BLEDAR BISHA, CURRICULUM VITAE

University of Wyoming, Department of Animal Science

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Curriculum Vitae Table of Contents

A. EDUCATION AND PROFESSIONAL ADVANCEMENT

A.1. Education

Postdoctoral Training:	Food Microbiology, Colorado State University, 2009- 2013.
Doctor of Philosophy (Ph.D.):	Food Science & Technology, Iowa State University, 2009.
Master of Science (M.Sc.):	Food Science & Technology, Iowa State University, 2004.
Veterinary Doctor (M.V.):	Veterinary Medicine, Agricultural University of Tirana, 1999.

A.2. Professional Advancement

University of Wyoming:	Associate Professor and Head (07/2021-), Wyoming Excellence Chair (2022-), Department of Animal Science.
University of Wyoming:	Associate Professor and Interim Head (07/2019-06/21/21), Department of Animal Science.
University of Wyoming:	Associate Professor - Food Microbiology (7/2019-), Department of Animal Science.
University of Wyoming:	Assistant Professor - Food Microbiology (8/2013 - 6/2019), Department of Animal Science.
Iowa State University:	Affiliate Assistant Professor - Food Microbiology (1/2018 - 5/2021), Department of Food Science and Human Nutrition.
Colorado State University:	Postdoctoral Fellow - Food Microbiology (9/2009 - 8/2013), Center for Meat Safety and Quality, Department of Animal Sciences.
Iowa State University:	Research Associate - Food Microbiology (5/2009 - 9/2009), Department of Food Science and Human Nutrition.
Iowa State University:	Graduate Research Assistant - Food Science and Technology (Microbiology concentration) (01/2002 - 5/2009), Department of Food Science and Human Nutrition.
Università degli Studi di Bari:	Visiting Scientist - Food Safety and Microbiology (3/2001 - 12/2001), Facoltà di Medicina Veterinaria.

Universiteti Bujqësor i Tiranës:	Assistant Lecturer - Control of Foods of Animal Origin (taught: Meat and Packing Plant Hygiene) (8/1999 - 12/2001), Departamenti i Lendëve Paraklinike, Fakulteti i Mjekësise Veterinare.

B. RESEARCH ACTIVITIES

B.1. General Research Summary

My research focuses on the microbiology and microbial safety of foods. Specific research interests include control, detection and ecology of foodborne pathogens. Current research comprises the development of rapid and molecular diagnostics for foodborne pathogens; optimization of sample preparation for microbial diagnostics; study of microorganisms at the single cell level; multi-omics approaches to study microorganisms; antimicrobial resistance in the food supply; wastewater-based epidemiology; and microbial source tracking. More detailed descriptions of my research foci are listed below:

1. Development of rapid microbial detection technologies, biosensors and typing for foodborne pathogens in food and the environment using the following approaches:
    - Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS).
    - Microfluidics (including paper-based analytical devices or μPADs), enzyme-based/colorimetric.
    - Flow cytometry/fluorescence microscopy.
    - Capillary electrophoresis.
    - Nucleic acid-based (FISH, LAMP, dPCR).
    - Bacteriophages.
2. Development and validation of methods for effective capture and concentration of viral, protozoan and bacterial agents of importance in water, food/food processing environment, and bioaerosols (primarily coupled with molecular detection):
    - Novel devices for concentration of bacteria form large sample volumes.
    - Improved/practical approaches to detect bacteria on food surfaces.
    - Effective charge-based capture of viruses.
    - Modified impingement devices for capture of viruses from bioaerosols.
3. Ecology and epidemiology of antimicrobial resistant (AMR) bacteria and other zoonotic agents in:
    - Livestock operations.
    - Wildlife.
    - Environment.
    - Global health.

4. Assessment and validation of suitable indicators for foodborne and waterborne viruses and bacteria:
    - Coliphages.
    - Source tracking using traditional culture-based and molecular methods.
    - Source tracking using next-generation sequencing methods.
5. Wastewater-based epidemiology:
    - SARS-CoV-2.
    - Antimicrobial resistance.
    - Norovirus.
6. Study and validation of effectiveness and mode of action of novel control methods to reduce pathogens in food and livestock:
    - Bacteriophages.
    - Probiotics.
    - Irradiation.
    - Natural antimicrobials (bacteriocins, essential oils, enzymes).
    - Organic acids and other chemicals .

B.2. Research Work History

Assistant Professor - Food Microbiology - 08/2013 – 06/2019, Associate Professor and Interim Head - 07/2019 – 06/2021, Associate Professor and Head - 07/2021 – , Associate Professor and Head, Wyoming Excellence Chair - 11/2022 – .

Department of Animal Science, University of Wyoming, Laramie, WY

- Development of novel high throughput identification and characterization methods for antimicrobial resistant bacteria.
- Development and validation of methods for improved discrimination of foodborne bacteria.
- Development of novel sampling methods for capture and concentration of bioaerosol-associated viruses from agricultural environments.
- Role of wildlife and environmental inputs in the dissemination of zoonotic viral and bacterial agents.
- Role of wildlife and environmental inputs in the dissemination foodborne pathogens and antimicrobial resistance into the food supply.
- Wastewater-based epidemiology for population-level assessment of infectious agents.
- Colorimetric and electrochemical-based microfluidic detection and characterization of foodborne pathogens.
- Understanding the effects of environment (bioaerosols, water, etc.) on occupational health using metagenomics.
- Genomics, proteomics, and cytomics to study microorganisms at the single cell level.

- Culture-dependent and culture-independent source tracking methods.
- Characterization of infectious agents impacting animal health in the Western U.S.

Affiliate Assistant Professor - Food Microbiology - 01/2018 – 05/2021.

Department of Food Science and Human Nutrition, Iowa State University, Ames, IA

- Active member and contributor to the department by engaging in one or more of the following activities:
    - Collaborate with FSHN faculty on research projects.
    - Provide learning and/or internship opportunities for graduate and undergraduate students.
    - Collaborate or assist with teaching or student learning activities.
    - Serve on graduate student Program of Study Committees.

Postdoctoral Fellow - Food Microbiology - 09/2009 – 08/2013.

Center for Meat Safety and Quality, Department of Animal Sciences, Colorado State University, Fort Collins, CO

- Development of rapid detection technologies for *E. coli* STEC, *Vibrio parahaemolyticus*, *Salmonella enterica*, protozoan and viral pathogens in meat, fresh produce, environment, and water using specific bacteriophage, nucleic acid, colorimetric, and label-free approaches.
- Development of capture and concentration methods for viral, protozoan and bacterial food and waterborne pathogens and indicators.
- Development of field-based microbial diagnostic technologies providing easy-to-use, inexpensive alternatives to established detection methods.
- Investigation of CTX-M extended-spectrum β-lactamase in *E. coli* from dairy cattle.
- Validation of natural antimicrobials (terpeneless orange essential oils) for control of pathogenic bacteria in meats.
- Development of flow cytometry-based diagnostics for select feline viral diseases (FHV, FCV, FPV).
- Training, supervision, and research guidance for 10 graduate students in Animal Science (Food Safety specialization), Food Science, Chemistry, and Veterinary Medicine.
- Management of the *De.Te.Ct.* food microbiology diagnostic laboratory.

Research Associate - 5/2009 – 9/2009

Department of Food Science and Human Nutrition, Iowa State University, Ames, IA

- Development of capillary electrophoresis, flow cytometry and fluorescence *in situ* hybridization-based diagnostic methods for *Candida* spp. in blood and Raman spectroscopy for detection of *Salmonella* spp. in food.

- Elucidation of mechanisms of inactivation of *Listeria monocytogenes* via grape seed extract.
- Training and supervision of 2 graduate students.

Graduate Research Assistant - 01/2005 – 05/2009

Department of Food Science and Human Nutrition, Iowa State University, Ames, IA

- Design, perform and analyze research projects on development of rapid and molecular detection of foodborne pathogens, including *Salmonella* and *Listeria* spp., in food and food processing environment, principally based on utilization of fluorescence *in situ* hybridization and flow cytometry-based techniques.
- Develop fluorescence *in situ* hybridization- and flow cytometry-based diagnostics for *Candida* spp., *Yersinia* spp., and *Campylobacter jejuni*.

Graduate Research Assistant - 01/2002 – 12/2004

Department of Food Science and Human Nutrition, Iowa State University, Ames, IA

- Conduct research on control of *Listeria monocytogenes* via electron beam irradiation, organic acid salts and bacteriocins in ready-to-eat meat products.
- Conduct research on control of *Clostridium perfringens* on ham products.
- Conduct research on the use of probiotic cultures in reconstituted powdered milk for control of *Salmonella* spp. and *Listeria monocytogenes* or in reconstituted infant formula for control of *Enterobacter (Cronobacter) sakazakii*.
- Conduct research on the ecology and epidemiology of *Salmonella* spp. in central and northwestern Iowa's organic swine operations.
- Evaluate hygiene practices of food service operations which impact food safety and quality in Iowa school programs.

Visiting Scientist - 03/2001 – 12/2001

Institute for Inspection of Foods of Animal Origin, Faculty of Veterinary Medicine, University of Bari, Italy

- Continue research on the microbiological quality of feta cheese produced in the southwestern region of Albania.
- Work closely with public health officials and food safety officers to establish a framework for regional (Southern Europe) cooperation framework in food safety.

Instructor and Research Associate - 08/1999 – 03/2001

Faculty of Veterinary Medicine, Agricultural University of Tirana, Albania

- Conduct research on the microbiological quality of feta cheese produced in the southwestern region of Albania with special emphasis on assessing prevalence of *Brucella* spp.
- Manage the food hygiene laboratory. Train and mentor veterinary and graduate students in food microbiology research.

C. TEACHING ACTIVITIES

C.1. General Teaching Summary

At the University of Wyoming, I have taught the courses Food Microbiology (FDSC 4090/5090) and Food Microbiology Laboratory (FDSC 4100/5100) starting from Spring 2014, and Food Safety (FDSC 4900) starting from Fall 2015. I have also guest lectured for the following courses: Cell Signaling (ANSC 4061/5061), 1st Year Seminar (FDSC 1101), Food and Our Well Being (FDSC 1410), and Topics and Issues in Animal Science (ANSC 4630). My previous teaching experience started in fall of 1999, when I was responsible for developing and teaching the course 'Meat and Packing Plant Hygiene' to 4th year veterinary students at the Faculty of Veterinary Medicine, Agricultural University of Tirana (until 2002). In 2003 and 2006, I served as teaching assistant for courses Food Processing and Food Microbiology Laboratory, respectively, at Iowa State University. Between 2009 and 2013 I have been invited on a regular basis as a guest lecturer for the course 'Meat Safety' at Colorado State University. In 2012, I served as visiting professor for the course 'Modern Laboratory Methods to Assess and Control the Safety of Global Foods' at the International Summer University, Pristina, Kosovo. I have also served as invited lecturer at in 2014 and 2021 at the International Summer University, Pristina, Kosovo.

C.2. Teaching Work History

C.2.1 Teaching at the University of Wyoming

Food Microbiology, FDSC 4090/5090, 3 hrs, Instructor.

- University of Wyoming, Laramie, WY
    - Course Description: Discusses microorganisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods. Dual listed with FDSC 5090; cross listed with MICR 4090. Prerequisite: MOLB 2210.

Food Microbiology, FDSC 4100/5100, 1 hrs, Instructor.

- University of Wyoming, Laramie, WY
    - Course Description: Lab techniques used in food microbiology. Dual listed with FDSC 5100; cross listed with MICR 4100. Prerequisite: FDSC 4090 or 5090, taken concurrently.

Food Safety, FDSC 4900, 3 hrs, Instructor.

- University of Wyoming, Laramie, WY
    - Course Description: Issue-oriented lecture/discussion course. Includes topics such as what is safe food, what makes food unsafe and how safety of a food is determined. Presents laws and regulations on food safety. In addition to a text, area experts are invited to discuss important issues. *Prerequisite:* 6 hours of biological science. (Offered fall semester of odd-numbered years)

Cell Signaling, ANSC 4061/5061, 3 hrs, Guest Lecturer.

- University of Wyoming, Laramie, WY
    - Course Description: Cell signaling pathways in animal growth and development. Defines how cells respond to external stimuli. Includes: G-protein couple signaling, calcium signaling, growth factor associated signaling, redox signaling, lipid related signaling, and apoptosis. Dual listed with ANSC 5061. *Prerequisites:* MOLB 3610 or an equivalent biochemistry or cell biology course.

