

Diana Aguilar Gómez

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EDUCATION

University of California Berkeley

Fall 2017 - Summer 2023

Center for Computational Biology (CCB)

Computational Biology PhD

Universidad Nacional Autónoma de México (UNAM)

Fall 2013 - Spring 2017

Center for Genomic Sciences (CCG) and Institute of Biotechnology

Licenciado en Ciencias Genómicas (Bachelor in Genomic Science)

GPA: 9.68/10 *Mención Honorífica* (Graduated with Honors)

ACADEMIC AND PROFESSIONAL AWARDS

- Chancellor's Postdoctoral Fellowship Los Angeles, 2023-2025
- Cal NERDS SACNAS Diversity STEM Research Conference Travel Grant Award Berkeley, U.S. 2022
- Graduate Division Conference Travel Grant Berkeley, U.S. 2022
- UC MEXUS-CONACYT Fellowship Berkeley, U.S. 2018-2022
- Fulbright-Garcia Robles Fellowship for Graduate Studies Berkeley, U.S. 2017- 2020
- Community Builder Award from LAGESSES Berkeley, U.S. 2018
- "Movilidad Estudiantil" UNAM Exchange Program Munich, Germany. 2017
- MITACS Globalink Research Award Vancouver, Canada. 2016
- SURP Fellowship "Proyecta 100,000" Ithaca, U.S. 2014
- PRONABES - UNAM Fellowship Mexico. 2013 - 2017
- 26th Mexican Mathematics Olympiad (OMM) Guanajuato, Mex, 2012
 - 3rd place at the National Contest
 - 2nd place at the Regional Contest

EXPERIENCE

Postdoc Scholar at UCLA, Department of Ecology and Evolutionary Biology, Los Angeles, U.S.

Supervisor: Dr. Kirk Lohmueller, **August 2023 - present**

- Modeling structural variants and repeats in populations of concern
- Assessing inbreeding depression and survival in Rice's whale
- Selection on *Puma concolor* (mountain lion) genetic rescue (co-advised with Dr. Nielsen)

PhD Candidate at UC Berkeley, Center for Computational Biology, Berkeley, U.S.

Supervisor: Dr. Rasmus Nielsen, May 2018 - July 2023

- Map genetic variants underlying color polymorphism in *Oophaga pumilio* (strawberry poison frog)
- Color adaptation in populations of *Phrynocephalus versicolor* (toad-headed lizard)
- Genomic adaptation to free diving in the Haenyeo

Research Assistant at Helmholtz Zentrum München, Institute of Functional Epigenetic, Munich, Germany

Supervisor: Dr. Robert Schneider, Sep 2016- Sep 2017

- Single-cell analysis of transcriptional memory in *S. cerevisiae*

Research Student

UNAM, CCG, Dynamic Genomics Department, Cuernavaca, Mexico

Supervisor: Dr. Diego Cortez, Sep 2015 - Jun 2016

- Male mutation bias in monotremes
- Finding sex chromosomes in *Basiliscus vittatus* (basilisk lizard)

UNAM, CCG, Genomic Engineering Department, Cuernavaca, Mexico

Supervisor: Dr. David Romero, Jan 2015 - Jun 2016

- Double-strand break repair in *Rhizobium etli* (nitrogen-fixing bacteria)

University of British Columbia, Medical Genetics Department, Vancouver, Canada

Supervisor: Dr. Carolyn Brown, Summer 2016

- Finding boundary genes for escape regions in the human inactive X chromosome

Institut de Génétique et de Biologie Moléculaire et Cellulaire, Strasbourg, France

Supervisor: Dr. Robert Schneider, Summer 2015

- ChIP-seq analysis of histone modifications and their link to metabolism

Cornell University, Plant Pathology and Plant-Microbe Biology Section, Ithaca, U.S.

Supervisor: Dr. Rebecca Nelson, Summer 2014

- Develop novel methods to detect endophyte content in the seedlings of maize.

