

CURRICULUM VITAE

Brian R. Hoffmann PhD
Director of Protein Sciences
Mass Spectrometry and Protein Chemistry
Monoclonal Antibody and Protein Production
The Jackson Laboratory

OFFICE ADDRESS:

The Jackson Laboratory
Mass Spectrometry and Protein Chemistry
600 Main Street, Room 55-2517A
Bar Harbor, ME 04609

CITIZENSHIP: United States

APPOINTMENTS:

- 08/2023 – Present Director, Protein Sciences and Mass Spectrometry Services, The Jackson Laboratory
- 06/2023 – 08/2023 Interim Director, Protein Sciences, The Jackson Laboratory
- 12/03/2022 – 08/2023 Associate Director of Mass Spectrometry Services, Mass Spectrometry and Protein Chemistry, Protein Sciences, The Jackson Laboratory
- 02/01/2022 – 12/02/2022 Study Director, Mass Spectrometry and Protein Chemistry, Protein Sciences, The Jackson Laboratory
- 07/27/2020 – 01/31/2022 Mass Spectrometry Scientist II, Mass Spectrometry and Protein Chemistry, Protein Sciences, The Jackson Laboratory
- 08/2020 – Present Adjunct Assistant Professor, Department of Biomedical Engineering, Medical College of Wisconsin and Marquette University
- 09/01/2016 – 07/19/2020 Assistant Professor, Tenure Track, Departments of Biomedical Engineering (Primary) and Physiology (Secondary), Medical College of Wisconsin and Marquette University
- 09/01/2014 - 09/01/2016 Assistant Professor, Research Track, Department of Medicine-Cardiology, Biotechnology and Bioengineering Center, Medical College of Wisconsin, Milwaukee, WI

POSTGRADUATE TRAINING:

- 09/01/2010 - 08/31/2014 Postdoctoral Fellow, Department of Physiology, Biotechnology and Bioengineering Center, Medical College of Wisconsin, Milwaukee, WI

EDUCATION:

- 08/2005 - 09/2010 PhD, Molecular and Cellular Pharmacology, University of Wisconsin-Madison, WI
- 08/2001 – 05/2005 BS, Biology and Chemistry, Saint Norbert College, De Pere, WI

MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:

2023 – Present	Member, American Society of Mass Spectrometry
2018 – 2020	Member, Max McGee National Research Center for Juvenile Type 1 Diabetes, Children’s Research Institute, Medical College of Wisconsin
2016 - 2020	Member, The Biomedical Engineering Society
2016 - 2020	Member, American Diabetes Association
2014 – 2023	Member, The American Physiological Society
2015 - 2018	Member, The American Heart Association
2014 - 2020	Member, Cardiovascular Center, Medical College of Wisconsin
2014 - 2018	Group Leader, Member, Microvesicle Affinity Group, Cardiovascular Center, Medical College of Wisconsin
2014 - 2016	Member, The American Association for the Advancement of Science
2012 - 2016	Member, The American Society for Biochemistry and Molecular Biology
2012 - 2014	Member, National Postdoctoral Association
2012 - 2014	Member, Postdoctoral Industry Consultants (PICO), Medical College of Wisconsin
2004 - 2005	President, Tri-Beta National Honor Society, Saint Norbert College Chapter
2001 - 2005	Member, Tri-Beta National Honor Society, Saint Norbert College Chapter

PROFESSIONAL LEADERSHIP POSITIONS:

2024	Member, Scientific Services External Review Committee, The Jackson Laboratory
2022	Member, Scientific Services Open Day Planning Committee, The Jackson Laboratory
2021-Present	Member, Genomics Quality Control (GQC) Committee, The Jackson Laboratory
2019 – 2020	Faculty Member, Faculty Benefits Committee, Medical College of Wisconsin
2018 – 2020	Vice President, Governance Board, Kettle Moraine High School of Health Sciences, Wales, WI
2018 – 2020	Faculty Member, Department of Biomedical Engineering Research Committee, Medical College of Wisconsin and Marquette University
2017 – 2020	Faculty Council Representative for the Department of Biomedical Engineering, Medical College of Wisconsin
2016 – 2020	Member of Governance Board, Kettle Moraine High School of Health Sciences, Wales, WI
2016 – 2020	Director/Founder, Students Understanding the Principles of Research Education through Medicine, Engineering, and Science (SUPREMES) Academic Year High School Research Program, Medical College of Wisconsin and Marquette University
2016 – 2020	Faculty Member, Department of Biomedical Engineering Undergraduate Committee, Medical College of Wisconsin and Marquette University
2014 – 2016	Faculty Member, Biotechnology and Bioengineering Center Faculty Planning Committee, Medical College of Wisconsin
2012 - 2014	Manager, Leadership Team Member, Postdoctoral Industry Consultants (PICO), Medical College of Wisconsin
2006 - 2008	Pre-doctoral Student Representative, Molecular and Cellular Pharmacology Research Symposium Committee, University of Wisconsin-Madison
2006	Recruiting Coordinator, Molecular and Cellular Pharmacology Recruiting Committee, University of Wisconsin-Madison
2004 - 2005	President, Tri-Beta National Honor Society, Saint Norbert College
2004 - 2005	President, Biology Club, Saint Norbert College

EDITORIAL BOARDS, JOURNAL REVIEW, & GRANT REVIEW:

Journal Review

2021 – Present Frontiers in Bioengineering and Biotechnology
2019 - Present Journal of Vascular Research
2018 – Present AJP- Cell Physiology
2017 – Present Journal of Medicinal Chemistry
2016 - Present AJP-Endocrinology and Metabolism
2016 - Present AJP-Heart and Circulation
2016 - Present AJP-Gastrointestinal and Liver Physiology
2016 - Present Journal of Medicinal Chemistry
2015 - Present AJP-Cell Physiology
2014 - Present APS Journal of Physiological Genomics
2013 - Present Journal of Proteomics
2013 - Present PLOS ONE

Grant Review

2019 Grant Reviewer, Children’s Research Institute, Children’s Hospital of Wisconsin
2018 Ad Hoc Grant Reviewer; NIH-NIDDK, Kidney, Urologic and Hematologic Diseases D Sub-Committee (DDK-D)
2017 Grant Reviewer, Clinical and Translational Science Institute Pilot Award Program, Medical College of Wisconsin

SELECTED AWARDS AND HONORS:

2024 New instrumentation grant was highlighted through an AAAS EurekAlert ([\\$1.6 million NIH grant fuels JAX’s mass spect | EurekAlert!](#)) and by MaineBiz ([Jackson Lab awarded \\$1.6M grant for ‘first of kind’ tech to decode disease | Mainebiz.biz](#))

2019 Received the Outstanding Graduate School Educator Pin, Medical College of Wisconsin

2019 Received the Junior Faculty Poster Presentation Award at Research Day, Medical College of Wisconsin

2019 SUPREMES Program was featured on the local Milwaukee CBS Sunday morning News (<https://cbs58.com/news/high-school-students-put-on-fast-track-to-careers-in-scientific-research-at-mcw>)

2019 SUPREMES Program was featured on PBS News Hour website as a lead in for a STEM education article (<https://studentreportinglabs.org/youth-reporting/diversity-youth-making-difference-medical-research/> and <https://www.pbs.org/newshour/extra/daily-videos/stem-student-reporting-labs-the-path-to-discovery/>)

2018 Research abstract Presentation at Experimental Biology 2018 Conference entitled “The influence of sugar and artificial sweeteners on vascular health during the onset and progression of diabetes” was selected as a written news brief that received worldwide media coverage (CNN, GMA, ABC, NBC, Forbes, among others)

2018 Research laboratory highlighted in the Research Features Magazine (No Substitutes. 2018 April. Research Features, (125), 70-73)