Feeding the Planet, First Year Seminar, FDSC1101, 3 hrs, Guest Lecturer.

- University of Wyoming, Laramie, WY
    - Course Description: No description available.

Topics and Issues in Animal Science, ANSC 4630, 3 hrs, Guest Lecturer.

- University of Wyoming, Laramie, WY
    - Course Description: Writing-intensive course that focuses on writing projects related to current topics and issues in animal science. Emphasizes writing skills, strategies, information gathering and critical judgment. Assignments include short and long papers, resumes, letters of transmittal, and oral presentations. *Prerequisites:* senior standing and completion of WA and WB or COM1 and COM2 requirements. (Offered spring semester).

Food and Our Well Being, FDSC 1410, 3 hrs, Guest Lecturer.

- University of Wyoming, Laramie, WY

    Course Description: Introductory course dealing with current questions and concerns about foods. Considers food composition, effects of food processing, food labeling, diet, degenerate diseases and general health. Students become familiar with foods and food industry. (Normally offered spring semester)

C.2.2 Teaching at Other Institutions

Modern Laboratory Methods to Assess and Control the Safety of Global Foods, Course 19, 2 weeks, Visiting Professor.

- University of Pristina, Pristina, Kosovo
    - Course Description: 21st century methods of analyses in the study of food safety in foods of global importance. The students will be instructed in modern methods to assess and investigate outbreaks of foodborne diseases, using real world examples of such outbreaks as teaching tools. The students will be introduced to methods to control pathogens in foods including HACCP and hurdle technology, and then will be able to experiment with what they have learned during hands-on, supervised laboratories that will allow them to see exactly how these methods are used during global food production methods used to actually control bacteria in foods. Where feasible, differences in food production methods used in different parts of the world (Europe, North America, Africa and Asia) will be discussed and emphasized. It is expected that upon completion of this course, students will be prepared to return to their country with enough experience to be employed in the food industry as food safety microbiologists.

Meat Safety, ANEQ 460, 2 hrs, Invited Lecturer.

- Colorado State University, Fort Collins, CO
    - Course Description: Meat safety; food borne pathogens; hazard analysis critical control points (HACCP) and total quality management (TQM) practices.

Food Microbiology Laboratory, FSHN 421, 2 hrs, Teaching Assistant.

- Iowa State University, Ames, IA
    - Course Description: Standard techniques used for the microbiological examination of foods. Independent and group projects on student-generated questions in food microbiology. Emphasis on oral and written communication and group interaction.

Food Processing, FSHN 472 (dual-listed with FSHN 572), 3 hrs, Teaching Assistant.

- Iowa State University, Ames, IA
    - Course Description: Principles and applications of food processing by biological (fermentation, enzymes) and nontraditional (high pressure, irradiation, pulsed electric field) preservation methods. Includes packaging, wastewater treatment, and sanitation.

Meat and Packing Plant Hygiene, 3 hrs, Fall, 100%, Instructor.

- Universiteti Bujqësor i Tiranes, Tirane, Albania
    - Course Description: Principles of meat and packing plant hygiene. Techniques for meat safety and quality inspection, including theoretical and practical aspects of bacteriology, parasitology, virology, and veterinary legislation pertaining food

safety and public health. Open to 4th year veterinary students. Lectures, laboratory and field practices.

D. PROFESSIONAL MEMBERSHIPS AND PARTICIPATION/HONOR SOCIETIES

- American Society for Microbiology.
- International Association for Food Protection.
- American Society of Animal Science.
- American Dairy Science Association.
- Institute of Food Technologists.
- Affiliate member of the High Plains Center for Intermountain Health and Safety.
- Participant NC1202 multistate project: Enteric Diseases of Food Animals: Enhanced Prevention, Control and Food Safety.
- Participant S-1077 multistate project: S-1077: Enhancing Microbial Food Safety by Risk Analysis.
- Sigma Xi, The Scientific Research Society.
- Gamma Sigma Delta, The Honor Society of Agriculture.

E. SERVICE

E.1 Service at the University of Wyoming

- Member of College of Agriculture, Life Sciences and Natural Resources (CALSNR) Search Committee, Associate Dean - Extension (2023-2024).
- Member of College of Agriculture, Life Sciences and Natural Resources (CALSNR) Search Committee, Associate Dean - Academic Affairs (2023).
- Member of College of Agriculture, Life Sciences and Natural Resources (CALSNR) Search Committee, Director of the Veterinary Diagnostic Laboratory (2023).
- Chair of the Animal Science (ANSC) Search Committee, Office Associate (2023).
- Member of College of Agriculture and Natural Resources (CANR) Search Committee for the Internship & Scholarship Coordinator (2021).
- Member of College of Agriculture and Natural Resources (CANR) Search Committee for the Internship & Scholarship Coordinator (2021).
- Member of College of Agriculture and Natural Resources Academic Dishonesty Hearing Committee (2020-).
- Reviewer for the Microbiology Program Capstone Student Projects (2020 -).
- Chair of the Animal Science Department Graduate Committee (2017- 2020).
- Member of the Institutional Biosafety Committee (IBC), University of Wyoming (2017-2020).

- Member of the USDA-APHIS NWRC Institutional Animal Care and Use Committee (IACUC) (2020-2023).
- Chair of the Animal Science Department Search Committee for Meat Laboratory Manager (2019).
- Member of the Animal Science Department Search Committee for Meat Science Faculty Member (2019).
- Member of the Microbiology Steering Committee, University of Wyoming (2013-)
- Member of the Animal Science Department Search Committee for Department Accountant (2014 and 2017).
- Member of the Animal Science Department Search Committee for Ruminant Microbiology Faculty Member (2014).
- Member of the Animal Science Department Search Committee for Genomics Faculty (2014).

E.2 Service at the Regional, National or International Level

- Editorial board member *Journal of Food Protection* (2017-).
- Editorial board member *Journal of Albanian Veterinary Society* (2017-2019).
- Guest Editor, Special issue of *Microorganism*s (2018-2019).
- Guest Editor, Special issue of *Foods* (2019-2020).
- Guest Editor, Special issue of *IJERPH* (2021-2022).
- Ad hoc reviewer *NanoLetters* (2020-)
- Ad hoc reviewer *Food Control* (2019-).
- Ad hoc reviewer *BMC Veterinary Research* (2017-).
- Ad hoc reviewer *Talanta* (2017-).
- Ad hoc reviewer *Animal Health Research Reviews* (2016-).
- Ad hoc reviewer *Virulence* (2014-).
- Ad hoc reviewer *Aquaculture Research* (2014-).
- Ad hoc reviewer *Science of the Total Environment* (2014-).
- Ad hoc reviewer *Journal of Visualized Experiments* (2014-)
- Ad hoc reviewer *Journal of Applied Microbiology* (2013-).
- Ad hoc reviewer *Journal of Virological Methods* (2013-).
- Ad hoc reviewer *Journal of AOAC International* (2013-).
- Ad hoc reviewer *Professional Animal Scientist* (2013-).
- Ad hoc reviewer *Tropical Medicine & International Health* (2013-).
- Ad hoc reviewer *Food Microbiology* (2013-).
- Ad hoc reviewer *Foodborne Pathogens and Disease* (2012-).
- Ad hoc reviewer *Journal of Food Science* (2011-).
- Ad hoc reviewer *Bacteriophage* (2011-).
- Ad hoc reviewer *Applied and Environmental Microbiology* (2010-).

- Ad hoc reviewer for multiple other journals not specifically mentioned above.
- Affiliate member of the High Plains Intermountain Center for Agricultural Health and Safety (2013-)
- Grant Reviewer for the State of Wisconsin Ground Water Research and Monitoring Grant Program
- Grant Reviewer for the USDA-NIFA Higher Education Multicultural Scholars Program.
- Grant Reviewer for the USDA-NIFA Food Safety Outreach Program.
- Grant Reviewer for the USDA-NIFA Small Business Innovation Research (SBIR) Program.
- Grant Reviewer for the USDA-NIFA Rapid Response to Novel Coronavirus (SARS-CoV-2) Impacts Across Food and Agricultural Systems.
- Grant Reviewer for the USDA-NIFA Foundational and Applied Science (FAS) Grants Program, Novel Foods and Innovative Manufacturing Technologies.
- Grant Reviewer for the USDA-NIFA Foundational and Applied Science (FAS) Grants Program, Mitigating Antimicrobial Resistance Across the Food Chain.
- Grant Reviewer for the USDA-NIFA Higher Education Challenge (HEC) Grants Program. Grant Reviewer for the Agriculture and Food Research Initiative - Education and Workforce Development Program.
- Grant reviewer for the Colorado – Bioscience Discovery Evaluation Grant Program.
- Grant reviewer for the Austrian Research Fund Grant Program.
- Grant reviewer for the Swiss National Science Foundation.
- Tenure & Promotion External Reviewer for T&P candidates from several universities nationally and abroad.
- IACUC member USDA-APHIS NWRC 2020-2023.
- Member of the National Advisory Committee for the Microbiological Criteria of Foods, 2023-2025.
- Consultant and/or scientific advisor for the following companies:
    - AB Sciex Pte. Ltd.
    - CEVA Animal Health.
    - Leprino Foods.
    - Vivione Biosciences.
    - Mountain States Rosen Company.

F. ADVISING

F.1. Graduate Students (students graduated underlined)

1. Jennifer E. Anders, Master of Science in Animal and Veterinary Sciences, graduated Fall 2017 (Committee Chair).
2. Sulaiman Aljasir, Master of Science in Animal and Veterinary Science, graduated Fall 2017 (Committee Chair).

3. Reixati Maimati, Doctor of Philosophy in Animal and Veterinary Sciences, graduated Spring 2020 (Committee Chair).
4. Harneel Kaur, Master of Science in Animal and Veterinary Sciences, graduated Summer 2021 (Committee Chair).
5. Alexys McGuire, Master of Science in Animal and Veterinary Sciences, graduated Summer 2022 (Committee Chair).
6. Ryan Knuth, Doctor of Philosophy in Animal and Veterinary Sciences, graduated Summer 2022 (Committee Chair).
7. Codi Jo Broten, Doctor of Philosophy in Animal and Veterinary Sciences, graduated Fall 2022. (Committee Chair).
8. Clara Bouley, Master of Science in Food Science and Human Nutrition, graduated Summer 2023 (Committee Chair).
9. Anahita Ghorbani Tajani, Doctor of Philosophy in Animal and Veterinary Sciences, graduated Fall 2023 (Committee Chair).
10. Olivia Chase, Master of Science in Animal and Veterinary Sciences, projected graduation Summer 2024 (Committee Chair).
11. Aniket Sharma, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2025 (Committee Chair).
12. Puja Boidya, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2026 (Committee Chair).
13. Joshua Eckery, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2027 (Committee Chair).
14. Christopher Quintanal Segarra, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2027 (Committee Chair).
15. Hannah Cluett, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2027 (Committee Chair).
16. Kali Ward, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2027 (Committee Chair).
17. Jason Klemm, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2027 (Major professor).
18. Takim Sarker, Master of Science in Animal and Veterinary Sciences, projected graduation Summer 2024 (Major Professor).
19. Bayar Saeed, Master of Science in Animal and Veterinary Sciences, graduated Spring 2014 (Graduate committee member).
20. Pradeep Neupane, Master of Science in Animal and Veterinary Sciences, graduated Spring 2016 (Graduate committee member).
21. Anthony Maus, Doctor of Philosophy in Chemistry, graduated Summer 2017 (Graduate committee member).
22. Taylor Kraft, Master of Science in Food Science and Human Nutrition, graduated Summer 2018 (Graduate committee member).

