Jacob H. Munson-McGee Ph.D.

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Google Scholar Profile

Education

Ph.D. Montana State University — Department of Microbiology and Immunology
Molecular Biosciences Program
February 2019

B.A. Willamette University, Salem, OR — Majors: Biology, Rhetoric and Media Studies
Minor: Biochemistry
GPA 3.7, Graduated May 2012

Academic positions

Postdoctoral Researcher — April 2019-present
Single cell genome to phenome. Advisors Dr. Ramunas Stepanauskas and Dr. Nicole Poulton. Bigelow Laboratory for Ocean Sciences, East Boothbay, ME.

Graduate Research Assistant. — Spring 2013-March 2019
Viral diversity and load in Archaea dominated hot springs in Yellowstone National Park. Advisor Dr. Mark Young. Montana State University, Thermal Biology Institute and Department of Microbiology and Immunology

Graduate Teaching Assistant — Spring 2014-Fall 2014, Spring 2018
Developed and lead students in labs designed to introduce them to basic microbiological techniques Advisor Dr. Seth Walk, Dr. Eric Boyd, Dr. Sara Branco. Montana State University Department of Microbiology and Immunology

Molecular Biosciences Program Fellow — Fall 2012-Spring 2019
Laboratory research rotations (1) CRISPR diversity in Archaea dominated hot springs in Yellowstone National Park. (2) Microbial Diversity in Bioherms from the Great Salt Lake. (3) CRISPR spacer activation in the Type 1-F CRISPR/Cas System. Montana State University

Undergraduate Teaching Assistant — Spring 2009–Spring 2012
Willamette University, Salem, OR

Assisted students in performing experiments that supported classroom learning objectives and graded lab reports. Assisted in the preparation of lab materials.

- Cell Biology and Genetics — Spring 2009, Spring 2010
- Human Heredity — Fall 2009
- Microbiology — Fall 2010, Fall 2011, Spring 2012

Undergraduate Research Assistant — Fall 2010–Spring 2011
Willamette University, Salem, OR

Evaluated genetic differences in great bustard (Otis tarda) populations in Mongolia.

Research Assistant — Summer 2010
USDA ARS, Washington University, Pullman, WA

Collected and analyzed data to begin the creation of a genomic map of different phenotypes in pea (Pisum) species.

Research Assistant Summer 2005
Jornada Experimental Range USDA LTER, New Mexico State University, Las Cruces, NM
Worked with a team of research staff in collecting data on species important to desert ecology.

Peer Reviewed Publications

1. **Munson-McGee JH**, Lindsay MR, Brown JM, Sintes E, D'Angelo T, Brown J, Lubelczyk LC, Tomko P, Emerson D, Orcutt BN, Poulton NJ, Herndl GJ, Stepanauskas R. Decoupling of respiration rates and abundance in marine prokaryoplankton. (Submitted)
2. Hartman R, Biewenga L, **Munson-McGee J**, Refai M, Boyd ES, Bothner B, Lawrence CM, Young M. 2020. Discovery and Characterization of Thermoproteus Spherical Piliferous Virus 1: a Spherical Archaeal Virus Decorated with Unusual Filaments. J Virol 94:1–13.
3. **Munson-McGee JH,** Rooney C, Young MJ. 2020. An Uncultivated Virus Infecting a Nanoarchaeal Parasite in the Hot Springs of Yellowstone National Park. J Virol 94:1–10.
   *Cover article and spotlighted in Journal of Virology 94(3)
4. Hartman R, Eilers BJ, Bollschweiler D**, Munson-McGee JH**, Engelhardt H, Young MJ, Lawrence CM. 2019. The Molecular Mechanism of Cellular Attachment for an Archaeal Virus. Structure 27:1634-1646.e3.
5. Hartman R, **Munson-McGee J**, Young MJ, Lawrence CM. 2019. Survey of high-resolution archaeal virus structures. Curr Opin Virol 36:74–83.
6. Jarett JK, Nayfach S, Podar M, Inskeep W, Ivanova NN, **Munson-McGee J**, Schulz F, Young M, Jay ZJ, Beam JP, Kyrpides NC, Malmstrom RR, Stepanauskas R, Woyke T. 2018. Single-cell genomics of co-sorted Nanoarchaeota suggests novel putative host associations and diversification of proteins involved in symbiosis. Microbiome **6**:1–14.
7. **Munson-McGee JH**, Peng S, Dewerff S, Stepanauskas R, Whitaker RJ, Weitz JS, Young MJ. 2018. A virus or more in (nearly) every cell: ubiquitous networks of virus–host interactions in extreme environments. ISME J.
8. Wagner C, Reddy V, Asturias F, Khoshouei M, Johnson JE, Manrique P, **Munson-McGee J**, Baumeister W, Lawrence CM, Young MJ. 2017. Isolation and Characterization of Metallosphaera Turreted Icosahedral Virus, a Founding Member of a New Family of Archaeal Viruses. J. Virol. **91**:e00925-17.
9. Lindsay MR, Anderson C, Fox N, Scofield G, Allen J, Anderson E, Bueter L, Poudel S, Sutherland K, **Munson-McGee JH**, Van Nostrand JD, Zhou J, Spear JR, Baxter BK, Lageson DR, Boyd ES. 2016. Microbialite response to an anthropogenic salinity gradient in Great Salt Lake, Utah. Geobiology 1–15.
10. Hochstein R, Amenabar MJ, **Munson-McGee JH**, Boyd ES, Young MJ. 2016. Acidianus tailed spindle virus: a new archaeal large tailed spindle virus discovered by culture-independent methods. J. Virol. **90**:3458–3468.
    *Spotlighted in Journal of Virology 90(7)
11. **Munson-McGee JH**, Field EK, Bateson M, Rooney C, Stepanauskas R, Young MJ. 2015. Nanoarchaeota, Their Sulfolobales Host, and Nanoarchaeota Virus Distribution across Yellowstone National Park Hot Springs. Appl. Environ. Microbiol. **81**:7860–7868.
    *Spotlighted in Applied and Environmental Microbiology 81(22)
    *Selected for Journal Highlight in Microbe Magazine. 10(11)