2018 Received a pilot award from the Medical College of Wisconsin Center for Microbiome Research to enhance the direction of the artificial sweetener studies

2018 Received a second funding award from the Children’s Research Foundation for support of the SUPREMES education outreach program

- 2017 Received philanthropic fund to setup increased bioinformatics capabilities in the Department of Biomedical Engineering, Medical College of Wisconsin
- 2017 Received a funding award from the Children's Research Foundation for support of the SUPREMES education outreach program
- 2016 Selected Speaker, Experimental Biology Conference in the American Society of Immunology & Pathology Section
- 2016 Selected Speaker for National Experimental Biology Conference in the American Physiological Society Section
- 2015 Selected Speaker, Experimental Biology Conference, Vascular Endothelial Cell Insulin Resistance Section
- 2013 Featured Article (PMID: 24022223), Journal of Physiological Genomics
- 2013 Postdoctoral Excellence in Science Award (one awarded/year), Medical College of WI
- 2012 Postdoctoral Research Day Award, Medical College of Wisconsin
- 2010 Research Travel Award, Thrombospondins and Other Matricellular Proteins FASEB Conference
- 2010 Vilas Travel Grant, University of Wisconsin-Madison
- 2008 Vilas Travel Grant, University of Wisconsin-Madison
- 2006 Research Travel Award, 11th Biennial Midwest Platelet Conference
- 2006 Thermo Scientific certification in mass spectrometry operations
- 2005 Cum Laude Commencement Honors, Saint Norbert College
- 2004 Student/Faculty Collaborative Research Grant, Saint Norbert College
- 2001 Presidential Scholarship, Saint Norbert College

RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS:

Active

Title: Bruker Single Cell Proteomics Mass Spectrometer System
 Funding Source: NIH S10 OD036281
 PI: Brian Hoffmann (The Jackson Laboratory)
 Dates: 08/2024-07/2025

Title: Cancer Center Support (CORE) Grant – Shared Resources
 Source: NIH P30 CA034196-38
 Role: Protein Sciences Shared Resource Lead
 PI: Karolina Palucka, PhD

Title: The Jackson Laboratory Senescence Tissue Mapping Center (JAX-Sen TMC)
 Source: NIH U54 AG079753-01
 Role: Co-I (Data Analysis Core)
 PI: Nadia Rosenthal, PhD
 Dates: 08/2022-07/2026

Title: Multiscale integration of protein expression and electrophysiological properties in single neurons: development of Patch-proteomics Source: JAX DIF-2024-OConnell-Patch-proteomics
 Role: Co-I
 PI: Kristen O'Connell, PhD
 Dates: 03/2024-09/2025

Title: A multimodal interrogation of tau mutations on neural circuit function
 Source: Director's Innovation Fund (DIF), The Jackson Laboratory
 Role: Co-I
 PI: Erik Bloss, PhD
 Dates: 04/2023-04/2025

Prior

Title: Spatial Distribution of immune checkpoint blockade therapy-related metabolites in glycolytic-divergent tumors

Source: JAX Cancer Center IA, The Jackson Laboratory

Role: Co-I

PI: Lucas Chang, PhD

Dates: 04/2022-09/2023

Title: Experimental and computational analysis of mechanisms of mitochondrial-cellular ROS crosstalk in the kidney in salt-sensitive hypertension

Source: NIH R01 HL151587-03 (Sub-Award, Medical College of Wisconsin)

Role: Sub-award PI

PI: Allen Cowley, PhD

Dates: 04/01/2023-08/31/2023

Title: Renal Mechanisms in Blood Pressure Control

Source: NIH P01 HL116264-09 (Sub-Award, Medical College of Wisconsin)

Role: Sub-award PI

PI: Allen Cowley, PhD

Dates: 04/01/2023-08/31/2023

Title: Determination of Metabolites in Rat Samples for the Study of Salt-Sensitive Hypertension

Source: Collaborative Research Agreement (CRA w/Medical College of Wisconsin)

