

University of Maine, Orono. School of Food and Agriculture  
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## **EDUCATION**

2010 - 2015 Ph.D. Animal, Nutrition and Food Sciences, University of Vermont  
Advisor: Dr. André-Denis G. Wright  
2003 - 2007 B.S. Animal Science, University of Vermont

## **PROFESSIONAL EXPERIENCE**

2024 - Associate Professor of Microbiomes, School of Food and Agriculture, UMaine  
2021 - Affiliate Faculty, Initiative for One Health & the Environment, UMaine  
2021 - Associate Faculty, Institute of Medicine, UMaine  
2021 - Associate Faculty, Aquaculture Research Institute, UMaine  
2021 - Associate Member, Maine Center for Genetics in the Environment, UMaine  
2020 - Cooperating Faculty, Department Molecular and Biomedical Sciences, UMaine  
2020 - Graduate Faculty, Ecology and Environmental Sciences, University of Maine  
2019 - Graduate Faculty, Graduate School of Biomedical Science and Engineering, UMaine  
2019 - Graduate Faculty, School of Food and Agriculture, UMaine  
2019 - 2024 Assistant Professor of Animal and Veterinary Sciences, School of Food and Agriculture, UMaine  
2017 - 2019 Research Assistant Professor of Microbial Ecology, Biology and the Built Environment Center, University of Oregon  
2016 - 2017 Adjunct Lecturer, Department of Microbiology and Immunology, Montana State University  
2016 - 2017 Postdoctoral Research Associate, Department of Land Resources and Environmental Sciences, Montana State University, Advisor: Dr. Fabian D. Menalled  
2015 - 2016 Postdoctoral Research Associate, Department of Animal and Range Sciences, Montana State University, Advisor: Dr. Carl J. Yeoman  
2010 - 2015 Graduate Student, University of Vermont  
2012/01 Anaerobic Culturing Apprenticeship, University of Tromsø, Norway

## **TEACHING EXPERIENCE**

2021 - University of Maine, AVS 454/554: *DNA sequencing data analysis lab*, developed/taught, annually  
2021 - University of Maine, AVS 402: *Capstone in AVS II*, annually  
2020 - University of Maine, AVS 254: *Introduction to Animal Microbiomes*, developed/taught, annually  
2020 - University of Maine, AVS 401: *Capstone in AVS I*, annually  
2020 - University of Maine, AVS 590: *Special topics in DNA sequencing analysis lab*, developed/taught  
2019 - University of Oregon, Clark Honors College, HC 441H/431H: *Microbes and Social Equity*, developed/taught  
2018 - University of Oregon, Clark Honors College, HC 209H: *Introduction to mammalian microbiomes*, developed/taught  
2016 - Montana State University, BIOM 405: *Host-associated microbiomes*, developed/taught lab section and team-taught class lecture  
2015 - Montana State University, BIOM 405: *Host-associated microbiomes*, developed/taught lab section

- 2010 - 2012 University of Vermont, ASCI 141: *Anatomy and physiology of domestic species*, graduate teaching assistant for lab section
- 2012 University of Vermont, ASCI 110: *Animal nutrition, metabolism and feeding*, graduate teaching assistant for lab section

### **ADMINISTRATIVE EXPERIENCE**

- 2024 - Early Career At-Large Board Member of the American Society for Microbiology
- 2021 - [Editor, \*mSystems\*](#)
- 2020 - Lead, [Microbes and Social Equity Working Group](#)  
 Led organization of MSE speaker series, annually since 2020  
 Led organization of MSE journal special collections, 2020 -  
 Led organization of MSE virtual symposium, [2021](#), [2022](#), [2023](#), 2025
- 2020 - Member, University of Maine STEMM Pedagogy Working Group
- 2020 - 2021 Pod-Coordinator, 500 Women Scientists Orono
- 2018 - 2021 Academic Editor, *PLoS ONE*
- 2018 - 2019 Pod-Coordinator, 500 Women Scientists Eugene
- 2017 - 2018 Implicit Bias Working Group, University of Oregon
- Ad hoc Search Committee member
- Ad hoc Funding proposal review; NSF, USDA, EIC, Royal Society of London, Canadian Government, UMaine student proposals

### **PROFESSIONAL MEMBERSHIPS (alphabetical)**

- 2017 - 500 Women Scientists
- 2024 - Advancing Queer and Transgender Equity in Science (AQTES)
- 2016 - American Association for the Advancement of Science (AAAS)
- 2011 - 2020 American Society of Animal Science (ASAS)
- 2012 - American Society for Microbiology (ASM)
- 2022 - American Society for Nutrition (ASN)
- 2023 - Applied Microbiology International (AMI)
- 2017 - Ecological Society of America (ESA)
- 2006 - Green Mountain Chapter of Alpha Zeta, University of Vermont
- 2018 - 2019 International Society of Indoor Air Quality and Climate
- 2020 - inVIVO Planetary Health, Nova Institute for Health
- 2020 - Maine Food and Agriculture Center
- 2019 - Sigma Xi, University of Maine Chapter, Full member
- 2019 - The Wildlife Society

### **HONORS AND AWARDS**

- 2023 Nominated to be the UMaine's nominee in the category of Life Sciences for the 2024 Blavatnik National Award for Young Scientists: Life Sciences
- 2023 Invited to apply to the [Universal Scientific Education and Research Network \(USERN\)](#) Prize, for my work on Microbes and Social equity. 90,000 applicants and was one of 10 finalists for the Social Science category.

- 2023 Nominated for 2023 Supervisor Award, UMaine
- 2023 - Nova Institute Invited Faculty Fellow
- 2022 Invited to apply for the 2023 Harvard JPB Environmental Health Fellows Program, finalist
- 2022 Nominated by a colleague for the 2022 [John Maddox Prize](#)
- 2022 Nominated for 2022 Faculty Mentor Award, UMaine
- 2014 American Society of Animal Science President's Pick Poster, Kansas City
- 2007 Justin Morrill Honors Scholar, University of Vermont
- 2005, 2006 Dean's List, University of Vermont
- 2003 - 2007 Presidential Scholarship, University of Vermont
- 2003 - 2007 University of Vermont Scholarship

#### **PRIMARY RESEARCH PUBLICATIONS (published under Suzanne L Ishaq)**

<sup>1</sup> undergraduate student I mentored, <sup>2</sup> graduate student I mentored

- 46. Lurgio<sup>2</sup>, A., Webb, A., Spillane, T., Rzeszowski, E., Jones, S., **Ishaq, S.**, Becker, T., Kanwit, K., Brady, D.C. **2025**. Seasonality of *Vibrio parahaemolyticus* in the eastern oyster, *Crassostrea virginica*, along the coast of Maine, USA. **In review.**
- 45. Alaba<sup>2</sup>, O.A, Ishaq, S.L., Calderwood, L., Zhang, Y-J. **2024**. Warming treatments shift the diversity and composition of bacteria in wild blueberry soils in the early growing season. **In review.**
- 44. Alaba<sup>2</sup>, T.E., Holman<sup>2</sup>, J.M., et al. **2025**. Broccoli Sprouts Alleviate Ulcerative Colitis in Mice By Increasing Dietary And Microbial Metabolites: Differential Effects In Young And Adult Male And Female Mice. **In Review.**
- 43. Mastaloudis<sup>\*\*</sup>, A., Holcomb<sup>2\*\*</sup>, L., Fahey, J.W., Olson, C., Nieman, D., Kay, C., O'Donnell, R., Pecorelli, A., Kinney<sup>2</sup>, M., Li, Y., **Ishaq\*, S.L.**, Valacchi\*, G. **2024**. Active Exogenous Myrosinase from Mustard Seed Increases Bioavailability of Sulforaphane from a Glucoraphanin-Rich Broccoli Seed Extract. **In review.** \*\* co-first author, \* co-senior author
- 42. Costigan<sup>2</sup>, E., Bouchard, D. **Ishaq, S.L.**, MacRae, J.D. **2024**. [Short-term effects of abrupt salinity changes on aquaculture biofilter performance and microbial communities](#). *Water* 16(20), 2911.
- 41. Hotopp<sup>2</sup>, A., Oslén, B. **Ishaq, S.L.**, Frey, S., Kovach, A., Kinnison, M., Gigliotti, F., Roeder, M., Cammen, K. 2023. [Plumage microbial communities of tidal marsh sparrows](#). *iScience* 27(1):108668.
- 40. Holcomb<sup>2</sup>, L., Holman<sup>2</sup>, J., Hurd, M., Lavoie, B., Colucci, L., Hunt<sup>1</sup>, B., Hunt<sup>1</sup>, T., Kinney<sup>2</sup>, M., Pathak<sup>2</sup>, J., Moses, P., Mawe, G.M., Perry, E., Stratigakis, A., Zhang, T., **Ishaq\*, S.L.**, Li\*, Y. **2023**. [Early life exposure to broccoli sprouts confers stronger protection against enterocolitis development in an immunological mouse model of inflammatory bowel disease](#). *mSystems* 8(6): 00688-23. \* co-senior author
- 39. Brostow, D.P., Donovan, M., Penzenik, M., Stamper, C.E., Spark, T., Lowry, C.A., **Ishaq, S.L.**, Hoisington, A.J., Brenner, L.A. **2023**. [Food desert residence has limited impact on Veteran fecal microbiome composition: A United States-Veteran Microbiome Project \(US-VMP\) Study](#). *mSystems*: 00717-23.
- 38. **Ishaq, S.L.**, Hosler<sup>2</sup>, S., Dankwa, A., Jekielek, P., Brady, D.C., Grey, E., Haskell, H., Lasley-Rasher, R., Pepperman, K., Perry, J., Beal, B., Bowden, T.J. **2023**. [Bacterial community trends associated with sea scallop, \*Placopecten magellanicus\*, larvae in a hatchery system](#). *Aquaculture Reports* 32: 101693.

