James Baldwin-Brown

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Current position

Postdoctoral Fellow, University of Utah

Areas of specialization

Evolutionary biology • Computational biology • Genomics • Bioinformatics

Education

Dec 2016: Ph.D. in Biology, University of California, Irvine. Thesis title: “Identifying selection in differentiated populations through simulation, experimental evolution, and whole genome sequencing”. Committee: Anthony Long, Kevin Thornton, and Timothy Bradley

Jan 2011: B.S. in Biology, emphasis on evolution, ecology, and biodiversity, University of California, Davis

Positions held

Mar. 2017 - present: Postdoctoral Fellow, University of Utah
Jan. 2017 - Feb 2017: Postdoctoral Scholar, University of California, Irvine
Sep. 2011 - Dec. 2016: Graduate Student Researcher, University of California, Irvine
Dec. 1010 - Aug. 2011: Junior Researcher, University of California, Davis

Grants, honors & awards

2020: Utah Genome Project Pilot Grant (Co-PI with Nitin Phadnis): $50,000
2019: NIH F32 Ruth L. Kirschstein National Research Service Award: $123,964
2015: Department of Education GAANN Fellowship Award: $30,000

2014: Department of Education GAANN Fellowship Award: $30,000
2013: HHMI-UCI Teaching Fellows Program Travel Award: $500
2012: HHMI-UCI Teaching Fellows Program Travel Award: $500

Publications

2024: Xu K, Zhang Y, Baldwin-Brown J, Sasani TA, Phadnis N, Miller MP, Rog O. 2024 Jun 3. Decoding chromosome organization using CheC-PLS: chromosome conformation by proximity labeling and long-read sequencing. bioRxiv.:2024.05.31.596864. doi:10.1101/2024.05.31.596864.

2024: Baldwin-Brown JG, Villa SM, Waight E, Johnson KP, Bush SE, Clayton DH, Shapiro MD. 2024. Genomics of experimental adaptive radiation in the cryptic coloration of feather lice. :2024.12.20.629508. doi:10.1101/2024.12.20.629508. [accessed 2024 Dec 30]. https://www.biorxiv.org/content/10.1101/2024.12.20.629508v1.

2024: Grant AR, Johnson KP, Stanley EL, Baldwin-Brown J, Kolenčík S, Allen JM. 2024. Rapid Targeted Assembly of the Proteome Reveals Evolutionary Variation of GC Content in Avian Lice. Bioinform Biol Insights. 18:11779322241257991. doi:10.1177/11779322241257991.

2021: Baldwin-Brown JG, Villa SM, Vickrey AI, Johnson KP, Bush SE, Clayton DH, Shapiro MD. 2021. The assembled and annotated genome of the pigeon louse Columbicola columbae, a model ectoparasite. G3 Genes—Genomes—Genetics. 11(2):jkab009. doi:10.1093/g3journal/jkab009.

2020: Baldwin-Brown JG, Long AD. Genomic signatures of local adaptation in clam shrimp (Eulimnadia texana) from natural vernal pools. Genome Biol Evol. doi: 10.1093/gbe/evaa120.

2019: Barbour AG, Shao H, Cook VJ, Baldwin-Brown JG , Tsao JI, Long AD 2019. Genomes, expression profiles, and diversity of mitochondria of the white-footed deermouse Peromyscus leucopus, reservoir of Lyme disease and other zoonoses. Scientific Reports. 9:17618. doi: 10.1038/s41598-019-54389-3.

2019: Apitanyasai K, Huang S, Ng TH, He S, Huang Y, Chiu S, Tseng K, Lin S, Chang W, Baldwin-Brown JG, Long AD, Lo C, Yu H, Wang H. 2019. The gene structure and hypervariability of the complete Penaeus monodon Dscam gene. Sci Rep. 9:1–14. doi: 10.1038/s41598-019-52656-x.

2019: Long AD, Baldwin-Brown JB, Tao Y, Cook VJ, Balderrama-Gutierrez G, Corbett-Detig R, Mortazavi A, Barbour AG. 2019. The genome of Peromyscus leucopus, natural host for Lyme disease and other emerging infections. Science Advances. 5:eaaw6441.

2018: Baldwin-Brown JG, Weeks SC, Long AD. 2018. A new standard for crustacean genomes: the highly contiguous, annotated genome assembly of the clam shrimp Eulimnadia texana reveals HOX gene order and identifies the sex chromosome. Genome Biol Evol. doi: 10.1093/gbe/evx280.

2016: Chakraborty M*, Baldwin-Brown JG*, Long AD, Emerson JJ. 2016 Jul 25. Contiguous and accurate de novo assembly of metazoan genomes with modest long read coverage. Nucl. Acids Res.:gkw654.; *These authors contributed equally

2014: Baldwin-Brown JG, Long AD, Thornton KR. 2014. The Power to Detect Quantitative

Trait Loci Using Resequenced, Experimentally Evolved Populations of Diploid, Sexual Organisms. Mol Biol Evol 31:1040–1055.

Conference presentations

2024: Talk: Chromosome pairing in *Drosophila* hybrids. Fifteenth International Conference on Drosophila Heterochromatin.

2023: Talk: Somatic chromosome pairing in *Drosophila* hybrids. Annual Drosophila Research Conference.

2022: Talk: A high-resolution map of *Drosophila* hybrid pairing. Society for the Study of Evolution.

