

Andrew Oliver

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RESEARCH INTERESTS

My overarching research interests are to understand factors that affect the vast taxonomic and functional diversity of human associated microbial and viral communities, especially their contributions to health and disease.

EDUCATION

Ph.D. Molecular Biology and Biochemistry University of California Irvine, <i>Irvine, CA</i>	Aug 2016 – June 2021
M.S. Microbiology California State University Northridge, <i>Northridge, CA</i>	Aug 2013 – May 2016
B.S. Biology California Lutheran University, <i>Thousand Oaks, CA</i>	Sep 2008 – May 2012

RESEARCH EXPERIENCE

ORISE Post-Doctoral Fellowship <i>United States Department of Agriculture</i> <i>Advisor: Danielle Lemay, PhD</i> <ul style="list-style-type: none">Determined what diet and lifestyle variables are predictive of antimicrobial resistance in healthy humans	July 2021 – Present
Ph.D. Graduate Research <i>University of California, Irvine</i> <i>Advisor: Katrine Whiteson, PhD</i> <ul style="list-style-type: none">Investigated the role of microbes in health and disease using high throughput sequencing, metabolomics, and multivariate statistical analysisStudied the role of the microbiome during pregnancy and the importance of metabolites in the structure of the communityAssessed the effect of a high-fiber diet intervention on the microbiome and abundance of short-chain fatty acidsCollaborated with Dr. John Patton at CSU Fullerton examining the microbiome of the Conambo people of the Amazonian Ecuador.Contributed to studying the dynamics of bacteriophage and bacterial co-evolutionCollaborated with clinical researchers on projects studying blood cancer, Alzheimer's disease, and urinary tract infections	Aug 2016 – June 2021

M.S. Graduate Research

Jan 2014 – Aug 2016

California State University Northridge

Advisor: Kerry Cooper, PhD (Currently at U of Arizona)

- Surveillance of foodborne-pathogens, antimicrobial resistance & pathogenesis
- Led a sequenced based and genomic project for a understudied genus of bacteria named *Sporosarcina*
- Pioneered work at CSUN looking at bacterial epigenetics.

PUBLICATIONS

- (11) Parker, C.T., Huynh, S., Alexander, A., **Oliver, A.**, Cooper, K.K. 2021. Genomic characterization of *Salmonella typhimurium* DT104 strains associated with cattle and beef products. *Pathogens*. 2021.
- (10) **Oliver, A.**, Chase, A.B., Riedel, S.F., Hendrickson, C., M Lay, Weihe, C., Sewall, J.M., Martiny, J.B.H., Whiteson, K.L. High fiber, whole foods dietary intervention alters the human gut microbiome but not associated fecal short-chain fatty acids. *mSystems*. 2020.
- (9) Adams E. , **Oliver A.**, Gille, A., Alaniz, N., Jamie, C., Patton, J., Whiteson, K. Comparing Fecal, Saliva, and Chicha Microbiomes Between Mothers and Children in an Indigenous Ecuadorian Cohort. **Bioarxiv*. 2020. doi: <https://doi.org/10.1101/2020.10.02.323097>
- (8) **Oliver, A.**, Lamere, B., Weihe, C., Wandro, S., Lindsay, K.L., Wadhwa, P.D., Mills, D.A., Pride, D., Fiehn, O., Northen, T. de Raad, M., Lynch, S., Martiny, J.B.H., Whiteson., K. Cervicovaginal microbiome composition drives metabolic profiles in healthy pregnancy. *Mbio*. 2020.
- (7) Jeney, S.ES., Lane, F., **Oliver, A.**, Whiteson, K., Dutta, S. Fecal microbiota transplantation for the treatment of refractory recurrent urinary tract infection. *Obstetrics & Gynecology*. 2020.
- (6) Massimelli Sewall J., **Oliver A.**, Denaro K., Chase AB., Weihe C., Lay M., Martiny JBH, Whiteson K. Fiber Force: A fiber diet intervention in an advanced Course-based Undergraduate Research experience (CURE) course. *J Microbiol Biol Educ*. 2020.
- (5) Edwards, RA, *et al*. Global phylogeography and ancient evolution of the widespread human gut virus crAssphage. *Nature Microbiology*. 2020.
- (4) Gallagher, T., Phan, J., **Oliver, A.**, Chase, A.B., England, W.E., Wandro, S., Hendrickson, C., Whiteson, K. 2018. Cystic fibrosis-associated *Stenotrophomonas maltophilia* strain-specific adaptations and responses to pH. *Journal of Bacteriology*. 2019.
- (3) Phan, J., Gallagher, T., **Oliver, A.**, England, W., Whiteson, K. Fermentation products in the cystic fibrosis airways induce aggregation and dormancy-associated expression profiles in a CF clinical isolate. *FEMS Microbiology Letters*. 2018.
- (2) Wandro, S., **Oliver, A.**, Gallagher, T., Weihe, C., England, W., Martiny, J.B.H., Whiteson, K. 2018. Predictable molecular adaptation of coevolving *Enterococcus faecium* and a widespread lytic phage. *Frontiers in Microbiology*. 2018.
- (1) **Oliver, A.**, Kay, M., Cooper, K.K. Comparative genomics of cocci-shaped *Sporosarcina* strains with diverse spatial isolation. *BMC Genomics*. 2018.

