

Curriculum Vitae
Catherine A. Brissette, Ph.D.
June 2026

Current Position

Assistant Dean of Graduate and Postdoctoral Studies
Professor of Biomedical Sciences
School of Medicine and Health Sciences, University of North Dakota

1. Personal

Location:
Department of Biomedical Sciences
504 Hamline Street, Stop 9061
Grand Forks, ND
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2. Licensure and Board Certification

N/A

3. Education

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| 2006-2010 | Postdoctoral Scholar, Department of Microbiology, Immunology, and Molecular Genetics, University of Kentucky, Lexington, KY. "Regulation of gene expression in <i>Borrelia burgdorferi</i> and functional characterization of outer surface adhesins"
Mentor: Brian Stevenson, Ph.D. |
| 2006 | Ph.D. in Pathobiology, University of Washington, Seattle, WA. "Interactions of oral spirochetes with the innate immune mechanisms of the gingival epithelium"
Mentor: Sheila Lukehart, Ph.D. |
| 1998 | M.S. in Microbiology & Molecular Genetics, University of Vermont, Burlington, VT.
"Characterization of the strain-dependent invasion mechanisms and colonial morphology of <i>Actinobacillus actinomycetemcomitans</i> , and the cloning of the recombinase A gene from <i>A. actinomycetemcomitans</i> SUNY 465"
Mentor: Paula M. Fives-Taylor, Ph.D. |
| 1994 | B.S. <i>summa cum laude</i> in Zoology, Louisiana State University, Baton Rouge, LA. |

4. Professional Experience

Academic Appointments

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| 3/1/2026-present | Assistant Dean of Graduate and Postdoctoral Studies School of Medicine and Health Sciences (SMHS), University of North Dakota (UND), Grand Forks, ND. |
| 7/1/2023-present | Professor, Department of Biomedical Sciences, SMHS, UND, Grand Forks, ND. |
| 2023-2025 | Faculty Fellow, School of Graduate Studies, UND, Grand Forks, ND. |
| 2017-2023 | Associate Professor with tenure, Department of Biomedical Sciences, UND SMHS, Grand Forks, ND. |
| 2011-present | Full Graduate Faculty, UND, Grand Forks, ND. |

2010-2017 Assistant Professor, Department of Biomedical Sciences (formerly Microbiology & Immunology), UND SMHS, Grand Forks, ND.

Other Professional Positions

1998-1999 Research Health Science Specialist, Seattle Veteran's Administration Medical Center, Research and Development. "Pulmonary innate immunity to *Legionella pneumophila*" Supervisor: Shawn Skerrett, M.D.

5. Honors and Awards

2024 William Crozier and Edith Magwood Fawcett Faculty Enhancement Award recognizing excellence in teaching, research and service; commitment to inspiring, promoting and sustaining the intellectual development of students; and a positive educational impact on students

2022 Outstanding Unit Instructor Award (Unit VII), UND SMHS, Medical Class 2025

2021 Outstanding Unified Session Instructor Award (Unified Session V), UND SMHS, Medical Class 2024

2021 Outstanding Unified Session Instructor Award (Unified Session VII), UND SMHS, Medical Class 2024

2020 Outstanding Block Instructor Award (Block VIII), UND SMHS, Medical Class 2022

2019 Outstanding Block Instructor Award (Block VII), UND SMHS, Medical Class 2021

2018 Outstanding Block Instructor Award (Block VIII), UND SMHS, Medical Class 2020

2017 Outstanding Block Instructor Award (Block VII), UND SMHS, Medical Class 2020

2017 Outstanding Block Instructor Award (Block II), UND SMHS, Medical Class 2019

2016 Outstanding Block Instructor Award (Block VIII), UND SMHS, Medical Class 2019

2016 Outstanding Block Instructor Award (Block II), UND SMHS, Medical Class 2018

2015 Outstanding Block Instructor Award (Block VIII), UND SMHS, Medical Class 2018

2015 Outstanding Block Instructor Award (Block II), UND SMHS, Medical Class 2017

2007 Selected to American Society for Microbiology Kadner Institute, University of Colorado, Boulder, CO.

2004 Outstanding Student Award in Pathobiology, University of Washington, Seattle, WA.

2003-2004 Cross-Discipline Dental Science Research Training Grant Fellow, University of Washington, Seattle, WA.

2000-2002 Periodontal Diseases & Chronic Inflammation Training Grant Fellow, University of Washington, Seattle, WA.

1999-2002 Achievement Rewards for College Scientists Fellowship, University of Washington, Seattle, WA.

1997 Microbiology and Molecular Genetics Teaching Assistant of the Year, University of Vermont, Burlington, VT.

1994 Outstanding Student in Zoology, Louisiana State University, Baton Rouge, LA.

Mentee Honors

2026	Advisee Kaitlyn Gura, 2 nd Place, Trainee Posters, 4 th Annual Ticks and Tickborne Disease Symposium. Johns Hopkins University
2025	Advisee Dawn Cleveland, 2 nd Place, UND 3MT Competition
2025	Advisee Kaitlyn Gura, 1 st Place, Trainee Oral Presentations, 10 th Annual Host Pathogen Interactions Symposium, UND
2024	Advisee Kaitlyn Gura, 1 st Place, Trainee Oral Presentations, 9 th Annual Host Pathogen Interactions Symposium, UND
2024	Advisee Kaitlyn Gura, 1 st Place, Trainee Oral Presentations, 9 th Annual Epigenetics Symposium, UND
2024	Advisee Kaitlyn Gura, NSF Graduate Research Fellowship
2023	Advisee Kaitlyn Gura, 2 nd Place, Trainee Oral Presentations, 8 th Annual Epigenetics Symposium, UND
2022	Advisee Dawn Cleveland, 1 st Place, Trainee Oral Presentations, 7 th Annual Host Pathogen Interactions Symposium, UND
2020	Advisee Derick Thompson, First Place in Natural Sciences Category, Graduate Research Achievement Day, UND
2019	Advisee Derick Thompson, Summer Doctoral Fellowship Award, UND
2017	Advisee Brandee Stone, Graduate Poster Award, Frank Low Research Day Biomedical Sciences, UND SMHS
2014	Advisee Bobby Gaultney, Carl Storm Minority Fellowship Award, Gordon Research Conference Biology of Spirochetes, Ventura, CA.
2013	Advisee Bobby Gaultney, Travel Award, International Conference on Lyme Borreliosis and Other Tick-Borne Diseases, Boston, MA.
2013	Advisee Tammy Gonzalez, Capstone Award, American Society for Microbiology
2013	Advisee Tammy Gonzalez, 2nd Place, Undergraduate Research Poster, Frank Low Research Day, UND SMHS
2012	Advisee Tammy Gonzalez, American Society for Microbiology Undergraduate Research Fellowship Runner-up

6. Membership in Professional Organizations

2011-present	Association for Women in Science
2011-2017	American Society for Neurochemistry
1996-present	American Society for Microbiology
1995-2007	International Association of Dental Research

7. Major Committee and Service Responsibilities

International

2022-2025	Co-Chair (with Jean Tsao, Ph.D. and Bobbi Pritt, M.D.), 17th International Conference on Lyme Borreliosis and Other Tick-borne Diseases. September 7-10, 2025. Chicago, IL
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2023	Chair, Session A- Borrelia, Bioinformatics & Molecular Diagnostics, XV International Symposium on Ticks and Tick-Borne Diseases March 29-31. Weimar, Germany
2022	Pathogenesis Subcommittee, International Conference on Lyme Borreliosis and Other Tick-borne Diseases, Amsterdam, Netherlands
2016-present	Scientific Advisory Board, Global Lyme Alliance

National

2026	Discussion leader, "Pathogenesis 3-Environmental Sensing", Gordon Research Conference on the Biology of Spirochetes, Pomona, CA.
2025-present	Advisory Board, Vector Wise CME
2023-present	DoD CDMRP Tick-Borne Disease Programmatic Panel
2022	Co-chair Animal Model Subcommittee, Perinatal Transmission of Lyme Disease, The Banbury Center at Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.
2022, 2018	Co-leader, Power Hour- Issues Facing Women in Science, Gordon Research Conference on the Biology of Spirochetes, Ventura, CA.
2018	Discussion leader, "Dissemination and Persistence", Gordon Research Conference on the Biology of Spirochetes, Ventura, CA.
2017	Abstract reviewer (trainee talk selection) for International Conference on Lyme Borreliosis and Other Tick-borne Diseases, Atlanta, GA.
2014, 2016	Chair, Social Program, Gordon Research Conference on the Biology of Spirochetes, Ventura, CA.
2014	Discussion leader, "Spirochete Surfaces and Structures", Gordon Research Conference on the Biology of Spirochetes, Ventura, CA.

