

COURTNEY R ARMOUR

PhD Candidate | Molecular and Cellular Biology
Department of Microbiology
Oregon State University | Corvallis, OR
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EDUCATION

- 09/2014 - present Ph.D. Molecular and Cellular Biology (*anticipated* 09/2019)
Department of Microbiology
Oregon State University | Corvallis, OR
Research focus in Bioinformatics
- 08/2008 - 05/2012 B.S. Biological Sciences with a minor in Mathematics
College of Liberal Arts and Sciences
Arizona State University | Tempe, AZ

RESEARCH EXPERIENCE

- 07/2015 - present Graduate Research Assistant
Oregon State University | Corvallis, OR
Mentor: Dr. Thomas Sharpton
Dissertation: Examining diversification of the intestinal microbiome in association with host evolution to discover important components of the microbiome and evaluate their impact on host physiology.
- 09/2014 – 06/2015 Graduate Research Intern (Rotational)
Oregon State University | Corvallis, OR
Mentors: (1)Thomas Sharpton (Microbiology/Statistics), (2)Patrick DeLeenheer (Mathematics), (3)Dan Rockey (Veterinary Medicine)
Projects:
(1) Longitudinal analysis of alterations in the intestinal microbiome of a mouse model of inflammatory bowel disease.
(2) Modeling carbohydrate degradation by bacteria in the large intestine.
(3) Culture-independent sequence analysis of *Chlamydia trachomatis* to examine strain variation and recombination.
- 2010-2013 Research/Laboratory Assistant
University of Arizona College of Medicine | Phoenix, AZ
Mentor: Dr. Paul Boehmer

FELLOWSHIPS

- 2018-2019 Larry W. Martin & Joyce B. O'Neill Endowed Fellowship
Oregon State University
\$25,000 for 1 year
- 01/2018 Nicholas R. Tartar Graduate Student Fellowship

Oregon State University
\$6,671 for 1 quarter

2016-2018 ASM SIGHPC/Intel Data and Computational Science Fellowship
\$45,000 over 3 years

PUBLICATIONS AND PRESENTATIONS

Peer-Reviewed Publications

Armour CR, Nayfach S, Pollard KS, Sharpton TJ. A Metagenomic Meta-Analysis Reveals Functional Signatures of Health and Disease in the Human Gut Microbiome. *mSystems*. (*Accepted*)

Sharpton T, Lyalina S, Luong J, Pham J, Deal EM, **Armour CR**, Gaulke C, Sanjabi S, Pollard KS. Development of Inflammatory Bowel Disease is Linked to a Longitudinal Restructuring of the Gut Metagenome in Mice. *mSystems*. Sep 2017, 2 (5) e00036-17; doi: 10.1128/mSystems.00036-17

Hsieh J-C, Kuta R, **Armour CR**, Boehmer PE. Identification of two novel functional p53 responsive elements in the Herpes Simplex Virus-1 genome. *Virology*. 2014;460-461:45-54. doi:10.1016/j.virol.2014.04.019.

In progress

Mikaelyan A, **Armour CR**, Gaulke CA, Sharpton TJ, and Bordenstein SR. Do hominids cospeciate with members of the gut microbiome? (*In revision*)

Jiang D, **Armour CR**, Hu C, Mei M, Tian C, Sharpton TJ, Jiang Y. Microbiome Multi-Omics Network Analysis: Statistical Considerations, Limitations, and Opportunities. *Frontiers*. (*In revision*)

Gaulke CA*, **Armour CR***, Beaver LM, Wong CP, Barton CL, Jiang Y, Ho E, Tanguay R, Sharpton TJ. Comparative Metagenomic Analysis Reveals Substantial Shared Functional Diversity in Vertebrates (*in preparation*)

Hu C*, **Armour CR***, Jiang Y, Sharpton TJ, Jiang D. Properties of Microbiome Interaction Networks Across Primates. (*in preparation*)

*indicates co-authorship

Oral Presentations

11/2018 **C. Armour**, S. Nayfach, K. Pollard, T. Sharpton. "A metagenomic meta-analysis reveals functional signatures of health and disease in the human gut microbiome". Microbiology Seminar Series. Oregon State University. Corvallis, OR

07/2018 **C. Armour**, S. Nayfach, K. Pollard, T. Sharpton. "A metagenomic meta-analysis reveals functional signatures of health and disease in the human gut microbiome". International Symbiosis Society. Corvallis, OR.