37. Holman<sup>2</sup>, J., L. Colucci, L. Baudewyns, D., Balkan<sup>1</sup>, J., Hunt<sup>1</sup>, T., Hunt<sup>1</sup>, B., Kinney<sup>2</sup>, M., Holcomb<sup>2</sup>, L., Stratigakis, A., Chen. G., Moses, P., Mawe, G.M., Zhang, T., Li\*, Y., **Ishaq\***, S.L. 2023. [Steamed broccoli sprouts alleviate DSS-induced inflammation and retain gut microbial biogeography in mice](#). *mSystems* 8(5): 00532-23. \* co-senior author
36. Betiku<sup>2</sup>, O., Yeoman, C., Gaylord, T.G., **Ishaq, S.**, Duff, G., Sealey, W. 2023. [Evidence of a Divided Nutritive Function in The Rainbow Trout \(\*Oncorhynchus mykiss\*\) Mid- and Hind-Gut Microbiomes by Whole Shotgun Metagenomic Approach](#). *Aquaculture Reports* 30: 101601.
35. **Ishaq, S.L.**, Turner, S.M., Lee<sup>1</sup>, G., Tudor, M.S., MacRae, J.D., Hamlin, H., Bouchard, D. 2023. [Water temperature and disease alters bacterial diversity and cultivability from American Lobster \(\*Homarus americanus\*\) shells](#). *iScience* 26(5): 106606.
34. Ouverson<sup>2</sup>, T., , Boss, D., Eberly, J., Seipel, T., Menalled, F.D., **Ishaq, S.L.** 2022. [Soil bacterial community response to cover crops, cover crop termination, and predicted climate conditions in a dryland cropping system](#). *Frontiers in Sustainable Food Systems*. 911199.
33. **Ishaq, S.L.**, Wissel<sup>2</sup>, E.F., Wolf, P.G., Grieneisen, L., Eggleston, E.M., Mhuireach, G., Friedman, M., Lichtenwalner, A., Otero Machuca, J., Weatherford Darling, K., Pearson, A., Wertheim, F.S., Johnson, A.J., Hodges, L., Young, S., Nielsen, C.C., Kozyrskyj, A.L., MacRae, J.D., McKenna Myers, E., Kozik, A.J., Tussing-Humphreys, L.M., Trujillo, M., Daniel, G.A., Kramer, M.R., Donovan, S.M., Arshad<sup>1</sup>, M., Balkan<sup>1</sup>, J., Hosler<sup>2</sup>, S. 2022. [Designing the Microbes and Social Equity Symposium, a novel interdisciplinary virtual research conference based on achieving group-directed outputs](#). *Challenges*, 13(2), 30.
32. Sepiel, T. **Ishaq, S.L.**, Larson, C., Menalled, F. 2022. [Weed communities in winter wheat: responses to cropping systems and predicted warmer and drier climate conditions](#). *Sustainability* 14(11), 6880.
31. **Ishaq, S.L.**, Turner, S.M., Tudor, M.S., MacRae, J.D., Hamlin, H., Kilchenmann, J., Lee<sup>1</sup>, G., Bouchard, D. 2022. [Many questions remain unanswered about the role of microbial transmission in epizootic shell disease in American lobsters \(\*Homarus americanus\*\)](#). *Frontiers in Microbiology* 13: 824950. Invited contribution to special collection: [The Role of Dispersal and Transmission in Structuring Microbial Communities](#)
30. Rabee, A.E., Sayed Alahl, A.A., Lamara, M., **Ishaq, S.L.** 2022. [Fibrolytic rumen bacteria of camel and sheep and their applications in the bioconversion of barley straw to soluble sugars for biofuel production](#). *PLoS ONE* 17(1): e0262304.
29. Choi<sup>2</sup>, O., Corl, A., Lublin, A., **Ishaq, S.L.**, Charter, M., Pekarsky, S., Thie, N., Tsalyuk, M., Turmejan, S., Wolfenden, A., Bowie, R.C.K., Nathan, R., Getz, W.M., Kamath, P.L. 2021. [High-throughput sequencing for examining \*Salmonella\* prevalence and pathogen - microbiota relationships in barn swallows](#). *Frontiers in Ecology and Evolution* 9:681.
28. Dankwa<sup>2</sup>, A.S., U. Humagain<sup>2</sup>, **S.L. Ishaq**, C.J. Yeoman, S. Clark , D.C. Beitz, and E. D. Testroet. 2021. [Bacterial communities in the rumen and feces of lactating Holstein dairy cows are not affected when fed reduced-fat dried distillers' grains with solubles](#). *Animal* 15(7):100281.
27. **Ishaq, S.L.**, A. Hotopp<sup>2</sup>, S. Silverbrand<sup>2</sup>, J.E. Dumont, A. Michaud, J. MacRae, S. P. Stock, E. Groden. 2021. [Bacterial transfer from \*Pristionchus entomophagus\* nematodes to the invasive ant \*Myrmica rubra\* and the potential for colony mortality in coastal Maine](#). *iScience* 24(6):102663.
26. Ouverson<sup>2</sup>, T., Eberly, J., Seipel, T., Menalled, F., **Ishaq, S.L.** 2021. [Temporal soil bacterial community responses to cropping systems and crop identity in dryland agroecosystems of the Northern Great Plains](#). *Frontiers in Sustainable Food Systems* 5:75. Invited submission to [Plant Growth-Promoting Microorganisms for Sustainable Agricultural Production](#) special collection.

