Emily Kopania – *Curriculum Vitae*

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Current position

NSF Postdoctoral Research Fellow — University of Pittsburgh
Advisor: Dr. Nathan Clark — July 2023-present

Education

Organismal Biology, Ecology, and Evolution, Ph.D. — University of Montana
Advisor: Dr. Jeffrey Good — January 2022

Molecular Genetics and Biochemistry, M.S. — University of Southern California
Advisor: Dr. Matthew Dean — May 2016

Biological Sciences, B.S., *magna cum laude* — University of Southern California
Computational Biology and Bioinformatics, minor — May 2016

Preprints

Kopania, E. E. K., G. W. C. Thomas, C. R. Hutter, S. M. E. Mortimer, C. M. Callahan, E. Roycroft, A. S. Achmadi, W. G. Breed, N. L. Clark, J. A. Esselstyn, K. C. Rowe, J. M. Good. "Molecular evolution of male reproduction across species with highly divergent sperm morphology in diverse murine rodents." *BioRxiv*. https://doi.org/10.1101/2023.08.30.555585. *Submitted*

Publications

1. Kang, T., E. C. Moore, **E. E. K. Kopania**, C. D. King, B. Schilling, J. Campisi, J. M. Good, R. B. Brem. (2023). "A natural variation-based screen in mouse cells reveals USF2 as a regulator of the DNA damage response and cellular senescence." *G3 Genes Genom Genet.* 13(7):jkad091.
2. **Kopania, E. E. K.**, E. M. Watson, C. C. Rathje, B. M. Skinner, P. J. I. Ellis, E. L. Larson, J. M. Good. (2022). "The contribution of Y-linked incompatibilities to disrupted spermatogenesis expression and male sterility in hybrid mice." *Genetics.* 222(4):iyac151.
3. Moore, E. C., G. W. C. Thomas, S. Mortimer, **E. E. K. Kopania**, K. E. Hunnicutt, Z. J. Clare-Salzler, E. L. Larson, J. M. Good. (2022). "The evolution of widespread recombination suppression on the Dwarf Hamster (*Phodopus*) X chromosome." *Genome Biol Evol.* 14(6):evac080.
4. **Kopania, E. E. K.**, E. L. Larson, C. Callahan, S. Keeble and J. M. Good. (2022). "Molecular Evolution across Mouse Spermatogenesis." *Mol Biol Evol.* 39(2):msac023.
5. Larson, E. L., **E. E. K. Kopania**, K. E. Hunnicutt, D. Vanderpool, S. Keeble, J. M. Good. (2021). "Stage-specific disruption of X chromosome expression during spermatogenesis in sterile house mouse hybrids." *G3 Genes Genom Genet.* 12(2):jkab407.
6. Skinner, B. M., C. C. Rathje, J. Bacon, E. E. P. Johnson, E. L. Larson, **E. E. K. Kopania**, J. M. Good, G. Yousafzai, N. A. Affara, and P. J. I. Ellis. (2019). "A high-throughput method for unbiased quantitation and categorisation of nuclear morphology." *Biol Reprod.* 100(5):1250–1260.

7. Skinner, B. M., J. Bacon, C. C. Rathje, E. L. Larson, **E. E. K. Kopania**, J. M. Good, N. A. Affara, and P. J. I. Ellis (2019). "Automated Nuclear Cartography Reveals Conserved Sperm Chromosome Territory Localization across 2 Million Years of Mouse Evolution." *Genes* 10(2): 109.
8. Larson, E. L., **E. E. K. Kopania**, and J. M. Good (2018). "Spermatogenesis and the evolution of mammalian sex chromosomes." *Trends Genet* 34(9):722-732.
9. Chang, P. L., **E. Kopania**, S. Keeble, B. Sarver, E. Larson, A. Orth, K. Belkhir, P. Boursot, F. Bonhomme, J. M. Good, and M. D. Dean (2017). "Whole exome sequencing of wild-derived inbred strains of mice improves power to link phenotype and genotype." *Mamm Genome* 28(9-10):416-425.

Presentations

National or international conferences:

1. **Kopania, E.**, G. Thomas, C. Hutter, S. Mortimer et al. "Recurrent shifts in sperm competition intensity shape the phenotypic and molecular evolution of male reproduction across diverse murine rodents." Poster. Society for Molecular Biology and Evolution Annual Meeting. Ferrara, Italy, July 23-27, 2023.
2. **Kopania, E.**, G. Thomas, C. Hutter, S. Mortimer et al. "Rodents of Unusual Sperm: Molecular and Phenotypic Evolution of Male Reproduction in Murine Rodents." Poster. Population, Evolutionary, and Quantitative Genetics Conference. Pacific Grove, California, June 7-10, 2022.
3. **Kopania, E. K.**, Larson, E. L., Good, J. M. "The molecular evolution of spermatogenesis." Poster. Biology of Spermatozoa Conference. Nynäshamn, Sweden, September 9-13, 2019.
4. **Kopania, E. K.**, Larson, E. L., Good, J. M. "The molecular evolution of spermatogenesis." Poster. Population, Evolutionary, and Quantitative Genetics Conference. Madison, Wisconsin, May 13-16, 2018.
5. **Kopania, E. K.**, Larson, E. L., Good, J. M. "Genomic conflict and the evolution of gene copy number in mice." Poster. Society for Molecular Biology and Evolution Annual Meeting. Austin, Texas, July 2-6, 2017.

