **Bartnikas TB,** Steinbicker AU, Enns CA. Insights into basic science: what basic science can teach us about iron homeostasis in trauma patients. Curr Opin Anaesthesiol. 2020; 33:240-5.
4. **Bartnikas TB.** Matriptase-2 links erythropoietin to iron. Blood 2016; 127:2270-1.
5. Bu JT, **Bartnikas TB.** The use of hypotransferrinemic mice in studies of iron biology. Biometals 2015; 28:473-80.
6. **Bartnikas TB.** Liver not making hepcidin? Hemochromatosis! Blood 2014; 123:3535-6.
7. **Bartnikas TB**, Fleming MD, Schmidt PJ. Murine mutants in the study of systemic iron metabolism and its disorders: An update on recent advances. Biochim Biophys Acta 2012; 1823:1444-50.
8. **Bartnikas TB**. Known and potential roles of transferrin in iron biology. Biometals 2012; 25:677-86.
9. **Bartnikas TB**, Fleming MD. A tincture of hepcidin cures all: the potential for hepcidin therapeutics. J Clin Invest 2010; 120:4187-90.
10. **Bartnikas TB**, Gitlin JD. How to make a metalloprotein. Nat Struct Biol 2001; 8:733-4.
11. Waggoner DJ, **Bartnikas TB**, Gitlin JD. The role of copper in neurodegenerative disease. Neurobiol Dis 1999; 6:221-30.

Book chapters

Bartnikas TB, Herrera C, Pettiglio M. Genetic Rodent Models of Systemic Iron Homeostasis, in Molecular, Genetic, and Nutritional Aspects of Major and Trace Minerals, Collins JF, ed., Elsevier, Oxford, 2017, pp. 187-201.

INVITED PRESENTATIONS

2011 *Roles of transferrin, iron and manganese in the regulation of iron biology.*
4th International Workshop on Iron and Copper Homeostasis, Pucon, Chile.

2012 *A novel rat model of hereditary hemochromatosis due to a mutation in transferrin receptor 2.*
American Society of Hematology 54th Annual Meeting, Atlanta, Georgia.

2013 *The role of the iron regulatory hormone hepcidin in health and disease.*
Pediatric Research Colloquium, Women & Infants Hospital, Providence, Rhode Island.

2014 *Diseases of iron excess and deficiency.*
Pathology Research Seminar, Rhode Island Hospital, Providence, Rhode Island.

2014 *Metal Homeostasis and transferrin deficiency.*
FASEB Trace Elements in Biology and Medicine, Steamboat Springs, Colorado.

2014 *Metal homeostasis and transferrin deficiency.*
15th International Symposium on Trace Elements in Man and Animals, Orlando, Florida.

2014 *Metal homeostasis and transferrin deficiency.*
9th International Biometals Symposium, Durham, North Carolina.

2014 *Regulation of mammalian iron homeostasis by iron and transferrin.*
Junior Researcher Symposium, American Society of Hematology 56th Annual Meeting,
San Francisco, California.

2015 *Iron homeostasis and transferrin deficiency.*
Lindsley F. Kimball Research Institute Seminar Series, New York Blood Center,
New York City, New York.

2015 *Reversibility of iron loading in transferrin-deficient mice.*
Gordon Research Conference, Cell Biology of Metals, West Dover, Vermont.

2016 *SLC30A10 deficiency: a novel cause of polycythemia and hepcidin deficiency.*
American Society of Hematology Annual Meeting, San Diego, California.

2017 *Mechanisms of mammalian metal excretion.*
Gordon Research Conference, Cell Biology of Metals, West Dover, Vermont.

2018 *Mechanisms of mammalian iron excretion.*
Dept. of Molecular, Cellular, and Biomedical Sciences, University of New Hampshire, Durham, NH.

2018 *Mechanisms of mammalian iron excretion.*
Division of Digestive Diseases, Emory University School of Medicine, Atlanta, Georgia.

