

Colin Shew
408-710-6153
cshew@ucdavis.edu

EDUCATION

- 2022 (expected) **Ph.D. Integrative Genetics and Genomics**
University of California, Davis
- 2015 **B.S. Molecular, Cell, and Developmental Biology (major) and Conservation Biology (minor), *summa cum laude***
University of California, Los Angeles

RESEARCH EXPERIENCE

- 2017–present **Graduate student researcher, Megan Y. Dennis Lab, UC Davis**
Regulation and evolution of genes located in structurally variant regions of human and non-human primate genomes
- 2015–2016 **Technician and manager, Robert K. Wayne Lab, UCLA**
Expression profiling of domestic dog olfactory tissue; ancient canid DNA extractions
- 2012–2015 **Technician and undergraduate researcher, Steven E. Jacobsen Lab, UCLA**
Molecular characterization of conserved epigenetic regulators (MORC proteins)

AWARDS AND HONORS

- 2021 **Ruth L. Kirschstein Predoctoral Individual National Research Service Award**, National Human Genome Research Institute (NHGRI)
- 2018 **Registration/Travel Award**, University of Washington Summer Institute in Statistical Genetics
- 2017 **Honorable Mention**, NSF Graduate Research Fellowship
- 2016 **Honorable Mention**, NSF Graduate Research Fellowship

TEACHING EXPERIENCE

- Spring 2018 **Teaching assistant**, Genes and Gene Expression, UC Davis

SERVICE

- 2021–present **Volunteer, CRISPR in the ClassZoom (UC Berkeley)**
Present and facilitate discussion of CRISPR technology and bioethics in high school classrooms in the East Bay Area.
- 2016–present **Outreach coordinator, Dennis Lab**
Plan interactive genetics, biotechnology, and neuroscience activities for underserved high schools in the Sacramento area.
- 2018–2020 **Outreach and Community Chair, Integrative Genetics and Genomics**

Coordinated genetics-related activities at elementary schools and community events in Yolo County

2017–2020

eMentor, Biotech Academy at Sheldon High School (Elk Grove, CA)
Communicated weekly via email with students interested in STEM careers.

2016–2018

Science Says at UC Davis
Contributed to a blog that fact checks popular science reporting for a lay audience

PUBLICATIONS

1. **Shew CJ**, Carmona-Mora P, Soto DC, Mastoras M, Roberts E, Rosas J, Jagannathan D, Kaya G, O'Geen H, and Dennis MY. Diverse molecular mechanisms contribute to differential expression of human duplicated genes. *Molecular Biology and Evolution*. 33(8):3060-3077. 2021.
2. Perri AR*, Mitchell KJ*, Mouton A*, Carretero SA*, Hulme-Beaman A, Haile J, Jamieson A, Meachen J, Lin AT, Schubert BW, Ameen C, Bover P, Brace S, Carmagnini A, Carøe C, Samaniego Castruita JA, Chatters JC, Dobney K, Dos Reis M, Evin A, Gaubert P, Gopalakrishnan S, Gower G, Heinger H, Kapp J, Linderholm A, Ozga AT, Presslee S, Salis A, Saremi NF, **Shew C**, Skerry K, Thompson M, Collins MJ, Sinding MHS, Gilbert MTP, Stone AC, Shapiro B, Van Valkenburgh B, Wayne RK, Larson G, Frantz LAF, and Cooper A. Dire wolves were the last of an ancient New World canid lineage. *Nature*. 2021.
3. Maggolini FAM, Sanders AD, **Shew CJ**, Sulovari A, Mao Y, Puig M, Catacchio CR, Dellino M, Palmisano D, Mercuri L, Bitonto M, Porubsky D, Cáceres M, Eichler EE, Ventura M, Dennis MY, Korbel JO, and Antonacci F. Single-cell strand sequencing of a macaque genome reveals multiple nested inversions and breakpoint reuse during primate evolution. *Genome Research*. 30:1680–1693. 2020.
4. Soto DC*, **Shew C***, Mastoras M, Schmidt JM, Sahasrabudhe R, Kaya G, Andrés AM, and Dennis MY. Identification of structural variation in chimpanzees using optical mapping and nanopore sequencing. *Genes*. 11(3):276. 2020.
5. Li S, Yen L, Pastor WA, Johnston JB, Du J, **Shew CJ**, Liu W, Ho J, Stender B, Clark AT, Burlingame AL, Daxinger L, Patel DJ, and Jacobsen SE. Mouse MORC3 is a GHKL ATPase that localizes to H3K4me3 marked chromatin. *Proceedings of the National Academy of Sciences*. 13(35):E5108-E5116. 2016.