University (UND)

2026	Graduate Research Fellowship Program Working Group
2026	Graduate Dissertation Fellowship Reviewer
2025	Screening Committee, Interim Dean School of Graduate Studies
2025	3 Minute Thesis Trainer
2024-present	Mentors Helping Mentors Facilitator
2024-2025	Strategic Planning Committee, School of Graduate Studies
2020-present	Vice Chair, Institutional Biosafety Committee
2020, 2021	3 Minute Thesis Judge
2018-2022	Faculty Advisor, Women in Science Student Organization
2017-present	Institutional Biosafety Committee
2011-2015	University Children's Center Advisory Council

SMHS

2025-2028	Faculty Council (Formerly Faculty Advisory Council); also served 2017-2019
2025-2028	Committee on Promotion and Tenure; also served 2018-2024
2023-2025	Search Committee for Wadhwani Endowed Chair in Translational Research
2021-2024	Medical Admissions Committee
2020-2024	Committee on Promotion and Tenure; Co-Chair
2018-2021	Medical Student Academic Performance Committee Pool
2014-2016	Learning Communities Committee
2012-2017	Research Committee
2012-2017	Poster Judge, Frank Low Research Day
2011	Co-chair, Organizing Committee for the School of Medicine Research Retreat

Departmental

2026	Graduate Research Excellence Award Reviewer
2022-2023	Faculty Search Committee • Assistant Professor • Director of Learner Research
2022	Chair, Graduate Student Impact Award Committee
2016-2019	Director of Graduate Recruitment and Admissions
2014-2019	Biomedical Sciences Graduate Admissions Committee; Chair, 2015-2019
2015-2021	Biomedical Sciences Graduate Curriculum Committee
2013	Graduate Student Travel Awards Committee

Community

2017-2023	President, Board of Directors, Grand Forks City Band
2020	With Marijo Roiko, Ph.D. (Microbiology Program Director, Altru Grand Forks) and Matthew Nilles, Ph.D. (Biomedical Sciences), made viral transport media for the North Dakota Department of Health Covid-19 testing program.

8. Inventions, Intellectual Property and Patents: N/A

9. Review and Referee Work

Editorial Boards

2025	Co-host, Frontiers in Immunology Special Research Topic "Host Response to Spirochetal Infection" Editors: Dean Nardelli, Artem Rogovsky, Peter Kraicz, Catherine A. Brissette
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2023	Guest editor, PLoS Pathogens
2023	Guest Editor, Special Issue of Vector-Borne and Zoonotic Diseases, "Lyme Disease in Europe"
2022-present	Editorial Board, Infection and Immunity
2021-present	Editorial Board, Microbiology Spectrum
2016-present	Editorial Board, Vector-Borne and Zoonotic Diseases
2016-2017	Editorial Board, Clinical Vaccine and Immunology
2017	Co-host, Frontiers in Microbiology Special Research Topic "Recent Advancements in <i>Flavobacteria</i> : Pathogenesis Mechanisms, Novel Genetic and Physiological Features, and Interaction with Hosts" Editors: Shicheng Chen, Edward D. Walker, Catherine A. Brissette
2015-2025	Review Editor, Frontiers in Microbiology
2015-2025	Review Editor, Frontiers in Immunology
2014	Co-host, Frontiers in Microbiology Special Research Topic "Lyme Disease: Recent Advances and Perspectives" Editors: C.A. Brissette and Tanja Petnicki-Ocwieja
2013-present	Academic Editor, PLoS One
2008-2012	Wiley-Blackwell Scientific Advisory Panel

Service on Grant Reviewing Committees

2026	Reviewer, Del Monte Neuroscience Pilot Grant Program, University of Rochester
2025	Reviewer, Talentprogramme Vici 2025, Netherlands
2024	Reviewer, Swiss National Science Foundation
2023-2027	Regular Member, NIH-NIAID Bacterial Virulence Study Section (BV)
2023	Reviewer, NIH-NIAID Infectious Diseases and Immunology (F07A) Fellowships
2022	Reviewer, NIH-NIAID Bacterial Pathogenesis Study Section (BACP)
2022	Reviewer, NIH-NIAID Host Interactions with Bacterial Pathogens Section (HIBP)
2019-2024	Reviewer, Czech Science Foundation
2021,19,17,16	Reviewer, NIH/NIAID Topics in Bacterial Pathogenesis IDIA-W (80)
2021, 20,17	Reviewer, Tick Borne Disease Research Program, Department of Defense
2021, 20,18,17,16	Reviewer, NIH/NIAID Topics in Bacterial Pathogenesis IDIA-B (81)
2020	Reviewer, NSF
2020	Reviewer, NIH/NIAID Special Emphasis Panel IDM-R (90)
2018	Reviewer, Canadian Institutes of Health Research
2018	Reviewer, NIH/NIAID Allergy, Immunology, and Transplantation Research
2018	Reviewer, AHA Transformational Project Awards

2017, 22	Reviewer, Lyme Disease BioBank
2017,16,14	Reviewer, UW-Milwaukee's Research Growth Initiative®
2016,14	Reviewer, NIH/NINDS Clinical Neuroimmunology and Brain Tumors Study Section
2015	Reviewer, Epigenetics COBRE Internal Study Section
2014	Reviewer, NIH/NIAID U01/U19 International Collaborations in Infectious Diseases Research (ICIDR)
2012	Reviewer, NIH/NIAID ZAI1 JKB-M (J3)- Partnerships for Interventions to Treat Chronic, Persistent and Latent Infections
2012	External reviewer, University of Kansas Medical Center COBRE pilot grants

Outside Evaluator

2026	Promotion from Assistant to Associate Professor with tenure, Northern Illinois University, DeKalb, IL.
2025	Promotion from Associate to Full Professor, John Hopkins School of Medicine, Baltimore, MD.
2025	Promotion from Associate to Full Professor, Tulane National Primate Research Center, Department of Microbiology and Immunology, Tulane University School of Medicine, New Orleans, LA.
2024	Shiv Nadar (Institution of Eminence Deemed to be University), Thesis Examiner, Doctoral Thesis, Delhi, India.
2023	Promotion from Associate to Full Professor, Department of Medicine, University of Connecticut School of Medicine, Farmington, CT.
2022	Promotion from Assistant to Associate Professor with tenure, Department of Environmental and Forest Biology, State University of New York, Syracuse, NY.
2022	Tenure decision, University of Toledo, Department of Medical Microbiology and Immunology, Toledo, OH.
2022	Promotion from Assistant to Associate Professor, University of South Carolina School of Medicine, Greenville, Department of Biomedical Sciences, Greenville, SC.
2021	Promotion from Assistant to Associate Professor with tenure, Texas A&M University, Department of Veterinary Pathology, College Station, TX.
2020	External Examiner, Ph.D., University of Victoria, Victoria, BC, Canada.
2020	Promotion from Associate to Full Professor, University of South Dakota, Department of Basic Biomedical Sciences, Vermillion, SD.
2019	Promotion from Assistant to Associate Professor, University of Toledo, Department of Medical Microbiology and Immunology, Toledo, OH.
2019	Bates College, Honors Thesis Examiner, Lewiston, ME.
2018	Promotion from Assistant to Associate Professor with tenure, Department of Biology, San Francisco State University, San Francisco, CA.