2018 *Mechanisms of mammalian iron excretion.*
FASEB Trace Elements in Biology and Medicine, Tahoe City, California.

2019 *How the body regulates levels of essential yet potentially toxic nutrients.*
Cardiopulmonary Vascular Biology Center of Biomedical Research Excellence,
Research Seminar, Providence, Rhode Island.

2019 *Gastrointestinal iron excretion and reversal of iron excess in a mouse model of inherited iron excess.*
8th Congress of the International BioIron Society, Heidelberg, Germany.

2020 *The mechanistic basis of manganese excess in SLC30A10 deficiency.*
FASEB Trace Elements in Biology and Medicine.
(Conference canceled due to coronavirus pandemic)

2021 *Mouse models of inherited manganese excess due to SLC30A10 deficiency develop aberrant manganese and iron homeostasis.*
Gordon Research Conference, Cell Biology of Metals, West Dover, Vermont.

UNIVERSITY TEACHING ROLES

2012 BIOL 2860: Molecular Mechanisms of Human Disease, Brown University
Guest lecturer; supervisor and evaluator of final class project.
2013 BIOL 2860: Molecular Mechanisms of Human Disease, Brown University. Co-director.
2014, 15, 17- BIOL 2860: Molecular Mechanisms of Human Disease, Brown University. Director.
2014: 36 contact hours, 13 students
2015: 36 contact hours, 14 students
2017: 36 contact hours, 16 students
2018: 36 contact hours, 11 students
2019: 36 contact hours, 12 students
2020: 36 contact hours, 15 students
2021: 36 contact hours, 16 students
2018, 20 BIOL 1820: Environmental Health and Disease, Brown University. Guest lecturer.

GRADUATE TRAINEES

2015-19 Courtney Mercadante, Pathobiology Graduate Program.
2017-20 Heather Conboy, Molecular Physiology and Pharmacology Graduate Program.

POSTDOCTORAL TRAINEES

2016- Milankumar Prajapati

GRADUATE THESIS COMMITTEES

2017-19 Lauren Watts, Pathobiology, Laboratory of Dr. Anatoly Zhitkovich
2017-22 Nathan Martin, Pathobiology, Laboratory of Dr. Jessica Plavicki; committee chair
2018-22 Sarah Gordon, Molecular Biology, Cell Biology, and Biochemistry, Laboratory of Dr. Shipra Vaishnava
2019- Shannon Martin, Pathobiology, Laboratory of Dr. Jessica Plavicki; committee chair
2019-20 David Glidden, Computational Biology, Laboratory of Dr. William Fairbrother
2019- Jenna Zuromski, Pathobiology, Laboratory of Dr. Jonathan Kurtis; committee chair
2020 Aakash Jhaveri, Biotechnology, Laboratory of Dr. Wafik El-Deiry
2020- David Karambizi, Pathobiology, Laboratory of Dr. Nikos Tapinos; committee chair
2020- Maha Alhasnani, Pathobiology, Laboratory of Dr. Daniel Spade
2022- Rebecca Yunker, Pathobiology, Laboratory of Dr. Shipra Vaishnava; committee chair
2022 Ujwal Punyamurtula, Biotechnology, Laboratory of Dr. Wafik El-Deiry
2022- John Zepecki, Pathobiology, Laboratory of Dr. Nikos Tapinos; committee chair
2022- Isaac Kim, Computational Molecular Biology, Laboratory of Dr. Jeffrey Bailey; committee chair
2023- Mattia Pizzagalli, Pathobiology, Laboratory of Dr. Nikos Tapinos
2023 Jared Mompoint, Biotechnology, Laboratory of Dr. Wafik El-Deiry

UNDERGRADUATE TRAINEES

2013-15 Julia Bu, Brown University
Thesis: Transferrin deficiency and iron metabolism in the central nervous system