23. Chad McBride Page, Doctor of Philosophy in Animal and Veterinary Sciences, graduated Fall 2020 (Graduate committee member).
24. Tyler McLaughlin, Master of Science in Animal and Veterinary Sciences, graduated Summer 2021 (Graduate committee member).
25. Yohannes Getiye Estifanos, Doctor of Philosophy in Molecular and Life Sciences, graduated Summer 2022 (Graduate committee member).
26. Kelsey Ruehling, Master of Science in Zoology and Physiology, graduated Summer 2022 (Graduate committee member).
27. Anthony Lombardo, Master of Science in Animal and Veterinary Sciences, projected graduation Fall 2020 (rotated in my lab for two semesters, transferred to another institution and did not graduate from UW).
28. Keerthi Bandaru, Doctor of Philosophy in Animal and Veterinary Sciences, Projected graduation Fall 2025 (rotated in my lab for two semesters, transferred to another institution and did not graduate from UW).
29. Matthew Peterson, Doctor of Philosophy in Biomedical Sciences (graduation pending, graduate committee member).
30. Jessica Nunez, Master of Science in Environmental Health and Safety, projected graduation Spring 2023 (Graduate committee member, Colorado State University, continuing registration).
31. Courtney Buchanan, Doctor of Philosophy in Ecosystem Science and Management, graduated Summer 2024 (Graduate committee member).
32. Mallory Brooke Lai, Doctor of Philosophy in Biomedical Sciences, graduated Fall 2024 (Graduate committee member).
33. Pravas Roy, Doctor of Philosophy in Molecular and Life Sciences, projected graduation Fall 2025 (Graduate committee member).
34. Amit Kumar Acharzo, Doctor of Philosophy in Chemistry, projected graduation Fall 2025 (Graduate committee member).
35. Sarker Ramproshad, Doctor of Philosophy in Chemistry, projected graduation Fall 2025 (Graduate committee member).
36. Maedeh Rafiee, Master of Science in Animal and Veterinary Sciences, projected graduation Fall 2025 (Graduate committee member).
37. Mack Myer, Master of Science Animal and Veterinary Sciences, graduation Spring 2025 (Graduate committee member).

F.2. Postdoctoral Fellows/Research Scientists/Others

1. Dr. Baolin Wang, Senior Research Scientist, University of Wyoming (2013 -)
2. Dr. Carter Hranac, Assistant Research Scientist, University of Wyoming (2023 -).
3. Sean Streich, Assistant Research Scientist, University of Wyoming (2024 –).
4. Emma Hanslowe, Assistant Research Scientist, University of Wyoming (2024 – 2024).

5. Alex Worgo, Assistant Research Scientist, University of Wyoming (2024 -).
6. Tesia Lin, Research Associate II, University of Wyoming (2023 - 2024).
7. Kira Douglas, Research Associate II, University of Wyoming (2024-).
8. Gabrielle Quiroz-Croft, Research Associate II, University of Wyoming (2023 - 2025).
9. Gabriel Alnajjar, Research Associate III, University of Wyoming (2024 -).
10. Anne Chalmers, Research Associate III, University of Wyoming (2024 -).
11. Dr. Anahita Ghorbani-Tajani, Postdoctoral Fellow, University of Wyoming (2024 -).
12. Dr. Jeffrey C. Chandler, Postdoctoral Fellow, University of Wyoming (2013 - 2015)
13. Mahdia Rahman, Molecular and Life Sciences rotation Ph.D. student, University of Wyoming (Spring 2022).
14. Afroza Akter, Molecular and Life Sciences rotation Ph.D. student, University of Wyoming (Fall 2022).
15. Bryson Mijares, Molecular and Life Sciences rotation Ph.D. student, University of Wyoming (Fall 2023).
16. Takim Sarker, Molecular and Life Sciences rotation Ph.D. student, University of Wyoming (Spring 2024).
17. Mithu Tarafdar, Molecular and Life Sciences rotation Ph.D. student, University of Wyoming (Fall 2024).Shuvo Saha Molecular and Life Sciences rotation Ph.D. student, University of Wyoming (Fall 2024).

F.3. Undergraduate Research Students

1. Jonathan Christensen (2023 - 2024).
2. Jaylyn Garfield (2022 - 2024).
3. Megan Matthews (2021 - 2023).
4. Olivia Chase (2021 - 2022).
5. Tawna Herrera (2020 - 2021).
6. Clara Bouley (2020 - 2021).
7. Grace Corrette (2020-2021).
8. Susannah Hicks (2019).
9. Chayse Rowley (2018-2020).
10. Paul Matthews (2018-2019).
11. Brenna Lindsey (2017-2019).
12. Ella DeWolf (2017-2018).
13. Heather Rose (2017).
14. Leslie Day (2016 - 2017).
15. Katherine Schwam (2016 - 2018).

G. RESEARCH SUPPORT

G.1. Current Research Support

1. Role: PI of Subaward
   SKM Instruments, LLC (Department of Health and Human Services, Centers for Disease Control and Prevention), Ultra-rapid optical platform for antimicrobial susceptibility testing (AST) of pulmonary non-tuberculous mycobacterial (NTM) infections, 09/30/2025 – 03/31/2026. $306,872.00 (UW funds: $55,800.00).

2. Role: PI
   United States Department of Agriculture Animal and Plant Health Inspection Service, Laboratory capacity for wildlife-focused diagnostics, 05/24/2023 - 09/30/2027. $6,000,000.00.

3. Role: PI.
   United States Department of Agriculture Animal and Plant Health Inspection Service, Development, validation, and implementation of diagnostic tests for SARS-CoV-2 and other pathogenic microorganisms of wildlife, 05/15/2023 - 09/30/2027. $6,276,250.00.

4. Role: PI.
   United States Department of Agriculture Animal and Plant Health Inspection Service, Spillover of SARS-CoV-2 into wildlife from wastewater treatment plants in the U.S., 06/01/2023 – 06/01/2026. $1,362,664.00.

5. Role: PI of Subaward.

   U.S. Centers for Disease Control and Prevention, ELC Enhancing Detection Through Coronavirus Response And Relief (CRR), 08/01/2023 - 07/31/2026. $916,000.00. (UW funds: $600,00.00).

6. Role: PI.
   Excellence in Higher Education Endowment, Wyoming Excellence Chair research support, 11/22/2022 - . $30,000.00/year.

G.2. Completed Research Support

7. Role: PI.

   Wyoming Agricultural Experiment Station, Digital PCR (dPCR) supplies and reagents to develop protocols for detection and enumeration of *Salmonella, Listeria*, and *Campylobacter* foodborne pathogens at different levels/tissues using dPCR, 3/21/2023 – 6/30/2024. $28,000.00.

8. Role: PI (Wyoming Lead. CU Lead, Mark Toleman).

Sewage surveillance of disease causing bacteria, Strategic International Partnership Collaborative Seed Fund, Cardiff University (CU) and the University of Wyoming (UW) 4/23/2024 - 06/30/2024. $20,000.00.

9. Role: PI.

   Wyoming Department of Health, Sampling wastewater influent as a surveillance tool for the presence of SARS-CoV-2 in Wyoming communities, 07/01/2020 - 06/30/2023. $800,000.00.

10. Role: PI.

    City of Laramie, Wastewater Surveillance Support, 08/01/2022 - 07/31/2023. $30,000.00.

11. Role: Co-PI.

    Wyoming Water Research Center, Understanding the Contribution of Different Microbial Sources to Surface Water for Informed Management of Water Borne Pathogens in Wyoming, 07/01/2019 - 07/01/2022. $354,733.00.

12. Role: Co-PI.

    National Sheep Industry Improvement Center, Mitigation of subclinical mastitis during early lactation and effects of subclinical mastitis on milk yield, lamb growth, and lamb survival, 03/01/2021 – 12/30/2022. $29,692.55.

13. Role: Co-PI.

    National Sheep Industry Improvement Center, Investigating the Main Mastitis Causing Pathogens Plaguing Western Sheep Flocks, 01/01/2020 – 12/31/2022. $20,000.00.

14. Role: PI.

    University of Wyoming Global Perspectives Grant Program & Center for Global Studies, Antibiotic Resistance Surveillance in Retail Meats in Albania and Kosovo, 06/01/2020-11/31/2021. $13,000.00.

15. Role: Co-Lead.

    National Science Foundation (NSF), RII Track-2 FEC: Genomics Underlying Toxin Tolerance (GUTT): Identifying molecular innovations that predict phenotypes of toxin tolerance in wild vertebrate herbivores, 09/01/2018 - 08/31/2022. $6,000,000.00 (UW funds: $56,726.00).

16. Role: PI.

Wyoming Agricultural Experiment Station, Antibiotic resistance in Wyoming wastewater treatment plants as a tool to predict clinical antibiotic resistance prevalence, 3/05/2021 - 10/01/2021. $27,879.00.

17. Role: PI.

    Wyoming Department of Health, Acquisition of a QIAcuity One 5plex Platform System, 02/01/2021. $54,471.00.

18. Role: Co-PI.

    NIH IDeA Wyoming INBRE, Acquisition of a 5300 Fragment analyzer instrument, 11/01/2020. $75,242.00.

19. Role: PI.

    Wyoming Department of Health, Acquisition of a 7500 Fast Real-Time PCR System, 07/06/2020. $65,737.10.

20. Role: PI.

    NIH IDeA Wyoming INBRE, 2019-2020 Wyoming INBRE Graduate Assistantship, 08/29/2019-05/10/2020. $32,164.00.

21. Role: PI.

    Wyoming Agricultural Experiment Station, Detection and Prevention of Listerial Biofilms on Fresh Produce, 01/01/2020 - 09/30/2020. $10,000.00.

22. Role: Co-PI.

    INBRE Bioinformatics Core, University of Wyoming, Evaluation of the Clinical, Subclinical, and Clean Milk Microbiome from Ewes Supplemented with Zinc Pre- and Post-Parturition, 01/01/2020 - 04/01/2020. $ 9,690.40.

23. Role: PI.

    Montana State University, Microbial Identification and Speciation from Sheep Milk, 09/1/2019 - 08/31/2020. $4,000.00.

24. Role: PI of Subaward.

    USDA-APHIS, Evaluation of "BLOC" for Microbial Decontamination of Surfaces, 09/1/2019 - 08/31/2020. $2,000.00.

25. Role: PI.

    AB Sciex Pte. Ltd., Improvement and Validation of a Mass Spectrometry Method for Microbial Identification, 12/01/2017 - 12/01/2019. $133,447.00.

26. Role: PI of Subaward.

    USDA-NIFA, A Low-Cost Pathogen Detection System for Food Safety, Phase II, 11/23/2016 - 08/31/2019. $600,000.00 (UW funds: $176,278.00).

27. Role: PI.

    NIH IDeA Wyoming INBRE, 2018-2019 Wyoming INBRE Graduate Assistantship, 08/29/2018 - 05/10/2019. $26,200.00.

28. Role: Co-PI.

    Montana State University, The Prevalence and Impact of Mastitis in Western Sheep Flocks and Cost Effective Strategies to Diagnose, Treat, and Avoid its Occurrence, 08/14/2018 - 12/01/2018. $20,000.00.

29. Role: Co-PI.

    Wyoming Agricultural Experiment Station, Detection and Elimination of Listerial Exopolysaccharide, 01/02/2017 - 09/30/2018. $41,697.00.

30. Role: PI.

    INBRE Bioinformatics Core, University of Wyoming, Whole Genome Sequencing of Antimicrobial Resistant *Escherichia coli* from Livestock and Wildlife 01/20/2018 - 04/01/2018. $10,000.00.

31. Role: PI.

    AB Sciex Pte. Ltd., Validation of a Mass Spectrometry Method for Microbial Identification, 01/30/2017 - 12/31/2017. $33,808.00.

32. Role: PI.

    Wyoming Agricultural Experiment Station, Identification and Subtyping of Antimicrobial Resistant Bacteria from Cattle Feeding Operations and associated Wildlife Using Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry, 01/01/2014 - 09/30/2017. $48,364.22.

33. Role: PI.

INBRE Bioinformatics Core, University of Wyoming, Whole Genome Sequencing of Antimicrobial Resistant (AMR) Bacteria from Livestock and Wildlife 01/20/2016 - 04/01/2016. $10,000.00.

34. Role: PI of Subaward.

    Center for Produce Safety, University of California, Davis, Contamination of Leafy Green Crops with Foodborne Pathogens: Are Wildlife a Problem? 01/01/2015 - 06/30/2016. $198,162.26 (UW portion: $97,858.00).

35. Role: Co-PI.

    CDC/NIOSH, Bioaerosol Exposures and Models of Human Responses in Dairies and Cattle Feedlots 09/15/11 - 09/14/16. $454,749.00 for the budget period 09/15/2013-09/14/2014 & $271,204.00 for the budget period 09/15/2014-09/14/2015 Total $725,923.00 (UW portion: $0).

