

University of Michigan  
Dept. of Microbiology & Immunology  
1150 W. Medical Center Drive  
Ann Arbor, MI 48109

**Sarah K. Lucas**  
Postdoctoral Fellow

Phone: +1 (734) 989-4078  
Email: [salucas@umich.edu](mailto:salucas@umich.edu)  
Pronouns: she/her

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## Current Position

**2020 - present**      **Department of Microbiology & Immunology, University of Michigan**  
Postdoctoral Fellow, Prof. Patrick D. Schloss Lab

## Academic History & Training

**2014 - 2020**      **Department of Microbiology & Immunology, University of Minnesota**  
Ph.D. Microbiology, Immunology, and Cancer Biology Graduate Program  
*Thesis: "Bacterial communities associated with chronic rhinosinusitis and the impact of mucin degradation on Staphylococcus aureus physiology"*  
*Advisor:* Prof. Ryan C. Hunter  
*Committee:* Prof. Gary M. Dunny (Chair), Prof. Mark Herzberg, Prof. Dan Knights

**2011 - 2014**      **Research Associate**, Genomic Medicine and Infectious Disease Groups,  
J. Craig Venter Institute, Rockville, MD

**2010**              **Eberly College of Science, Pennsylvania State University**  
B.S. Microbiology

**2009 - 2010**      **Undergraduate Research Assistant**, Prof. Pamela A. Hankey Giblin Lab, Pennsylvania  
State University

## Peer-Reviewed Publications

1. Lapp, Z., Sovacool, K. L., Lesniak, N., King, D., Barnier, C., Flickinger, M., ..., **Lucas, S. K.**, ..., & Schloss, P. D. (2022). Developing and deploying an integrated workshop curriculum teaching computational skills for reproducible research. *Journal of Open Source Education*, 5(47), 144.
2. **Lucas, S. K.**, Villarreal, A. R., Ahmad, M. M., Itabiyi, A., Feddema, E., Boyer, H. C., & Hunter, R. C. (2021). "Anaerobic microbiota derived from the upper airways impact *Staphylococcus aureus* physiology." *Infection and immunity*, 89(9), e00153-21.
3. **Lucas, S. K.**, Feddema, E., Boyer, H. C., & Hunter, R. C. (2021). Diversity of cystic fibrosis chronic rhinosinusitis microbiota correlates with different pathogen dominance. *Journal of Cystic Fibrosis*, 20(4), 678-681.
4. Valentini, T. D.\*, **Lucas, S. K.\***, Binder, K. A.\*, Cameron, L. C., Motl, J. A., Dunitz, J. M., & Hunter, R. C. (2020). Bioorthogonal non-canonical amino acid tagging reveals translationally active subpopulations of the cystic fibrosis lung microbiota. *Nature communications*, 11(1), 1-11.  
\*Indicates equal contribution to the work
5. Vangay, P., Johnson, A. J., Ward, T. L., Al-Ghalith, G. A., Shields-Cutler, R. R., Hillmann, B. M., ..., **Lucas S. K.**, ..., & Knights, D. (2018). US immigration westernizes the human gut microbiome. *Cell*, 175(4), 962-972.
6. Choi, Y., Banerjee, A., McNish, S., Couch, K. S., Torralba, M. G., **Lucas, S.**, Tovchigrechko, A., Madupu, R., Yooseph, S., Nelseon, K. E., Shanmugam, V. K. & Chan, A. P. (2019). Co-occurrence of anaerobes in human chronic wounds. *Microbial ecology*, 77(3), 808-820.

7. **Lucas, S. K.**, Yang, R., Dunitz, J. M., Boyer, H. C., & Hunter, R. C. (2018). 16S rRNA gene sequencing reveals site-specific signatures of the upper and lower airways of cystic fibrosis patients. *Journal of Cystic Fibrosis*, 17(2), 204-212.
8. Sismaet, H. J., Banerjee, A., McNish, S., Choi, Y., Torralba, M., **Lucas, S.**, Chan, A., Shanmugam, V. K. & Goluch, E. D. (2016). Electrochemical detection of *Pseudomonas* in wound exudate samples from patients with chronic wounds. *Wound Repair and Regeneration*, 24(2), 366-372.
9. Shankar, J., Nguyen, M. H., Crespo, M. M., Kwak, E. J., **Lucas, S. K.**, McHugh, K. J., Mounaud S., Alcorn, J. F., Pilewski, J. M., Shigemura, N., Kolls, J. K., Nierman, W. C. & Clancy, C. J. (2016). Looking Beyond Respiratory Cultures: Microbiome-Cytokine Signatures of Bacterial Pneumonia and Tracheobronchitis in Lung Transplant Recipients. *American Journal of Transplantation*, 16(6), 1766-1778.
10. Yeoman, C. J., Thomas, S. M., Miller, M. E. B., Ulanov, A. V., Torralba, M., **Lucas, S.**, Gillis, M., Cregger, M., Gomez, A., Ho, M., Leigh, S. R., Stumpf, R., Creedon, D. J., Smith, M. A., Weisbaum, J. S., Nelson, K. E., Wilson, B. A. & White, B. A. (2013). A multi-omic systems-based approach reveals metabolic markers of bacterial vaginosis and insight into the disease. *PLoS one*, 8(2), e56111.
11. Fouts, D. E., Pieper, R., Szpakowski, S., Pohl, H., Knobloch, S., Suh, M. J., Huang S. T., Ljungb I., Sprague, B. M., **Lucas, S. K.**, Torralba, M. T., Nelson, K. E., & Groah, S. L. (2012). Integrated next-generation sequencing of 16S rDNA and metaproteomics differentiate the healthy urine microbiome from asymptomatic bacteriuria in neuropathic bladder associated with spinal cord injury. *Journal of translational medicine*, 10(1), 1-17.

