Emily Kopania – *Curriculum Vitae*

Department of Biological Sciences | University of Pittsburgh | Pittsburgh, PA 15260
emk270@pitt.edu | https://ekopania.github.io/

Current Position

2023 – present	NSF Postdoctoral Research Fellow University of Pittsburgh Advisor: Dr. Nathan Clark

Education

2016 – 2022	Organismal Biology and Ecology, Ph.D. University of Montana Advisor: Dr. Jeffrey Good
2015 – 2016	Molecular Genetics and Biochemistry, M.S. University of Southern California Advisor: Dr. Matthew Dean
2012 – 2016	Biological Sciences, B.S., *magna cum laude* Computational Biology and Bioinformatics, minor University of Southern California

Professional Appointments

2022 – 2023	Postdoctoral Research Associate University of Utah Advisor: Dr. Nathan Clark
2013 – 2015	Undergraduate Research Assistant University of Southern California Advisor: Dr. Matthew Dean

Preprints

1. **Kopania, E. E. K.,** N. L. Clark. “Mammalian retinal specializations for high acuity vision evolve in response to both foraging strategies and morphological constraints.” *BioRxiv.* https://doi.org/10.1101/2024.08.25.609608. *In Revision at Evolution Letters.*

Peer- Reviewed Publications (10 total; 170 citations)

10. **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. (2024). "Sperm competition intensity shapes divergence in both sperm morphology and reproductive genes across murine rodents." *Evolution. In Press.*
9. 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.

8. **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.
7. 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.
6. **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.
4. 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.
3. 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.
2. 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.
1. 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.

Grants and Fellowships ($403,000 total)

2023	National Science Foundation Postdoctoral Research Fellowship in Biology	$240,000
2023	National Institutes of Health NRSA Ruth Kirschstein Postdoctoral Fellowship (F32)	Declined
2020	University of Montana Dr. Linda Phillips Knoblock Fellowship	$7000
2020	University of Montana Drollinger-Dial Travel Award	$1000
2017 – 2020	National Science Foundation Graduate Research Fellow	$138,000
2017	Society for the Study of Evolution Rosemary Grant Award	$2500
2017	Society for Molecular Biology and Evolution Young Investigator Travel Award	$1500
2014, 2015	Rose Hills Undergraduate Research Fellowship	$10,000
2014	USC Provost Undergraduate Research Fellowship	$3000

Honors and Awards

2016	Phi Beta Kappa Honor Society
2016	USC Discovery Scholar Award for Research
2015	Rose Hills Scholarship
2015	Richard M. and Patricia J. Miailovich Scholarship
2014	Albert Fisher Scholarship in Science
2013	USC Academic Achievement Award

2012 – 2016 USC Trojan Scholars Society - Presidential Scholar
2012 – 2016 National Merit Scholar
2012 – 2016 Sylas and Rose Marx Meyer Scholarship

Presentations

Invited presentations and presentations selected for symposia

1. **Kopania, E.**, N. Clark. “The evolution of high visual acuity specializations in mammals.” Symposium Oral Presentation. 3rd Joint Congress on Evolutionary Biology. Montreal, Canada, July 26-30, 2024.
2. **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.

National or international conferences

1. **Kopania, E.**, N. Clark. “Ecological pressures acting on mammalian visual traits.” Poster. The Allied Genetics Conference. Washington, D.C., March 6-10, 2024.
2. **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.
3. **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.
4. **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.
5. **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.
6. **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.**, N. Clark. "Mammalian retinal specializations are a main evolutionary response to ecological selective pressures on vision." Oral Presentation. University of Pittsburgh Molecular Evolution Laboratory Discussion. Pittsburgh, Pennsylvania, April 18, 2024.
2. **Kopania, E.**, N. Clark. “The evolution of teleost retinal specializations.” Poster. Sensorium. Chicago, Illinois, November 11-12, 2023.
3. **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.
4. **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.
5. **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.

6. **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.
7. **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.
8. **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.