Role : CRA PI

PI: Allen Cowley, PhD

Dates: 04/01/2023-08/31/2023

Title: Advancement in Scalable Proteomics at JAX

Source: Scientific Services Innovation Fund, The Jackson Laboratory

PI: Brian Hoffmann, PhD

Dates: 09/2022-09/2023

Title: Implementing High Performance Computing Proteomics Analysis

Source: Scientific Services Innovation Fund, The Jackson Laboratory

PI: Brian Hoffmann, PhD

Dates: 11/2021-10/2022

Title: Protein enrichment in calcium oxalate kidney stone matrix

Source: VA Hospital Merit Award

Role: Co-I

PI: Jeffrey Wesson, MD, PhD

Dates: 01/01/2018 - 12/31/2021

Title: Breaking down the black box: Proteomics as a novel tool for tracking antibiotic resistance through stormwater

Source: Marquette University, OPUS College of Engineering Seed Grant Award

Role: Co-PI

PI: Brian Hoffmann, PhD; Patrick McNamara, PhD; Water McDonald, PhD

Dates: Awarded; 5/1/2019-4/31/2020

Title: The influence of non-caloric artificial sweeteners on the metabolome, body composition, and glycemic control in youth with type 1 diabetes

Source: Clinical and Translational Science Institute Pilot Award Program

Role: Co-PI

PI: Brian Hoffmann, PhD and Susanne Cabrera, MD
Dates: Awarded; 5/1/2019-4/31/2021

Title: Evaluation of Endothelial Hyperglycemia-Driven Alterations During Type 2 Diabetes
Source: NIDDK (1K01 DK105043)
Role: PI
PI: Brian Hoffmann, PhD
Dates: 10/01/2015 - 08/31/2019

Title: Are all artificial sweeteners EQUAL in terms of promoting type 1 diabetes pathogenesis?
Source: Children's Research Institute Pilot Program, Children's Hospital of Wisconsin
Role: Co-I
PI: Martin Hessner, PhD
Dates: 01/01/19-12/31/19

Title: Image-based modeling and RNA sequencing to predict maturation of arteriovenous fistulas created for hemodialysis
Source: Clinical and Translational Science Institute Pilot Award
Role: Co-PI
PI: Brian Hoffmann, PhD and John LaDisa, PhD
Dates: 4/01/2017 - 03/31/2019

Title: Hoffmann NIH NIDDK Clinical Research LRP Proposal
Source: NIH Clinical Research LRP Program
Role: PI
PI: Brian Hoffmann, PhD
Dates: 09/01/2016 - 08/31/2018

Title: The Influence of Sugar, Artificial Sweeteners, and the Microbiome on Metabolism
Source: MAYO Clinic Metabolomics Resource Core Pilot Grant Program
Role: PI
PI: Brian R. Hoffmann, PhD
Dates: 07/01/2016 - 05/31/2017

Title: Microvesicle Affinity Group Pilot Grant
Source: Cardiovascular Center, Advancing a Healthier Wisconsin
Role: PI
PI: Brian R. Hoffmann, PhD
Dates: 07/01/2015 - 06/30/2016

Title: Hoffmann New Faculty Pilot Grant (Novel Therapeutic Pathways for Type 2 Diabetes)
Source: Medical College of Wisconsin Research Affairs Committee
Role: PI
PI: Brian Hoffmann, PhD
Dates: 01/01/2015 - 12/31/2015

BIBLIOGRAPHY:

Refereed Journal Publications/Original Papers

Choudhury A, Rosas Valdez R, Johnson RC, **Hoffmann B**, Pérez-Ponce de León G The phylogenetic position of Allocreadiidae (Trematoda: Digenea) from partial sequences of the 18S and 28S ribosomal RNA genes. *J Parasitol.* 2007 Feb;93(1):192-6

Xu J, Maurer LM, **Hoffmann BR**, Annis DS, Mosher DF iso-DGR sequences do not mediate binding of fibronectin N-terminal modules to adherent fibronectin-null fibroblasts. *J Biol Chem*. 2010 Mar 19;285(12):8563-71 PMID: PMC2838278