Ad hoc Reviewer for Journals

Advances in Therapy (2025)
American Journal of Pathology (2014, 2017)
Apoptosis (2013)
Brain, Behavior, and Immunity (2026)
BMC Infectious Diseases (2020)
BMC Microbiology (2025)
Bioscience Reports (2025)
Cell Microbiology (2015)
Cellular Microbiology (2018)
Clinical Microbiology Reviews (2013)
Clinical Vaccine and Immunology (2015)
Emerging Infectious Disease (2026)
Epigenomics (2019)
Frontiers Cellular and Infection Microbiology (2015-2022)
Frontiers in Immunology (2024)
Frontiers in Neurology (2021)
Frontiers in Medicine (2025)
Future Microbiology (2012)
Heliyon (2022)
Immunobiology (2015)
Immunology and Cell Biology (2013)
Infection and Immunity (2014, 2015, 2017, 2020, 2022)
Infection Ecology & Epidemiology (2022)
Infection, Genetics, and Evolution (2021)
iScience (2023, 2024)
Journal of Bacteriology (2011, 2013, 2014, 2025, 2026)
Journal of Biological Chemistry (2012)
Journal of Infection (2010, 2016)
Journal of Infectious Diseases (2015)
Journal of Neuroinflammation (2017)
Journal of Periodontology (2017, 2018)
JoVE (2022)
Microbes and Infection (2016, 2023)
Microbiology (2020)
Microbial Pathogenesis (2025)
Microbiology Spectrum (2021, 2022, 2024)
Microorganisms (2025)
Molecular Microbiology (2018)
mSphere (2017)
Nature Communications (2025)
Neuroscience Letters (2013)
Pathogens and Disease (2016)
PLoS Neglected Tropical Diseases (2019)
PLoS ONE (2011, 2012, 2024)
PLoS Pathogens (2016, 2021, 2022)
Protein Science (2025)
Scandinavian Journal of Immunology (2022)
Ticks and Tick-Borne Disease (2010, 2015-2024)
Trends in Microbiology (2022)
Vector Borne and Zoonotic Diseases (2012, 2016-17, 2022)

10. Invited Presentations

Local

February 12, 2026. Exploring underlying mechanisms of persistent Lyme arthritis. Department of Chemistry and Biochemistry, North Dakota State University (NDSU), Fargo, ND.

June 13, 2025. Lyme disease in North Dakota. NDSU Veterinary Diagnostic Laboratory Continuing Education Seminar. Fargo, ND.

April 21, 2025. Navigating graduate school: An insider's guide for McNair Scholars. Grand Forks, ND.

July 9, 2024. The role of CSF in a murine model of neuroborreliosis. Research Experiences for Undergraduates. UND SMHS, Grand Forks, ND.

October 3, 2022. Lyme disease: A tick-borne infection. Unwanted Hitchhikers- A community event sponsored by the UND Center of Biomedical Research Excellence in Host-Pathogen Interactions. Grand Forks, ND.

July 12, 2022. Inflammation without penetration: Colonization of the dura mater by *Borrelia burgdorferi*. Research Experiences for Undergraduates. UND SMHS, Grand Forks, ND.

September 16, 2020. Career paths. Biotech and Micro Club Meeting, NDSU, Fargo, ND (virtual).

March 10, 2020. The westward expansion of Lyme disease: implications for North Dakota. The Rotary Club, Grand Forks, ND.

October 24, 2019. The westward expansion of Lyme disease: implications for North Dakota. North Dakota Environmental Health Association Annual Fall Conference. Grand Forks, ND.

September 17, 2019. *Borrelia burgdorferi* colonization of the meninges: Implications for neuroborreliosis. Annual Host-Pathogens Interaction Symposium, UND, Grand Forks, ND.

June 27, 2019. Ticked off! Adventures in Lyme disease. Research Experiences for Undergraduates. UND SMHS, Grand Forks, ND.

September 21, 2018. Early Lyme disease. UND Homecoming Continuing Medical Education Symposium, UND SMHS, Grand Forks, ND.

November 16, 2016. The puzzle of persistence in Lyme neuroborreliosis. First Annual Host-Pathogens Interaction Symposium, UND, Grand Forks, ND.

April 14, 2016. *Borrelia burgdorferi* enters your body: you won't believe what happens next! Veterinary and Microbiological Sciences Department, NDSU, Fargo, ND.

November 6, 2015. Lifting the(brain) fog: probing the pathogenesis of Lyme neuroborreliosis. Department of Biology, UND, Grand Forks, ND.

October 2014. The epigeneTICKS of Lyme neuroborreliosis. 3rd Annual Epigenetics and Epigenomics Symposium, UND, Grand Forks, ND.

April 2014. Neuroborreliosis- it's a state of mind. 34th Annual Frank Low Research Day, UND SMHS, Grand Forks, ND.

October 2012. Of rats and men: Modeling and treating neuroborreliosis. 72nd Meeting of the North Central Branch of the American Society for Microbiology, Fargo, ND.

February 2012. The life cycle of the Lyme disease spirochete and its vector. Veterinary and Microbiological Sciences Department, NDSU, Fargo, ND.

September 2011. The life cycle of the Lyme disease spirochete and its vector. *Foundations* seminar series, UND SMHS, Grand Forks, ND.

National

April 29, 2026. Epigenetic mechanisms of innate immune memory in Lyme disease. 4th Annual Ticks and Tickborne Disease Symposium. Johns Hopkins University, Bloomberg School of Public Health, Baltimore, MD.

February 10, 2025. The role of CSF in a murine model of neuroborreliosis. KAWSE ADVANCE Distinguished Lecture. Kansas State University, Manhattan, KS.

October 29, 2024. The role of CSF in a murine model of neuroborreliosis. Texas A&M University College of Medicine, Bryan, TX.

September 24, 2024. The role of CSF in a murine model of neuroborreliosis. Department of Microbiology and Immunology, Eastern Carolina University, Greenville, NC.

June 21, 2024. Cerebrospinal fluid involvement in a murine model of Lyme neuroborreliosis. Infest-igate Lyme. Tufts Lyme Initiative, Boston, MA.

March 8, 2024. Exploring underlying mechanisms of persistent Lyme arthritis. Department of Molecular Medicine, University of South Florida, Tampa, FL.

October 14, 2023. Cerebrospinal fluid involvement in a murine model of Lyme neuroborreliosis. Lyme Disease Association-Columbia University Lyme Disease Conference, New York, NY (virtual).

June 17, 2023. Negotiating positions- Achieving tenure and promotion. ASM Microbe, Houston, TX.

April 7, 2023. Transcriptomics and *Borrelia* infection. Bates College, Lewiston, ME (virtual).

June 27, 2022. Lessons from a mouse model of neuroborreliosis- how host responses might impact perinatal Lyme disease. Perinatal Transmission of Lyme Disease. The Banbury Center at Cold Spring Harbor Laboratory, NY.

May 31, 2022. Inflammation without penetration: Colonization of the dura mater by *Borrelia burgdorferi*. Gordon Research Conference on The Biology of Spirochetes, Ventura, CA.

October 2, 2021. A murine model of Lyme disease demonstrates that *Borrelia* species colonize the dura mater and induce inflammation in the central nervous system. Lyme Disease Association-Columbia University Lyme & Other Tick-Borne Diseases Conference, New York, NY (virtual).

September 29, 2021. A murine model of Lyme disease demonstrates that *Borrelia* species colonize the dura mater and induce inflammation in the central nervous system. Department of Microbiology & Pathology, University of Nebraska Medical Center, Omaha, NE.

June 18, 2021. *Borrelia* and the CNS. NIAID Workshop, Bethesda, MD (virtual).

February 23, 2021. *Borrelia burgdorferi* colonization of the meninges: Implications for neuroborreliosis. Department of Microbiology & Immunology, Medical College of Wisconsin, Milwaukee, WI (virtual).

