

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

- 2019 - Assistant Professor of Animal and Veterinary Sciences, University of Maine, Orono, School of Food and Agriculture
Graduate Faculty in School of Food and Agriculture
Graduate Faculty in Biomedical Science and Engineering
Cooperating Faculty in Microbiology
2017 - 2019 Research Assistant Professor of Microbial Ecology, University of Oregon, Biology and the Built Environment Center
2016 - 2017 Adjunct Lecturer, Montana State University, Department of Microbiology and Immunology
2016 - 2017 Post-Doctoral Research Associate, Montana State University, Department of Land Resources and Environmental Sciences, Advisor: Dr. Fabian D. Menalled
2015 - 2016 Post-Doctoral Research Associate, Montana State University, Department of Animal and Range Sciences, Advisor: Dr. Carl J. Yeoman
2010 - 2015 Graduate Student, University of Vermont
2012/01 Anaerobic Culturing Apprenticeship, University of Tromsø, Norway

TEACHING EXPERIENCE

- 2020 University of Maine, AVS 590: *Special topics in DNA sequencing analysis lab*, developed and taught course
2019 University of Oregon, Clark Honors College, HC 441H/431H: *Microbes and Social Equity*, developed and taught course
2018 University of Oregon, Clark Honors College, HC 209H: *Introduction to mammalian microbiomes*, developed and taught course
2016 Montana State University, BIOM 405: *Host-associated microbiomes*, developed and taught lab section and team-taught class lecture
2015 Montana State University, BIOM 405: *Host-associated microbiomes*, developed and 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

- 2019 - Editor, Applied and Environmental Microbiology
2018 - Academic Editor, PLoS ONE

- 2018 - 2019 Pod-Coordinator, 500 Women Scientists Eugene
 2017 - 2018 Implicit Bias Working Group, University of Oregon
 2017 - 2019 Search committee member; University of Oregon, BioBE Center
 Ad hoc Grant review; USDA, EIC

PROFESSIONAL MEMBERSHIPS

- 2019 - Sigma Xi, University of Oregon Chapter, Full member
 2017 - 500 Women Scientists
 2016 - American Association for the Advancement of Science
 2011 - 2016 American Society of Animal Science (ASAS)
 2012 - American Society for Microbiology (ASM)
 2017 - 2018 Ecological Society of America (ESA)
 2016 - Green Mountain Chapter of Alpha Zeta, University of Vermont
 2018 - International Society of Indoor Air Quality and Climate

HONORS AND AWARDS

- 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

RESEARCH SUPPORT

Current

- 2019 - 2020 UO-OHSU Collaborative Seed Grant Phase II, \$30,000
 Martindale (PI), Van Den Wymelenberg (PI), Bohannon, Fahimipour, Ishaq, Kiraly. *Predicting healthcare-associated Clostridioides difficile infection probabilities in inpatient units.*
- 2019 – 2019 UO Biology Diversity, Equity and Inclusion grant, \$1,000
 Ishaq, Cheng, Sundarraman. *Amplifying diverse voices: training and support for managing identity-based harassment in science communication.*
- 2018 - 2019 UO-OHSU Collaborative Seed Grant Phase I, \$50,000
 Martindale (PI), Van Den Wymelenberg (PI), Bohannon, Fahimipour, Ishaq, Kiraly. *Predicting healthcare-associated Clostridioides difficile infection probabilities in inpatient units.*
- 2018 - 2021 USDA NIFA Foundational Knowledge Program, \$500,000 (\$19,153 subaward)
 Menalled (PI), Trowbridge, Weaver, Seipel, Bourgault, Yeoman, and Ishaq (subaward PI). *Diversifying cropping systems through cover crops and targeted grazing: impacts on plant-microbe-insect interactions, yield and economic returns.*

Completed

- NA AIA College of Fellows 2019 Latrobe Prize, \$100,000
Rockcastle, Love, Ishaq, Heidl, Klee. *Interactive Indoor Environments*.
Not awarded. Ranked 2nd place.
- 2017 - 2018 Alfred P. Sloan Foundation Non-Research Grant, \$125,000
Van Den Wymelenberg, Green. *Biology and Built Environment (BioBE) Center*.
- 2013 - 2015 USDA AFRI NIFA Pre-doctoral Fellowship Grant, \$79,000 (PI).
Investigating the rumen bacteria of the North American moose (Alces alces) for the potential for improving efficiency of feed digestion in livestock.