Hoffmann BR, Annis DS, Mosher DF Reactivity of the N-terminal region of fibronectin protein to transglutaminase 2 and factor XIIIa. *J Biol Chem*. 2011 Sep 16;286(37):32220-30 PMID: PMC3173148

Hoffmann BR, Liu Y, Mosher DF Modification of EGF-like module 1 of thrombospondin-1, an animal extracellular protein, by O-linked N-acetylglucosamine. *PLoS One*. 2012;7(3):e32762 PMID: PMC3293841

Hoffmann BR, El-Mansy MF, Sem DS, Greene AS Chemical proteomics-based analysis of off-target binding profiles for rosiglitazone and pioglitazone: clues for assessing potential for cardiotoxicity. *J Med Chem*. 2012 Oct 11;55(19):8260-71 PMID: PMC4113394

Kaczorowski CC, Stodola TJ, **Hoffmann BR**, Prisco AR, Liu PY, Didier DN, Karcher JR, Liang M, Jacob HJ, Greene AS Targeting the endothelial progenitor cell surface proteome to identify novel mechanisms that mediate angiogenic efficacy in a rodent model of vascular disease. *Physiol Genomics*. 2013 Nov 1;45(21):999-1011 PMID: PMC3841789

Hoffmann BR, Wagner JR, Prisco AR, Janiak A, Greene AS Vascular endothelial growth factor-A signaling in bone marrow-derived endothelial progenitor cells exposed to hypoxic stress. *Physiol Genomics*. 2013 Nov 1;45(21):1021-34 PMID: PMC3841787

Prisco AR, Bukowy JD, **Hoffmann BR**, Karcher JR, Exner EC, Greene AS Automated quantification reveals hyperglycemia inhibits endothelial angiogenic function. *PLoS One*. 2014;9(4):e94599 PMID: PMC3981811

Neuner SM, Wilmott LA, Hope KA, **Hoffmann BR**, Chong JA, Abramowitz J, Birnbaumer L, O'Connell KM, Tryba AK, Greene AS, Savio Chan C, Kaczorowski CC TRPC3 channels critically regulate hippocampal excitability and contextual fear memory. *Behav Brain Res*. 2015 Mar 15;281:69-77 PMID: PMC4677051

Karcher JR, **Hoffmann BR**, Liu P, Liu Y, Liang M, Greene AS. Genome-wide epigenetic and proteomic analysis reveals altered Notch signaling in EPC dysfunction. *Physiol Rep*. 2015 Apr;3(4): PMID: PMC4425964

Prisco AR, **Hoffmann BR**, Kaczorowski CC, McDermott-Roe C, Stodola TJ, Exner EC, Greene AS TNF α Regulates Endothelial Progenitor Cell Migration via CADM1 and NF- κ B. *Stem Cells*. 2016 Jul;34(7): 1922-33. PMID: 26867147, PMID: PMC4931961, DOI: 10.1002/stem.2339

Neuner S, Wilmott L, **Hoffmann BR**, Mozhui K, and Kaczorowski CC. Hippocampal proteomics defines pathways associated with memory decline and resilience in 'normal' aging and Alzheimer's disease mouse models. *Behavioural Brain Research*. 2016 June 2. Pii: S0166-4328(16)30356-4. PMID 27265785. Doi: 10.1016/j.bbr.2016.06.002.