November 12, 2019. *Borrelia burgdorferi* colonization of the meninges: Implications for neuroborreliosis. Pathogenesis and Physiology of Lyme Disease Subcommittee of the Tick-Borne Disease Working Group, a Federal Advisory Committee of the Department of HHS, Bethesda, MD (virtual).

March 15, 2019. Adverse outcomes of gestation in response to *Borrelia burgdorferi* infection. Global Lyme Alliance Symposium, Tarrytown, NY.

March 7, 2019. Lyme neuroborreliosis: the role of the meninges. Department of Microbiology, University of Illinois at Urbana-Champaign, Urbana, IL.

November 10, 2018. Lyme neuroborreliosis: the role of the meninges. 17th Annual Great Plains Infectious Disease Conference, University of Kansas, Lawrence, KS.

October 4, 2018. A tale of two postdocs: unraveling the consequences of *Borrelia burgdorferi* infection in the central nervous system. Department of Microbiology, Molecular Genetics, and Immunology, University of Kansas Medical Center, Kansas City, KS.

May 11, 2018. A tale of two postdocs: unraveling the consequences of *Borrelia burgdorferi* infection in the central nervous system. Dr. Vickie Greenburg Memorial Lecture, Department of Microbiology, Immunology, and Molecular Genetics, University of Kentucky, Lexington, KY.

May 11, 2018. Dissemination and persistence-Strategies for success. Department of Microbiology, Immunology, and Molecular Genetics, University of Kentucky, Lexington, KY.

October 24, 2015. RevA-lutions: The contribution of RevA to Lyme arthritis and carditis. 75th Annual Meeting of the North Central Branch of the American Society for Microbiology, La Crosse, WI.

August 10, 2015. The epigeneTICKS of Lyme neuroborreliosis. 70th Annual International Conference on Disease in Nature Communicable to Man, Hamilton, MT.

November 2012. The key to success is persistence: the saga of a persistent pathogen, *Borrelia burgdorferi*. Basic Biomedical Sciences, Sanford School of Medicine University of South Dakota, Vermillion, SD.

June 2011. Unique adhesins of *Borrelia burgdorferi*. Rocky Mountain Laboratories, NIAID/NIH, Hamilton, MT.

January 2008. Innate immune evasion of *Treponema denticola*. Gordon Research Conference on The Biology of Spirochetes, Ventura, CA.

July 2006. Interactions of oral spirochetes with the innate immune mechanisms of the gingival epithelium, School of Dentistry, UCLA, Los Angeles, CA.

December 1997. Characterization of the strain-dependent invasion mechanisms of *Actinobacillus actinomycetemcomitans*. Pfizer, Groton, CT.

International

April 5, 2025. Excelling in graduate school: The realities, challenges and opportunities of graduate student life. Career Academic Business Experience Leadership Graduate School Conference 2025, Lagos, Nigeria (virtual).

March 30, 2023. Cerebrospinal fluid involvement in a murine model of Lyme neuroborreliosis. XV International Symposium on Ticks and Tick-borne Diseases, Weimar, Germany.

September 25, 2017. REV-A-lutions: Contributions of fibronectin-binding adhesins to distinct aspects of *Borrelia burgdorferi* pathogenesis. International Symposium on Tick-Borne Pathogens and Disease, Vienna, Austria.

November 13, 2015. Lifting the (brain) fog: probing the pathogenesis of Lyme neuroborreliosis. Department of Biochemistry and Microbiology, University of Victoria, Victoria, British Columbia, Canada.

March 20, 2009. The *Borrelia burgdorferi* RevA antigen binds host fibronectin. X International Symposium on Ticks and Tick-borne Diseases, Weimar, Germany.

11. Teaching Activities

Medical Lectures and Laboratory

2025-	20 hours Medical Microbiology Laboratory; also taught 2011-2023
2025-	Faculty Patient Centered Learning Facilitator; 30 hours
2025-	6 hours lecture (Bacterial Infections of Bone, Muscle, and Connective Tissue; Bacterial Infections of the Central Nervous System; Sexually Transmitted Infections and Pelvic Inflammatory Disease; Microbial Diseases of the Urinary Tract; Biofilms)
2017-2022	Director, Medical Microbiology Laboratories. (2020-2021: converted 10 physical labs into virtual experiences)
2013-2017	1 hour lecture (Complement)
2011-2023	3 hours lecture (Bacterial Infections of Bone, Muscle, and Connective Tissue; Bacterial Infections of the Central Nervous System; Bacterial Infections of the Skin)
2016-2023	4 hours lecture (Biofilms; Sexually Transmitted Infections and Pelvic Inflammatory Disease; Microbial Diseases of the Urinary Tract)
2017-2022	1 hour lecture (Introduction to Medical Microbiology Laboratory)
2011-2022	Faculty Patient Centered Learning Facilitator; 60 hours

Graduate Lectures and Laboratory

2025-	Responsible Conduct in Research: Mentoring, Power Dynamics, and Boundaries (1.5 hrs)
2024	BIMD 516, Responsible Conduct in Research (Co-Instructor of Record; 2 credits)
2022, 26	BIMD 533, Microbial Membranes and Transport, (Co-Instructor of Record; 1 credit)
2022, 23	BIMD 502, Scientific Discovery, 4 hours, Module 4
2017, 20	BIMD534, Microbial Cell Structure/Function (Co-Instructor of Record; 1 credit)
2017, 20, 22, 26	BIMD532, Microbial Gene Regulation (Co-Instructor of Record; 1 credit)
2017, 20, 25	BIMD535, Bacteria-Host Pathogen Interactions, (Co-Instructor of Record; 1 credit)
2016, 18-20, 22, 24, 25	BIMD531, Components of Microbial Pathogenesis (Co-Instructor of Record; 2 credits)
2016	BIMD 502, Scientific Discovery, 36 hours classroom time *Module 4 Leader
2015	BIMD 502, Scientific Discovery, 6 hours classroom time
2012-2013	BIMD 500, Scientific Discovery, 2 hrs. lecture (Interpreting the Scientific Literature)
2011-2014	MBIO512, 4 hours lecture (Microbial Genetics)
2011-2013	MBIO507, Seminar (Microbiology and Immunology Seminar Series)
2011-2014	MBIO511, Microbiology and Immunology Journal Club

2013-present	MBIO/BIMD494, Independent Research 2025: Olivia Schoepp, undergraduate (Chemistry) 2022: Sydney Mjoen, undergraduate (Nursing) 2021: Cole O'Neill, undergraduate (Biochemistry) 2016: Ellen Kiser, undergraduate (Biology) 2014: Nicole Gourneau, undergraduate (Biology) 2013: Megha Alla, undergraduate (Biology)
2009	MI710-02, Invited Lecturer, Topics in Microbial Pathogenesis, University of Kentucky, Lexington, KY.
2003-2005	Oral Biology 520, Invited Lecturer, Molecular Microbiology & Oral Diseases, University of Washington, Seattle, WA.
2002-2004	PABIO 550, Invited Lecturer, Diseases of Public Health Importance, University of Washington, Seattle, WA.
1998-2006	Instructor, Camp-In Program. Pacific Science Center, Seattle, WA.
1997	MMG101, Teaching Assistant, Biology of Microorganisms Lecture/laboratory, University of Vermont, Burlington, VT.