36. Role: Co-PI.

    Colorado Bioscience Discovery Evaluation Grant Program (BDEGP), Modified Bioaerosol Sampling for Influenza Virus in Agricultural Environments, 01/04/2014 – 12/01/2015 (no cost extension through 12/31/2016), $20,000.00 UW portion: $0).

37. Role: PI of Subaward.

    USDA-NIFA, A Low-Cost Pathogen Detection System for Food Safety, 06/01/2015 - 01/31/2016. $99.978.00 (UW portion: $20,000).

38. Role: PI.

    United States Department of Agriculture Animal and Plant Health Inspection Service, Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS) for Rapid and Specific Identification and Typing of AMR Bacteria from Samples Collected from Wild Mammals, Cattle Feces, and Water on Livestock Facilities, 09/30/2013 - 09/29/2015. $56,753.40.

39. Role: PI.

    CEVA Bioimmune, A flow cytometric assay for *Salmonella* vaccine stability monitoring: Assay development and laboratory validation, 10/15/2014 - 04/14/2015. $29,600.94.

40. Role: Co-I.

    Colorado School of Public Health, Multidisciplinary approaches to agricultural antimicrobial resistance and human health impacts, 11/15/2014 – 10/14/2015. $19,998.00 (UW funds: $300.00).

41. Role: PI.

    High Plains Center for Agricultural Health and Safety (CDC/NIOSH), Modified Bioaerosol Sampling for Presence of Viruses in Agricultural Environments, 11/30/2013 - 09/14/2014. $25,000.00.

42. Role: PI.

    University of Wyoming Global Perspectives Grant Program, Travel Expenses to Establish a Research and Instruction Relationship with the Faculty of Agriculture and Veterinary Medicine, University of Prishtina, Kosovo, 06/30/2014 - 06/29/2015. $3,368.00.

43. Role: Co-PI.

    Colorado State Water Center, Characterizing Biological Pollutants in Agricultural Runoff at Colorado Dairies, 11/18/2013 – 05/15/2014. $24,996.19 (UW funds: $0).

44. Role: Co-PI.

    Mountain and Plains ERC, Modeling and Predicting Microbiomes in Dairies: A Metagenomic Assessment of Bioaerosols, 07/01/2013 - 06/30/2014. $17,500.00 (UW funds: $4,456.00).

G.3. Unfunded Proposals

45. Role: PI

    National Pork Board, A Method to Capture, and Enable Molecular Detection of the Influenza Virus from Bioaerosols in Swine Operations, 05/01/2014 - 04/30/2015. $49,822.60.

46. Role: PI

    Morris Animal Foundation, Addressing the Emergence of Antimicrobial Resistant Bacteria in Animals: Development and Optimization of MALDI-TOF MS Bacterial Characterization for Veterinary Applications, 07/01/2014 - 06/30/2016. $76,000.00.

47. Role: PI

    National Aeronautics & Space Administration, Exploring Bacteriophage-Based Signal Amplification for Detection of Microbial Products, 07/01/2014 - 06/30/2015. $18,685.86.

48. Role: PI

Dept of Health/Human Serv-Centers for Disease Control, Technological Advancement in LAMP for STECs: Novel Probe Chemistries, 11/01/2014 - 09/14/2015. $24,948.00.

49. Role: PI

    University of Wyoming Faculty Grant-in-Aid, Diagnostics in Low Resource Settings: Coupling Paper-based Electrochemical Devices with Bioengineered Bacteriophages for Microbial Detection, 04/01/2014 - 12/30/2014. $7,500.00.

50. Role: PI

    University of Wyoming $250,000 Grant Initiative, Control of Bacteriophage-Target Binding Interactions Using Modifiable Molecular Recognition Elements, 07/01/2014 - 06/30/2014. $21,241.00.

51. Role: Co-PI.

    National Institute of Food and Agriculture, Assessing The Role of Food Antimicrobials and Sanitizers in the Physiology and Evolution of *Escherichia coli* O157:H7 in a Simulated Food Production Environment, 10/01/2014 – 09/30/2016. $149,958.00.

52. Role: PI of Subaward.

    National Institute of Food and Agriculture, proposal 2014:00633: Simultaneous Detection of Microbial Pathogens in a Single Sample, 07/01/2014 – 06/30/2015. $22,000.00.

53. Role: Co-PI.

    Wyoming Agricultural Experiment Station, Phage-Bacteria Infection Metabolomics for Specific Pathogen Detection, 01/01/2015 - 12/31/2017.

54. Role: Co-PI.

    Wyoming Agricultural Experiment Station, A Novel Mechanism Regulating Childhood Obesity‐Induced Insulin Resistance and Cardiac Dysfunction, 1/01/2015 - 09/30/2017.

55. Role: Co-I.

    National Institutes of Health, A Novel Mechanism Regulating Obesity‐Induced Insulin Resistance and Cardiac Dysfunction, 1/01/2015 - 12/31/2019.

56. Role: PI

    USDA Agriculture and Food Research Initiative, A Universal Approach to Integrating Sample Separation and Detection of Foodborne Pathogens, 01/01/2016 - 12/31/2018. $500,000.

57. Role: PI.

    Wyoming Agricultural Experiment Station, Determining the Potential Role of Wildlife in the Dissemination of Antimicrobial Resistant Bacteria to Fresh Produce with a Special Emphasis on S*almonella enterica*, 01/01/2016 - 09/30/2018. $90,000.00.

58. Role: PI.

    USDA Agriculture and Food Research Initiative, Wildlife And Dissemination Of Antimicrobial Resistance in Produce: Evidence-Based Risk Evaluation And Strategic Mitigation, 02/01/2017 - 01/31/2021. $1,199,928.00.

59. Role: Co-PI. National Cattlemen's Beef Association, Occupational Exposures and Transmission Pathways of Antibiotic-Resistant Bacteria in Beef Cattle Production, 08/01/2015 – 05/31/2016. $165,603.00.

60. Role: PI.

    USDA Agriculture and Food Research Initiative, Antimicrobial Resistance and Wildlife on Livestock Production Landscapes: Developing Intervention Strategies for an Emerging Problem, 02/01/2018 - 01/31/2022. $1,199,942.00.

61. Role: Co-PI.

    USDA Agriculture and Food Research Initiative, An Integrated Approach to Assist Producers of Raw Agricultural Commodities Meeting the Water Requirements of FSMA, 02/01/2018 - 01/31/2022. $3,564,125.00 (UW funds: $544,712.00).

62. Role: Co-PI.

    USDA Agriculture and Food Research Initiative (USDA-AFRI), Wildlife as Environmental Reservoirs for Antimicrobial Resistance: Potential Threat to Agricultural and Human Health at the Wildlife- Agricultural Interface, 02/01/2019 - 01/31/2021. $497,687.00.

63. Role: PI of Subaward.

    National Institute of Food and Agriculture (USDA-NIFA), A Simple, Low-cost Bacterial Enumeration Product for Food Safety and Quality Testing, 02/01/2019 - 09/30/2019. $28,300.00.

64. Role: PI.

    USDA Agriculture and Food Research Initiative, Novel Approaches to Mitigate Listerial Biofilms on Produce, 02/01/2020 - 01/31/2022. $200,000.00.

65. Role: PI.

    USDA Agriculture and Food Research Initiative, Improved Understanding and Mitigation of Listerial Biofilms on Produce, 02/01/2021 – 01/31/2023. $200,000.00.

66. Role: Co-I

    National Institutes of Health (NIH), Capture of Expiratory Aerosols and Droplets on Water-Soluble Fibers for Point-of-Care Diagnostics of Viral Respiratory Infections, 07/01/2023 – 06/30/2025. $370,374.00.

67. Role: Co-I

    National Science Foundation, PIPP Phase II: Theme 1: The PrEViEW Center: Advancing Pandemic Pre-Emergence Forecasting through Big Data/AI, 09/01/2024 – 09/01/2031. $17,999,989.00 (UW funds: $240,535.00).

68. Role: Co-PI

    National Science Foundation (NSF): Instrumentation and Method Development for Sensitive Detection of Airborne Viruses, 08/01/2024 – 07/31/2027. $748,626.00.

69. Role: PI of Subaward

    USDA National Institutes of Food and Agriculture: "IMRAST: Rapid Identification of Bacteria and Antimicrobial Resistance Testing for Food Safety, 01/01/2025 – 08/29/2025. $175,00.00 (UW funds: $56,662.67).

G.4. Pending Research Support

H. PUBLICATIONS

H.1. Peer-reviewed Journal Articles

1. Kaur H, Wang B, Ruehling K, Collins S, Ghorbani Tajani A, **Bisha B**. 2025. Identification and characterization of *Escherichia coli* isolated from the surface water of the Laramie River, Wyoming. *Journal of Water and Health* (*Submitted*).

2. Boidya P, Ghorbani Tajani A, Blouin N, **Bisha B**. 2025. Genome sequencing of multidrug-reistant *Raoultella ornithinolytica* isolated from wastewater treatment plant (WWTP) in Laramie, Wyoming. *Microbiology Resource Announcements* (*Submitted*).

3. El Khechen S, Hassan J, Daabul D, Osman M, Ghorbani Tajani A, **Bisha B,** Pinto Ferreira J, Kassem I. 2025. Emergence of a virulent and colistin resistant *Klebsiella pneumoniae* ST694 on fresh parsley. *Foodborne Pathogens and Disease* (*Submitted*).

4. Yassine I, Fayad S, Ghorbani Tajani A, Hassan J, Eltai N, Ericson J, Schiff S, Naas T, **Bisha B,** Osman M, Kassem I. 2025. Clonal dissemination of mcr-1.1–positive *Escherichia coli* ST10 among healthy children in geographically-distant cities. *AJIC: American Journal of Infection Control* (*Submitted*).

5. Ghorbani Tajani A, Hamidi A, Sharma A, Sylejmani D, Gorcaj E, Hashani G, Noci B, **Bisha B**. 2025. Draft genome sequence of multidrug-resistant *Escherichia coli* isolated from retail chicken liver in Kosovo. *Microbiology Resource Announcements* (*Submitted*).

6. Basha E, Mamoçi E, Sharma A, Hodaj-Çeliku E, Zejnelhoxha S, Medeleanu M, Socaci S, **Bisha B**. 2025. Essential Oils from wild Albanian Lamiaceae: GC-MS profiling, biological activity, and enhanced delivery via nanoencapsulation. *Molecules* **30** (16), 3329.

7. Aljasir SF, Draz A, Aslam B, Aljohani ASM, Sadan M, Al-Johani N, Elbehiry A, Al Abdulmonem W, Aldubaib M, Aldurubi B, Alyahya AM, Aljaralh A, Alduhami A, Alkahamis MA, Chandler JC, **Bisha B,** Mohamed OB. 2025. Epidemiological investigation of infectious diseases at domestic-synanthropic-wild animals interface reveals threats to endangered species reintroduction in AlUla, Saudi Arabia. *Veterinary Sciences* **12** (9), 10.3390/vetsci12090836.

8. Ghorbani Tajani A, Sharma A, Ruehling K, Collins S, **Bisha B**. 2025. Molecular characterization of *Escherichia coli* isolate from the Greys-Hoback Watershed, Wyoming. *Microbiology Resource Announcements* e01187-24.

9. Osman M, Yassine I, Ericson J, Schiff S, Ghorbani Tajani A, **Bisha B**, Hamze M, Kassem I. 2025. Critical insights into vancomycin-resistant *Enterococcus faecium* in Lebanon. *Microbiology* Spectrum **13** (9), e00171-25.

10. Jashari B, Stessl B, Félix B, Cana A, **Bisha B**, Jankulovski D, Blagoevska K, Kayode A. 2024. Multilocus sequence typing and antimicrobial susceptibility of *Listeria monocytogenes* isolated from foods surveyed in Kosovo. Microorganisms **12** (12), 2441. https://doi.org/10.3390/microorganisms12122441.

11. Jashari B, Capitane K, **Bisha B**, Stessl B, Blagoevska K, Cana A, Jankulovski D, Félix B. 2024. Molecular characterization of *Listeria monocytogenes* in the food chain of the Republic of Kosovo from 2026 to 2022. *Foods* **13** (8): 2883. https://doi.org/10.3390/foods13182883.

