

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 12/2019*)
Research Focus in Computational Biology
Department of Microbiology
Oregon State University | Corvallis, OR
- 08/2008 - 05/2012 **B.S. Biological Sciences, 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 **Rotational Graduate Research Assistant**
Oregon State University | Corvallis, OR
1. Thomas Sharpton (Microbiology/Statistics): Longitudinal analysis of alterations in the intestinal microbiome of a mouse model of inflammatory bowel disease.
 2. Patrick DeLeenheer (Mathematics): Modeling carbohydrate degradation by bacteria in the large intestine.
 3. Dan Rockey (Veterinary Medicine): Culture-independent sequence analysis of *Chlamydia trachomatis* to examine strain variation and recombination.
- 10/2010 – 07/2013 **Research/Laboratory Assistant**
University of Arizona College of Medicine | Phoenix, AZ
Mentors: Dr. Paul Boehmer and Dr. Jui-Cheng Hsieh

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 - 2019 **ASM SIGHPC/Intel Data and Computational Science Fellowship**
\$15,000 per year

PUBLICATIONS AND PRESENTATIONS

Peer-Reviewed Publications

- 2019 **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*. 2019, 4 (4) e00332-18; doi: 10.1128/mSystems.00332-18.
- 2017 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*. 2017, 2 (5) e00036-17; doi: 10.1128/mSystems.00036-17.
- 2014 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*)

Armour CR, Gaulke CA, Sharpton TJ. Gut Microbiome Integrated Gene Catalogue Diversity Across Vertebrates. (*in preparation*)

*indicates co-authorship

Oral Presentations

- 04/2019 **Armour CR**. "The power of poop: diagnostic potential of the gut microbiome in human disease". Center for Genome Research and Biocomputing Spring Conference. Corvallis, OR.
- 11/2018 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. "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 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. “A metagenomic meta-analysis reveals functional signatures of health and disease in the human gut microbiome”. International Symbiosis Society. Corvallis, OR.
- 06/2013 **Armour CR**, Jeung J, Boehmer PE. “Interaction between herpes simplex virus-1 DNA polymerase and uracil-DNA glycosylase”. Basic Medical Sciences Research Retreat. Phoenix, AZ.
- 03/2013 **Armour CR**. “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 **Armour CR**, Gaulke CA, Jiang Y, Sharpton TJ. “Modeling the functional variation of the gut microbiome across vertebrates”. ASM Microbe 2019. San Francisco, CA.
- 09/2018 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. “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 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. “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 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. “Integrating clinical data reveals functional indicators of disease in the gut microbiome”. OSU Microbiome Initiative Forum. Corvallis, OR.
- 08/2016 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. “Integrating clinical metagenomic data reveals microbiome signatures of dysbiosis”. META Center Symposium. Eugene, OR
- 08/2015 **Armour CR**, Nayfach S, Pollard KS, Sharpton TJ. "An automated workflow for the quality control and functional analysis of host-associated metagenomes". META Center Symposium. Eugene, OR.

SPECIALIZED TRAINING

- 07/2019 Deep Learning for Life Scientists
6-week workshop on neural networks
Center for Genome Research and Biocomputing
Oregon State University | Corvallis, OR
- 2014 - 2019 Center for Genome Research and Biocomputing Workshop Courses
Oregon State University | Corvallis, OR
1. RNAseq I & II
 2. Computing in Life Sciences (Perl)
 3. Python I & II
 4. Command-line Data Analysis
 5. Introduction to Unix/Linux

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
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
Arizona State University
Award Amount: \$36,000 over 4 years

TEACHING AND MENTORSHIP

Teaching

Fall 2016 Teaching Assistant (ST599) *Introduction to Quantitative Genomics*
Department of Statistics
Oregon State University | Corvallis, OR

Fall 2015 Teaching Assistant (BI211) *Principles of Biology for Life Science Majors*
Department of Integrative Biology
Oregon State University | Corvallis, OR

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