Mentoring

Faculty

2025-	Mentorship Pool, TRANSCEND (Translational Science Engaging North Dakota)
2025	Vanessa Ante, Ph.D., Assistant Professor Role: External Mentor, COBRE Phase II (score 23), Kansas State University
2025-	Bryce Christopherson, Ph.D., Assistant Professor Role: Internal Mentor, COBRE Phase I (pending), UND
2020-2022	Kumi Nagamoto-Combs, Ph.D., Assistant Professor Role: Internal Mentor, COBRE Phase II, UND
2020-2024	Timothy Casselli, Ph.D., Research Assistant Professor Role: Supervisor, UND (Next position: Assistant Professor, University of South Alabama)

Postdoctoral Fellows, Brissette Laboratory

2023-present	Hoa Nguyen, Ph.D., UND
2018-2022	Atrayee Ray, Ph.D., UND (with Archana Dhasarathy) (Next position: Postdoctoral Fellow, Medical College of Wisconsin)
2017-2019	Ali Divan, Ph.D., UND (Current position: Biotech Career Coach, Founder of Trulitica. San Diego, CA)
2016-2020	Timothy Casselli, Ph.D., UND

Graduate Students (Advisor)

2025-present	Justice Adzre, Ph.D. student (Biomedical Sciences), UND
2023-2026	Kaitlyn Gura, Ph.D. (Biomedical Sciences), UND; co-mentored with Archana Dhasarathy

2020-2025	Dawn Cleveland, Ph.D. (Biomedical Sciences), UND (Current position: Assistant Director, ND Space Grant Consortium & ND NASA EPSCoR, UND)
2016-2020	Derick Thompson, Ph.D. (Biomedical Sciences), UND; co-mentored with John Watt (Last position: Research Associate Biologist at USDA Grand Forks Human Nutrition Research Center, Grand Forks, ND)
2012-2018	Brandee Stone, Ph.D. (Microbiology), UND (Current position: Postdoctoral Research Associate, Texas A&M)
2011-2016	Robert Gaultney, Ph.D. (Microbiology), UND (Last position: Advanced Postdoc, University of Bern, Bern, Switzerland)

Professional Personnel

2026	Sarina Bauer-Smith, high school teacher (NSF-BIORETS)
2024-	Akbar Nawab, Ph.D., Research Specialist, UND
2022-2024	Mollie Hostetter, Animal Lab Technician, UND (Current position: Laboratory Technician, UND)
2021-2024	Cassidy Anderson, Animal Lab Technician, UND (MLS graduate, 2025, UND)
2021	Jennifer Baukol, Laboratory Technician, UND
2019	Raeann Heavy Runner, middle/junior high school teacher (INMED: NEUROscience)
2016-2024	Yvonne Tourand, Ph.D., Research Specialist II, UND (Current position: Research Associate, University of South Alabama)
2011-2014	Angela Floden, Research Specialist II, UND (Current position: Senior Research Specialist, UND)

Graduate Students (Rotation)

2023	Zachary Bigelow, Ph.D. candidate (Biomedical Sciences), UND
2021	Sakuntha Gunarathna, Ph.D. candidate (Biomedical Sciences), UND
2019	Gbolahan Bamgbose, Ph.D. (Biomedical Sciences), UND (Next position: Postdoctoral Fellow, Cancer Research Institute, New York, NY)
2015	Nivedita Biswas, Ph.D. (Biomedical Sciences), UND (Current position: Postdoctoral Fellow, Drexel University, Philadelphia, PA)
2014	Nafisa Ferdous, Ph.D. (Biomedical Sciences), UND (Current position: Adjunct Assistant Professor, San Diego State University, San Diego, CA)
2012	Fredice Quenumzangbe, Ph.D. (Microbiology), UND
2012	Christopher Jondle, Ph.D. (Microbiology), UND (Current position: Assistant Professor, Western Michigan University, Kalamazoo, MI)

Graduate Students (Committees)

2026-present	Hannah Huthmaker, Ph.D. candidate (Biomedical Sciences), UND Advisor: Amanda Haage, Ph.D.
2026-present	Roxanne Gasperetti, Ph.D. student (Biology), UND Advisor: Vasyl Tkach, Ph.D.
2024-present	Olajumoke Folasade Adewale, Ph.D. student (Biology), UND Advisor: Jefferson Vaughan, Ph.D.
2024-present	Kavindi Madduma Hewage, Ph.D. candidate (Physics and Astrophysics), UND Advisor: Nuri Oncel, Ph.D.
2023-present	Bernard Frempong, Ph.D. candidate (Biomedical Sciences), UND Advisor: Matt Nilles, Ph.D. and David Bradley, Ph.D.
2021-2025	Dilini Ekanayake, Ph.D. (Biomedical Sciences), UND Advisor: Kumi Nagamoto-Combs, Ph.D.
2021-2026	Abiola Sholarin, Ph.D. (Biomedical Sciences), UND Advisor: David Bradley, Ph.D.
2021-2023	Haley Cooper, M.S. (Biology), UND Advisor: Jefferson Vaughan, Ph.D.
2020-2021	Malak Alzidaneen, M.D., M.S. (Biomedical Sciences), UND Advisor: John Watt, Ph.D. (Current position: Practicing physician, Fargo, ND)
2020-present	Mandy Quinn, Ph.D. candidate (Biology), UND Advisors: Turk Rhen, Ph.D. and Rebecca Simmons, Ph.D.
2020-2023	Jeremy Raines, Ph.D. (Psychology), UND Advisor: Joseph Miller, Ph.D. (Current position: Neuropsychologist at Sanford Brain & Spine Center, Fargo, ND)
2019-2022	Sayem Bhuiyan, Ph.D. (Biomedical Sciences), UND Advisor: Alexi Tulin, Ph.D. (Last position: Field Application Scientist, Axion BioSystems, Seattle, WA)
2018-2021	Smruthi Rudraraju, Ph.D. Biomedical Sciences UND Advisor: Archana Dhasarathy, Ph.D. (Current position: Technology Specialist, Lando & Anastasi, LLP, Boston, MA)
2018-2022	Kelsey Morin, Ph.D. (Biology), UND Advisor: Jefferson Vaughan, Ph.D. (Current position: Biology Professor at Turtle Mountain Community College, Belcourt, ND)
2017-2021	Staci Dreyer, Ph.D. (Biology), UND Advisor: Jefferson Vaughan, Ph.D. (Current position: Assistant Professor, Valley City State University, Valley City, ND)
2016-2021	Tyler Achatz, Ph.D. (Biology), UND Advisor: Vasyl Tkach, Ph.D. (Current position: Assistant Professor, Middle Georgia State University, Macon, GA)

2013-2016 Jeffery Bell, Ph.D. (Biology), UND
 Advisor: Jefferson Vaughan, Ph.D.
 (Current position: Biology Instructor, Northland Technical College, East Grand Forks, MN)

2013-2015 Michael Dougherty, M.S. (Biology), UND
 Advisor: Jefferson Vaughan, Ph.D.
 (Current position: Graduate student, University of Florida College of Medicine, Gainesville, FL)

2011-2013 Danielle Jessen Condry, Ph.D. (Microbiology), UND
 Advisor: Matthew Nilles, Ph.D.
 (Current position: Associate Professor of Practice, Department of Microbiological Sciences, North Dakota State University)

2011-2015 Patrick Osei-Owusu, Ph.D. (Microbiology), UND
 Advisor: Matthew Nilles, Ph.D.
 (Current position: Associate Provost for Research Safety, University of Chicago, Chicago, IL)

2011-2015 Sanghita Sarkar, Ph.D. (Microbiology), UND
 Advisor: David Bradley, Ph.D.
 (Current position: Scientist II, University of Alabama at Birmingham, Birmingham, AL)

2011-2014 Ashley Fink, Ph.D. (Microbiology), UND
 Advisor: David Bradley, Ph.D.
 (Current position: Assistant Professor, College of Saint Benedict, Minnesota)

Undergraduates

2026 Sydney Gahlon (visiting from U. Minnesota, Twin Cities, MN)

2026 Dawson Fleck (visiting from Concordia College, Moorhead, MN)

2025-2026 Olivia Schoepp, UND

2023 Odele Rajpathy, UND

2023 Rylee Beaumaster, UND

2023 Clarie Proulx, UND

2022 Hayley Qualley, US MASTER student, UND

2022 Kaitlyn Kelley, Research Experiences for Undergraduates (REU)

2021-2024 Amy Aldinger, US MASTER student, UND

2020-2021 Cassidy Anderson, B.S., US MASTER student, UND

2019 Daneyshalee Vargas-Silva, REU

2018-2020 Paul Schoeneberger, B.S., US MASTER student, UND
 (Next position: PA student, Marquette University, Milwaukee, WI)