PUBLICATIONS

1. Yáñez-Cuna, Fares Osam, **Diana Aguilar-Gómez**, Araceli Dávalos, and David Romero. "Prevalent role of homologous recombination in the repair of specific double-strand breaks in *Rhizobium etli*." *Frontiers in Microbiology* 15 (2023): 1333194.
2. **Aguilar-Gómez, Diana**, Yuanting Jin*, Débora Y. C. Brandt, Tyler A. Square, Jiasheng Li, Zhengxia Liu, Tao Wang, Peter H. Sudmant, Craig T. Miller, Rasmus Nielsen. "Population genomics of variegated toad-headed lizard *Phrynocephalus versicolor* and its adaptation to the colorful sand of the Gobi Desert." *Genome Biology and Evolution* (2022)
3. Chen, Ze-Hui, Ya-Xi Xu, Xing-Long Xie, Dong-Feng Wang, **Diana Aguilar-Gómez**, Guang-Jian Liu, Xin Li et al. "Whole-genome sequence analysis unveils different origins of European and Asiatic mouflon and domestication-related genes in sheep." *Communications Biology* 4, no. 1 (2021): 1-15.
4. Bheda, Poonam, **Diana Aguilar-Gómez**, Igor Kukhtevich, Johannes Becker, Gilles Charvin, Antonis Kirmizis, and Robert Schneider. "Microfluidics for single-cell lineage tracking over time to characterize transmission of phenotypes in *Saccharomyces cerevisiae*." *STAR protocols* (2020): 100228
5. Bheda, Poonam, **Diana Aguilar-Gómez**, Nils B. Becker, Johannes Becker, Emmanouil Stavrou, Igor Kukhtevich, Thomas Höfer et al. "Single-Cell Tracing Dissects Regulation of Maintenance and Inheritance of Transcriptional Reinduction Memory." *Molecular Cell* (2020).
6. Acosta, Armando, Gabriel Suárez-Varón, Luis A. Rodríguez-Miranda, Andrés Lira-Noriega, **Diana Aguilar-Gómez**, Mariana Gutiérrez-Mariscal, Oswaldo Hernández-Gallegos, Fausto Méndez-de-la-Cruz, and Diego Cortez. "Corytophanids Replaced the Pleurodont XY System with a New Pair of XY Chromosomes." *Genome Biology and Evolution* 11, no. 9 (2019): 2666.
7. Haojie Tong, Jiashen Li, Yubin Wo, Gang Shao, Wei Zhao, **Diana Aguilar-Gómez** and Yuanting Jin. "Effects of substrate color on intraspecific body color variation in the toad-headed lizard, *Phrynocephalus versicolor*." *Ecology and Evolution* 9, no. 18 (2019): 10253.
8. Vivian Link, **Diana Aguilar-Gómez**, Ciro Ramírez-Suástegui, Laurence D. Hurst, and Diego Cortez. "Male mutation bias is the main force shaping chromosomal substitution rates in monotreme mammals." *Genome biology and evolution* 9, no. 9 (2017): 2198-2210.
9. Adam F. Kebede, Anna Nieborak, Lara Zorro Shahidian, Stephanie Legras, **Diana Aguilar-Gómez**, Florian Richter, Marijke P. Baltissen, Gergo Meszaros, Helena de Fatima Magliarelli, Romeo Ricci, Michiel Vermeulen, Gerhard Mittler and Robert Schneider. "Histone propionylation is a novel mark of active chromatin". *Nature Structural & Molecular Biology* 24.12 (2017): 1048.

*co-first authors

Preprints

- Linderorth, Tyler, **Diana Aguilar-Gómez**, Emily White, Evan Twomey, Adam Stuckert, Ke Bi, Amy Ko et al. "Genetic basis of aposematic coloration in a mimetic radiation of poison frogs." *bioRxiv* (2023): 2023-04.

TEACHING EXPERIENCE

- *Graduate Student Instructor* Integrative Biology Department at UC Berkeley
 - Population and Evolutionary Genetics (IB 161), Spring 2021 (Remote instruction)
- *Instructor* for Python Bootcamp, Center for Computational Biology at UC Berkeley
 - Summer 2023
 - Winter 2021 (Remote instruction)
 - Winter 2020
- *Teaching Assistant* for Python Bootcamp, Center for Computational Biology at UC Berkeley
 - Summer 2018

PRESENTATIONS

Talks

- *Genetic basis and evolution of color variation in Phrynocephalus versicolor and Oophaga pumilio*
 - IB 234 Seminar on Biology of Amphibians and Reptiles (UC Berkeley Herpetology group), March 2023
- *Evolution and genetics of the strawberry poison frog in Bocas del Toro*
 - Society of Systematic Biologists 5th Standalone Meeting, January 2023
 - Center for Theoretical and Evolutionary Genetics Seminar, April 2022
 - Evolution Conference 2022
 - CCB Computational and Genomic Biology Retreat 2022
- *Genetic basis of coloration and population genomics of lizards and frogs*
 - Ecology, Evolution, and Conservation Seminar for Master Students: **Invited** by Professor Lani Gleason at California State University, Sacramento Fall 2021 (virtual)
 - CCB Graduate Student Symposium on Computational Biology 2021
- *Adaptation of the Toad-headed Lizard to the Colorful Sand of the Gobi Desert*
 - Virtual Evolution Conference 2021
- *Mapping genetic variants underlying color polymorphism in Oophaga pumilio*
 - CCB Student Lunch Seminar Spring 2019
- *Towards a functional assay for maize endophytes: seedling studies*
 - 4th Annual Undergraduate Research Symposium for Life Sciences, Cornell University 2014

Poster

- *Genomics of the Oophaga pumilio polymorphism at the Bocas del Toro archipelago*
 - **Best Poster Award @** CCB Computational and Genomic Biology Retreat 2021
 - Biology of Genomes 2022
 - Bay Area Population Genomics Conference, Fall 2022
 - SMBE 2023
- *Adaptation of the Toad-headed Lizard to the Colorful Sand of the Gobi Desert*
 - SMBE Virtual Meeting 2021
 - CRA-URMD Conference 2020
 - CCB Computational and Genomic Biology Retreat 2019
 - Bay Area Population Genomics Conference, Fall 2019
- *Population genomics of the variegated toad-headed lizard, Phrynocephalus versicolor, and its adaptation to the colorful sand of the Gobi Desert*
 - CRA-W Grad Cohort 2019
 - Bay Area Population Genomics Conference, Spring 2019
- *Biological significance of genetic modules predicted by the natural decomposition approach*
 - EMBO Conference: From Functional Genomics to Systems Biology 2016