* These authors contributed equally to this work

PREPRINTS

1. Nurk S, Koren S, Rhie A, Rautiainen M, Bizkadze AV, Mikheenko A, Vollger MR, Altemose N, Uralsky L, Gershman A, Aganezov S, Hoyt SJ, Diekhans M, Logsdon GA, Alonge M, Antonarakis SE, Borchers M, Bouffard GG, Brooks SY, Caldas GV, Cheng H, Chin C, Chow W, de Lima LG, Dishuck PC, Durbin R, Dvorkina T, Fiddes IT, Formenti G, Fulton RS, Fungtammasan A, Garrison E, Grady PGS, Graves-Lindsay TA, Hall IM, Hansen NF, Hartley GA, Haukness M, Howe K, Hunkapiller MW, Jain C, Jain M, Jarvis ED, Kerpedjiev P, Kirsche M, Kolmogorov M, Korlach J, Kremitzki M, Li H, Maduro VV, Marschall T, McCartney AM, McDaniel J, Miller DE, Mullikin JC, Myers EW, Olson ND, Paten B, Peluso P, Pevzner PA, Porubsky D, Potapova T, Rogaev EI, Rosenfeld JA, Salzberg SL, Schneider VA, Sedlazeck FJ, Shafin K, **Shew CJ**, Shumate A, Sims Y, Smit AFA, Soto DC, Sović I, Storer JM, Streets A, Sullivan BA, Thibaud-Nissen F, Torrance J, Wagner J, Walenz BP, Wenger A, Wood JMD, Xiao C, Yan SM, Young AC, Zarate S, Surti U, McCoy RC, Dennis MY, Alexandrov IA, Gerton JL, O'Neill RJ, Timp W, Zook JM, Schatz MC, Eichler EE, Miga KH, and Phillippy AM. The complete sequence of a human genome. *bioRxiv*. 2021.

2. Altemose N, Logsdon GA, Bzikadze AV, Sidhwani P, Langley SA, Caldas GV, Hoyt SJ, Uralsky L, Ryabov FD, **Shew CJ**, Sauria MEG, Borchers M, Gershman A, Mikheenko A, Shepelev VA, Dvorkina T, Kunyavskaya O, Vollger MR, Rhie A, McCartney AM, Asri M, Lorig-Roach R, Kishwar Shafin, Aganezov S, Olson D, de Lima LG, Potapova T, Hartley GA, Haukness M, Kerpedjiev P, Gusev F, Tigyi K, Brooks S, Young A, Nurk S, Koren S, Salama SR, Paten B, Rogaev EI, Streets A, Karpen GH, Dernburg AF, Sullivan BA, Straight AF, Wheeler TJ, Gerton JL, Eichler EE, Phillippy AM, Timp W, Dennis MY, O'Neill RJ, Zook JM, Schatz MC, Pevzner PA, Diekhans M, Langley CH, Alexandrov IA, Miga KH. Complete genomic and epigenetic maps of human centromeres. *bioRxiv*. 2021.

TALKS

1. UC Davis Human Genomics Symposium. "Diverse molecular mechanisms contribute to differential expression of human duplicated genes." 6 November 2020. Sacramento, CA.
2. ENCODE 2019: Research Applications and Users Meeting. "Effect of structural variation on gene regulation in primate lymphoblastoid cell lines." 9 July 2019. Seattle, WA.
3. *Invited co-presenter*. Transforming Difference through Genealogy workshop series, UC Davis Graduate Diversity Office. "Interpreting Commercial Genetic Tests." 24 August 2017. Davis, CA.

POSTERS

1. American Society of Human Genetics. "Human-specific structural variants alter cis-regulation and chromatin structure." 18 October 2021. Virtual meeting.
2. Society for Molecular Biology and Evolution. "Diverse molecular mechanisms contribute to differential expression of human duplicated genes." 5 July 2021. Virtual meeting.
3. NHGRI Research Training and Career Development Annual Meeting. "Diverse molecular mechanisms contribute to differential expression of human duplicated genes." 19 April 2021. Virtual meeting.
4. American Society of Human Genetics. "Diverse molecular mechanisms contribute to differential expression of human duplicated genes." 27–30 October 2020. Virtual meeting.
5. Keystone Symposia on Molecular and Cellular Biology (3D Genome: Gene Regulation and Disease). "Effect of structural variation on gene regulation in primate lymphoblastoid cell lines." 21 March 2019. Banff, AB, Canada.

TECHNICAL SKILLS

- Bioinformatics tools: Linux/Unix, Python, R, Git/GitHub, Conda/Bioconda, Snakemake
- Molecular laboratory skills
- Tissue culture