25. Zeng, H., Safratowich, B.D., Liu, Z., Bukowski, M.R., **Ishaq, S.L.** 2021. Adequacy of calcium and vitamin D reduces inflammation,  $\beta$ -catenin signaling, and dysbiotic *Parasutterella* bacteria in the colon of C57BL/6 mice fed a Western-style diet. *Journal of Nutritional Biochemistry* 92: 108613. [Article](#).
24. Horve<sup>1</sup>, P.F., Dietz, L., **Ishaq, S.L.**, Kline, J., Fretz, M., Van Den Wymelenberg, K. 2020. Viable bacterial communities on hospital window components in patient rooms. *PeerJ* 8:e9580.
23. **Ishaq, S.L.**, Seipel, T., Yeoman, C.J., Menalled, F.D. 2020. Dryland cropping systems, weed communities, and disease status modulate the effect of climate conditions on wheat soil bacterial communities. *mSphere* 5:e00340-20.
22. **Ishaq, S.L.**, Seipel, T., Yeoman, C.J., Menalled, F.D. 2020. Soil bacterial communities of wheat vary across the growing season and among dryland farming systems. *Geoderma* 358(15):113989.
21. Velazquez<sup>1</sup>, S., Bi, C., Kline, J., Nunez<sup>1</sup>, S., Corsi, R., Xu, Y., **Ishaq, S.L.** 2019. Accumulation of di-2-ethylhexyl phthalate from polyvinyl chloride flooring into settled house dust and the effect on the bacterial community. *PeerJ* 7:e8147.
20. Stenson, J., **Ishaq, S.**, Laguerre, A., Loia, A., MacCrone<sup>1</sup>, G., Mugabo, I., Northcutt, D., Riggio, M., Barbosa, A., Gall, E., Van Den Wymelenberg, K. 2019. Occupant Experience of a Mass Timber Office Building: Monitored and Perceived. *Buildings* 9:142.
19. Seipel, T., **Ishaq, S.L.**, Menalled, F.D. 2019. Agroecosystem resilience is modified by management system via plant–soil feedbacks. *Basic and Applied Ecology* 39:1-9.
18. **Ishaq, S.L.**, Lachman<sup>2</sup>, M.M., Wenner, B.A., Baeza, A., Butler, M., Gates, E., Olivo, S., Buono Geddes, J., Hatfield, P., Yeoman, C.J. 2019. Pelleted-hay alfalfa feed increases sheep wether weight gain and rumen bacterial richness over loose-hay alfalfa feed. *PLoS ONE* 14(6): e0215797.
17. **Ishaq, S.L.**, Page, C.M., Yeoman, C.J., Murphy, T.W., Van Emon, M.L., Stewart, W.C. 2019. Zinc-amino acid supplementation alters yearling ram rumen bacterial communities but zinc sulfate supplementation does not. *Journal of Animal Science* 97(2):687-697.
16. Yeoman, C.J. and **Ishaq, S.L.\***, Bichi, E., Olivo, S.K., Lowe, J., Aldridge, B.M. 2018. Biogeographical Differences in the Influence of Maternal Microbial Sources on the Early Successional Development of the Bovine Neonatal Gastrointestinal tract. *Scientific Reports* 8:3197. \*authors contributed equally. [Article](#).
15. Seshadri, R., Leahy, S.C., Attwood, G.T., The, K.H., Lambie, S.C., Eloie-Fadrosh, E., Pavlopoulos, G., Hadjithomas, M., Varghese, N., **Hungate1000 project collaborators**, Perry, R., Henderson, G., Creevey, C.J., Terrapon, N., Lapebie, P., Drula, E., Lombard, V., Rubin, E., Kyrpides, N., Henrissat, B., Woyke, T., Ivanova, N., Kelly, W.J. 2018. Cultivation and sequencing of rumen microbiome members from the Hungate1000 Collection. *Nature Biotechnology* 36:359-367.
14. Zeng, H., **Ishaq, S.L.**, Liu, Z., Bukowski, M. 2018. Colonic aberrant crypt formation accompanies an increase of opportunistic pathogenic bacteria in C57BL/6 mice fed a high-fat diet. *Journal of Nutritional Biochemistry* 54:18-27.
13. **Ishaq, S.L.**, AlZahal, O., Walker, N., McBride, B. 2017. An Investigation into Rumen Fungal and Protozoal Diversity in Three Rumen Fractions, during High-Fiber or Grain-Induced Sub-Acute Ruminal Acidosis Conditions, with or without Active Dry Yeast Supplementation. *Frontiers in Microbiology* 8:1943.
12. **Ishaq, S.L.**, Yeoman, C.J., Whitney, T.R. 2017. Effects of ground redberry juniper and urea in DDGS-based supplements on ewe lamb rumen microbial communities. *Journal of Animal Science* 95(10):4587-4599.
11. Perea<sup>1</sup>, K., Perz, K., Olivo, S.K., **Ishaq, S.L.**, Williams, A., Lachman, M., Thompson, J., Yeoman, C.J. 2017. Feed efficiency phenotypes involve changes in ruminal, colonic, and small intestine-located microbiota. *Journal of Animal Science* 95(6):2585-2592.

10. **Ishaq, S.L.**, Johnson, S.P., Miller, Z.J., Lehnhoff, E.A., Olivo, S.K., Yeoman, C.J., Menalled, F.D. **2017**. Impact of Cropping Systems, Soil Inoculum, and Plant Species Identity on Soil Bacterial Community Structure. *Microbial Ecology* 73: 417.
9. Feng, W., Minor, D., Liu, M., Li, J., **Ishaq, S.L.**, Yeoman, C., Lei, B. **2016**. Null Mutations of Group A Streptococcus Orphan Kinase RocA: Selection in Mouse Infection and Comparison with CovS Mutations in Alteration of *in vitro* and *in vivo* Protease SpeB Expression and Virulence. *Infection and Immunity* 25:30-36.
8. Zeng, H., **Ishaq, S.L.**, Zhao, F-Q., Wright, A-D.G. **2016**. Colonic inflammation accompanies an increase of b-catenin signaling Lachnospiraceae/Streptococcaceae in the hind-gut of high-fat diet-fed mice. *Journal of Nutritional Biochemistry* 35:30-36.
7. Salgado-Flores, A., Hagen, L.H., Pope, P.B., **Ishaq, S.L.**, Wright, A-D.G., Sundset, M.A. **2016**. Intake of a lichen-based diet altered the rumen and cecum microbial profiles in Norwegian reindeer (*Rangifer tarandus tarandus*). *PLoS ONE* 11(5).
6. **Ishaq, S.L.**, Kim<sup>1</sup>, C.J., Reis<sup>1</sup>, D., Wright, A-D.G. **2015**. Fibrolytic bacteria isolated from the rumen of North American moose (*Alces alces*) and their potential as a probiotic for ruminants. *PLoS ONE* 10:12.
5. Henderson, G., Cox, F., Ganesh, S., Jonker, A., Young, W., **Global Rumen Census Collaborators**, Janssen, P.H. **2015**. Rumen microbial community composition varies with diet and host, but a core microbiome is found across a wide geographical range. *Scientific Reports* 5:14567.
4. **Ishaq, S.L.**, Sundset, M.A., Crouse, J., Wright, A-D.G. **2015**. High-throughput DNA sequencing of the moose rumen from different geographical locations reveals a core ruminal methanogenic archaeal diversity and a differential ciliate protozoal diversity. *Microbial Genomics* 1(4):mgen.0.000034.
3. **Ishaq, S.L.**, Wright, A-D.G. **2014**. Design and validation of four new primers for next-generation sequencing to target the 18S rRNA gene of gastrointestinal ciliate protozoa. *Applied and Environmental Microbiology* 80(17):5515-5521.
2. **Ishaq, S.L.**, Wright, A-D.G. **2014**. High-throughput DNA sequencing of the ruminal bacteria from moose (*Alces alces*) in Vermont, Alaska, and Norway. *Microbial Ecology* 68(2):185-195.
1. **Ishaq, S.L.**, Wright, A-D.G. **2012**. Insight into the bacterial gut microbiome of the North American moose (*Alces alces*). *BMC Microbiology* 12:212.

## **REVIEWS/BOOK CHAPTERS**

<sup>1</sup> undergraduate student I mentored, <sup>2</sup> graduate student I mentored

15. Choudoir, M., Ishaq, S., Beiko, R., Silva, D., Allen-Vercoe, E., O'Doherty, K. **2025**. The case for microbiome stewardship: What it is and how to get there. *mSystems*. **Accepted**.
14. Gilbert, J.A., Azad, M.B., Bäckhed, F., Blaser, M.J., Byndloss, M., Chiu, C., Chu, H., Dugas, L.R., Elinav, E., Gibbons, S.M., Henn, M.R., **Ishaq, S.L.**, Ley, R.E., Lynch, S.V., Segal, E., Spector, T.D., Strandwitz, P., Suez, J., Tropini, C., Whiteson, K., Knight, R. **2025**. [Clinical translation of microbiome research. Nature Medicine](#). **In press 2025. Impact Factor 58.7**.
13. Alaba<sup>2</sup>, T.E., Holman<sup>2</sup>, J.M., **Ishaq\*, S.L.**, Li\*, Y. **2024**. [Current knowledge on the preparation and benefits of cruciferous vegetables as relates to \*in vitro\*, \*in vivo\*, and clinical models of Inflammatory Bowel Disease](#). *Current Developments in Nutrition*: 102160. \* co-senior author