### Manuscripts In Review

1. Vangay, P., Ward, T., **Lucas, S. K.**, Beura, L. K., Sabas, D., Abramson, M., Till, L., Kashyap, P., Hunter, R. C., Masopust, D., Knights, D. "Industrialized human gut microbiota causes intestinal inflammation".
2. Moore P.J., Wiggen, T., Kent, L. A., S Arif, SK Lucas, SM O'Grady, RC Hunter. Anaerobic microbiota facilitate *P. aeruginosa* access to the airway epithelium in a novel co-culture model of colonization. Preprint: <https://doi.org/10.1101/2021.03.05.433759>

### Invited Talks and Seminars

- 2019 The Microbial and Plant Genomics Institute Fall Symposium, University of Minnesota, Twin Cities, MN, USA
- 2017 University of Minnesota Cystic Fibrosis Research Collaborative Meeting, University of Minnesota, Twin Cities, MN, USA
- 2017 Microbiology, Immunology, and Cancer Biology Student Seminar, University of Minnesota, Twin Cities, MN, USA
- 2016 Center for Infections Disease and Microbiology Translational Research (CIDMTR) Seminar, University of Minnesota, Twin Cities, MN, USA
- 2016 Mayo Clinic Microbial Ecology Retreat, Rochester, MN, USA
- 2015 Microbiology, Immunology, and Cancer Biology Student Seminar, University of Minnesota, Twin Cities, MN, USA

### Contributed Conference Talks and Posters

- 2020 Anaerobe 2020, Seattle, WA, USA (**virtual talk**)
- 2019 Cold Spring Harbor Laboratory Microbiome Meeting, Cold Spring Harbor, NY, USA

- 2019 ASM Microbe 2019, Session: Stuck on You: Mucin-Microbe Interplay in Health and Disease, San Francisco, CA, USA **(talk)**
- 2018 North American Cystic Fibrosis Conference (NACFC), Session: Microbial Ecology of the CF Airways, Denver, CO, USA **(talk)**
- 2018 Midwest Microbial Pathogenesis Conference 2018, University of Iowa, Iowa City, IA, USA **(talk)**
- 2018 International Society for Microbial Ecology ISME17, Leipzig, Germany
- 2017 ASM Microbe 2017, New Orleans, LA, USA
- 2016 Midwest Microbial Pathogenesis Conference 2016, University of Illinois, Urbana-Champaign, IL, USA
- 2016 ASM Microbe 2016, Boston, MA, USA
- 2015 Telluride Science and Research Center Workshop: Cystic Fibrosis – Ecology, Evolution, and Eradication **(talk)**

### **Awards and Fellowships**

- 2019 Doctoral Dissertation Fellowship (2019-2020 Academic Year).
- 2019 University of Minnesota Microbial and Plant Genomics Institute (MPGI) Travel Award – USD\$400
- 2018 University of Minnesota MICaB Council of Graduate Studies Student Service Award
- 2017 University of Minnesota MICaB Travel Award – USD\$1000
- 2017 NIDCR/NIH (F31) Ruth L. Kirschstein National Research Service Award (NRSA) Predoctoral Fellowship  
*Title: The role of mucin degradation by anaerobic bacteria in Staphylococcus aureus pathogenesis in chronic rhinosinusitis.*
- 2017 University of Minnesota MICaB Student Service Award
- 2017 University of Minnesota College of Biological Sciences Outstanding Performance Award for Teaching Assistants – Finalist for the Fall 2016 teaching semester
- 2016 NIDCR/NIH (T32) Minnesota Craniofacial Research Training (MinnCResT) Predoctoral Fellowship (September 2016 – December 2017)
- 2015 Telluride Science and Research Center Peter Salamon Award for Young Scientists

### **Additional Research Training**

- 2017 Marine Biological Laboratory Intensive Course: Strategies and techniques for Analyzing Microbial Population Structure, Woods Hole, MA, USA

### **Mentoring Experience**

- 2020 - 2021 Mentored undergraduate Andrew Beaudin, *Currently*: Researcher at Prof. Ali H. Brivanlou Lab, The Rockefeller University. *Projects*: Identification of biosynthetic gene clusters in metagenomic data; Isolation and characterization of lactobacilli from mouse fecal microbial communities.
- 2018 Mentored undergraduate researcher Sophie Kowaliczko, Hunter Lab, University of Minnesota. Project: Mucin microbial community enrichment and isolation from sinus mucus.

## Teaching Experience & Training

- 2021 Instructor, The Unix Shell, The Carpentries at University of Michigan Workshop
- 2021 Assistant, The Carpentries at University of Michigan Women in Science & Engineering (WISE) Workshop
- 2022 Curriculum developer, R for Data Analysis, The Carpentries at University of Michigan
- 2015, '16 Teaching Assistant, Fall Semester "Biology of Microorganisms" Laboratory Course.  
*Independent course instruction introducing theory, application, and methodology of basic microbiological techniques.*
- 2015 Writing Across the Curriculum: Teaching with Writing Workshop, Center for Writing, University of Minnesota

## Academic Service and Outreach

- 2020-Present Member, The Carpentries at University of Michigan
- 2017-2019 Judge, Animal Sciences, Biomedical Sciences, Twin Cities Regional Science Fair, Minneapolis, MN, USA
- 2017 Market Science Event Organizer, Medical Microbiology  
*Farmers market community outreach and education*
- 2016-2017 Member Graduate Women in Science (GWIS), Xi Chapter
- 2011 – Present Member, American Society for Microbiology

### Referee for the following journals:

- 2019 *BMC Infectious diseases*
- 2018 *Scientific Reports*