- 06/2013 **C. Armour**, J. Jeung, P. Boehmer. "Interaction Between Herpes Simplex Virus-1 DNA Polymerase and Uracil-DNA Glycosylase". Basic Medical Sciences Research Retreat. Phoenix, AZ.
- 03/2013 **C. Armour**. "Interaction Between Herpes Simplex Virus-1 DNA Polymerase and Uracil-DNA Glycosylase". Basic Medical Sciences Intra-Departmental Seminar Series. Phoenix, AZ

Poster Presentations

- 06/2019 **C. Armour**, Christopher A. Gaulke, Yuan Jiang, Thomas J. Sharpton. "Modeling the functional variation of the gut microbiome across vertebrates". American Society for Microbiology. San Francisco, CA.
- 09/2018 **C. Armour**, S. Nayfach, K. Pollard, T. Sharpton. "A metagenomic meta-analysis reveals functional signatures of health and disease in the human gut microbiome". Lake Arrowhead Microbial Genomics Conference. Lake Arrowhead, CA.
- 08/2017 **C. Armour**, S. Nayfach, K. Pollard, T. Sharpton. "Large-scale analysis of human gut metagenomes reveals functional indicators of disease in the gut microbiome". EMSL/PNNL Multi-Omics for Microbiomes Conference. Pasco, WA.
- 05/2017 **C. Armour**, S. Nayfach, K. Pollard, T. Sharpton. "Integrating clinical data reveals functional indicators of disease in the gut microbiome". OSU Microbiome Initiative Forum. Corvallis, OR.
- 08/2016 **C. Armour**, S. Nayfach, K. Pollard, T. Sharpton. "Integrating clinical metagenomic data reveals microbiome signatures of dysbiosis". META Center Symposium. Eugene, OR
- 08/2015 **C. Armour**, S. Nayfach, S. Sanjabi, K. Pollard, T. Sharpton. "An automated workflow for the quality control and functional analysis of host-associated metagenomes". META Center Symposium. Eugene, OR.

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- 07/2019 Deep Learning for Life Scientists
Center for Genome Research and Biocomputing
Oregon State University | Corvallis, OR

- 09/2013 - 06/2014 Certificate in Applied Biostatistics
Department of Biostatistics
University of Washington | Seattle, WA

AWARDS AND HONORS

- 2018-2019 OSU Foundation Fellow Tuition Support Scholarship
Winter 2018 Oregon State University
- 10/2018 Best Graduate Student Poster Presentation

“A Metagenomic Meta-Analysis Reveals Functional Signatures of Health and Disease in the Human Gut Microbiome”
CGRB Fall 2018 Conference
Corvallis, OR

- 09/2017 Dick and Toshi Morita Scholarship
Oregon State University
\$1,000 one time
- 08/2017 Pacific Northwest National Lab Travel Grant
EMSL/PNNL Multi-omics for microbiomes Conference
- 06/2013 Best Presentation
“Interaction Between Herpes Simplex Virus-1 DNA Polymerase and Uracil-DNA Glycosylase”
University of Arizona College of Medicine
Basic Medical Sciences Research Retreat
- 2008-2012 President’s Scholarship Recipient
Award Amount: \$36,000 over 4 years

TEACHING AND MENTORSHIP

Teaching

- Fall 2016 Teaching Assistant at Oregon State University
ST599: *Introduction to Quantitative Genomics*
- Fall 2015 Teaching Assistant at Oregon State University
BI211: *Principles of Biology for Life Science Majors*

Mentorship

- 2017-2019 Ian Humphreys, Undergraduate/Accelerated Masters Student
Oregon State University | Corvallis, OR
Currently a PhD Student at University of Washington
- 2012-2013 Ryan Kuta, Undergraduate Student
University of Arizona College of Medicine | Phoenix, AZ
Currently a Resident Physician at Rush University Medical Center