12. Holman<sup>2</sup>, J., Hurd, M., Moses, P., Mawe, G., Zhang, T., **Ishaq\***, S.L., Li\*, Y. **2022**. [Interplay of Broccoli/Broccoli Sprout Bioactives with Gut Microbiota in Reducing Inflammation in Inflammatory Bowel Diseases](#). *The Journal of Nutritional Biochemistry* 113:109238. \* co-senior author
11. Robinson, J.M., Redvers, N., Camargo, A., Bosch, C.A., Breed, M.F., Brenner, L.A., Carney, M.A., Chauhan, A., Dasari, M., Dietz, L.G., Friedman, M., Grieneisen, L., Hoisington, A.J., Horve, P.F., Hunter, A., Jech, S., Jorgensen, A., Lowry, C.A., Man, I., Mhuireach, G., Navarro-Pérez, E., Ritchie, E.G., Stewart, J.D., Watkins, H., Weinstein, P., and **Ishaq, S.L. 2022**. [Twenty important research questions in microbial exposure and social equity](#). *mSystems* 7(1): e01240-21. Special Series: Social Equity as a Means of Resolving Disparities in Microbial Exposure
10. **Ishaq, S.L.**, Parada, F.J., Wolf, P.G., Bonilla, C.Y., Carney, M.A., Benezra, A., Wissel, E., Friedman, M., DeAngelis, K.M., Robinson, J.M., Fahimipour, A.K., Manus, M.B., Grieneisen, L., Dietz, L.G., Pathak, A., Chauhan, A., Kuthyar, S., Stewart, J.D., Dasari, M.R., Nonnamaker, E., Choudoir, M., Horve, P.F., Zimmerman, N.B., Kozik, A.J., Darling, K.W., Romero-Olivares, A.L., Hariharan, J., Farmer, N., Maki, K.A., Collier, J.L., O'Doherty, K., Letourneau, J., Kline, J., Moses, P.L., Morar, N. **2021**. [Introducing the Microbes and Social Equity Working Group: Considering the Microbial Components of Social, Environmental, and Health Justice](#). *mSystems* 6:4. Special Series: Social Equity as a Means of Resolving Disparities in Microbial Exposure
9. Garcia-Mazcorro\*, J., **Ishaq, S.L.**, Avila-Jaime, B., Rodriguez-Herrera, M.V., Kawas, J.R., Nagaraja, T.G. **2020**. Are there any native *Saccharomyces* in the digestive tract of livestock animal species? Implications for health, nutrition and productivity traits. *Animal* 14(1):22-30. \*This author openly rejects covid-19 mitigation strategies, and I do not support or agree with this view.
8. **Ishaq, S.L.**, Rapp<sup>1</sup>, M., Byerly<sup>1</sup>, R., McClellan<sup>1</sup>, L.S., O'Boyle<sup>1</sup>, M.R., Nykanen<sup>1</sup>, A., Fuller<sup>1</sup>, P.J., Aas<sup>1</sup>, C., Stone<sup>1</sup>, J.M., Killpatrick<sup>1</sup>, S., Uptegrove<sup>1</sup>, M.M., Vischer<sup>1</sup>, A., Wolf<sup>1</sup>, H., Smallman<sup>1</sup>, F., Eymann<sup>1</sup>, H., Narode<sup>1</sup>, S., Stapleton, E., Cioffi, C.C., Tavalire, H. **2019**. Framing the discussion of microorganisms as a facet of social equity in human health. *PLoS Biology* 17(11): e3000536. Microbiomes Across Systems special issue. [Article](#).
7. Velazquez<sup>1</sup>, S., Griffiths<sup>1</sup>, W., Dietz, L., Horve<sup>1</sup>, P., Nunez<sup>1</sup>, S., Hu, J., Shen, J., Fretz, M., Bi, C., Xu, Y., Van Den Wymelenberg, K.G., Hartmann, E.M., **Ishaq, S.L. 2019**. From one species to another: A review on the interaction of chemistry, microbiology, and occupancy in the built environment. *Indoor Air* 26(6): 875-1049. Top 10% most downloaded papers from 2018 - 2019, and 2019 - 2020.
6. Horve<sup>1</sup>, P.F., Lloyd<sup>1</sup>, S., Mhuireach, G.A., Dietz, L., Fretz, M., MacCrone<sup>1</sup>, G., Van Den Wymelenberg, K., **Ishaq, S.L. 2019**. Building Upon Current Knowledge of Indoor Microbiology to Construct the Next Era of Research into Microorganisms, Health, and the Built Environment. *Journal of Exposure Science and Environmental Epidemiology* 30:219–235. Healthy Buildings special issue.
5. **Ishaq, S.L. 2017**. Plant-Bacteria Interactions in Agriculture and the Use of Farming Systems to Improve Diversity and Productivity. *AIMS Microbiology* 3(2): 335-353.
4. **Ishaq, S.L.**, Moses, P.L., Wright, A-D.G. **2016**. The pathology of methanogenic archaea in human gastrointestinal disease. In: *The Gut Microbiome - Implications for Human Disease*. Mozsik, G. (ed.). InTech. Pp. 19-37. [Article](#).
3. St-Pierre, B., Cersosimo, L.M., **Ishaq, S.L.**, Wright, A-D.G. **2015**. Toward the identification of methanogenic archaeal groups as targets of methane mitigation in livestock animals. *Frontiers in Microbiology* 6:776.

2. **Ishaq, S.L.**, Wright, A-D.G. **2015**. *Terrestrial Vertebrate Animal Metagenomics, Wild Ruminants*. In: Highlander, SK, Rodriguez-Valera, F, White, BA. (Ed.) *Encyclopedia of Metagenomics*: SpringerReference. Springer-Verlag Berlin Heidelberg. [Article](#).
1. **Ishaq, S.L.**, Wright, A-D.G. **2015**. *Wild Ruminants*. In: *Rumen Microbiology – Evolution to Revolution*. AK Puniya, R Singh, DN Kamra (eds). Springer India. Pp. 37-45.

### **EDITORIALS and COMMENTARIES**

1. Weissman, JL, Chappell, C.R., Rodrigues de Oliveira, B.F., Evans, N., Fagre, A.C., Forsythe, D., Frese, S.A., Gregor, R., **Ishaq, S.L.**, Johnston, J., Bittu, K.R., Matsuda, S.B., McCarren, S., Ortiz Alvarez de la Campa, M., Roepkw, T.A., Sinnott-Armstrong, N., Stobie, C.S., Talluto, L., Vargas-Muñiz, J., Advancing Queer and Trans Equity in Science (AQTES). **2024**. Running a queer- and trans-inclusive faculty hiring process. EcoEvoRxiv repository 6791, DOI: <https://doi.org/10.32942/X2J310>
  - a. Perspective piece introducing the paper: Weissman JL, Chappell CR, Francesco Rodrigues de Oliveira B, Evans N, Fagre AC, Forsythe D, et al. (**2024**) Queer- and trans-inclusive faculty hiring—A call for change. PLoS Biol 22(11): e3002919. <https://doi.org/10.1371/journal.pbio.3002919>
2. Choudoir, M.J., Ishaq, S.L., Beiko, R.G., Holcomb, L., Diego S. Silva, D.S., Allen-Vercoe, E., O'Doherty, K.C. 2024. The Case for Microbiome Stewardship: What it is and how to get there. *In review. (commentary)*
3. Farmer, N., Maki, K.A., Benezra, A., Ishaq, S.L., Kozik, A.J. 2024. Reconsidering Race in Human Microbiome Research: Translating the NASEM Genetics/Genomics Report On Using Population Descriptors. *In review. (commentary)*
4. Ishaq, S., and Gilbert, J. [Introducing the “Microbiomes and Social Equity” Special Collection](#). mSystems Aug 29, 2022. (editorial)

### **OTHER**

<sup>1</sup> undergraduate student I mentored, <sup>2</sup> graduate student I mentored

3. **Ishaq, S.** and Groden, E. It began on an ant hill in Maine: A story in multidisciplinary research. iScience Backstory. 2021 Dec 17; 24(12): 103411. [Article](#).
2. Rosenberg<sup>1</sup>, S., **Ishaq, S.**, May, J., Fahimipour, A.K. **2020**. How light exposure changes bacterial communities in household dust. *Frontiers for Young Minds*. [Article](#).
1. **Ishaq, Suzanne**, "A Comparative Analysis Of The Moose Rumen Microbiota And The Pursuit Of Improving Fibrolytic Systems." **2015**. University of Vermont, Graduate College Dissertations and Theses. Pages 365.

### **PUBLIC PRESENTATIONS (Media/Press Interview list by request)**

23. "[Save the microbes, save the world](#)", GW Integrative Medicine Podcast, Interviewed by Dr. Leigh Frame and Janette Rodrigues, Aug 28, 2024.
22. Ishaq, S. "Place and time matter for gut microbes making anti-inflammatories from broccoli sprouts", [Institute for Systems Biology](#), Seattle, WA. March 15, 2024.
21. Ishaq, S. "Place and time matter for gut microbes making anti-inflammatories from broccoli sprouts", Oregon State University microbiology departmental series. Corvallis, OR. March 5, 2024.
20. "[Episode #27: Broccoli Sprouts, Gut Health, and Microbes for All with Sue Ishaq](#)", Microbial Matters podcast, interviewed by Mark Martin, Feb 9, 2024.