Hoffmann BR, Stodola TJ, Wagner JR, Didier DN, Exner EC, Lombard JH, Greene AS. Mechanisms of Mas1 Receptor-Mediated Signaling in the Vascular Endothelium. *Arterioscler Thromb Vasc Biol*. 2017 Jan 12. pii: ATVBAHA.116.307787. doi: 10.1161/ATVBAHA.116.307787. PMID: 26867147

Freed, J., Durand, M., **Hoffmann, B.**, Densmore, J., Greene, A., and Gutterman, D. Mitochondria-regulated formation of endothelial microvesicles shifts the mechanism of flow-induced vasodilation. *AJP: Heart and Circulatory Physiology*. 2017. PMID: 28213406, DOI: 10.1152/ajpheart.00680.2016

Kolbach-Mandel, A., Mandel, N., **Hoffmann, B.**, Kleinman, J., and Wesson, J. Stone former urine proteome demonstrates a cationic shift in protein distribution compared to normal. *Urolithiasis* 2017 Aug;45(4):337-346 PMID: 28314883 PMID: PMC5511579

Wesson, J.A., Kolbach-Mandel, A.M., **Hoffmann, B.R.** et al. Selective protein enrichment in calcium oxalate stone matrix: a window to pathogenesis? *Urolithiasis* (2019). <https://doi.org/10.1007/s00240-019-01131-3>. PMID: 30993355 [Epub ahead of print]

Haspula D, Vallejos AK, Moore TM, Tomar N, Dash RK and **Hoffmann BR.** (2019) Influence of a Hyperglycemic Microenvironment on a Diabetic Versus Healthy Rat Vascular Endothelium Reveals Distinguishable Mechanistic and Phenotypic Responses. *Frontiers in Physiology*. 10:558. doi: 10.3389/fphys.2019.00558

Exner EC, Geurts AM, Hoffmann BR, Casati M, Stodola T, Dsouza NR, Zimmermann M, Lombard JH, Greene AS. Interaction between Mas1 and AT1RA contributes to enhancement of skeletal muscle angiogenesis by angiotensin-(1-7) in Dahl salt-sensitive rats. *Plos One*. 2020,15: e0232067. PMID 32324784

Adam, R.J, Paterson, M.R., Wardecke, L., **Hoffmann, B.R.**, Kreigel, A.J. Functionally essential tubular proteins are lost to urine-excreted, large extracellular vesicles during chronic renal insufficiency. *Kidney360* (2020), 1 (10) 1107-1117. DOI: <https://doi.org/10.34067/KID.0001212020>.

Berger, G.K., Eisenhauer, J., Vallejos, A., **Hoffmann, B.R.**, Wesson, J.A. Exploring mechanisms of protein influence on calcium oxalate kidney stone formation. *Urolithiasis* (2021). doi: 10.1007/s00240-021-01247-5. PMID: 33587148

Murray G, Bais P, Hatton C, Tadenev ALD, **Hoffmann BR**, Stodola TJ, Morelli KH, Pratt SL, Schroeder D, Doty R, Fiehn O, John SWM, Bult CJ, Cox GA, Burgess RW. Mouse models of NADK2 deficiency analyzed for metabolic and gene expression changes to elucidate pathophysiology. *Hum Mol Genet*. 2022 Jul 7;. doi: 10.1093/hmg/ddac151. PubMed PMID: 35796562.

Shimada S, **Hoffmann BR**, Yang C, Kurth T, Greene AS, Liang M, Dash RK, Cowley AW. Metabolic Responses of Normal Rat Kidneys to A High Salt Intake, *Function*, 2023. <https://doi.org/10.1093/function/zqad031>

Research Features and Press Releases

Notified of Press Release by American Physiological Society for manuscript titled “ Metabolic Responses of Normal Rat Kidneys to A High Salt Intake” published in *Function* in July 2023 (<https://doi.org/10.1093/function/zqad031>)

Why zero-calorie sweeteners can still lead to diabetes, obesity. *Experimental Biology* 2018. EurekaAlert! and AAAS Public Release: 22 April 2018 (https://www.eurekaalert.org/pub_releases/2018-04/eb2-wzs041218.php) (<https://www.mcw.edu/newsroom/news-articles/new-research-finds-artificial-sweeteners-can-cause-type-2-diabetes>)

No substitutes. *Research Features Magazine*. April 2018, (125), 70-73. (Link for feature article: <https://researchfeatures.com/2018/04/05/no-substitute/>)