PUBLICATIONS (published under Suzanne L Ishaq)

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, S., Bi, C., Kline, J., Nunez, 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, 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, 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
15. Seshadri, R., Leahy, S.C., Attwood, G.T., The, K.H., Lambie, S.C., Eloie-Fadrosch, 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**. A reference genome set for the ruminant microbiome. *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**. 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. *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, 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**. A living soil inoculum increases soil microbial diversity, crop and weed growth using soil from organic and conventional farms in northeastern Montana. *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, C.J., Reis, 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. *Nature 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 location reveals a core ruminal methanogenic archaeal diversity and a differential ciliate protozoal diversity. *Microbial Genetics*, 2015(1).
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

8. Velazquez, S., Griffiths, W., Dietz, L., Horve, P., Nunez, 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.
7. Horve, P.F., Lloyd, S., Mhuireach, G.A., Dietz, L., Fretz, M., MacCrone 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*. Healthy Buildings special issue. *Accepted*.
 6. Garcia-Mazcorro, J., **Ishaq, S.L.**, Avila-Jaime, B., Rodriguez-Herrera, M.V., Kawas, J.R., Nagaraja, T.G. 2019. Are there any native *Saccharomyces* in the digestive tract of livestock animal species? Implications for health, nutrition and productivity traits. *Animal*: 1-9.
 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*. McCall, K., Guo, A., Schwartz, F. (ed.). InTech Open Access (in press).
 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. DOI: 10.1007/SpringerReference_303275 2013-08-23 09:12:54 UTC.
 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.

OTHER

2. **Ishaq, S.L.**, Rapp, M., Byerly, R., McClellan, L.S., O’Boyle, M.R., Nykanen, A., Fuller, P.J., Aas, C., Stone, J.M., Killpatrick, S., Uptegrove, M.M., Vischer, A., Wolf, H., Smallman, F., Eymann, H., Narode, 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. Essay.
1. **Pellegrini, Suzanne Ishaq**, "A Comparative Analysis Of The Moose Rumen Microbiota And The Pursuit Of Improving Fibrolytic Systems." 2015. Graduate College Dissertations and Theses. Pages 365.

INVITED PRESENTATIONS

12. 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. October 2, 2019.
11. 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 Leon, Mexico. October 1, 2019.

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 workshop 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 PROCEEDINGS

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. 08/2018.
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. 07/2018. (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. 07/2018. (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. July 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, August 2017.
16. **Ishaq***, **S.L.**, O. AlZahai, 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, April 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, April 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, July 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, July 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, June 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, April 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, April, 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, October 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 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

- 2015 - 2018 Citizen Science volunteer, Adventure Scientists: Gallatin Microplastics Initiative, 2015-2017; Timber Tracking Project, 2018
- 2015 – 2017 Child Advancement Project mentor, Thrive, Bozeman, MT
- 2015 - Owner and Chief Editor of “Give Me the Short Version”, a Facebook page dedicated to presenting scientific articles to the general public in a short and easy to understand format. <https://www.facebook.com/givemetheshortversion/>
- Ad hoc Ongoing science communication, outreach, and education: www.sueishaqlab.org
- Ad hoc Manuscript review; <https://publons.com/author/480672/suzanne-ishaq#profile>
- Ad hoc Conference Presentation review:
- Poster abstracts (by invitation) for the Annual Biomedical Research Conference for Minority Students, November 2016 in Tampa Bay, FL.
 - Oral presentations for the Ecological Society of America’s Buell and Brawn Awards, August 2017 in Portland, OR.