2017-2018 Emily Klatt, B.S., UND
 (Next position: Ph.D. student, Mayo Clinic Graduate School of Biomedical Sciences, Rochester, MN)

2017-2018 Carrie Pratt, Ph.D., UND
(Current position: Postdoc, University of Toronto, Toronto, Canada)

2016-2017 Jessica Fairley, McNair Program, UND

2016 Carolyn Mickelson, B.S. (visiting from Concordia College, Moorhead, MN)
(Next position: Ph.D. student, University of Wisconsin, Madison, WI)

2016-2019 Anna Proulx, M.D., UND
(Next position: MD student, University of Minnesota, Minneapolis, MN)

2015 Sarah Tarvestad, UND

2015-2017 Ellen Kiser, Ph.D., UND
Honors Thesis, 2016
(Next position: Ph.D. student, University of Iowa, Iowa City, IA)

2013-2016 Jacob Greenmyer, M.D., UND
Honors Thesis, 2016
(Current position: Pediatric Hematology Resident, Mayo Clinic, Rochester, MN)

2013-2015 Brooke Lentz, M.D., UND
Honors Thesis, 2015
(Current position: Physician, Ochsner Health, New Orleans, LA)

2012-2013 Eric Kees, Ph.D., UND
(Current position: Development Associate III, Takeda, St. Paul, MN)

2011-2013 Tammy Gonzalez-Parraga, MD/Ph.D., UND
Honors Thesis, 2013
(Current position: Dermatology Resident, University of Miami, Miami, FL)

Medical Students

2021 Ajdin Ekic, MD. REMS, UND
(Current position: Internal Medicine Resident, University of Arizona College of Medicine, Tucson, AZ)

2020 Cody Riggle, MD. REMS, UND
(Current position: Psychiatry Resident, UND)

2019 Veronica Harrison, MD. REMS; 2018, 4-week volunteer project, UND

2018 Matthew Jacobson, MD. REMS, UND

2016 Alys Lerud, MD. REMS, UND

2016 Taylor Studsrud, MD. REMS, UND
(Current position: Radiologist, Massachusetts General Hospital, Boston, MA)

2016 Jacob Greenmyer, MD. REMS, UND
(Current position: Pediatric Hematology Resident, Mayo Clinic, Rochester, MN)

2014 Heather Liebe, MD. REMS, UND
(Current position: General Surgeon, Leonard J. Chabert Medical Center, Oklahoma City, OK)

2014 Christopher Hellekson, MD. REMS, UND
(Current position: Psychiatrist, Providence St. Patrick Hospital, Missoula, MT)

- 2012 Kevin Torkelson, MD. REMS, UND
(Current position: Emergency Medicine, Sanford Health, Fargo, ND)
- 2012 Collin Parker, MD. REMS, UND
(Current position: Dermatologist, Midwest Dermatology, Omaha, NE)
- 2011 Scott Erpelding, MD. REMS, UND
(Current position: Urologist, Urology Associates of Idaho Falls, ID)

High School

- 2024 Synje Peterson, high school student volunteer
- 2023-2024 Nivanthi Wijetunga, early high school graduate, gap year lab volunteer (Currently student at Carleton College, Northfield, MN)
- 2020 Lilah Richman, high school student; Role: 30 min interview for research project
- 2013 Elli Pastorek, high school student; Role: Science fair project advisor

Seminars Arranged and Hosted

- 2026 Dr. Renee Tsois, Chair, Microbiology Graduate Group, University of California-Davis, Davis, CA. "Interactions between *Brucella* and innate immunity that promote chronic infection"
- 2023 Dr. Scott Weaver, Chair, Microbiology & Immunology, University of Texas Medical Branch, Galveston, TX. "Urban arboviral emergence: mechanisms and constraints"
- 2023 Dr. Stephanie Shames, Department of Microbiology & Molecular Genetics, Michigan State University, East Lansing, MI "Unintended consequences: Augmentation of cell-autonomous host defense by a *Legionella pneumophila* effector protein"
- 2022 Dr. Erin Garcia, Department of Microbiology, Immunology, & Molecular Genetics, University of Kentucky College of Medicine, Lexington, KY. "Bacterial sword fights: cell-cell antagonism in *Burkholderia*"
- 2021 Dr. Robert Lochhead, Department of Microbiology & Immunology and Division of Rheumatology, Medical College of Wisconsin, Milwaukee, WI. "Lyme arthritis: Linking infection, inflammation, and autoimmunity"
- 2020 Dr. Jyl Matson, Department of Medical Microbiology & Immunology, University of Toledo College of Medicine and Life Sciences, Toledo, OH. "*Vibrio cholerae* responses to antimicrobial peptides"
- 2019 Dr. Victor Nizet, Chief of the Division of Host-Microbe Systems & Therapeutics, University of California-San Diego, "Collaborating with the innate immune system to combat multidrug-resistant superbugs"
- 2018 Dr. Mary O'Riordan, Department of Microbiology & Immunology, University of Michigan Medical School. "Cells on fire"
- 2017 Dr. Jeffery Grabowski, Biology of Vector-Borne Viruses Section Laboratory of Virology; NIAID, NIH, Rocky Mountain Laboratories, Hamilton, MT. "Flavivirus infection in tick organotypic cultures and future application"

2017	Dr. Vanessa Sperandio, Department of Microbiology & Biochemistry, University of Texas Southwestern Medical Center, "EHEC Sings: Pour some sugar on me"
2016	Dr. Jean Tsao, Department of Fisheries & Wildlife, Michigan State University. "Eco-epidemiology of Lyme and relapsing fever borreliae" (Host: Combined Biology & Biomedical Sciences Departments)
2012	Dr. Mario T. Philipp, Division of Bacteriology and Parasitology, Tulane National Primate Research Center, Tulane University, Covington, LA. "Glial cells and neurons in the pathogenesis of Lyme neuroborreliosis: Studies in vivo and in vitro"
2012	Dr. Elizabeth Rucks, Department of Basic Biomedical Sciences, University of South Dakota, Vermillion, SD. "The plasma membrane retrieval signal, YGRL, targets proteins to the chlamydial inclusion"
2012	Dr. Wolfram R. Zückert, Department of Microbiology, Molecular Genetics & Immunology, University of Kansas Medical Center, Kansas City, Kansas. "How to build a host-pathogen interface: Lipoprotein secretion in <i>Borrelia burgdorferi</i> "
2011	Dr. Brian Stevenson, Department of Microbiology, Immunology, & Molecular Genetics, University of Kentucky College of Medicine, Lexington, KY. "Measuring happiness: The Lyme disease spirochete <i>erp</i> operons as models for pathogen gene regulation"
2011	Dr. Nancy Freitag, Department of Microbiology & Immunology, University of Illinois-Chicago, Chicago, IL. " <i>Listeria monocytogenes</i> "

12. Scholarship and Research

Current Support

NF First Seed Grant, SMHS "Molecular mechanisms linking *Borrelia burgdorferi* infection to Alzheimer's disease pathology" Role: MPI (J. Watt, UND); 4/01/2026-9/30/2027; Total costs: \$75,000

NIH/NIAID R03AI87066 "*B. burgdorferi* interactions with the blood-CSF barrier: Development of a 3D choroid plexus" Role: PI; 11/15/2024-10/31/2026; Total costs: \$141,000

NIH/NIAID R01AI158304 "Bacterial and host factors in the pathogenesis of Lyme neuroborreliosis" Role: PI; 06/23/2022-04/30/2027; Total costs: \$1,692,000

NIH/NINDS R25NS110050 "Indians Into Medicine: Native Educator University Research Opportunity in Neuroscience (INMED: NEUROscience)" Role: Mentor (S. Sletten, UND); 1/01/2022-12/31/2026; Total costs: \$539,800