19. Ishaq, S. "Place and time matter for gut microbes making anti-inflammatories from broccoli sprouts", Translational Biobehavioral and Health Disparities Virtual Microbiome Series. Virtual. Feb 2, 2024.
18. Ishaq, S. "[Microbes and Social Equity: what is it and how do we do it?](#)" Harvard Chan-NIEHS Center for Environmental Health's "[Environmental Health in Action](#)" colloquium series. Boston, MA, May 10, 2023. (invited)
17. Ishaq, S. "Moose rumen microbes and you." The Wildlife Society Nutritional Ecology Working Group Webinar, March 9, 2022.
16. Ishaq, S.L. "How To Make A Career Out Of Poop", virtual presentation, Jan 20 and 28, 2021, Worcester Technical High School
15. University of Maine Medicine [seminar series](#) (virtual), "[A crash course in the gut microbiome](#)", Nov 6, 2020.
14. University of Maine Cooperative Extension Oxford County 4-H Teen Science Cafe (virtual), "[Gut microbes on the farm](#)", Oct 15, 2020.
13. [BioME \(Bioscience Association of Maine\) Virtual Coffee Hour](#), "[What is a microbiome and where can I get one?](#)" Oct 14, 2020.
12. Ishaq, S.L. "Microbes on the farm", virtual presentation, Aug 13, 2020. University of Maine Cooperative Extension Oxford County 4-H Jamboree. [Video](#).
11. Ishaq, S.L. "A crash course in the gut microbiome", virtual presentation, Aug 4, 2020. Albright College [Science Research Institute](#) summer program 2020, which engages grades 5-12 in research.
10. "Biodesign: From Inspiration to Integration." Rhode Island School of Design, Providence, RI, August 24th - September 24th, 2018. This art museum exhibit features several artists, designers, and scientists working in biodesign, and the BioBE Center was invited to participate. I curated the collection of items that BioBE contributed.
9. "The Microbiome of the Digestive Tract" Oregon Museum of Science and Industry (OMSI) After Dark event: "It's Alive! (Mind and Body)", Portland, OR, Apr 25, 2018.
8. "Geographical differences in the moose microbiome." 500 Women Scientists Eugene Science Salon, "Gut Stuff: the battle of nature versus nurture in the microbiome". First National Taphouse, Eugene, OR, Mar 11, 2018.
7. "A crash course in the gut microbiome." OMSI Science Pub, Whirled Pies, Eugene, OR, Feb 8, 2018.
6. "From host-associated microbiomes to 'house-associated' microbiomes." Institute for Ecology and Evolution, University of Oregon, Eugene, OR, Oct 21, 2017.
5. Presented a day of workshops on soil microbial ecology for Expanding Your Horizons for Girls, at Montana State University, Bozeman in April 2017.
4. "Mapping the Microbial Development of the Dairy Calf Digestive Tract." Center for Biofilm Engineering, Montana State University, Bozeman, Montana, Feb 16, 2017.
3. "A comparative analysis of the moose rumen microbiota and the pursuit of improving fibrolytic systems." The Department of Animal and Range Sciences, Montana State University, Bozeman, Montana, Aug 25, 2015.
2. "Metagenomics and identification of cellulolytic bacteria in the rumen of moose." The Department of Arctic Biology, University of Tromsø, Tromsø, Norway. Jan 13, 2012.
1. "Metagenomics and identification of cellulolytic bacteria in the rumen of moose." The Department of Animal Science, University of Vermont, Burlington, VT. Dec 10, 2010; Dec 2, 2011; Nov 9, 2012; Oct 18, 2013.

## **CONFERENCE PRESENTATIONS**

82. O'Doherty, K.C., Allen-Vercor, E., Beiko, R.G., Choudoir, M.J., Ishaq, S.L., Silva, D. Microbiomes and critical health psychology: Social equity, culture, and environments. International Society for Critical Health Psychology. Galway, Ireland. July 1-4, 2025.
81. Escudero Alejos<sup>2</sup>, B., J. B. Poblete, M. Chusho Guevara, A. P. Jimenez Lagos, J. M. Sandro, A. S. Mindiola, S. L. Annis, G. Pereira, L. Ferraretto, E. Cole Diepersloot, J. P. Alvez, Y. Jiang, M. A. Quaassdorff, T. Stahl, S. Ishaq, L. Stevens-Rosa, E. Herrero, H. R. L. Neto, E. Rodberg, and J.J. Romero. Fungal, nutritional, and mycotoxin composition of alfalfa-grass hay mixtures samples from the northeast and northcentral regions of the United States. American Dairy Science Association. Louisville, KY. June 22–25, 2025.
80. Weissman, JL, Chappell, C.R., Rodrigues de Oliveira, B.F., Evans, N., Fagre, A.C., Forsythe, D., Frese, S.A., Gregor, R., **Ishaq, S.L.**, Johnston, J., Bittu, K.R., Matsuda, S.B., McCarren, S., Ortiz Alvarez de la Campa, M., Roepkw, T.A., Sinnott-Armstrong, N., Stobie, C.S., Talluto, L., Vargas-Muñiz, J., Advancing Queer and Trans Equity in Science (AQTES). [Running a queer- and trans-inclusive faculty hiring process. American Geophysical Union](#) annual meeting, Washington DC, Dec 9, **2024**.
79. Alaba<sup>2\*</sup>, T. Steamed broccoli sprouts alleviated Inflammatory Bowel Disease via increased anti-inflammatory, antioxidant, and gut protective metabolites in DSS-mice. Functional Food Centre Symposium, San Diego, CA. Oct 2, **2024**.
78. Holcomb, Lola, Johanna Holman, Molly Hurd, Brigitte Lavoie, Louisa Colucci, Gary M. Mawe, Peter L. Moses, Emma Perry, Allesandra Stratigakis, Tao Zhang, Grace Chen, Suzanne L. Ishaq, Yanyan Li. Early life exposure to broccoli sprouts confers stronger protection against enterocolitis development in an immunological mouse model of inflammatory bowel disease. 19th International Symposium on Microbial Ecology (ISME), Cape Town, South Africa, Aug 19, **2024**.
77. Holman, Johanna .M., Lola Holcomb, Louisa Colucci, Dorien Baudewyns, Joe Balkan, Grace Chen, Peter L. Moses, Gary M. Mawe, Tao Zhang, Yanyan Li, Suzanne L. Ishaq. Steamed broccoli sprouts alleviate gut inflammation and retain gut microbiota against DSS-induced dysbiosis. 19th International Symposium on Microbial Ecology (ISME), Cape Town, South Africa, Aug 19, **2024**.
76. Kirkendall<sup>2\*</sup>, A., Holman<sup>2</sup>, J., Kinney<sup>2</sup>, M., Sharma<sup>1</sup>, A., Nowak<sup>1</sup>, L., Adjapong, G., Li, Y., **Ishaq, S.L.** Characterizing Gut Bacteria Associated with Sulforaphane Production. 19th International Symposium on Microbial Ecology (ISME), Cape Town, South Africa, Aug 19, **2024**.
75. Ishaq, S. Place and Time Matter for Gut Microbes Making Anti-Inflammatories from Broccoli Sprouts. Northern New England Microbiome Symposium. Burlington, VT, June 3, **2024**.
74. Marissa Kinney, Johanna Holman, Alexis Kirkendall, Emelia Tremblay, Mazie Gordon. Using Steamed Broccoli Sprouts to Better Understand Bacterial Glucosinolate Metabolism. UMaine Student Research Symposium, Orono Maine, April 12, **2024**.
73. Holman, J., Holcomb, L., Colucci, L. Baudewyns, D., Balkan, J., Chen. G., Moses, P., Mawe, G.M., Zhang, T., Li, Y., Ishaq, S.L. Steamed broccoli sprouts alleviate gut inflammation and retain gut microbiota against DSS-induced dysbiosis. UMaine Student Research Symposium, Orono Maine, April 12, **2024**.
72. Holcomb, L., Holman, J., Hurd, M., Lavoie, B., Colucci, L., Moses, P., Mawe, G.M., Perry, E., Stratigakis, A., Zhang, T., Ishaq, S.L., Li, Y. Early life exposure to broccoli sprouts confers stronger protection against enterocolitis development in an immunological mouse model of inflammatory bowel disease. UMaine Student Research Symposium, Orono Maine, April 12, **2024**.