2022: Poster: The role of intercalary heterochromatin in hybrid somatic pairing. Population, Evolutionary, and Quantitative Genetics Conference.

2022: Poster: The role of intercalary heterochromatin in hybrid somatic pairing. Annual Drosophila Research Conference.

2022: Invited Talk: The genome of the pigeon louse *Columbicola columbae* reveals loci driving parasite adaptation in experimental evolution. Plant and Animal Genomes XXIX.

2021: Poster: Intercalary heterochromatin and other genome features drive pairing loss in interspecies Drosophila hybrids. SMBE Annual Meeting 2021.

2021: Talk: Drosophila hybrids reveal the genome features driving pairing. Evolution 2021.

2021: Poster: Somatic pairing loss in interspecies Drosophila hybrids reveals genome features driving pairing. Annual Drosophila Research Conference.

2020: Talk: The genetics of host switching in experimentally evolved pigeon lice (*Columbicola columbae*). The Allied Genetics Conference.

2019: Talk: Interspecies hybrid Hi-C shows that polytene pairing differs from somatic pairing. 8th Annual Northeast Regional Chromosome Pairing Conference.

2019: Poster: Major parts of *Drosophila* hybrid genomes don't pair. SMBE Annual Meeting 2019.

2019: Poster: Major parts of *Drosophila* hybrid genomes don't pair. Annual Drosophila Research Conference.

2018: Talk: Major parts of *Drosophila* hybrid genomes don't pair correctly. 7th Annual Northeast Regional Chromosome Pairing Conference.

2018: Poster: Chromosome pairing in *melanogaster* $\times$ *simulans* hybrids. Annual Drosophila Research Conference.

2018: Poster: Transmission distortion in human sperm. SMBE satellite meeting.

2017: Talk: Why do some loci stop pairing in Drosophila interspecies hybrids? 6th Annual Northeast Regional Chromosome Pairing conference.

2017: Poster: Genome assembly for experimental evolution in the pigeon louse *Columbicola Columbae*. Arthropod Genomics Symposium.

2017: Invited Talk: Detecting Quantitative Trait Loci via Experimental Evolution: an Analysis

of Power. Plant and Animal Genomes XXV.

2016: Poster: Identifying differentiation of populations of the clam shrimp *Eulimnadia texana* through genome assembly and pooled population sequencing. The Allied Genetics Conference.

2016: Talk: Identifying differentiation of populations of the clam shrimp *Eulimnadia texana* through genome assembly and pooled population sequencing. Evolution.

2015: Poster: Identifying differentiation of populations of the clam shrimp *Eulimnadia texana* through genome assembly and pooled population sequencing. SMBE Annual Meeting.

2014: Poster: Power to Detect QTL using Evolve-and-Resequence: A Simulation of Phenotype-Driven Evolution. SMBE Annual Meeting.

2013: Poster: The Ability to Detect Quantitative Trait Loci using Experimental Evolution. SMBE Annual Meeting 2013.

2013: Talk: The Ability of Resequenced Experimentally Evolved Populations to Detect Quantitative Trait Loci. Evolution.

Teaching

2019: Workshop: Programming for Biology, University of Utah

2015: Teaching assitant: Bio 55, Introduction to Ecology, University of California Irvine

2015: Teaching assitant: Bio E124, Infectious Disease Dynamics, University of California Irvine

2014-5, 2012: Teaching assitant: Bio 94, Evolution, Ecology, and Biodiversity, University of California Irvine

2013-4: Teaching assitant: Bio E115L, Evolution Laboratory, University of California Irvine

2013: Teaching assitant: Bio E151, Population Dynamics, University of California Irvine

2013, 2011: Teaching assitant: Bio 93, Intro to Biology, University of California Irvine

2012: Teaching assitant: Bio D105, Cell, Developmental, and Molecular Biology of Plants, University of California Irvine

2012: Teaching assitant: Bio H90, The Idiom and Practice of Science, University of California Irvine

2012: Teaching assitant: Bio E179, Limnology and Freshwater Biology, University of California Irvine

2012: Teaching assitant: Bio E153, Functional and Structural Evolutionary Genomics, University of California Irvine

Journal article peer reviews

2013-present: Molecular Ecology, PLoS Computational Biology, G3, Genes, Marine Genomics, PLoS One, Ecology and Evolution, Genome Biology and Evolution, Genetics, Molecular Biology and Evolution, Journal of Genetics

Public outreach and diversity activities

2020: Mentor, Diversity Fellows workshop (undergraduate mentorship), University of Utah, Salt Lake City, UT.

2020: Salk Institute SciChat speaker, High Tech High School, Chula Vista, CA.

2020: Science fair judge, Uintah Elementary School, Salt Lake City, UT.

2020: Research presentation and Q&A, Guadalupe Elementary School 4th grade class, Salt Lake City, UT.

2019: Science fair judge, Uintah Elementary School, Salt Lake City, UT.

2018: Research presentation and Q&A, Leadership Learning Academy 3rd & 4th grade classes, Ogden, UT.

2017: Field trip host, “Pigeonetics” program, Shapiro Laboratory, University of Utah, Salt Lake City, UT (twice).

2017: Scientist in the Spotlight: “Pigeonetics”. Utah Natural History Museum, Salt Lake City, UT.

2015: Q&A panelist, Ecology & Evolutionary Biology undergraduate symposium (Getting in to graduate school). University of California, Irvine, CA.

References

Michael Shapiro

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Nitin Phadnis

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Anthony Long

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