2015-17 Thanakorn Worasathit, Brown University
2017 Chelsea Miller, SUNY New Paltz (participant in Leadership Alliance)
2018 Laura Y. Diaz Rodriguez, University of Puerto Rico (participant in Leadership Alliance)
2018-19 Madeleine Salesky, Brown University
Thesis: The role of SLC30A10 in regulation of manganese levels in the body
2019 Jessica Anderson, Xavier University (participant in Leadership Alliance)
2019-21 Bradley Delaney, Brown University
Thesis: Contributions of the manganese transporter Slc30a10 to manganese homeostasis
during postnatal development in mice
2020 Bethany Arabic, Simmons University (participant in Leadership Alliance)
2021 Alice Varughese, Rensselaer Polytechnic Institute (participant in Leadership Alliance)
2021- Jared Zhang, Brown University
2022- Mahadevan Subramanian, Brown University
2022 Jose Candelaria Marrero, University of Puerto Rico (participant in Leadership Alliance)
2022- Grace Chong, Brown University
2022- Lauren Chiu, Brown University

HIGH SCHOOL TRAINEES

2014 Alexander Lopez, Metropolitan Regional Career and Technical Center, Providence, Rhode Island
2014-15 Larissa Klufus, Lincoln School, Providence, Rhode Island

UNDERGRADUATE STUDENT ADVISING

2013-14 Four first-year students
2014-15 Six first-year and four second-year students
2015-16 Six first-year and six second-year students
2016-17 Six first-year and six second-year students
2017-18 Six first-year and five second-year students
2018-19 Eight first-year and six second-year students
2019-20 Five first-year and eight second-year students
2020-21 Five first-year and four second-year students
2021-22 Five first-year and five second-year students
2022-23 Five first-year and five second-year students

REPORT OF FUNDED PROJECTS

2006-08 Serum regulators of hepcidin expression
Cooley’s Anemia Foundation
Principal Investigator
The major goal of the study was to identify serum molecules that modulate hepcidin mRNA levels in hepatocytes and to test candidate hepcidin regulatory proteins *in vitro.*

2009-15

Regulation of iron homeostasis by iron and transferrin
NIDDK K99 (2009-12), R00 (2012-15) DK084122
Principal Investigator
The major goals of the study were to determine the effect of metal-free, diferric, and total transferrin levels on hepcidin levels *in vivo*, to determine if perturbations in cellular manganese homeostasis alter cellular iron homeostasis, and to identify novel factors required for cellular manganese and iron homeostasis.

2016-26 Molecular basis of mammalian manganese homeostasis
NIDDK R01DK110049 (Sept. 21, 2016-Feb. 28, 2026)
Principal Investigator
The goal of this proposal is to establish the mechanistic link between hepcidin and manganese absorption in manganese excess secondary to SLC30A10 deficiency and to explore pharmacologic stimulation of hepcidin expression as a treatment for manganese excess in SLC30A10 deficiency and other conditions.

2020-22 Investigate hepatic manganese transporters and the regulation of tissue manganese distribution
Alnylam Pharmaceuticals
Principal Investigator
The goals of this grant are to characterize the effect of specific amino acid variants on function of the manganese transport protein SLC30A120 in vitro and in vivo and to explore the role of another manganese transport protein SLC39A8 on the regulation of Mn levels in animal models of human disease.

2022-23 Manganese excess and colorectal cancer
Cancer Center Interdisciplinary Translational Cancer Research Program, Brown University
Principal Investigator
The goal of this proposal is to study the contribution of aberrant manganese homeostasis in mouse models of colorectal cancer.

2023-24 Uncovering the mechanisms of transport and metal dissociation of copper-based radiopharmaceuticals
Seed Award, Brown University
Co-principal Investigator (with Dr. Jerome Robinson of Chemistry)
The goals of this proposal are to synthesize and characterize model copper-based radiopharmaceuticals, delineate their dissociation pathways via *in vitro* studies, and uncover transport pathways using *in vivo* studies.