NIH/NIGMS 2P20GM113123 "Center for Excellence in Host-Pathogen Interactions" Role: MPI (D. Bradley, MPI); 8/05/2021-6/30/2027; Total costs: \$10,523,094

Previous Support, Extramural

DoD W81XWH2010168 "Epigenetic Memory in Refractory Lyme Arthritis" Role: Co-I (A. Dhasarathy, PI, UND); 4/01/2020-3/31/2024; Total costs: \$417,000

NIH/NIAID R01AI144126 "SpoVG and PlzA regulation of Lyme disease spirochete infection process" Role: Co-I (B. Stevenson, PI, University of Kentucky); 4/01/2020-3/31/2024; Total costs: \$2,898,476

NSF 2117014 MRI: "Acquisition of an Atomic Force Microscope" Role: Co-PI (N. Oncel, Lead PI, UND); 9/01/2021-2/28/2023; Total costs: \$252,841

NIH/NIAID R21AI149220 "*Borrelia miyamotoi* meningoencephalitis" Role: PI; 1/01/2020-12/31/2022; Total costs: \$387,750

Global Lyme Alliance "Cerebrospinal fluid immune response in a tractable murine model of Lyme neuroborreliosis" Role: PI; 10/12/2021-10/11/2022; Total costs: \$55,000

NIH/NIAID R21AI154045 "Novel application of isoxazoline veterinary drugs to streamline reservoir-targeted abatement of tick-borne zoonoses" Role: Co-I (J. Vaughan, PI, UND); 9/1/2020-8/31/2022; Total costs: \$387,750

NIH/NIAID R41AI52954 "FH-Fc as a pre-exposure prophylaxis for tickborne disease" Role: Co-I (K. Wycoff, PI, Planet Biotechnology); 7/17/2020-1/16/2022; Total costs: \$363,474

NIH P20 Centers of Biomedical Research Excellence (COBRE) P20GM113123 "Host-Pathogen Interactions" Role: Project Director (Project 3), "Antibiotic killed *Bb* modulates sterile inflammation in the central nervous system: implications for neuroborreliosis" (Co-PIs C. Combs, D. Bradley); 5/01/2016-4/30/2021; Total costs: \$10,424,980

NIH/NIAID R21AI129522 "Pathogenesis of *Borrelia mayonii* infection" Role: Co-I (B. Stevenson, PI, University of Kentucky); 7/01/2017-6/30/2020; Total costs: \$375,000

NIH/NIAID R21AI125775 "MicroRNAs induced by *Borrelia burgdorferi*" Role: PI; 7/01/2016-6/30/2019; Total costs: \$347,500

NIH/NIAID R21AI26883 "*Borrelia miyamotoi* interactions with vector ticks" Role: Co-I (B. Stevenson, PI, University of Kentucky); 7/1/2016-6/30/2018; Total costs: \$353,908

Global Lyme Alliance, Research Project Grant "Adverse outcomes in gestation as consequences of immune responses to *B. burgdorferi* infection during pregnancy" Role: PI; 3/21/2018-4/30/2019; Total costs: \$25,000

Global Lyme Alliance, Research Project Grant "Epigenetic modifications induced by *B. burgdorferi*" Role: PI; 2/1/2017-7/31/2018; Total costs: \$108,000

UND Epigenomics COBRE-I (P20 GM104360) Replacement Project "Epigenetic modifications induced by *B. burgdorferi*" Role: Project Director, (PI: R. Vaughan); 12/1/2015-5/31/2016; Total costs: \$10,329,465

NIH/NIAID K22AI093671 "Role of *B. burgdorferi* Rev fibronectin binding proteins in Lyme disease" Role: PI; 8/1/2011-7/31/2014; Total costs: \$250,000

NovaDigm Therapeutics UND0016841 "RevA, a potential vaccine antigen against Lyme disease" Role: PI; 2/1/2011-1/31/2012; Total costs: \$24,000

NIH Ruth L. Kirschstein Individual National Research Service Award F32AI081480 "Role of a *B. burgdorferi* fibronectin-binding protein in Lyme disease" Role: PI; 9/16/2009-11/30/2010; Total costs: \$64,772

NIDCR/Pathogen Genomics Resource Center Microarrays "Study of the transcriptional responses of *T. denticola* to anti-microbial peptides" Role: Co-I (A. Centurion-Lara, PI); University of Washington, 2006; Total costs: None

R01 NIDCR DE015354 "Interaction of oral spirochetes with gingival epithelium" Role: Co-I (S. Lukehart, PI, University of Washington); 3/1/2004-11/30/2007; Total costs: \$756,105

Previous Support, Intramural

ND EPSCOR ACES "Modeling single cell interactions with scaffold proteins" Role: Co-PI (Nuri Oncel, Co-PI); 09/01/2022-6/1/2026; Total costs: \$95,000

UND SMHS Pilot “Deciphering transcriptional and epigenetic priming mechanisms contributing to refractory Lyme disease” Role: MPI (Dhasarathy, contact PI); 10/16/2024-10/15/2025; Total costs: \$50,000

UND SMHS Office of the Dean: Dean’s Meritorious Grant Award “Mlp protein functions during *Borrelia* infections” Role: PI; 8/15/2024-8/14/2025; Total costs: \$20,000

UND Epigenetics & Epigenomics COBRE Pilot “Identification of pathogenic meningeal T cell responses during infection with *Borrelia burgdorferi*” Role: PI; 07/01/2022-08/30/2023; Total costs: \$40,000

UND SMHS Office of the Dean: Dean’s Meritorious Grant Award “Bacterial and host factors in the pathogenesis of Lyme neuroborreliosis” Role: PI; 1/15/2021-10/14/2022; Total costs: \$50,000

UND SMHS Office of the Dean: Dean’s Meritorious Grant Award “*Borrelia miyamotoi* meningoencephalitis” Role: PI; 8/15/2019-8/14/2021; Total costs: \$50,000

UND SMHS Pilot “Cerebrospinal fluid immune response in a tractable murine model of Lyme Neuroborreliosis” Role: Co-PI (T. Casselli, UND); 4/15/20-4/14/21; Total costs: \$50,000

UND VPR & Economic Development Post-Doctoral Seed Funding Program “Exploring EMT transitions in Lyme arthritis: a systems approach” Role: Co-PI (with A. Dhasarathy and J. Hur); 1/01/2018-6/30/2020; Total costs: \$60,000

ND EPSCoR Research Infrastructure Improvement Women in Science and Engineering (WISE) Award Purpose: To provide support for undergraduate research experiences; Role: PI; 5/16/2017-4/30/2019; Total costs: \$10,000

UND Faculty Seed Grant “Mechanisms of *B. burgdorferi* penetration of the human blood brain barrier” Role: PI; 4/1/2014-9/30/2015; Total costs: \$36,000

UND Epigenomics COBRE Pilot Grant “Epigenetics of Lyme disease” Role: PI; 3/1/2015-5/15/2015; Total costs: \$32,000

UND Epigenomics COBRE Pilot Grant “Genome-wide transcriptional changes induced in the rat CNS by *B. burgdorferi*” Role: PI; 2015: One-time funds to cover RNA-seq and data analysis for 12 samples; Total costs: \$13,000

UND School of Medicine and Health Sciences Seed Grant “Persistence of spirochetal debris in CNS: implications for Lyme neuroborreliosis” Role: Co-PI (with J. Watt); 6/1/2013- 12/31/2014; Total costs: \$52,000

UND Neuroscience COBRE Pilot Grant “Intracellular targeting at the BBB using fibronectin-binding nanoparticles” Role: PI; 10/1/2013-5/17/2014; Total costs: \$25,000

UND Neuroscience COBRE Pilot Grant “Role of local inflammatory responses in *B. burgdorferi* penetration of brain barrier systems” Role: Co-PI (with J. Watt); 10/1/2012-5/17/2013; Total costs: \$50,000

UND School of Medicine and Health Sciences Seed Grant “Neural immune modulation in rats subjected to *Borrelia burgdorferi* infection” Role: PI; 2/1/2011-1/31/2012; Total costs: \$15,000