71. Alaba\*, T.E., Ishaq, S.L., Li, Y., Zhang, T. "Broccoli sprouts alleviate ulcerative colitis in mice by increasing dietary and microbial metabolites: differential effects in young and adult, male and female mice. [4th CMI International Microbiome Meeting \(CIMM\)](#), La Jolla, CA, March 12th – 14th, 2024
70. Holcomb\*, L., Holman, J., Hurd, M., Lavoie, B., Colucci, L., Moses, P., Mawe, G.M., Perry, E., Stratigakis, A., Zhang, T., Ishaq, S.L., Li, Y. Early life exposure to broccoli sprouts confers stronger protection against enterocolitis development in an immunological mouse model of inflammatory bowel disease. 4th CMI International Microbiome Meeting (CIMM), La Jolla, CA, March 12th – 14th, 2024.
69. Ishaq, S. "Place and time matter for gut microbes making anti-inflammatories from broccoli sprouts", [4th CMI International Microbiome Meeting \(CIMM\)](#), La Jolla, CA. March 12, 2024. (invited)
68. Olaniyi\*, A., **Ishaq, S.** Investigating the activity of bacteria isolated from tank biofilms in a hatchery system for sea scallop, *Placopecten magellanicus*, larvae. Northeast Aquaculture Conference & Exposition (NACE) and the 43rd Milford Aquaculture Seminar (MAS). Portland, Maine, January 10-12, 2024.
67. **Ishaq, S.** Bacterial community trends associated with sea scallop, *Placopecten magellanicus*, larvae in a hatchery system. Northeast Aquaculture Conference & Exposition (NACE) and the 43rd Milford Aquaculture Seminar (MAS). Portland, Maine, January 10-12, 2024.
66. **Ishaq, S.** Microbial waste is our treasure: biogeography and anti-inflammatories in the gut. 9th Annual Southern California Microbiome Summit. Riverside, CA, September 22, 2023. (invited)
65. Ishaq, S. "Scallop microbes and sustainable aquaculture: host-microbe dynamics situated in environmental and social context." Ecological Society of America (ESA) annual meeting. Inspire session: Microbes as Tools to Solve Ecological Problems for All. Portland, OR, August 6-11, 2023. (invited)
64. Holcomb\*, L., Holman, J., Hurd, M., Lavoie, B., Colucci, L., Moses, P., Mawe, G.M., Perry, E., Stratigakis, A., Zhang, T., **Ishaq, S.L.**, Li, Y. Early life exposure to broccoli sprouts confers stronger protection against enterocolitis development in an immunological mouse model of inflammatory bowel disease. American Society for Nutrition annual meeting, Boston, MA. July 22-25, 2023.
63. Holman\*, J., Holcomb, L., Colucci, L. Baudewyns, D., Balkan, J., Chen. G., Moses, P., Mawe, G.M., Zhang, T., Li, Y., **Ishaq, S.L.** Steamed broccoli sprouts alleviate gut inflammation and retain gut microbiota against DSS-induced dysbiosis. American Society for Nutrition annual meeting, Boston, MA. July 22-25, 2023.
62. Toney\*, A., Wolf, P., **Ishaq, S.** Broadening Perspectives by Situating Nutrition Education in Broader Social Contexts: A Study Protocol. American Society for Nutrition annual meeting, Boston, MA. July 22-25, 2023.
61. **Ishaq, S.** "Microbes and Social Equity: what is it and how do we do it?" Boston University Microbiome. July 12, 2023. (invited keynote).
60. Kirkendall<sup>1</sup>\*, A., **Ishaq, S.** Taking on Multiple Research Projects in a NSF Research Experience for Undergraduates (REU) Summer Program as a Disabled Undergraduate Student. Annual Biomedical Research Conference For Minoritized Scientists (ABRCMS) annual meeting, Anaheim, CA, November 9-12, 2022.
59. **Ishaq\*, S.**, Li, Y., Holman, J., Holcomb, L., Hurd, M., Lavoie, B., Zhang, T., Perry, E., Colucci, L., Chen, G, Moses, P., Mawe, G. A two-week age difference had a surprising impact on our gut microbes research using IL-10 knockout mouse models of Inflammatory Bowel Disease. University of Maine Graduate School of Biomedical Science and Engineering (GSBSE) retreat. Bar Harbor, ME, October 29, 2022.
58. Hotopp<sup>2</sup>\*, A., Ishaq, S., Frey, S., King, B., Kinnison, M., Kovach, A., Olsen, B., Cammen, K. 2022. Microbial communities of tidal marsh sparrow plumage. Association of Field Ornithologists conference, Plymouth, MA, October 17 - 21, 2022.

57. **Ishaq, S.** (convener), Trujillo, M., Kozik, A., Bonilla, C. [Session: CTS16 \(PPS\)](#). Microbes and Social Equity: the Microbial Components of Social, Environmental, and Health Justice. American Society for Microbiology (ASM) Microbe 2022, Washington, DC (USA), June 9-13, **2022**. (Session accepted)
56. Wissel<sup>\*2</sup>, E., Holman<sup>\*2</sup>, J., Hosler<sup>\*2</sup>, S., **Ishaq, S.** Microbes and Social Equity: what is it and how do we do it? Part of Track Hub: 'Field Work & DEI Part 1: Fostering Equitable Partnerships with the Communities in Your Field Work Location'. American Society for Microbiology (ASM) Microbe 2022, Washington, DC (USA), June 9-13, **2022**. (invited, but canceled travel for illness, graduate students presented in my place)
55. Hosler<sup>\*</sup>, S., Grey, E., Dankwa, A., Perry, Jennifer, Bowden, T., Beal, B., Ishaq, S. Initial descriptions of the microbes of farmed Atlantic sea scallop (*Placopecten magellanicus*) veligers and rearing tanks. American Society for Microbiology Microbe 2022 meeting. Washington, D.C. June 9-13, 2022.
54. Hosler<sup>\*</sup>, S., Grey, E., Ishaq, S. Comparing the microbiome of wild and farmed Atlantic sea scallop (*Placopecten magellanicus*) veligers. Northeast Aquaculture Conference & Exposition (NACE) and the 41st Milford Aquaculture Seminar (MAS). Portland, Maine. April 27-29, 2022.
53. **Ishaq, S.**, Li, Y., Holman<sup>\*</sup>, J., Zhang, T., Chen, G. "Biogeography may be key to microbial anti inflammatory production using dietary precursors." [Maine Biological and Medical Sciences Symposium](#), Bar Harbor, ME, April 22-23, 2022. (invited, canceled due to time conflict, graduate student presented in my place)
52. Holcomb<sup>2\*</sup>, L., Coffman, J., Harrison, B., Tucker, K., **Ishaq, S.L.** Abstract 1080. An Overview of Three Biomedical Science Projects across Three Research Institutes. UMaine Student Research Symposium (virtual). Apr 15, **2022**.
51. Pelletier<sup>1\*</sup>, M., Taylor, T., **Ishaq, S.** Abstract 830. Assessing the Veterinary Needs of Rural Maine and Implementing an Effective Management Plan. UMaine Student Research Symposium (virtual). Apr 15, **2022**
50. French<sup>1\*</sup>, R., and **Ishaq, S.** Abstract 402. Climate Change Affects Wild Mammal Ranges and Health; Will That Also Affect Infectious Disease Exposure Risk at Maine Farms? UMaine Student Research Symposium (virtual). Apr 15, **2022**.
49. **Ishaq, S.** "Microbes at the nexus of environmental, biological, and social research." Iowa State University Spring Microbiology Graduate Student Organization retreat. (virtual). April 14, **2022** (invited co-plenary).
48. **Ishaq\***, S., Li, Y., Holman<sup>2</sup>, J., Zhang, T., Mawe, G., Hurd, M., Lavoie, B. Baudewyns<sup>1</sup>, D., Colucci<sup>1</sup>, L., Balkan<sup>1</sup>, J., Chen, G, Moses, P. "Biogeography may be key to microbial anti inflammatory production using dietary precursors." Congress of Gastrointestinal Function (CGIF), virtual. April 11 - 13, **2022**.
47. **Ishaq\***, S., Li, Y., Holman, J., Zhang, T., Mawe, G., Hurd, M., Lavoie, B. Baudewyns, D., Colucci, L., Balkan, J., Chen, G, Moses, P. "Biogeography may be key to microbial anti inflammatory production using dietary precursors." Dartmouth Molecular Microbiology and Pathogenesis (M2P2), February 24 - 25, 2021. (invited)
46. **Ishaq, S.** "Microbes at the nexus of environmental, biological, and social research." [2nd Rhode Island Microbiome Symposium](#), virtual, University of Rhode Island Kingston, RI, January 14, **2022**. (invited plenary)
45. Booker, Y., Ishaq, S., Levesque<sup>\*</sup>, D.L. "The role of the microbiome in responses to heat stress in endotherms". The Society of Integrative and Comparative Biology (SICB) annual meeting. Phoenix, AZ. January 3-7, 2022.
44. **Ishaq, S.** Introducing the Microbes and Social Equity Working Group: Considering the Microbial Components of Social, Environmental, and Health Justice. inVIVO Planetary Health. virtual. Dec 1 - 7, **2021**. (invited)