SUBMITTED

Oliver, A., Haunschild, C., El Aloui, K., Weihe, C., Whiteson, K., Martiny, JBH., Flieschman, A. The role of the gut microbiome in the inflammatory state of MPN patients. *Submitted to Blood Advances*.

PUBLICATIONS IN ADVANCED PREPARATION

Oliver, A., Parker, C.T., Cooper, M., Cooper, K.K. Microbiome comparisons of tree fruit at harvest.

Oliver, A., Adams, E., Gille, A., Alaniz, N., Jamie, C., Bowsper, B., Patton, J., Whiteson, K. Comparisons of gut, saliva, and chicha microbiomes in a remote Amazonian people.

Kurbessoian, T., **Oliver, A.**, Cooper, K.K., Baresi, L. Comparative Genomics and Metabolomics of *Sporosarcina* reveals novel spore-forming cocci species.

TEACHING EXPERIENCE

Teaching Associate, General Microbiology & Lab, UC Irvine	Jan 2018 – Jan 2020
Teaching Associate, Microbiology M122, UC Irvine	April 2018 – June 2018
Teaching Associate (<i>Instructor of Record</i>), Introduction to Microbiology Lab (BIOL 215L&315L), CSUN	Jul 2014 – Aug 2016
Graduate Assistant, Applied Microbiology Lab, CSUN	Jan 2014 – Jun 2014
Graduate Assistant, Introduction to Microbiology Lab, CSUN	Aug 2013 – Jun 2014
Department Assistant, Anatomy and Physiology, CLU	Sep 2011 – May 2012
Department Assistant, Microbiology, CLU	Jan 2011 – May 2011

SELECTED PRESENTATIONS

Oral Presentation/Lectures

1. May the Fiber Be with You: Assessing Gut Microbiome Response to a High Fiber Diet Intervention within a Course-Based Undergraduate Research Experience (CURE). 2019 American Society for Microbiology Microbe Conference, *San Francisco, CA*
2. Lend me your sugar, I am your neighbor: Vaginal microbiome clusters drive metabolic profiles in healthy pregnancy. 2018 Department of Molecular Biology and Biochemistry Student seminars, University of California Irvine, *Irvine, CA*.
3. The Human Microbiome and Antibiotic Resistance. 2017 Osher Lifelong Learning Institute Lecture (OLLI) Series, Irvine, CA
4. Introduction to Genomic Analysis of Hospital Acquired MRSA. 2017 UC Irvine Medical Center, Irvine, CA
5. Coevolution of *Enterococcus* with lytic phage V12. 2017 San Diego State University, *San Diego, CA*.
6. Comparative Genomics and Epigenetics of Six Strains of *Sporosarcina ureae*. 2016 Biology Student Research Symposium, California State University Northridge, *Northridge, CA*.
7. Comparative Genomics and Epigenetics of Six Strains of *Sporosarcina ureae*. 2015 Sigma Xi Student Symposium, California State University Northridge, *Northridge, CA*.

Poster

1. Parker, C.T., Huynh, S., **Oliver, A.S.**, Cooper, K.K. Whole Genome Sequence Comparisons of Salmonella Enteritidis Strains Isolated from Samples Associated with Almond Outbreaks. 2014 American Society for Microbiology, Ernest N. Morial Convention Center, *New Orleans, LA*.
2. Cooper, K.K., **Oliver, A.S.**, Sams, C., Korlach, J., Clark, T.A., Loung, K., Huynh, S., Parker, C.T., Mandrell, R.E., Carter, M.Q. Role of DNA methylation in enterohemorrhagic *Escherichia coli* curli expression.
3. **Oliver, A.S.**, Kurbessoian, T., Pregerson, B., Cooper, K.K. Comparative Genomics and Epigenetics of Six Strains of *Sporosarcina ureae*. 2016 American Society for Microbiology MICROBE Meeting, *Boston, MA*.
4. **Oliver, A.S.**, Kurbessoian, T., Pregerson, B., Cooper, K.K. Comparative Genomics and Epigenetics of Six Strains of *Sporosarcina ureae*. 2016 CSU Biotechnology Symposium, *Anaheim, CA*.
5. Wandro, S., **Oliver, A.**, Gallagher, T., Weihe, C., England, W., Martiny, J.B.H., Whiteson, K. *In preparation*. Coevolution between *Enterococcus faecium* and lytic phage V12. 2017 Evergreen Phage Meeting, *Evergreen, WA*
6. **Oliver, A.**, LaMere, B., Wandro, S., Martiny, J., Lindsay, K., Wahdwa, P., Pride, D., Lynch, S., Whiteson, K. Vaginal Microbiome clusters drive metabolic profiles in healthy pregnancy. 2018 Lake Arrowhead Microbial Genomics, *Lake Arrowhead, CA* (Awarded poster)

FELLOWSHIPS AND AWARDS

ORISE Post-Doctoral Fellowship	2021
Rose Hill Fellowship	2020
Edward K. Wagner Award in Virology	2020
NIH T32 Training Grant: Microbiology and Infectious Diseases	2019
American Society of Microbiology Travel Grant	2019
Lake Arrowhead Microbial Genomics Best Abstract & Poster	2018

PROFESSIONAL SOCIETY MEMBERSHIPS

American Microbiology Society
Tri-Beta Biological Honors Society