Reviews

1. **Munson-McGee JH**, Snyder JC, Young MJ. 2018. Archaeal viruses from high-temperature environments. Genes (Basel). 9.

Book Chapters

1. Wirth, J. **Munson-McGee, JH**. Young, MJ. Metagenomics of Archaeal Viruses in Extreme Thermal Environments. 2019. Encyclopedia of Virology 4th edition.

Oral Presentations

Virus-Host interactions at the single cell level in hot springs of Yellowstone National Park. Jacob Munson-McGee, January 28th, 2019. Thermal Biology Institute Seminar series. Montana State University, Bozeman MT.

Understanding Virus-Host Interactions in Hot Springs of Yellowstone National Park. Jacob Munson-McGee, Shengyun Peng, Samantha Dewerff, Ramunas Stepanauskas, Rachel Whitaker, Joshua Weitz, Mark Young. June 26th 2016. American Society for Virology. Virginia Tech, Blacksburg VA.

Culture Independent Methods to Link Novel Viruses to their Hosts in Yellowstone National Park. June 24th 2014. American Society for Virology. Colorado State University, Fort Collins CO.

Keeping up with the Joneses: Spacer Acquisition. February 28, 2013. Immunology and Infectious Diseases Departmental Seminar. Montana State University, Bozeman MT

An investigative study of petroleum hydrocarbon biodegradation by microbial communities in clean and contaminated water. April 29, 2012. Biology colloquium. Willamette University, Salem OR

The Scientific Response to Manufactured Scientific Controveresy. April 25 Rhetoric and Media Studies Colloquium Willamette University, Salem OR.

Posters

Linking Microbial Genomes to Phenomes, One Cell at a Time. Jacob H. Munson-McGee, et al. October 27th 2019. 26th NSF EPSCoR Conference, Columbia, South Carolina

Linking Microbial Genomes to Phenomes: Investigating Biogeochemical Processes Using Cell Specific Functions. Melody Linsday et al. October 27th 2019. 26th NSF EPSCoR Conference, Columbia, South Carolina

Comparison of Virus Community Structure Across Yellowstone Hot Springs. Jacob H. Munson-McGee, Mark J. Young. September 25th 2019. 4th Single Cell Genomics Workshop, Boothbay Harbor, ME.

Linking Microbial Genomes to Phenomes, One Cell at a Time. Jacob H. Munson-McGee, et al. September 25th 2019. 4th Single Cell Genomics Workshop, Boothbay Harbor, ME.

Linking Microbial Genomes to Phenomes: Investigating Biogeochemical Processes Using Cell Specific Functions. Melody Linsday et al. September 25th 2019. 4th Single Cell Genomics Workshop, Boothbay Harbor, ME.

Using Single Cell Genomics to Study Viral Interactions in Archaeal Dominated Hot Springs of Yellowstone National Park. Jacob Munson-McGee, Benjamin Bolduc, Mary Bateson,

Mark Young. June 15th 2015. 3rd Microbial Single Cell Genomics Workshop. Boothbay Harbor ME

Coliphage Capers. 2010 Biology 354 Advanced Microbiology Willamette University.

Service

Guest Reviewer
International Society of Microbial Ecology
PLOS ONE
Frontiers in Microbiology
Science of the Total Environment
Science Advances

Awards, Honors, and Memberships

2015	Thermal Biology Institute Turner Foundation student award
2015	Third Microbial Single Cell Genomics Workshop student travel grant recipient
2014	American Society for Virology student travel grant recipient
2013-2018	Graduate member American Society for Virology
2010–2012	Member, Tri Beta Biological Honor Society
2009–2012	Member, National Society of Collegiate Scholars