Teaching

Guest Lecturer

2024	BIOSC 1540	University of Pittsburgh	Computational Biology

Teaching Assistant

2021	BIOB 171	University of Montana	Principles of Biological Diversity
2017	BIOB 272	University of Montana	Genetics and Evolution
2016	BIOB 101	University of Montana	Discovering Biology

Other teaching experience

2015 – 2016	Supplemental Instruction Leader	University of Southern California
2015	Student Athlete Tutor	University of Southern California

Mentorship

Student-led projects

2024 – present	Justine Denby University of Pittsburgh undergraduate	Project: Molecular evolution of reproductive genes in response to sperm competition in mammals

Co-mentored students

2023 – present	Alex Preble, Nico Schwartz, Krista Olson University of Pittsburgh undergraduates
2016 – 2021	Vanessa Knox, Stephenie Horne, Marc Velling, Sarah Wells, Dawit Mengistu University of Montana undergraduates

Professional Service and Development

Public engagement and education

2023	Salt Lake City School District Science & Engineering Fair judge
2018 – 2019	Montana Science Fair judge
2017 – 2019	University of Montana EmPower Place volunteer (science learning center at the Missoula Food Bank)
2017 – 2019	SciNation volunteer (science education on the Flathead Indian Reservation)
2017	University of Montana SpectrUM Discovery Center volunteer
2017	We Are Montana in the Classroom (science education in rural Montana)
2015 – 2016	USC Science Outreach (SCout) session leader (weekly science lessons and experiments in Los Angeles public schools)
2012 – 2013	QuikSCience mentor (guided middle school students through a year-long research and conservation project)

Diversity, equity, and inclusion initiatives

2022 – 2023	Equity, Diversity, and Inclusion Committee University of Utah Department of Human Genetics
2016 – 2022	Women in Science University of Montana

Other Professional service

2024 – present	Biology Postdoc Organization board member University of Pittsburgh
2020 – present	Peer reviewer: *Records of the Australian Museum, BMC Genomics, Nature Communications, Genome Biology and Evolution, Evolution, Molecular Ecology* (2 manuscripts), *Molecular Biology and Evolution*
2024	Postdoc fellowship applications discussion mentor 3rd Joint Congress on Evolutionary Biology
2024	Guest editor, *Genome Biology and Evolution* "Genomics of Adaptations to Extreme Environments" special issue
2023	Symposium co-organizer, Society for Molecular Biology and Evolution "Genomics of Adaptations to Extreme Environments"
2020 – 2021	Graduate student co-president and faculty liaison University of Montana, ecology and evolution graduate program
2018 – 2019	Graduate and professional student association representative University of Montana, ecology and evolution graduate program
2017 – 2018	Graduate student super speaker committee University of Montana, ecology and evolution graduate program
2017	Student evaluation committee University of Montana, Division of Biological Science

Professional Development

2023	Allyship training, Society for Molecular Biology and Evolution
2020	LGBTQ+ allies training, University of Montana
2018	Evidence-based teaching in science course, University of Montana

References

1. Dr. Nathan Clark, Associate Professor, University of Pittsburgh, postdoctoral advisor
   Phone: 412-383-1720, Email: nclark@pitt.edu, Address: 103 Clapp Hall, 5th & Ruskin Ave., Pittsburgh, PA 15260
2. Dr. Jeffrey Good, Professor, University of Montana, Ph.D. advisor
   Phone: 406-243-5122, Email: jeffrey.good@umontana.edu, Address: Interdisciplinary Sciences Building (ISB) 308, 32 Campus Drive, Missoula, MT 59812
3. Dr. Matthew Dean, Associate Professor, M.S. advisor
   Phone: 213-740-5513, Email: matthew.dean@usc.edu, Address: RRI 304 A, 1050 Childs Way, Los Angeles, CA 90089
4. Dr. Erica Larson, Associate Professor, University of Denver, Ph.D. committee member
   Phone: 303-871-3694, Email: erica.larson@du.edu, Address: Boettcher Center West, 2050 E., Iliff Ave. Denver, CO 80208