

# BRYAN P. BROWN

## POSTDOCTORAL FELLOW

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## EDUCATION

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### Ph.D. Genomic and Computational Biology

July 2017

Duke University, Durham, North Carolina

Advisor: Jennifer J. Wernegreen

Dissertation: *Ecological and Evolutionary Factors Shaping Animal-Bacterial Symbioses: Insights from Insects & Gut Symbionts*

### B.S., Biochemistry, Biology; Minor area of study in Spanish

December 2011

The University of Akron, Akron, Ohio

Advisors: Stephen C. Weeks and John M. Senko

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## RESEARCH INTERESTS

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Broadly, my interests lie at the intersection of Genomic and Computational Biology, Microbiology, and Statistics, with an application to bacterial-viral interactions in human enteric communities. Utilizing a consortium of high-throughput sequencing approaches, statistical modeling, and functional and molecular inquiries, I aim to delineate how perturbations (disease, predatory phages, immune activation) shift the community composition and functional potential of enteric microbial consortia. To this end, I focus on tool development for the robust statistical analysis of microbial community data and its integration with other 'omics datasets and measurements of immune activation.

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## RESEARCH AND EDUCATIONAL POSITIONS HELD

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### Postdoctoral Fellow

October 2017 – Present

Center for Global Infectious Disease Research, Seattle Children's Research Institute

### Graduate Student

June 2012 – July 2017

Duke University, Durham, North Carolina

### Graduate Teaching Assistant – One Health

January 2017 - May 2017

Duke University, Durham, North Carolina

### Graduate Teaching Assistant – Applied Data Analysis in R

August 2016 - December 2016

Duke University, Durham, North Carolina

### National Science Foundation Graduate Research Fellow

August 2013 – August 2016

National Science Foundation and Duke University, Durham, North Carolina

### National Science Foundation Graduate Research Opportunities Worldwide Fellow

January 2016 - May 2016

Duke University, Durham, North Carolina, and University of Cape Town, South Africa

### Graduate Teaching Assistant – Molecular Ecology

January 2014 – May 2014

Duke University, Durham, North Carolina

### Graduate Teaching Assistant – Genetics and Evolution

January 2013 - May 2013

Duke University, Durham, North Carolina

### Graduate Teaching Assistant – Molecular Ecology

August 2012 – December 2012

Duke University, Durham, North Carolina

<b>Adjunct Science Instructor – Life Sciences</b> Lakewood Elementary School, Durham, North Carolina	August 2012 – December 2012
<b>Biochemistry Intern/ Pharmaceutical Technician</b> The University of Akron and Akron General Medical Center, Akron, Ohio	June 2007 – March 2012
<b>Undergraduate Research Assistant – Organismal and Computational Biology</b> The University of Akron, Akron, Ohio	May 2009 – December 2011
<b>Research Technician – Bacterial Ecology</b> The University of Akron and Babcock and Wilcox, Akron, Ohio	December 2010 - November 2011
<b>Research Mentor – Biological Research Techniques</b> The University of Akron, Akron, Ohio	May 2010 – August 2011
<b>Undergraduate Research Assistant - Cellular Physiology &amp; Biochemistry</b> University of Akron, Akron, Ohio	July 2009 – May 2011
<b>Visiting Researcher - Organismal and Computational Biology</b> Australian Museum, Sydney, Australia	August - September 2009

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## AWARDS AND HONORS

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<b>Duke University Summer Research Fellowship</b>	June 2017 – August 2017
<b>Duke University Graduate Fellowship</b>	2012 – 2017
<b>National Science Foundation Graduate Research Opportunities Worldwide Fellowship</b>	2016
<b>National Science Foundation Graduate Research Fellowship</b>	2013 - 2016
<b>Nicholas School of the Environment Summer Research Grant</b>	2013
<b>The University of Akron Undergraduate Researcher of the Year</b>	2011
<b>The University of Akron Outstanding Undergraduate Research Award</b>	2011
<b>Dr. Paul Acquarone Award in Plant Sciences</b>	2011
<b>Placed 1st overall - The University of Akron Conference on Integrated Bioscience</b>	2010
<b>The University of Akron Honors Recognition Scholarship</b>	2007 - 2008
<b>The University of Akron Presidential Scholarship</b>	2007 - 2008