Local conferences or seminar series:

1. **Kopania, E.** "The phenotypic and molecular evolution of male reproduction across diverse murine rodents." Oral presentation. University of Denver Biology Seminar Series. Denver, Colorado, April 17, 2023.
2. **Kopania, E.**, G. Thomas, C. Hutter, S. Mortimer et al. "Rodents of Unusual Sperm: Molecular and Phenotypic Evolution of Male Reproduction in Murine Rodents." Oral presentation. University of Utah Evolutionary Genetics and Genomics Seminar Series. Salt Lake City, Utah, November 2, 2022.
3. **Kopania, E. K.** "Molecular evolution of spermatogenesis in murine rodents." Oral presentation, public dissertation defense. University of Montana Ecology and Evolution Seminar Series. Missoula, Montana, January 19, 2022.
4. **Kopania, E. K.** "Genomic conflict and mouse sex chromosome evolution." Oral presentation. University of Montana Organismal Biology, Ecology, and Evolution Noon Seminar Series. Missoula, Montana, April 7, 2021.
5. **Kopania, E. K.** "Gene expression evolution across spermatogenesis." Oral presentation. University of Montana Organismal Biology, Ecology, and Evolution Noon Seminar Series. Missoula, Montana, October 2, 2019.
6. **Kopania, E. K.**, Larson, E. L., Good, J. M. "The molecular evolution of spermatogenesis." Poster. Symposium on the Evolutionary Genomics of Adaptations. Polson, Montana, June 1-3, 2018.

7. **Kopania, E. K.** "Mapping the genes responsible for variation in *Crassostrea gigas* shell morphology." Poster. University of Southern California Undergraduate Symposium for Scholarly and Creative Work. Los Angeles, California, April 15, 2015.

Previous positions

Postdoctoral Research Associate with Dr. Nathan Clark. University of Utah. February 2022-June 2023.
Research Assistant to Dr. Matthew Dean. August 2013-July 2016

Honors and Awards

Postdoctoral:

National Science Foundation Postdoctoral Research Fellowship in Biology ($240,000). June 2023.
National Institutes of Health NRSA Ruth Kirschstein Postdoctoral Fellowship (declined). May 2023.

Graduate:

University of Montana Dr. Linda Phillips Knoblock Fellowship ($7000). May 2020
University of Montana Drollinger-Dial Travel Award ($1000). January 2020
National Science Foundation Graduate Research Fellow ($138,000). June 2017-present
Society for the Study of Evolution Rosemary Grant Award ($2500). March 2017
Society for Molecular Biology and Evolution Young Investigator Travel Award ($1500). July 2017

Undergraduate:

USC Discovery Scholar Award for Research. May 2016
Rose Hills Scholarship ($13,034). August 2015-May 2016
Richard M. and Patricia J. Miailovich Scholarship ($5000). August 2015-May 2016
Albert Fisher Scholarship in Science ($4000). August 2014-May 2015
Rose Hills Undergraduate Research Fellowship ($10,000). May-August 2014, May-August 2015
USC Provost Undergraduate Research Fellowship ($3000). January 2014-May 2015
USC Academic Achievement Award ($10,950). August 2013-December 2014
USC Trojan Scholars Society - Presidential Scholar ($99,257). August 2012-May 2016
National Merit Scholar ($4000). August 2012-May 2016
Sylas and Rose Marx Meyer Scholarship ($20,000). August 2012-May 2016

Teaching Experience

Teaching Assistant, University of Montana. Missoula, MT. August 2016-May 2017; January 2021-May 2021

- Taught introductory biology for non-biology majors (fall 2016), genetics and evolution (spring 2017), introductory biology (spring 2021)

Supplemental Instruction Leader, USC Dornsife College of Letters, Arts, and Sciences. Los Angeles, CA. August 2015-May 2016.

- Held review sessions and provided academic support for undergraduates in an introductory physics course

Tutor, USC Student Athlete Academic Services. Los Angeles, CA. January 2015-May 2015.

- Provided academic support for student athletes

Professional and Community Service

Outreach and diversity initiatives:

Department of Human Genetics Diversity, Equity, and Inclusion Committee. April 2022-June 2023

- Help implement diversity, equity, and inclusion initiatives within the University of Utah Department of Human Genetics; serve as a liaison for post-docs to communicate DEI-related concerns to the department

SpectrUM. August 2017-December 2019

- Lead hands-on science activities for children and families at the University of Montana's SpectrUM Discovery Center and at EmPower Place, SpectrUM's learning center at the Missoula Food Bank

We Are MT in the Classroom. April 2017-December 2019

- Lead science lessons and hands-on activities in K-12 classrooms and at special events in rural Montana and on the Flathead Indian Reservation

University of Montana Women in Science (WiSci). October 2016-January 2022

- Discuss and address issues affecting women and other underrepresented groups in science

USC Science Outreach (SCout). January 2015-May 2016

- Session leader (August 2015-May 2016); taught science lessons and led science-related activities in Los Angeles public school second and third grade classes

QuikSCience Mentor. August 2012-May 2013

- Mentored high school and middle school students who participated in the QuikSCience Challenge, a competition in which teams complete year-long projects related to marine science and conservation

Professional service:

Peer review: *Records of the Australian Museum, BMC Genomics, Nature Communications, Genome Biology and Evolution, Evolution*

Ecology and Evolution Graduate Student Co-President and Faculty Liaison. August 2020-May 2021

University of Montana Graduate and Professional Student Association. May 2018-May 2019

- Organismal Biology, Ecology, and Evolution graduate program representative

Organismal Biology, Ecology, and Evolution Graduate Student Super Speaker Committee. May 2017-May 2018

Division of Biological Sciences Student Evaluation Committee. October 2017