12. Daaboul D, Kassem II, El Omari K, Eltai NO, Hassan J, Al Jamal H, Fayad S, Salma R, Ghorbani Tajani A, **Bisha B**, Hamze M, Oueslati S, Cummings KJ, Daboussi F, Naas T, Osman M. 2024. Genomic characterization of plasmid-borne colistin resistance variants, mcr-1.1 and mcr-1.26, in multidrug-resistant *Escherichia coli* isolated from backyard farm animals. *Journal of Global Antimicrobial Resistance* 3:38:194-197.doi: 10.1016/j.jgar.2024.06.009.

13. Knuth RM, Page CM, Stewart WC, Hummel GL, Woodruff KL, Whaley JR, Springer AL, Austin KJ, Murphy TW, **Bisha B**, Cunningham-Hollinger HC. 2024. Milk microbiome in the first month of lactation and at weaning from ewes supplemented with zinc pre-and postpartum. *Journal of Animal Science.* **102**, skae163, https://doi.org/10.1093/jas/skae163.

14. Ghorbani Tajani A, Sharma A, Blouin N, **Bisha B**. 2024. Genome sequence, antibiotic resistance genes, and plasmids in a monophasic variant of *Salmonella typhimurium* isolated from retail pork. *Microbiology Resource Announcements* 0:e00754-23. https://doi.org/10.1128/mra.00754-23.

15. Kassem I, Wang J, Ghorbani Tajani A, Esseili M, Hassan J, Yassine I, Ossman M, **Bisha B**. 2024. Draft genome sequences of antibiotic-resistant *Serratia* and *Enterobacter* species isolated from imported fresh produce in Georgia, USA. *Microbiology Resource Announcements* 0:e01139-23. https://doi.org/10.1128/mra.01139-23.

16. Brown W, Oliveira M, Silva RR, Woodruff K, **Bisha B**, Demetrio D, J Block. 2024. Effects of mycobacterium cell wall fraction on embryo development following in vitro embryo production and pregnancy rates following embryo transfer in virgin dairy heifers. *Theriogenology* **215**, 334-342.

17. Osman M, Daaboul D, Yassine I, Hamze M, Al Mir G, Tajani AG, **Bisha B**, Hassan J, Cummings KJ, Madec J-Y, Haenni M, Kassem II. 2023. Emergence of extended-spectrum cephalosporin- and colistin-resistant Enterobacterales in otherwise healthy university students. *Microbial Drug Resistance*. Ahead of print http://doi.org/10.1089/mdr.2023.0213.

18. Lai M, Cao Y, Wulff SS, Robinson TJ, McGuire A, **Bisha B**. 2023. A time series based machine learning strategy for wastewater-based forecasting and nowcasting of COVID-19 dynamics. *Science of the Total Environment* **897**:165105. https://doi.org/10.1016/j.scitotenv.2023.165105.

19. Ghorbani Tajani A, **Bisha B**. 2023. Effect of food matrix and treatment time on the effectiveness of grape seed extract as an antilisterial treatment in fresh produce. *Microorganisms* **11(4)**:1029. https://doi.org/10.3390/microorganisms11041029.

20. Page C, Knuth RM, Murphy T, Rule D, **Bisha B**, Taylor B, Stewart WC. 2022. Effect of increasing dietary zinc sulfate fed to gestating ewes: II Milk somatic cell count, microbial populations, and fatty acid composition. 2022. *Applied Animal Science **38 (3)**: 285-295.*

21. Knuth RM, Woodruff KL, Hummel GL, Williams JD, Austin KJ, Stewart WC, Cunningham-Hollinger HC, **Bisha B**. 2022. Effects of management strategies during early lactation and weaning on etiological agents of ovine subclinical mastitis and antimicrobial susceptibility of milk-derived bacterial isolates. *Journal of Animal Science. **100 (6)**. ISSN: 0021-8812, 1525-3163; DOI: 10.1093/jas/skac171.*

22. Getiye Y, Peterson MR, Phillips BD, Carrillo D, **Bisha B**, He G. 2022. E-cigarette exposure with or without heating the e-liquid induces differential remodeling in the lungs and right heart of mice. *Journal of Molecular and Cellular Cardiology*. ***168****: 83-95. ISSN 0022-2828. https://doi.org/10.1016/j.yjmcc.2022.04.014.*

23. Broten CJ, Wydallis JB, Reilly TH III, **Bisha B**. 2022. Development and evaluation of a paper-based microfluidic device for detection of *Listeria monocytogenes* on food contact and non-food contact surfaces. *Foods* ***11(7)****:947. https://doi.org/10.3390/foods11070947.*

24. Hamidi A, **Bisha B**, Goga I, Wang B, Robaj A, Sylejmani D. 2021. A first case report of an outbreak of neural form of ovine listeriosis in Kosovo. *Veterinaria Italiana* ***56 (3)****: https://doi.org/10.12834/2166.12781.3.*

25. Knuth RM, Stewart WC, Taylor JB, **Bisha B**, Yeoman CJ, Van Emon ML, Murphy TW. 2021. Relationships among intramammary health, udder and teat characteristics, and productivity of extensively managed ewes, *Journal of Animal Science*, 99 (4). skab059, https://doi.org/10.1093/jas/skab059.

26. Bhunia, A, **Bisha B**, Gehring A, Brehm-Stecher, B. 2020. Advances in foodborne pathogen analysis. *Foods* ***9 (11)****: 1635. 10.3390/foods9111635.*

27. Anders J, **Bisha B**. 2020. High-throughput detection and characterization of antimicrobial resistant *Enterococcus* spp. from GI tracts of European starlings visiting concentrated animal feeding operations. *Foods* ***9 (7)****, 890. https://doi.org/10.3390/foods9070890.*

28. Carlson J, Chandler J, **Bisha B**, LeJeune J, Pearl D, Wittum T. 2020. Bird-livestock interactions associated with increased cattle fecal shedding of ciprofloxacin resistant *Escherichia coli* within feedlots in the United States. *Scientific Reports 10, 10174 (2020). https://doi.org/10.1038/s41598-020-66782-4.*

29. Chandler J, Anders J, Blouin, Carlson J, LeJeune J, Goodridge L, Wang B, Day L, Mangan A, Reid D, Coleman S, Hopken M, **Bisha B**. 2020. The role of European starlings (*Sturnus vulgaris*) in the dissemination of multidrug resistant *Escherichia coli* among concentrated animal feeding operations. *Scientific Reports* ***10,*** *8093 (2020). https://doi.org/10.1038/s41598-020-64544-w.*

30. Chandler J, Franklin A, Bevins S, Bentler K, Bonnedahl J, Ramey A, Ahlstrom C, **Bisha B**, Shriner S. 2020. Validation of a screening method for the detection of colistin-resistant *E. coli* containing mcr-1 in feral swine feces. *Journal of Microbiological Methods* 172, 105892. *https://doi.org/10.1016/j.mimet.2020.105892.*

31. Stahl RS, **Bisha B**, Mahapatra S, Chandler JC. 2020. A model for the prediction of antimicrobial resistance in *Escherichia coli* based on a comparative evaluation of fatty acid profiles. *Diagnostic Microbiology and Infectious Disease,* 96 (3), 114966. DOI: https://doi.org/10.1016/j.diagmicrobio.2019.114966

32. Maus A, **Bisha B**, Fagerquist C, Basile F. 2020. Detection and identification of a protein biomarker in antibiotic resistant *E. coli* using intact protein LC offline MALDI-MS and MS/MS. *Journal of Applied Microbiology.* 128(3): 697-709. DOI: https://doi.org/10.1111/jam.14507

33. Wang Q, Guo R, Nair S, Smith D, **Bisha B**, Nair R, Downs BW, Kushner S, Bagchi M. 2019. Safety and efficacy of N-SORB® a proprietary KD120 MEC metabolically-activated enzyme formulation: a randomized, double-blind, placebo-controlled study. *Journal of the American College of Nutrition* Sep-Oct;38(7):577-585. doi: 10.1080/07315724.2019.1586591.

34. Kraft TB, Keith J, **Bisha B**, Larson-Meyer E, Griebel A. 2018. The impact of daily kimchi: a pilot study. *Scholarly Journal of Food and Nutrition,* 1, (4). DOI: 10.32474/sjfn.2019.01.000120.

35. Schaeffer JW, Chandler JC, Davidson M, Magzamen SL, Pérez-Méndez A, Reynolds SJ, Goodridge LD, Volckens J, Franklin AB, Shriner SA, **Bisha B**. 2018. Detection of viruses from bioaerosols using anion exchange resin. *Journal of Visualized Experiments.* 22;(138). doi: 10.3791/58111.

36. Chandler JC, Aljasir SF, Hamidi A, Sylejmani D, Gerow K, **Bisha B**. 2018. A country-wide survey of antimicrobial resistance in Kosovo's dairy farms. *Journal of Dairy Science.* 101(8):6982-6989. doi: 10.3168/jds.2017-14091.

37. Cadieux B, Colavecchio A, Jeukens J, Freschi L, Edmond-Rheault JG, Kukavica-Ibrulj I, Levesque RC, Bekal S, Chandler JC, Coleman SM, **Bisha B**, Goodridge LD. 2018. Prophage induction reduces Shiga toxin producing *Escherichia coli* (STEC) and *Salmonella enterica* on tomatoes and spinach: a model study. *Food Control.* 246:38-41. https://doi.org/10.1016/j.foodcont.2018.02.001.

38. Chandler JC, Schaeffer J, Davidson M, Magzamen S, Pérez-Méndez A, Reynolds S, Goodridge L, Volckens J, Franklin A, Shriner S, **Bisha B**. 2017. A Method for the improved detection of aerosolized influenza viruses and the male-specific (F+) RNA coliphage MS2. *Journal of Virological Methods.* 246:38-41. doi: 10.1016/j.jviromet.2017.04.004.

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40. Adkins J, Boehle K, Friend C, Chamberlain B, **Bisha B**, Henry C. 2017. Colorimetric and electrochemical bacteria detection using printed paper- and transparency-based analytic devices. *Analytical Chemistry.* 21;89(6):3613-3621. doi: 10.1021/acs.analchem.6b05009.

41. Chandler JC, Pérez-Méndez A, Paar J, Doolittle MM, **Bisha B**, Goodridge LD. 2017. Field-based evaluation of a male-specific (F+) RNA coliphage concentration method. *Journal of Virological Method*s. 239:9-16.

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44. **Bisha B**, Brehm-Stecher BF. 2015. Flow cytometry for rapid detection of *Salmonella* spp. in seed sprouts. *ScienceOpen Research*. doi: 10.14293/S2199-1006.1.SOR-LIFE.AJ19WR.v1.

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46. **Bisha B**, Adkins JA, Jokerst JC, Chandler JC, Pérez-Méndez A, Coleman SM, Sbodio AO, Suslow TV, Danyluk MD, Henry CS, and Goodridge LD. 2014. Colorimetric paper-based detection of *Escherichia coli*, *Salmonella* spp., and *Listeria monocytogenes* from large volumes of agricultural water. *Journal of Visualized Experiments*. 9;(88). doi: 10.3791/51414.

47. Pérez-Méndez A, Chandler JC, **Bisha B**, Goodridge LD. 2014. Evaluation of an anion exchange resin-based method for concentration of F-RNA coliphages (enteric virus indicators) from water samples. *Journal of Virological Methods*. 204:109-115.

48. Perez-Mendez A, Chandler JC, **Bisha B**, Coleman S, Zhanqiang S, Gang Y, Goodridge LD. 2013. Evaluation of a simple and cost-effective filter paper-based shipping and storage medium for environmental sampling of F-RNA coliphages. *Journal of Virological Methods* 194 (1-2): 60-66.

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H.2. Books and Book Chapters

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2. Moore MD, **Bisha B**, Anderson J, Brehm-Stecher, B. 2023. Sample Preparation for Detection of Microbiological and Chemical Analytes, Reference Module in Food Science, Elsevier, 2023, ISBN 9780081005965. https://doi.org/10.1016/B978-0-12-822521-9.00223-9.

3. *Advances in Prevention of Foodborne Pathogens of Public Health Concern During Manufacturing*. 2019. Fouladkhah AC and **Bisha B.** (eds.), MDPI, Basel, Switzerland. ISBN 978-3-03921-932-2 (Pbk) ISBN 978-3-03921-933-9 (PDF).

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H.3. Conference Articles

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H.4. Popular Articles

1. Anders J, Chandler J, Carlson J, LeJeune L, Goodridge L, Wang B, Day L, Mangan A, Reid D, Coleman S, **Bisha B**. 2018. Antimicrobial resistant *E. coli* from European starlings in concentrated animal feeding operations. *2018 Field Days Bulletin* (Wyoming Agricultural Experiment Station).