43. Holman J., **Ishaq S.L.**, Li Y., Zhang T., Balkan J., Colucci L. Prevention of inflammatory bowel disease by broccoli-sourced and microbially-produced bioactives. Video presented at: OHS Student Led Research Panel, UC Davis; Nov **2021**.
42. Arshad, M., Fludgate, P., Emera Rabee, A., **Ishaq, S.** "Preliminary results of camel rumen microbial make up". Council on Undergraduate Research (CUR) Research Experiences for Undergraduates (REU) Symposium. (virtual). Oct 25, **2021**.
41. Choi\*<sup>2</sup>, O.N., Corl, A., Wolfenden, A., Lublin, A., Ishaq, S.L., Turjeman, S., Getz, W.M., Nathan, R., Bowie, R.C.K., Kamath, P.L. "High-throughput sequencing for examining Salmonella prevalence and pathogen -microbiota relationships in barn swallows." [69th Annual - 14th Biennial Joint Conference of the Wildlife Disease Association & European Wildlife Disease Association](#) (virtual) Aug 31 – Sept 2, 2021.
40. Arshad<sup>1\*</sup>, M., Fludgate<sup>1</sup>, P., Rabee, A., **Ishaq, S.** "Preliminary results of camel rumen microbial make up". University of Maine REU Research Symposium. (virtual). Aug 13, **2021**.
39. The Microbes and Social Equity Working group, "Special Session 17: "Microbiomes and Social Equity" (19205).", [Ecological Society of America 2021](#). (virtual). Aug 5, 2021.
38. **Ishaq\***, S.L., Lee, G., Turner, S.M., MacRae, J., Hamlin, H., Bouchard, D. "The effect of simulated warming ocean temperatures on the bacterial communities on the shells of healthy and epizootic shell diseased American Lobster (*Homarus americanus*).", [Ecological Society of America 2021](#). (virtual). Aug 2-6, 2021. (accepted talk)
37. Hotopp\*, A., Silverbrand, S., Ishaq, S.L., Dumont, J., Michaud, A., MacRae, J., Stock, S.P., Groden, E. "Can a necromenic nematode serve as a biological Trojan horse for an invasive ant?" [Ecological Society of America 2021](#). (virtual). Aug 2-6, 2021. (poster)
36. **Ishaq\***, S.L. "Do we have a right to microbes?" University of Maine eDNA Ethics Workshop 2021. Orono, ME. July 8, **2021**. (invited presentation, and panel/workshop discussion lead)
35. Holman\*<sup>2</sup>, J., **Ishaq, S.L.**, Li, Y., Zhang, T. [Prevention of Inflammatory Bowel Disease by Broccoli-sourced and Microbially-produced Bioactives](#). [ASM Microbe/ISME World Microbe Forum 2021](#) (virtual). June 20-24, 2021. (poster)
34. **Ishaq\***, S.L., Lee, G., MacRae, J., Hamlin, H., Bouchard, D. [The Effect Of Simulated Warming Ocean Temperatures On The Bacterial Communities On The Shells Of Healthy And Epizootic Shell Diseased American Lobster \(Homarus americanus\)](#). [ASM Microbe/ISME World Microbe Forum 2021](#) (virtual). June 20-24, 2021. (poster)
33. Ishaq\*, S.L. "Framing the discussion of microorganisms as a facet of social equity in human health", [inVIVO Planetary Health 2020 meeting](#). (revised to virtual) Amsterdam, Netherlands Dec 2020. (invited)
32. Yeoman\*, C., Lachman, M., **Ishaq, S.**, Olivo, S., Swartz, J., Herrygers, M., Berarddinelli, J. "Development of Climactic Oral and Rectal Microbiomes Corresponds to Peak Immunoglobulin Titers in Lambs." [Conference of Research Workers in Animal Diseases \(CRWAD\) 2020](#). (revised to virtual) Dec 5, 2020.
31. **Ishaq\***, S.L., Hotopp<sup>2</sup>, A., Silverbrand<sup>2</sup>, S., MacRae, J., Stock, S.P., Groden, E. "Can a necromenic nematode serve as a biological Trojan horse for an invasive ant?" [Entomological Society of America 2020](#). (revised to virtual). Nov 15-25, 2020. (invited)
30. Ouverson\*<sup>2</sup>, L., DuPre, M.E., **Ishaq, S.L.**, Bourgault, M., Boss, D., Menalled, F., Seipel, T. "Soil microbial community response to cover crop mixtures, termination methods, and climate in the Northern Great Plains." Ecological Society of America (ESA) 2020. Salt Lake City, UT (virtual). Aug 2020.
29. Menalled\*, F.D., Seipel, T., **Ishaq, S.L.** "Agroecosystem resilience is modified by management system via plant–soil feedbacks." Ecological Society of America (ESA) 2020. Salt Lake City, UT (virtual). Aug 2020.

28. [MEETING CANCELED] Horve\*, P.F., Dietz, L., **Ishaq, S.L.**, Fretz, M., Van Den Wymelenberg, K. "Characterization of Viable Microbial Communities on Healthcare Associated Window Components." American Society for Microbiology Microbe 2020, Chicago, IL. Jun 2020.
27. [MEETING CANCELED] Horve\*, P.F., Dietz, L., **Ishaq, S.L.**, Fretz, M., Van Den Wymelenberg, K. "Characterization of Viable Microbial Communities on Healthcare Associated Window Components." 2020 Microbiology of the Built Environment (MoBE) Gordon Research Conference, Andover, NH. Jun 2020.
26. **Ishaq\*, S.L.** "Framing the discussion of microorganisms as a facet of social equity in human health". 3rd annual Institute of Health and the Built Environment Consortium meeting (virtual). Portland, OR. May 2020. (invited)
25. Zeng\*, H., Safratowich, B.D., Liu, Z., Bukowski, M.R., **Ishaq, S.L.** "Supplementation of calcium and vitamin D reduces colonic inflammation and beta-catenin signaling in C57BL/6 mice fed a western diet." American Society for Nutrition 2020. Seattle, WA. May 2020.
24. Ishaq, S.L. "Moose rumen microbes and their relevance to agriculture and health." American Fisheries Society + The Wildlife Society (AFS+TWS) meeting. Reno, Nevada, US. Oct 2, 2019.
23. Ishaq, S.L. "Raising feedlot cattle with good microbes in mind" ("Cria y engorda de ganado con buenos microbios en mente"). XXII UANL-Engorda de Bovinos en Corral Symposium. Monterrey, Nuevo León, Mexico. Oct 1, 2019.
22. **Ishaq\*, S.L.**, Vandegrift, R., Kline, J., Fahimipour, A., Stenson, J., Cil, G., Crowley, R., Wilson, H., Northcutt, D., Hartmann, E., Johnson-Shelton, D., Brown, G.Z., Green, J., Van Den Wymelenberg, K. Poster: "The microbial ecotone of the built environment and the interplay of microbial sources of indoor air bacteria in single-family homes in Oregon." 17th meeting of the International Society for Microbial Ecology. Leipzig, Germany. Aug 2018.
21. **Ishaq\*, S.L.**, R. Vandegrift, J. Kline, A. Fahimipour, J. Stenson, R. Crowley, H. Wilson, D. Northcutt, E. Hartmann, D. Johnson-Shelton, G.Z. Brown, J. Green, K. Van Den Wymelenberg. "Microscopic roommates: The biological sources of indoor air bacteria of single-family homes in Portland, Oregon." 15th Conference of the International Society of Indoor Air Quality and Climate (ISIAQ). Philadelphia, PA. Jul 2018. (accepted talk)
20. Vandegrift\*, R., **S.L. Ishaq**, J. Kline, A. Fahimipour, J. Stenson, R. Crowley, H. Wilson, D. Northcutt, E. Hartmann, D. Johnson-Shelton, G.Z. Brown, J. Green, K. Van Den Wymelenberg. "Shut the front door: seasonal patterns in window operation drive fungal and bacterial community dissimilarity between indoor and outdoor air." 15th Conference of the International Society of Indoor Air Quality and Climate (ISIAQ). Philadelphia, PA. Jul 2018. (accepted talk)
19. Vandegrift\*, R., **S.L. Ishaq**, J. Kline, A. Fahimipour, J. Stenson, R. Crowley, H. Wilson, D. Northcutt, E. Hartmann, D. Johnson-Shelton, G.Z. Brown, J. Green, K. Van Den Wymelenberg. Poster: "Shut the front door: seasonal patterns in window operation drive fungal and bacterial community dissimilarity between indoor and outdoor air." 11th International Mycological Congress. San Juan, Puerto Rico. Jul 2018.
18. **Ishaq\*, S.L.**, R. Vandegrift, J. Kline, A. Fahimipour, J. Stenson, G. Cil, R. Crowley, H. Wilson, D. Northcutt, E. Hartmann, D. Johnson-Shelton, G.Z. Brown, J. Green, K. Van Den Wymelenberg. "The Role of Plants Indoors." 2nd annual Institute of Health and the Built Environment Consortium meeting. Portland, OR. May 2018. (invited talk)
17. **Ishaq\*, S.L.**, Seipel, T., Thorton, A.M., Olivo, S., Yeoman, C.J., Menalled, F. D. Poster: Soil bacterial diversity in response to stress from farming system, climate change, weed diversity, and wheat streak virus. Ecological Society of America (ESA), Portland, OR, Aug 2017.