Panelist/ Workshops

- Graduate Student Success Panel: Invited by Berkeley International Office
- Biology X Data Science - Showcase / Workshop 2021: Invited to talk about teaching using the R Datahub at UC Berkeley
- HES x LAGSES Panel 2020: Invited by the Hispanic Engineers and Scientists (HES) at UC Berkeley, to talk about graduate school and encourage minorities to apply
- Berkeley Connect Comp Bio Grad Student Panel 2020: Invited to talk about grad school applications and program experience to undergraduate students

ORGANIZER

- Northern California Computational Biology (NCCB) Student Symposium 2019
- Center for Computational Biology (CCB) Seminar Series 2018-2019
- Computational and Genomic Biology Retreat at UC Berkeley 2018
- Epigenetics Advanced Course, Genomic Science Program at UNAM 2016

SCIENCE COMMUNICATION

English

- [“Photographing nucleo-some friends”](#). *Berkeley Science Review*, Spring 2021
- [“An interview with Professional in Residence Mike Holmes: Pioneering genome editing tools in gene therapy”](#). *Qb3 Berkeley*. April 2020
- [“Searching for adaptation secrets in the Sahara Desert”](#). *Qb3 Berkeley*. August 2020

Spanish

- [Joyas del Bosque: La genética de color en ranas venenosas](#). Caminos de la Ciencia. Seminars in Spanish for the general public at the Oakland Public Library, Science at Cal, April 2023
- [“Las distintas ciudades de las aves migratorias”](#). Nexos Simbiosis. February 2022
- [“Un T. rex por cada tres personas”](#). Nexos Simbiosis. July 2021
- [“El sexo no es un código binario”](#). Página de divulgación del Centro de Ciencias Genómicas, UNAM. May 2015
- [“Los descendientes de los dinosaurios”](#). Página de divulgación del Centro de Ciencias Genómicas, UNAM. March 2015

SKILLS

- **Languages:** Spanish (Native), English (Advanced), French (Intermediate), Portuguese (Elementary)
- **OS:** Linux, Mac, Windows
- **Programming languages:** Python, R, bash, LaTeX, Perl, Matlab

MEMBERSHIPS/ COMMITTEES

- **Society for Molecular Biology and Evolution (SMBE)** 2020-2025
- **Mentorship Program CCB** 2021-2022
- **Society of Systematic Biologists (SSB)** 2021
- **MEXASB:** Mexican Association of Students at Berkeley 2017-present
Vice President 2021-2022
- **CCB DEI Committee:** CCB Diversity Equity and Inclusion Committee
Student representative 2020-2021
- **LAGSES:** Latinx Association of Graduate Students in Engineering and Science at UC Berkeley
Outreach Chair 2019-2020
Public Relations Chair 2018-2019
- **Systems Biology Research Team, Computational Genomics at UNAM** 2014-2017

REVIEWER

- *Molecular Ecology Resources*, November 2020
- *Biological Journal of the Linnean Society*, December 2020

MENTORING

- Adam Chois, undergraduate at UC Berkeley (First Steps in Research Program)
- Irene Liang, undergraduate at UC Berkeley
- Teresa Parra Alvarado, undergraduate at the National Autonomous University of Yucatán (Gradiente Program)
- Lin Yuan, undergraduate at the Chinese University of Hong Kong

VOLUNTEERING

- **Caminos de la Ciencia by Science at Cal** April 2023
Joyas del Bosque: La genética de color en ranas venenosas. A talk in Spanish at the Cesar Chavez Public Library in Oakland, CA
- **Orientation Leader** Fall 2021
Lead students for Berkeley International Office student orientation
- **Literatura COVID** Spring 2020
A project that made an effort to translate articles about COVID-19/SARS-Cov2 to Spanish
- **BASIS (Bay Area Scientists in Schools)** October 2019
Catapult Challenge at John Muir Elementary School in Berkeley, CA
- **Caminos de Ciencia**, April 2019
El Desafío de la catapulta: The Catapult Challenge, taught for Spanish-speaking kids, at the Cesar Chavez Public Library in Oakland, CA
- **Jóvenes en Acción (Youth in Action)**, 2012-2013
U.S. Department of State & Mexican Government Program. Civic education, community service, and youth leadership development.

RELEVANT COURSES/ WORKSHOPS TAKEN

- Holistic Graduate Admissions Workshop with Julie Posselt, Fall 2020
- Science Writing for the Public Workshop from CCB at UC Berkeley, Spring 2020
- Principles and Techniques of Data Science UC Berkeley, Spring 2020
- Population and Evolutionary Genetics at UC Berkeley, Spring 2019
- Statistical Genomics at UC Berkeley, Spring 2018
- Introduction to Probability at an Advanced Level at UC Berkeley, Fall 2017
- Introduction to Statistics at an Advanced Level at UC Berkeley, Fall 2017