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I. ABSTRACTS/PRESENTATIONS IN NATIONAL/INTERNATIONAL MEETINGS

1. Ghorbani Tajani A, Jashari B, Capitaine K, Stessl B, Blagoevska K, Cana A, Jankuloski D, **Bisha B**. Genomic insights into *Listeria monocytogenes* from Kosovan food products: a whole-genome sequencing study. International Association for Food Protection Annual Meeting. July 27 – July 30, 2025, Cleveland, OH.

2. Boidya P, Blouin N, **Bisha B**. Title: Multi-drug resistance profiling and genetic insights of non-*E. coli* Enterobacteriaceae isolated from wastewater. International Association for Food Protection Annual Meeting. July 27 – July 30, 2025, Cleveland, OH.

3. Sharma A, Blouin N, **Bisha B**. Genotypic characterization of antimicrobial resistance of *Escherichia coli* from retail meat and wildlife feedlots in Laramie, WY. International Association for Food Protection Annual Meeting. July 27 – July 30, 2025, Cleveland, OH.

4. Ghorbani Tajani A, Blouin N, **Bisha B**. Long-read sequencing reveals antimicrobial resistance and pathogenicity markers in *Escherichia coli* and *Salmonella* isolates from retail meats. American Society for Microbiology Microbe. June 19 - June 13, 2025, Los Angeles, CA.

5. Sharma A, Boidya B, Tajani A, Peculi A , Mamoci E, Lika J, Prrini E, Blouin N, **B. Bisha**. Comprehensive genomic analysis of antimicrobial resistance in *Escherichia coli* and *Enterococcus* species from retail meats in Albania. American Society for Microbiology Microbe. June 19 - June 13, 2025, Los Angeles, CA.

6. Cluett H, Ward K, Blouin N, Chandler J, Bevins S, **Bisha B**. Evaluation of two targeted high throughput sequencing workflows for viral diagnostics in white-tailed deer nasal swabs. American Society for Microbiology Microbe. June 19 - June 13, 2025, Los Angeles, CA.

7. Boidya P, Blouin N, **Bisha B**. Characterization of cephalosporin-resistant *Escherichia coli* from Laramie wastewater treatment plant, Wyoming: genomic insights and public health implications. American Society for Microbiology Microbe. June 19 - June 13, 2025, Los Angeles, CA.

8. Hassan J, Osman M, Ghorbani Tajani A, **B. Bisha**, Kassem I. The detection and molecular characterization of *mcr-1*-positive *Escherichia coli* isolated from retail poultry meat in Lebanon. American Society for Microbiology Microbe. June 19 - June 13, 2025, Los Angeles, CA.

9. Klemm J, Chandler J, **Bisha B**. Predicting the development of antimicrobial resistance in Escherichia coli using experimental evolution coupled with whole-genome sequencing American Society for Microbiology Microbe. June 19 - June 13, 2025, Los Angeles, CA.

10. Mathias J, Martins W, Boidya P, Babenko D, Fearing T, Petit R, Mildenberger J, **Bisha B**, Toleman M. Serotype O16:H5 ST131 *Escherichia coli* are significantly more virulent in the *Galleria mellonella* insect model than O25:H4 ST131. Congress of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID Global). April 11-15, 2025. Vienna, Austria.

11. Mathias J, Martins W, Boidya P, Babenko D, Fearing T, Petit R, Mildenberger J, **Bisha B**, Toleman M. High carriage of known sepsis causing ExPEC *Escherichia coli* are the cause of high rates of bacteraemia in Wyoming. Congress of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID Global). April 11-15, 2025. Vienna, Austria.

12. Mathias J, Boidya P, Babenko D, Fearing T, Petit R, Mildenberger J, Toleman M, **Bisha B**. Highest levels of antibiotic resistance seen in exclusively ExPEC *Escherichia coli* in Wyoming and Wales. Congress of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID Global). April 11-15, 2025. Vienna, Austria.

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15. Ghorbani Tajani A, Hamidi A, Sharma A, Sylejmani D, Gorcaj E, Hashani G, Noci B, **Bisha B**. Genomic profiling of antimicrobial resistance in retail meat isolates form Kosovo. International Association for Food Protection Annual Meeting. July 14 – July 17, 2024, Long Beach, CA.

16. Sharma A, **Bisha B**. Characterization and screening for the potential target against biocide resistance among foodborne bacteria. International Association for Food Protection Annual Meeting. July 14 – July 17, 2024, Long Beach, CA.

17. Chase O, Dittoe D, Garfield J, **Bisha B**. Absolute quantification of *Campylobacter jejuni* in raw chicken breast. International Association for Food Protection Annual Meeting. July 14 – July 17, 2024, Long Beach, CA.

18. Kassem I, El Khechen S, Zeidan M, Hassan J, Osman M, Ghorbani Tajani A, **Bisha B**. Genomic analysis of drug resistant *Escherichia coli* retrieved from pre-harvest and post-

harvest fresh produce. International Association for Food Protection Annual Meeting. July 14 – July 17, 2024, Long Beach, CA.

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20. Kassem I, Wang J, Hassan J, Esseili M, Osman M, Ghorbani Tajani A, **Bisha B**. Genome sequence analysis of an antibiotic resistant Serratia and Enterobacter spp. isolated from imported fresh produce in Georgia, USA. International Association for Food Protection Annual Meeting. July 14 – July 17, 2024, Long Beach, CA.

21. Kassem I, El Khechen S, Hassan J, Esseili M, Osman M, Ghorbani Tajani A, **Bisha B**. The detection of an extended beta-lactamase *Klebsiella pneumoniae* retrieved from fresh parsley. International Association for Food Protection Annual Meeting. July 14 – July 17, 2024, Long Beach, CA.

22. Eckery J, Ward K, Cluett H, Klemm J, Quintanal C, Pleszewezki R, Collins D, Ringenberg J, Weir K, Chipman R, Beckerman S, Bergman D, Deliberto T, Gosser A, **Bisha B**, Heale J, Lantz K, Linder T, Oswald M, Torchetti M, Lenoch J, Phillips A, Chandler J, Shriner S, Bevins S. SARS-CoV-2 prevalence in white-tailed deer and other cervids in the contiguous United States: 2021 to 2023. American Society for Microbiology Microbe. June 13 - June 17, 2024, Atlanta, GA.

23. Quintanal Segarra C, Anderson T, Heimann H, Klemm J, Weir K, **Bisha B**, Chandler J, Justice-Allen A, Bevins S, Phillips A. Evaluation of a Luminex-based assay to detect Yersinia pestis exposure in diverse North American Wildlife. American Society for Microbiology Microbe. June 13 - June 17, 2024, Atlanta, GA.

24. Klemm J, Cluett H, Ward K, Eckery J, Quintanal C, Pleszewezki R, Collins D, Ringenberg J, Weir K, Chipman R, Beckerman S, Bergman D, Deliberto T, Gosser A, **Bisha B**, Heale J, Lantz K, Linder T, Oswald M, Torchetti M, Lenoch J, Phillips A, Chandler J, Shriner S, Bevins S. SARS-CoV-2 seroprevalence in white-tailed deer and other cervids in the contiguous United States: 2021 to 2023. American Society for Microbiology Microbe. June 13 - June 17, 2024, Atlanta, GA.

25. Ghorbani Tajani A, Sharma A, Ruehling K, Collins S, **Bisha B**. Genome sequence, antibiotic resistance genes, and plasmids in *Escherichia coli* isolated from surface water. American Society for Microbiology Microbe. June 13 - June 17, 2024, Atlanta, GA.

26. Matthews MN, **Bisha B**. Evaluation of digital PCR (dPCR) for assessing antimicrobial resistance in wastewater-based epidemiology settings. American Society for Microbiology Microbe. June 15 - June 19, 2023, Houston, TX.

27. Ghorbani Tajani A, Blouin N, **Bisha B**. Characterization of antimicrobial resistance in indicator and pathogenic bacteria from retail meat in Wyoming. Conference of Research Workers in Animal Diseases. January 20 – 24, 2023, Chicago, IL.

28. McGuire AM, Gerow KG, Collins SM, Woodruff KL, **Bisha B**. Employing wastewater-based epidemiology for surveillance of SARS-CoV-2 in Wyoming communities. American Society for Microbiology Microbe. June 9 - June 13, 2022, Washington, D.C.

29. Ruehling K, Blouin NA., **Bisha B**, Collins SM. (2022, May). Urban and hydrologic influences on bacterial communities and fecal pollution in Wyoming Snake River Tributaries. Joint Aquatic Science Meeting. Grand Rapids, MI.

30. Lovell IM, Ritchie CR, **Bisha B,** Gifford CL. Characterizing ground beef throughout various storage length intervals followed by simulated retail display. AMSA Reciprocal Meat Conference. August 16 – August 18, 2021, Reno, NV.

31. Kaur H, Ruehling K, Collins S, **Bisha B**. Characterization of antimicrobial resistance in indicator bacteria (*E. coli* and *Enterococcus* spp.) from surface waters of Wyoming. International Association for Food Protection Annual Meeting. July 18 – July 21, 2021, Phoenix, AZ.

32. Ghorbani Tajani A, Carr J, Elbakush A, **Bisha B**, and Gomelsky M. Evaluation of an enzymatic treatment to control listerial biofilm on produce. International Association for Food Protection Annual Meeting. July 18 – July 21, 2021, Phoenix, AZ.

33. Broten CJ, **Bisha B**. Development of a Paper-based test for discrimination of *Listeria* spp. International Association for Food Protection Annual Meeting. International Association for Food Protection Annual Meeting. July 18 – July 21, 2021, Phoenix, AZ.

34. Ruehling, K, Kaur, H, Blouin, NA., **Bisha, B**, Collins, SM. (2021, May). Understanding the contributions of microbial sources to surface water to inform management of waterborne pathogens in Wyoming. *Society for Freshwater Science*. Online.

35. Logar JG, Gifford CL, Knuth RM, Cunningham-Hollinger HC, Julian AL, Page CM, Whaley JR, **Bisha B,** Stewart WC. Evaluation of dietary zinc supplementation on lamb performance and carcass characteristics. AMSA Reciprocal Meat Conference. August 2-7, 2020, Lake Buena Vista, FL.

36. Broten CJ, Wydallis JB, Reilly T III, **Bisha B**. Colorimetric detection of *Listeria monocytogenes* on food contact and non-food contact surfaces using paper-based microfluidics. International Association for Food Protection Annual Meeting. October 26 - July 28, 2020 (virtual).

37. Broten CJ, Wydallis JB, Reilly T III, **Bisha B**. Colorimetric detection of *Clostridium perfringens* in a model meat system using paper-based microfluidics. International Association for Food Protection Annual Meeting. July 21 - July 24, 2019, Louisville, KY.

38. Colavecchio A, Chandler J, **Bisha B**, Coleman S, Emond-Rheault J, Hamel J, Kukavica-Ibrulj I, Levesque R, Fanning S, Goodridge LD. Phage-like plasmids transfer antibiotic and heavy metal resistance genes by transduction, transformation and conjugation. International Association for Food Protection Annual Meeting. July 21 - July 24, 2019, Louisville, KY.

39. Chandler J, Hamel J, Emond-Rheault J-G, Boyele B, Aljasir S, Shriner S, Root J, Mooers N, Bentler K, Ellis J, Russell M, Robeson M, Goodridge L, LeJeune J, Stahl R, Franklin A, Lévesque R, **Bisha B**. *Oceanobacillus* spp., sources of antimicrobial resistance at the wildlife-livestock interface. American Society for Microbiology Microbe. June 20 - June 24, 2019, San Francisco, CA.

40. **Bisha B**, Blouin N, Bono J, Carlson J, Shriner S, Root J, Bevins S, LeJeune J, Goodridge L, Franklin A, Chandler J. Wildlife sources of antimicrobial resistance in agricultural production. American Society for Microbiology Microbe. June 20 - June 24, 2019, San Francisco, CA.

41. Lindsey B, Rowley C, Young B, DeWolf E, **Bisha B**. Machine learning approaches for improved MALDI-ToF MS identification of foodborne bacteria. American Society for Microbiology Microbe. June 20 - June 24, 2019, San Francisco, CA.