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## MANUSCRIPTS AND PUBLICATIONS

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**Brown BP**, et al. HIV exposure alters the composition of fecal microbiota and efficacy of oral polio vaccine in Nigerian infants. *In review*

**Brown BP** and Wernegreen JJ. Social interactions foster reliable bacterial transmission in Camponotine ants. *In prep.*

**Brown BP** and Wernegreen JJ. Ironing out a symbiosis: Host transferrin modulates interactions with beneficial microbes. *In prep.*

**Brown BP** and Wernegreen JJ. Genomic erosion and rampant horizontal gene transfer in gut-associated Acetobacteraceae. *In review.*

Ho N, Li F, Lee-Sarwar, KA, Tun, HM, **Brown BP**, et al. 2018. Meta-analysis of effects of exclusive breastfeeding on infant gut microbiota across populations. *Nature Communications. In Press.*

Wood LF\*, **Brown BP\***, et al. 2018. Feeding mode regulates gut microbial composition, peripheral T cell activation and mucosal gene expression in African infants. *Clinical Infectious Diseases*, 10.1093/cid/ciy265

\*Contributed equally

Nyangahu D, Lennard, K, **Brown BP**, et al. 2018. Disruption of maternal gut microbiota during gestation alters offspring microbiota and immunity. *Microbiome*, 2018 6:124

**Brown BP** and Wernegreen JJ. 2016. Deep divergence and rapid evolutionary rates in gut-associated Acetobacteraceae of ants. *BMC Microbiology*, DOI: 10.1186/s12866-016-0721-8

**Brown BP**, Astrop TI, Weeks SC. 2014 Post-larval developmental dynamics of the Spinicaudatan (Branchiopoda: Diplostraca) carapace. *Journal of Crustacean Biology*

**Brown BP**, Brown SR and Senko JM. 2012. Microbial communities associated with wet flue gas desulfurization systems. *Frontiers in Microbiology*. 3:412. DOI: 10.3389/fmicb.2012.00412

Astrop, TI, Park, LE, **Brown, BP**, and Weeks, SC 2012. Sexual discrimination at work: Spinicaudatan 'Clam Shrimp' (Crustacea: Branchiopoda) as a model organism for the study of sexual system evolution. *Palaeontologia Electronica* Vol. 15, Issue 2;20A,15p

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## CONFERENCE PRESENTATIONS

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Bryan P Brown, Arvind Varsani, Heather Jaspan. 2018 Altered composition and elevated diversity in the enteric virome of HIV exposed uninfected South African infants. **HIVR4P**. Madrid, Spain

Bryan P Brown, Heather Jaspan. 2018 A penalized compositional transform reveals shifts in the fecal microbiota of HIV exposed Nigerian infants. **Fred Hutch Microbiome Research Initiative Biennial Symposium**. Seattle, WA

Bryan P Brown, Heather Jaspan. 2018 HIV exposure alters the fecal microbiome and efficacy of oral Polio vaccine in Nigerian infants. **HIV Dynamics and Evolution**. Leavenworth, WA.

Bryan Brown. 2016. Genomic destabilization and rapid evolutionary rates of gut associated microbes. **Immunology and Microbiology Seminar Series**. University of Cape Town, Cape Town, South Africa.

John Senko, Bryan Brown. 2012. Microbial Communities Associated With Flue Gas Desulfurization Systems. **American Society for Microbiology: 112th General Meeting**. San Francisco, CA.

Bryan Brown and Stephen Weeks. 2011. Morphometrics and Ontogenetics: Evolutionary Dynamics of the Spinicaudatan 'Clam Shrimp'. **Evolution 2011**. The University of Oklahoma, Norman, OK.

Bryan Brown and Stephen Weeks. 2011. Modeling and Quantitation of a Crustacean Carapace Throughout Ontogeny. **Conference on Undergraduate and Graduate Student Research**. The University of Akron, Akron, OH.