Research Royalty Fund Grant 65-5041 “Interactions between *Treponema denticola* and human beta-defensins” Role: Investigator (S. Lukehart, PI); University of Washington, 2001-2002; Total costs: \$30,000

Peer-Reviewed Original Publications *= corresponding author

1. Nguyen, H., **Brissette**, C.A. (2026) Machine learning-driven identification of virulence determinants in *Borrelia burgdorferi* associated with human dissemination. PLoS Computational Biology. 22(6):e1014407. doi: 10.1371/journal.pcbi.1014407.PMID: [42308248](https://pubmed.ncbi.nlm.nih.gov/42308248/)

2. Faber, S., Mao, C., Darling, E., Ahern, F., **Brissette**, C., Gardner, T., Weis, J.J., Bergström, S., Breitschwerdt, E.B., Coyne, C., Fallon, B.A., Goodreau, H., Lambert, J.S., Lloyd, V., Luchini, A., Mulkey, S.B., Nagel, K., Nemser, B., Rudenko, N., Shan, J., Tal, M.C., Embers, M.E. (2026) Perinatal transmission of *Borrelia burgdorferi*: Advancing scientific and clinical understanding of Lyme Disease in pregnancy. *Frontiers in Medicine*. 2026 Apr 9:13:1794120. doi: 10.3389/fmed.2026.1794120. PMCID: [PMC13102645](#)
3. Hewage, K.M., Munoz, C., Ozdogan, M., **Brissette**, C.A., Oncel, N. (2026) Interaction dynamics of *Borrelia* surface proteins with fibronectin. *Biointerfaces*. 21(1): DOI: 10.1116/6.0005056. PMID: [41700770](#)
4. Cleveland, D.W., Wijetunga, N., Casselli, T., Tourand, Y., Pecoraro, H.L., **Brissette***, C.A. (2026) *Borrelia mayonii* induces carditis but not arthritis in Lyme-susceptible mice. *Frontiers in Immunology*. Jan 22:17:1727413. doi: 10.3389/fimmu.2026.1727413. PMID: [41659854](#)
5. Dougherty, M.W., Russart, N.M., Gaultney, R.A., Gisi, E.M., Cooper, H.M., Kallis, L.R., **Brissette**, C. A., Vaughan, J.A. (2024) Role of the southern red-backed vole, *Myodes gapperi*, in the enzoonotic maintenance of Lyme disease in northeastern North Dakota. *Ticks and Tick-Borne Diseases* 15: 102385. PMID: [39096783](#)
6. Jusufovic, N., Savage, C., Saylor, T., **Brissette**, C., Zueckert, W., Schlax, P., Motaleb, Md., Stevenson, B. (2024) *Borrelia burgdorferi* PlzA is a c-di-GMP dependent DNA and RNA binding protein. *Molecular Microbiology* 121(5): 1039-1062. PMID: [38527857](#)
7. Munoz, C., Ozdogan, M., Tourand, Y., Casselli, T., **Brissette**, C.A., Oncel, N. (2024) Effects of outer surface lipoproteins on the nanomechanical properties of Lyme borrelia. *J Physics D: Applied Physics* 57 115401. <https://iopscience.iop.org/article/10.1088/1361-6463/ad1350>
8. Thompson, D., Odufuwa, A.E., **Brissette**, C.A., Watt, J.A. (2023) Transcriptome and methylome of the suprachiasmatic nucleus provides insights into the age-dependent loss of neuronal plasticity. *Frontiers in Aging Neuroscience* 15:1223273. PMID: [37711995](#)
9. Saylor, T.C., Savage, C.R., Krusenstjerna, A.C., Jusufovic, N., Zückert, W.R., **Brissette**, C.A., Motaleb, Md., Schlax, P.J., Stevenson, B. (2023) Quantitative analyses of interactions between SpoVG and RNA/DNA. *Biochemical and Biophysical Research Communications* 654:40-46. PMID: [36889033](#)
10. Casselli, T., Tourand, Y., Gura, K., Stevenson, B., Zückert, W.R., **Brissette***, C.A. (2023) Endogenous linear plasmids lp28-4 and lp25 are required for infectivity and restriction protection in the Lyme disease spirochete *Borrelia mayonii*. *Infection & Immunity* Feb 28; e0006123. PMID: [36853005](#)
11. Saylor, T.C., Casselli, T., Lethbridge, K.G., **Brissette**, C.A., Zueckert, W.R., Stevenson, B. (2022) *Borrelia burgdorferi*, the Lyme disease spirochete, possesses genetically-encoded responses to doxycycline, but not to amoxicillin. *PLoS ONE* 17(9): e0274125. PMID: [36178885](#)
12. Casselli, T., Divan, A., Vomkoff-DeKrey, E.E., Tourand, Y., Pecoraro, H., **Brissette***, C.A. (2021) A murine model of Lyme disease demonstrates that *Borrelia burgdorferi* colonizes the dura mater and induces inflammation in the central nervous system. *PLoS Pathogens* 17(2): e1009256. PMID: [33524035](#)
13. Thompson, D., Sorenson, J., Greenmyer, J., **Brissette**, C.A., Watt, J.A. (2020) The Lyme disease bacterium, *Borrelia burgdorferi*, stimulates an inflammatory response in human choroid plexus epithelial cells. *PLoS One* 15(7): e0234993. PMID: [32645014](#)

14. Jutras, B.L., Arnold, W.K., Savage, C.R., Lethbridge, K.G., Carroll, D.W., Tilly, K., Bestor, A., Stewart, P.E., Rosa, P.A., Seshu, J., **Brissette**, C.A., Stevenson, B. (2019) The Lyme disease spirochete's BpuR DNA- RNA-binding protein is differentially expressed during the mammal-tick infectious cycle and affects translation of the SodA superoxide dismutase. *Molecular Microbiology* 112(3):973-991. PMID: [31240776](#)
15. Casselli, T., Tourand, Y., Scheidegger, A., Arnold, W., Proulx, A., Stevenson, B., **Brissette***, C.A. (2018) DNA methylation by restriction modification systems affects the global transcriptome profile in *Borrelia burgdorferi*. *Journal of Bacteriology* pii: JB.00395-18. PMID:[30249703](#)
16. Arnold, W.K, Lethbridge, K.G., Savage, C.R., Smith 2nd, T.C., **Brissette**, C.A., Seshu, J. Stevenson, B. (2018) Transcriptomic insights on the virulence-controlling CsrA, BadR, RpoN, and RpoS regulatory networks in the Lyme disease spirochete. *PLoS One* 13(8): e0203286. doi: 10.1371/journal.pone.0203286. PMID: [30161198](#)
17. Divan, A., Casselli, T., Narayanan, S.A., Mukherjee, S., Zawieja, D.C., Watt, J.A., **Brissette***, C.A., Newell-Rogers, M.K. (2018) *Borrelia burgdorferi* adhere to blood vessels in the dura mater and are associated with increased meningeal T cells during murine disseminated borreliosis. *PLoS One* 13(5): e0196893. doi: 10.1371/journal.pone.0196893. PMID: [29723263](#)
18. Greenmyer, J., Gaultney, R.A., **Brissette**, C.A., Watt, J.A. (2018) Primary human microglia are phagocytically active and respond to *Borrelia burgdorferi* with upregulation of chemokines and cytokines. *Frontiers in Microbiology* 9:811. doi: 10.3389/fmicb.2018.00811. PMID: [29922241](#)
19. Savage, C.R., Jutras, B.L., Bestor, A., Tilly, K., Rosa, P.A., Tourand, Y., Stewart, P.E., **Brissette**, C.A., Stevenson, B. (2018) *Borrelia burgdorferi* SpoVG DNA- and RNA-binding protein and its transcript affect the physiology of the Lyme disease spirochete. *Journal of Bacteriology*. 2018 pii: JB.00033-18. doi: 10.1128/JB.00033-18. PMID: [29632088](#)
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