42. Aljasir S, Chandler J, Franklin A, Bevins S, Bentler K, Ellis J, Broten CJ, Bisha, **Bisha B**. Low levels of antimicrobial resistance among indicator bacteria isolated from wildlife associated with produce fields. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.

43. Chandler J, Blouin N, Bono J, Franklin A, Goodridge L, Root J, Shriner S, **Bisha B**. Genetic context of antimicrobial-resistant *Escherichia coli* at the livestock-wildlife interface. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.

44. Broten CJ, Wydallis JB, Reilly T III, **Bisha B**. Colorimetric detection of *Cronobacter sakazakii* in artificially contaminated powdered infant formula using microfluidic paper-based analytical devices. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.

45. Anders J, Chandler J, Carlson J, LeJeune J, Goodridge L, Wang B, Day L, Mangan A, Reid D, Coleman S, **Bisha B**. Antimicrobial resistance profiles of *Escherichia coli* from European starlings (*Sturnus vulgaris*) associated with concentrated animal feeding operations. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.

46. Colavecchio A, Joseph S, Zhong Z, Zahirovich-Jovich Y, Coleman S, Chandler J, **Bisha B**, Perez-Mendez A, McEgan R, Danyluk M, Probasco K, Marshall D, Jeukens J, Freschi L, Emond Rheault J, Hamel J, Kukavica-Ibrulj I, Levesque R, Goodridge LD. A

comparison of *in silico* methods to serotype *Salmonella enterica* isolates from food and agricultural environments. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.

47. Chandler J, Schaeffer J, Davidson M, Magzamen S, Perez-Mendez A, Reynolds S, Goodridge L, Volckens J, Franklin A, Shriner S, **Bisha B**. A Method for the improved detection of aerosolized influenza viruses using impingers that incorporate anion exchange resin. International Association for Food Protection Annual Meeting. July 9 - July 12, 2017, Tampa, FL.

48. Aljasir S, Chandler J, Hamidi A, Sylejmani D, Wang B, Schwam K, **Bisha B**. A survey of antimicrobial resistance among dairy cattle in Kosovo. International Association for Food Protection Annual Meeting. July 9 - July 12, 2017, Tampa, FL.

49. Chandler J, Franklin A, Shriner S, Root J, Anders J, Wang B, **Bisha B**. Synanthropic wildlife associated with livestock production as carriers of high priority antimicrobial resistances. International Association for Food Protection Annual Meeting. July 31 - August 3, 2016, St. Louis, MO.

50. Anders J, Wang B, Chandler C, Prenni J, Franklin A, Carlson J, LeJeune J, **Bisha B**. MALDI-TOF MS Biotyping in the characterization of antimicrobial-resistant *Enterococcus* spp. from wildlife associated with concentrated animal feeding operations. International Association for Food Protection Annual Meeting. July 31 - August 3, 2016, St. Louis, MO.

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52. Anders J, Wang B, Chandler J, Prenni J, Franklin A, Carlson J, LeJeune J, **Bisha B**. MALDI-TOF MS Biotyping for characterization of antimicrobial-resistant *Escherichia coli* from concentrated animal feeding operations and associated wildlife. International Association for Food Protection Annual Meeting. July 25 - July 28, 2015, Portland, OR.

53. Coleman S, Kessler H, He X, Avens J, Chandler J, **Bisha B**, Goodridge L, Bunning M. Evaluation of consumer washing techniques to reduce natural microbiota on the surface of whole cantaloupes. International Association for Food Protection Annual Meeting. July 25 - July 28, 2015, Portland, OR.

54. Chandler J, Davidson M, Schaeffer J, Perez-Mendez A, Volckens J, Magzamen S, Goodridge L, Reynolds S, **Bisha B**. Development of an improved sampling method for concentrating viruses from bioaerosols. International Association for Food Protection Annual Meeting. July 25 - July 28, 2015, Portland, OR.

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Laboratory Diagnosticians AAVLD) 57th Annual Meeting. October 16 – October 22, 2014, Kansas City, MO.

56. Edwards JL, **Bisha B**, Fisher S, Van Campen H, Kendall LV. Development of a multiplex bead-based array protocol for determination of positive sera for select feline viruses. P174. American Association for Laboratory Animal Science (AALAS) National Meeting. October 19- October 23, 2014, San Antonio, TX.

57. Perez-Mendez A, Chandler J, **Bisha B**, Coleman S, Goodridge L. Rapid resin-based method for concentration of Rotavirus, Hepatitis A Virus and Adenovirus 40 from Tap Water. P1-643. International Association for Food Protection Annual Meeting. July 31- August 3, 2014, Indianapolis, IN.

58. Coleman S, **Bisha B**, Blume K, Sandoval V, Drury N, Kesseler H, Perez-Mendez A, Chandler, Franz B, Jaebker R, Schaffner D, LeJeune J, Bunning M, Newman S, Goodridge L. Evaluation of risk factors affecting transmission and persistence of *Salmonella* spp. in hydroponically grown tomatoes. P1-118. International Association for Food Protection Annual Meeting. July 31- August 3, 2014, Indianapolis, IN.

59. Chandler J, Perez-Mendez A, Coleman S, Manley W, Danyluk M, Bunning M, Goodridge L, **Bisha B**. Control of the microbial quality of cantaloupes via employment of a processing line incorporating chlorine dioxide as an intervention step. P1-109. International Association for Food Protection Annual Meeting. July 31- August 3, 2014, Indianapolis, IN.

60. Krause L, Reynolds S, Schaeffer J, VanDyke A, Davidson M, **Bisha B**. Evaluation of bacterial preservation during air sampling of culturable bioaerosols. The American Industrial Hygiene Conference & Exposition (AIHce). May 31- June 5, 2014, San Antonio, TX.

61. VanDyke-Gonnerman A, Reynolds S, Davidson M, Schaeffer J, **Bisha B**, Delton Hanson J. Effect of environmental factors on isolation and identification of potential pathogenic species of bacteria and fungi from bioaerosols in three dairy parlors. The American Industrial Hygiene Conference & Exposition (AIHce). May 31- June 5, 2014, San Antonio, TX.

62. Perez-Mendez, A., Chandler, J. C., Paar, J., Doolittle, M., Bouthiette, E., **Bisha, B**., Coleman, S.M, Goodridge, L.D. 2013. Validation of a rapid resin-based method for concentration and further detection of f-RNA coliphages in different water sources of the New England region. *American Society for Microbiology, 113th General Meeting*. May 18-21, 2013, Denver, CO.

63. Davidson, M., **Bisha, B.**, Reynolds, S.J., Goodridge, L.D. 2013. Evaluation of the NIOSH BC-251 personal bioaerosol sampler for sampling viable and culturable pathogenic bacteria. *AIHce 2013*, May 18-23, 2013, Montreal, Canada.

64. Coleman S, McEgan R, Chandler J, **Bisha B,** Pérez-Méndez A, Manley W, Probasco K, Marshall D, Danyluk M, Goodridge L. Evaluation of molecular alternatives to traditional serotyping for *Salmonella enterica* subs. *enterica*. 2013 International Association for Food Protection Annual Meeting. 28-31 July, 2013. Charlotte, NC.

65. Chandler J, Manley W, **Bisha B**, Adkins J, Pérez-Méndez A, Coleman S, Henry C, Goodridge L. Characterization and rapid detection of cantaloupe-associated *Listeria monocytogenes*. 2013 International Association for Food Protection Annual Meeting. 28-31 July, 2013. Charlotte, NC.

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67. **Bisha B**, Jokerst J, Adkins J, Coleman S, Chandler J, Perez-Mendez A, Henry C, Goodridge L. 2012. Colorimetric paper-based detection of *Salmonella* spp. and *Escherichia coli* from artificially contaminated irrigation river water. International Association for Food Protection Annual Meeting. July 22-25, 2012, Providence, RI.

68. Coleman S, **Bisha B**, Chandler J, Perez-Mendez A, Goodridge L. 2012. Simple filter paper as a shipping and storage medium for human enteric viruses. International Association for Food Protection Annual Meeting, July 22-25, 2012, Providence, RI.

69. Chandler J, Perez-Mendez A, **Bisha B**, Coleman S, Goodridge L. 2012. The *Escherichia coli* common pilus: A diagnostic target for point-of-need LAMP assays detecting the fecal indicator *E. coli*. *International Association for Food Protection Annual Meeting*. July 22-25, 2012, Providence, RI.

70. Perez-Mendez A, Chandler J, **Bisha B**, Coleman S, Goodridge L. 2012. Simple filter paper as a shipping and storage medium for human enteric viruses. *International Association for Food Protection Annual Meeting*. July 22-25, 2012, Providence, RI.

71. Adkins JA, Jokerst JC, **Bisha B**, Goodridge LD, Henry CS. 2012. Foodborne pathogenic bacteria detection on paper-based analytical devices. *PITTCON Conference and Expo*. March 11-15, 2012, Orlando, FL.

72. Perez-Mendez, A., **Bisha, B**., Chandler, J., M. A. Gutierrez, M.A., Wong, C.-I., Hsu, F.-C., Janes, M., Goodridge, L.D. 2012. Rapid concentration and detection of enteric virus indicators in seawater. *American Society for Microbiology, 112th General Meeting*. June 16-19, 2012, San Francisco, CA.

73. Goodridge L, Roberts B, **Bisha B**. Evaluation of a low cost treatment system for recycled greywater use in irrigation of produce. *American Society for Horticultural Science Annual Conference*. September 25-28, 2011, Waikoloa, HI.

74. Jokerst JC, Adkins JA, **Bisha B**, Mentele MM, Goodridge LD, Henry CS. 2011. A paper-based analytical device for the colorimetric detection of foodborne pathogenic bacteria. *The 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences*. October 2-6, 2011, Seattle, WA.

75. Roberts B, **Bisha B**, Bruun K, Fialko K, Goodridge LD. Evaluation of a portable, recycled vertical flow constructed wetland as a low cost treatment system for greywater reuse in food production. *International Association for Food Protection Annual Meeting*. July 31-August 3, 2011, Milwaukee, WI.

76. Woo D, Stone M, Goodridge L**, Bisha B**, Bunning M. Microbial quality of mixed salad greens purchased from farmers' market vendors and a retail grocer. *IFT Annual Meeting & Food Expo*. June 11-14, 2011, New Orleans, LA.

77. Pittman C, Pendleton S., **Bisha B**, O'Bryan C, Belk K, Goodridge L, Crandall P, Ricke S. Validation of citrus essential oils to control foodborne pathogens on beef carcasses. *IFT Annual Meeting & Food Expo*. June 11-14, 2011, New Orleans, LA.

78. Goodridge L, **Bisha B**, Reynolds S. 2011. Rapid detection of bacteria isolated from agricultural dust samples: A comparison of methods. *American Society for Microbiology Annual Meeting*. May 23-27, 2011, New Orleans, LA.

79. Goodridge L, Leon JC, **Bisha B**, Danyluk M, Griffiths M, Lejeune J, Schaffner D, Suslow T. 2010. Antimicrobial Incorporated Multi-angle Light Scattering Spectroscopy (ANIMALS) facilitates detection of *Escherichia coli* O157:H7 in large volumes of irrigation water. *American Society for Horticultural Science Annual Conference*. August 2-5, 2010, Palm Desert, CA.

80. Goodridge L, **Bisha B**, Danyluk M, Griffiths M, Lejeune J, Schaffner D, Suslow T. 2010. Concentration of large volumes of irrigation water facilitates sensitive detection of foodborne pathogens II. *American Society for Horticultural Science Annual Conference*. August 2-5, 2010, Palm Desert, CA.

81. Pittman CI, **Bisha B**, Goodridge L, Adler JM, Geornaras I, Sofos JN, Woerner DR, Kendall PA, Belk KE. 2010. Evaluation of commercially available compounds for antimicrobial intervention of sub-primal beef and pork. *American Meat Science Association Reciprocal Meat Conference*. June 20-23, 2010, Lubbock, TX.

82. **Bisha B**, Leon JC, Deshpande S, Goodridge LD. 2010. Rapid detection of viable *Escherichia coli* O157:H7 in irrigation water by antimicrobial incorporated multi-angle light scattering spectroscopy. *American Society for Microbiology Annual Meeting*. May 23-27, 2010, San Diego, CA.

83. Brehm-Stecher BF, **Bisha B**. 2009. Improved conditions for rapid cytometric detection of *Candida albicans* in blood. American Society for Microbiology Annual Meeting. May 17-21, 2009, Philadelphia, PA.