16. **Ishaq\*, S.L.**, O. AlZahal, N. Walker, B. McBride. Modulation of sub-acute ruminal acidosis by active-dry yeast supplementation and its effect on rumen fungal and protozoal populations in liquid, solid, and epimural fractions. Congress on Gastrointestinal Function, Chicago, IL, Apr 2017. (accepted talk).
15. Perea, K., K. Perz, S. Olivo, A. Williams, M. Lachman, **S. Ishaq\***, J. Thomson, and C. Yeoman. Poster: Feed efficiency phenotypes in lambs involve changes in ruminal, colonic, and small intestine-located microbiota. Congress on Gastrointestinal Function, Chicago, IL, Apr 2017.
14. **Ishaq\*, S.L.**, Bichi, E., Olivo, S.K., Lowe, J., Yeoman, C.J., Aldridge, B M. Influence of colostrum on the microbiological diversity of the developing bovine intestinal tract. Joint Annual Meeting, Salt Lake City, Utah, Jul 2016. (accepted talk)
13. **Ishaq\*, S.L.**, Yeoman, C.J., Whitney, T.R. Ground redberry juniper and urea in DDGS-based supplements do not adversely affect ewe lamb rumen microbial communities. Joint Annual Meeting, Salt Lake City, Utah, Jul 2016. (accepted talk)
12. **Ishaq\*, S.L.**, Johnson, S.P., Miller, Z.J., Lehnhoff, E.A., Olivo, S.K., Yeoman, C.J., Menalled, F.D. Poster: Farming Systems Modify The Impact Of Inoculum On Soil Microbial Diversity. American Society for Microbiology (ASM), Boston, MA, Jun 2016.
11. Lachman\*, M.M., **Ishaq, S.L.**, Swartz, J., Olivo, S.K., Herrygers, M.R., Berardinelli, J.G., Voyich, J.M., Yeoman, C.J. Poster: The Intertwined Successional Development of Lamb Gut Microbiota and Immune System. Montana Academy of Sciences annual meeting, Butte, MT, Apr 2016. Published in Intermountain Journal of Sciences 22 (4), 140.
10. Zeng\*, H., **Ishaq, S.**, Zhao, F.Q., Wright, A.D. Poster: Colonic inflammation and enhanced-beta-catenin signaling accompany an increase of the Lachnospiraceae/Streptococcaceae in the hind gut of high-fat diet-fed mice. Federation of American Societies for Experimental Biology Conference. San Diego, CA. Apr 2016.
9. Doyle\*, J., Eggers\*, M.J., Geddes, J.B., Klassen, J., **Ishaq, S.L.**, Bends, A.L., Eggers, J.A., Not Afraid, A., Old Elk, J., Three Irons, E., Ewing\*, S.A. Investigating sources of water to Chief Plenty Coups Spring: Water chemistry and microbial communities suggest seasonably variable contamination American Water Resources Association conference, Missoula, MT. Oct 2015.
8. Moses, P.L., **Ishaq, S.L.**, Gupta, K., Maurer, S.M., Wright\*, A-D.G. Poster: Biodiversity of human gut methanogens varies with concentration of exhaled breath methane. ACG 2015 Annual Scientific Meeting, Honolulu, HI. Oct 2015.
7. Duff\*, G.C., **Ishaq, S.L.**, Lachman, M., Yeoman, C.J. Morphological, microbiological, and biochemical development of the ruminant gastrointestinal tract. Joint Annual Meeting, Orlando, FL. Jul 2015.
6. AlZahal\*, O., **Ishaq, S.L.**, St-Pierre, B., Wright, A-D.G., McBride, B.W. Poster: Investigating the impact of dietary changes on rumen microbial community during the transition period in Holstein dairy cows using high-throughput sequencing. Dairy Sci. 98 (Suppl. 2):735. Joint Annual Meeting, Orlando, FL. Jul 2015.
5. **Ishaq\*, S.L.**, Kim, C.J., Wright, A-D.G. Poster: The effects of administering a fibrolytic probiotic made from moose rumen bacteria to neonatal lambs. Joint Annual Meeting, Orlando, FL. Jul 2015.
4. AlZahal\*, O., **Ishaq, L.**, Wright, A-D.G., McBride, B.W. Poster: Investigating the impact of dietary changes on rumen microbial community during the transition period in Holstein dairy cows. Symposium on Gut Health in production of Food Animals. St. Louis, MO. Nov 2014.
3. **Ishaq\*, S.L.**, Wright, A-D.G. Poster: Fibrolytic bacteria isolated from the rumen of North American moose (*Alces alces*).” Joint Annual Meeting, Kansas City, MO. Jul 2014. Invited to present a poster at the

American Society of Animal Science (ASAS) Presidents' Pick Poster Session during the ASAS Awards Ceremony.

2. **Ishaq\*, S.L.**, Reis, D., Lachance, H.M., Wright, A-D.G. Poster: *Streptococcus gallolyticus* isolates from the rumen of moose (*Alces alces*) in Vermont. American Society for Microbiology (ASM), Boston, MA. May 2014.
1. **Ishaq\*, S.L.**, Wright, A-D.G. Poster: Investigating the microbiome of the rumen of the moose (*Alces alces*). FEMS, Leipzig, Germany. Jul 2013.

### **SERVICE EXPERIENCE**

- Ad hoc Ongoing science communication, outreach, and education: [www.sueishaqlab.org](http://www.sueishaqlab.org)  
Ad hoc Manuscript review; <https://publons.com/author/480672/suzanne-ishaq#profile>  
Ad hoc Conference Presentation review for ABRCMS

### **STUDENT RESEARCH MENTORING**

Dates of mentoring, project scope, and additional info available upon request.

| Research Students mentored                          | Current | Former | Total while at UMaine |
|-----------------------------------------------------|---------|--------|-----------------------|
| <b>Total all</b>                                    | 20      | 66     | 87                    |
| <b>PhD, primary mentor</b>                          | 5       | 1      | 6                     |
| <b>PhD, committee member</b>                        | 3       | 1      | 4                     |
| <b>MS, primary mentor</b>                           | 2       | 3      | 5                     |
| <b>MS, committee member</b>                         | 3       | 4      | 7                     |
| <b>MPS, primary mentor</b>                          | 0       | 3      | 3                     |
| <b>MPS, committee member</b>                        | 0       | 0      | 0                     |
| <b>Honors, primary mentor</b>                       | 0       | 4      | 4                     |
| <b>Honors, committee member</b>                     | 0       | 4      | 4                     |
| <b>Capstone</b>                                     | 2       | 32     | 34                    |
| <b>Top Scholar</b>                                  | 1       | 2      | 3                     |
| <b>BS, primary mentor</b>                           | 4       | 8      | 13                    |
| <b>Research Experience for Undergraduates (REU)</b> | 0       | 3      | 3                     |