84. **Bisha B**, Brehm-Stecher BF. 2009. Washing and enrichment of jalapeño peppers using small volumes of non-selective broth facilitates rapid cytometric detection of *Salmonella* Saintpaul. *International Association for Food Protection Annual Meeting*. July 12-15, 2009, Grapevine, TX.

85. Brehm-Stecher BF, **Bisha B**. Pulsification enhances direct cytometric detection of *Listeria monocytogenes* on pork frankfurters. *American Society for Microbiology Annual Meeting.* June 1-5, 2008, Boston, MA.

86. **Bisha B**, Brehm-Stecher BF. 2008. Combined circulating immunomagnetic separation and fluorescence *in situ* hybridization for selective capture, concentration and visual molecular identification of *Salmonella* in peanut butter. *American Society for Microbiology Annual Meeting*. June 1-5, 2008, Boston, MA.

87. **Bisha B**, Brehm-Stecher BF. 2008. Tape-FISH for *Salmonella*: simple adhesive tape-based sampling of tomato surfaces coupled with a rapid culture-independent detection step. *United Fresh Annual Convention*. May 2008, Las Vegas, NV.

88. **Bisha B**, Brehm-Stecher BF. 2007. Rapid cytometric detection of *Salmonella* and *Listeria monocytogenes* in pork products. *American Society for Microbiology Annual Meeting*. May 21-25, 2007, Toronto, ON, Canada.

89. **Bisha B**, Brehm-Stecher BF. 2007. Rapid detection of *Salmonella* spp. in seed sprouts via flow cytometry. *United Fresh Annual Convention*. April 25-28, 2007, Palm Springs, CA.

90. **Bisha B**, Brehm-Stecher BF. 2006. Molecular detection of *Salmonella* spp. in seed sprouts via flow cytometry. American Society for Microbiology Annual Meeting. May 21-25, 2006, Orlando, FL.

91. Olds DA, Mendonca AF, Sneed J, **Bisha B**. 2005. Influence of four retail food service cooling methods on the behavior of *Clostridium perfringens* ATCC 10388 in turkey roasts following heating to an internal temperature of 74 degrees C. *International Association for Food Protection Annual Meeting*. August 14-17, 2005, Baltimore, MD.

92. **Bisha B**, Mendonca A, Lihono M, Boylston T. 2004. Effectiveness of *Enterococcus faecium* M-74 for controlling *Listeria monocytogenes* in re-hydrated dried milk during temperature abuse. *International Association for Food Protection Annual Meeting*. August 8-11, 2004, Phoenix, AZ.

93. Lihono M, **Bisha B**, Mendonca A, Bankston L, Boylston T. 2004. Fate of *Enterobacter sakazakii* ATCC 12868 in temperature-abused reconstituted infant formula containing selected probiotic cultures. *International Association for Food Protection Annual Meeting*. August 8-11, 2004, Phoenix, AZ.

94. **Bisha B**, Mendonca A, Sebranek J, Dickson J, Ahn D. 2003. Efficacy of sodium lactate and sodium diacetate alone or in combination with pediocin for controlling *Listeria monocytogenes* in Ready-to-eat Turkey Roll at 4ºC and 10ºC. International Association for Food Protection Annual Meeting. August 10-13, 2003, New Orleans, LA.

95. **Bisha B**, Mendonca A, Sebranek J, Dickson J, Ahn D. 2003. Fate of *Listeria monocytogenes* following electron-beam irradiation in ready-to-eat turkey roll Formulated with pediocin alone or combined with sodium lactate and sodium diacetate. *International Association for Food Protection Annual Meeting.* August 10-13, 2003, New Orleans, LA.

J. PRESENTATIONS IN REGIONAL/OTHER MEETINGS

1. **Bisha B**. Keeping wildlife out of your plate and other food safety considerations. Rocky Mountain Food Safety Conference. August 25-26, 2025, Denver, CO.

2. **Bisha B**. Voices from the deep: Listening to environmental signals. Integrated approaches to environmental, animal, and human health. July 7, 2023, Prizren, Kosovo.

3. Bouley C, Ruehling K, Collins SM, **Bisha, B**. (2022, April) Source tracking via molecular characterization of fRNA Coliphages. Front Range Microbiome Symposium. Fort Collins, CO.

4. **Bisha B**. U.S. Perspectives on monitoring antimicrobial resistance in food animals, retail meats, and people. International Symposium: Contemporary Regulatory and Scientific Issues in Meat Safety. July 2, 2021, Pristina, Kosovo (Invited talk).

5. **Bisha B**. Where the wild things are: insights into the environmental dimensions of AMR. University of Georgia, Center for Food Safety Seminar Series. April 28, 2021, Griffin, GA (Virtual, invited talk).

6. **Bisha B**. Diagnostics, ecology, and control of foodborne pathogens: explorations and opportunities. University of Georgia, Department of Food Science and Human Nutrition Seminar Series. March 30, 2021, Athens, GA (Virtual, invited talk).

7. **Bisha B**. Microbial diagnostics and characterization for produce safety. Department of Horticulture & Landscape Architecture Seminar Series, Colorado State University. February 12, 2019, Ft. Collins, CO (invited talk).

8. **Bisha B**. Food Safety: Detection, control, and ecology of foodborne pathogens. Department of Animal Science, Auburn University. January 15, 2019, Auburn, AL (invited talk).

9. **Bisha B**. Source tracking, typing, and field-based diagnostics. Symposium: What Does the Future Hold for Produce – The Innovation Frontier. November 30, 2018, Ft. Collins, CO (invited talk).

10. **Bisha B**. Food safety interventions. Wyoming Wool Growers Association – Summer Meeting. August 7, 2018, Laramie, WY.

11. **Bisha B**. Colorimetric and electrochemical bacteria detection using printed paper- and transparency-based analytic devices. Fifth Annual Rapid Detection for Food Safety Conference, June 27, 2018, Bethesda, MD (invited talk).

12. **Bisha B**. Exploring alternative tools for diagnostics and characterization of foodborne pathogens. Colorado State University, Department of Food Science and Human Nutrition Seminar Series, November 9, 2017, Ft. Collins, CO (invited talk).

13. **Bisha B**. Small things considered: From bioaerosols to microfluidics. Iowa State University, Department of Food Science and Human Nutrition Seminar Series, March 29, 2017, Ames, IA (invited talk).

14. **Bisha B**. Paper-based analytical devices for detection of foodborne bacteria. Third Annual Rapid Detection for Food Safety Conference, June 27 - 28, 2016, Baltimore, MD (invited talk).

15. Franklin A, Shriner S, Root J, **Bisha B,** Chandler J. The role of wildlife in disseminating antibiotic-resistant bacteria to and from livestock facilities. 3^{d} International Symposium on the Environmental Dimension of Antibiotic Resistance. May 17 - May 21, 2015, Wernigerode, Germany.

16. **Bisha B**. Antimicrobial resistance: food safety. Microbial Ecology in a Changing World: Emerging Issues in Antimicrobial Resistance. The 6th Annual Public Health Symposium at Colorado State University. April 15, 2015, Fort Collins, CO (invited talk).

17. **B Bisha**. Food safety: rapid diagnostics and typing. Student American Veterinary Association (SAVMA) Annual Symposium. March 20 - March 22, 2014, Fort Collins/Loveland, CO (invited talk).

18. **B Bisha**. Food safety: rapid diagnostics and typing. University of Prishtina International Summer University. July 7 - July 18, 2014, Pristina, Kosovo (invited talk).

19. **Bisha B**. Control of the microbial quality of cantaloupes via employment of a processing line incorporating chlorine dioxide as an intervention step. Food Safety Update for Cantaloupe Growers: What do the new developments mean to me? April 17, 2014, Gulf Coast Research & Education Center, Wimauma, FL (invited talk).

20. **Bisha B**, Brehm-Stecher BF. 2006. Rapid cytometric detection of *Salmonella* and *Listeria monocytogenes* in Pork Products. Food Safety Consortium Annual Meeting. October 2-3, 2006, Fayetteville, AR.

21. **Bisha B**, Brehm-Stecher BF. 2006. Evaluation of sample preparation methods for use in cytometric detection of foodborne pathogens. *Food Safety Consortium Annual Meeting*. October 2-3, 2006, Fayetteville, AR.

22. Mendonca AF, **B Bisha**, Sebranek JG, Zhu M, Ahn DU. 2003. Control of *Listeria monocytogenes* in ready-to-eat turkey meat products. Proceedings of the Midwest Poultry Conference. St. Paul, MN, (April, 2003).

K. SELECT AWARDS AND RECOGNITIONS

1. 2025 – Agricultural Experiment Station Outstanding Research Achievement Award.
2. 2023 – National Advisory Committee on Microbiological Criteria for Foods Member 2023 – 2025.
3. 2023 - Research Expertise from the Academic Diaspora (READ) Fellow, 2023-2025.
4. 2022 – Wyoming Excellence Chair.
5. 2022 – Distinguished Alumni Award, Department of Food Science and human Nutrition, Iowa State University.
6. 2020-2021 - Extensive magazine and newspaper and coverage for advancements in wastewater-based epidemiology for tracking SARS-CoV-2 infections in Wyoming communities.
7. 2011 - SIGMA XI, The Scientific Research Society.
8. 2009-2010 - Extensive magazine, newspaper and TV coverage for advancements in rapid detection of *Salmonella.*
9. 2008 - GAMMA SIGMA DELTA, The Honor Society of Agriculture.

L. SELECT PRFESSIONAL DEVELOPMENT HIGHLIGHTS

1. 2023 - BV-BRC (PATRIC & IRD/ViPR) Workshop, JUNE 26-30, 2023, Argonne National Laboratory, Chicago, IL.
2. 2019 – Metagenomics Foundations Workshop, May 13-17, 2019, National Center for Genome Resources (NCGR), Santa Fe, NM.
3. 2018-2021 – Affiliate Assistant Professor – Food Microbiology, Department of Food Science and Human Nutrition, Iowa State University, Ames, IA.
4. 2016 – BioTech 45: Bioinformatic Analysis of Next Generation Sequencing Data (Formerly Bio-Trac 45) Workshop, April 7-10, 2016, NIH, Bethesda, MD.

5. 2015 - QIIME (Quantitative Insights Into Microbial Ecology) Workshop, May 20-21, 2015, University of Wyoming, Laramie, WY. Organized by the Wyoming INBRE Bioinformatics Core.

6. 2013 – 'Write Winning Grants' Workshop, June 11, 2013, University of Wyoming, Laramie, WY. Grant writer's seminar organized by the Office of the Vice President for Research & Economic Development.

7. 2007 – Attended and received certification for 'Food Microbiology Symposium and Rapid Methods Workshop' at the University of Wisconsin-River Falls.

8. 2006 – Attended and received certification for 'A Field Guide to GenBank and NCBI Molecular Biology Resources' at Iowa State University, Ames, IA.

9. 2003 - Attended and received certification for the 'Annual Workshop of Rapid Methods & Automation in Microbiology' at Kansas State University, Manhattan, KS. 2002.

10. 2001 - Recipient of a INTERREG III fellowship to receive training and conduct research in food safety, veterinary public health and European food safety standards as a visiting scientist for 9 months at the Faculty of Veterinary Medicine, University of Bari, Italy.

11. 2000 - Received certification for HACCP.

12. 2000 - Recipient of a fellowship from The Global Consortium of Higher Education and Research in Agriculture (GCHERA) to obtained advanced training and instruction in public health, food safety and microbiology for three months at the College of Veterinary Medicine, Iowa State University, Ames, IA. Certification received.

13. 2000 - Recipient of a scholarship from the Ministry of Foreign Affairs of the People's Republic of China to obtain training for one month in "Chinese and Western Style Meat Processing" at the China Meat Research Center, Beijing, China.

14. 2000 - Received certification and training in a 2-week workshop on Veterinary Epidemiology organized by the Faculty of Veterinary Medicine, Agricultural University of Tirana, Albania and Faculty of Veterinary Medicine, Free Univ. of Berlin, Germany.

15. 1998 - Recipient of a Tempus fellowship from the European Union to conduct practical training (including food inspection, microbiology and hygiene) for two months at the Faculty of Veterinary Medicine, Free University of Berlin, Germany and with practicing veterinarians in Brandenburg and Munich, Germany.