

CURRICULUM VITAE

Héctor D. García-Verdugo

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PERSONAL SUMMARY

Presently working as a Research Laboratory Manager, I bring over a decade of experience in diverse laboratory settings. Along with holding dual degrees in the sciences and humanities, my extensive training has ranged from laboratory management and maintenance to a wide approach in biological research, project coordination and the fostering of healthy workplace relationships that have helped ensure success. My career goals aim to establish and leverage a strong base of institutional knowledge, support reproducible research efforts and expand on the potential that applied sciences can have in addressing real world problems. By using my familiarization of the wide procedural mechanics behind scientific research and understanding its role in society within present economic and political settings, I aim to elucidate on solutions for the underlying problems that affect society at large, specifically focusing on those related to human development and public health.

POSITION HISTORY/CHRONOLOGY OF EMPLOYMENT (selected)

Research Laboratory Manager I for the Data Diversity Lab, University of Arizona	2023-Present
Research Technician I & II for Dr. Lisa Nagy, University of Arizona	2018-2023
Research Assistant for Dr. Martha Bhattacharya, University of Arizona	2017-2018
Research Lab Assistant for Dr. L Oland & Dr. L. Tolbert, University of Arizona	2015-2017
Laboratory Aide for Biology Facilities, Pima Community College	2013-2015
Previous experience available upon request	2012-2013

CHRONOLOGY OF EDUCATION, CREDENTIALS & CERTIFICATIONS

The University of Arizona, Tucson AZ

Bachelor of Science (B.S.) in Neuroscience & Cognitive Science	2018
Bachelor of Arts (B.A.) in Philosophy	2018

Pima Community College, Tucson AZ

Associate of Science (A.S.) & AGECS	2015
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Associate of Arts (A.A.)

2014

PUBLICATIONS, SUBMITTED ABSTRACTS, AND ORAL PRESENTATIONS

1. S. Blunk, S.O Sullivan, H. Garcia-Verdugo, M. Haines, J. Camp, T. Coalter, T.A. Williams, L.M. Nagy
“Functional divergence of *engrailed* and *invected* paralogs” August 2023, Insects Journal. **Publication**
Role: Co-Author
2. Sierra O’ Sullivan, Summer Blunk, Hector Garcia-Verdugo, Terri Williams, Lisa Nagy “The story of
engrailed and *invected* and the evolution of their functional redundancy” Society for Developmental
Biology (SDB) Vancouver, Canada 2022. **Poster Role:** Contributing scientist.
3. Erik G. Larsen, Tiffany S. Cho, Matthew L. McBride, Jing Feng, Bhagyashree Manivannan, Cynthia
Madura, Nathaniel E. Klein, Elizabeth B. Wright, Hector D. Garcia-Verdugo, Chelsea Jarvis, Rajesh
Khanna, Hongzhen Hu, Tally M. Largent-Milnes, Martha R.C. Bhattacharya. “Transmembrane
protein TMEM184B is necessary for interleukin-31-induced itch.” August 2021, Pain Journal.
Publication. Role: Co-Author.
4. Ernesto Hernandez, Sarah E. MacNamee, Leah R. Kaplan, Kim Lance, Hector D. Garcia-Verdugo,
Dara S. Farhadi, Christine Deer, Si W. Lee. Lynne A. Oland. “The astrocyte network in the ventral
nerve cord neuropil of the *Drosophila* third-instar larva.” January 2020, Journal of Comparative
Neurology. **Publication Role:** Co-Author.
5. Jing Feng², Matt McBride¹, Hector Garcia¹, Chelsea Jarvis¹, Mere French¹, Hongzhen Hu²,
Martha Bhattacharya¹. “Roles for Putative GPCR TMEM184b in Somatosensory Development and
Function.” Gordon Research Conference on Cell Biology of the Neuron, Waterville, Valley BH, 2018.
Poster. Role: Contributing Scientist.
6. Leah R. Kaplan, Héctor D. García, Ernesto Hernandez, Leslie P. Tolbert, Lynne A. Oland “*Drosophila*
astrocytes span functional neural domains with little overlap” Undergraduate Biology Research
Program Conference (UBRP), Tucson AZ, 2017. **Poster. Role:** Contributing Scientist & Poster
Presenter.

CORE EXPERIENCE

Data Diversity Laboratory

- Data Science Laboratory Management: Facilitation of hiring, onboarding and offboarding of all lab members to and from established lab mechanics, attending to lab-related needs and guidance of MSc, PhD, and postdoctoral lab members, coordinating with and outside of college of information science to maintain day-to-day operations.
- Facilitation of grant proposal preparation, & writing: Transcribing budgets, revising and collaborating on proposals, co-ensuring compliance of call-specific requirements, submission via proxy systems, and reaching out to collaborators for fulfilling required support.
- Facilitation of funding: researching and organizing potential funding resources.
- Coordination of lab meetings/presentations.
- Development and maintenance of LabOps: Assist in researching, implementing and maintaining efforts related to running an efficient collaboration, communication, and data sharing virtual environment composed of multiple integrated platforms.
- Maintenance of laboratory digital and physical infrastructure: GitHub, NAS, dedicated servers, and lab website.
- Development, organization and sharing of all laboratory-related documentation.
- Participation and assistance in collaborative research projects related to the application of ML in biological sciences & social sciences.

Nagy Laboratory

- BSL 1& 2 Laboratory Management: Undergraduate student/employee training, supervision, and evaluation. Compliance with university wide laboratory installation and safety requirements, record keeping, communication with RII core facilities & Arizona Genetics Core, equipment installation and communication with building manager.
- Project coordination: Assist Principal Investigator in getting project specific weekly goals met by leading co-workers to achievable goals, judging what can be done by their current knowledge and abilities. Report results in lab specific formats daily via the web application Benchling.
- Grant administration: Evaluating, making, and co-approving best financial decisions according to lab needs. Order purchasing using known UA system purchasing gateways.
- DNA & RNA Synthesis, Extraction & Purification, validation via routine PCR & specialized assay kits.
- Plasmid synthesis via ligation, transformation & other standardized methods: MINI- MIDI-prep etc.

- mRNA & dsRNA synthesis and use of in assays. Visualization using confocal microscopy and time-based observation experiments.
- Labeling: Hybridization Chain Reaction (HCR), in situ hybridization, DAPI, Hoechst & immunofluorescence probes.
- *Tribolium castaneum* embryonic Injections: p element mediated transgenesis, RNAi, labeling & Dissections using entomological tools.
- Plasmid & Primer Design using SnapGene software & BLAST.

Bhattacharya Laboratory

- Collect data on animal behavioral assays: temperature and locomotion timed assays on wildtype/mutant *drosophila m.* larvae, characterization of mice with neuromuscular disorders in timed frames.
- Preparing and running agarose gels.
- Cell Culture: Plating, maintaining, and passaging cells (primarily HEK293 cells).
- Electrophysiology: Collecting electrical signals (EEG, EKG, EMG) in human patients, adult *Bullata sarcophaga* and some larval *Drosophila melanogaster*.
- Exposure to genetics: perform genetic crosses to obtain a specific construct for temporary experimentation/observation and sorting by phenotype for future mating.
- Exposure to Western Blot procedures (primarily using Bio-Rad equipment)
- Exposure to protein quantification of cell/tissue lysates via BCA kit and reading on Nanodrop.

Tolbert/Oland Laboratory

- Research scientific literature to assist Principal Investigators and/or ask further questions.
- Making reagents and other chemical solutions.
- Fly Microdissections: *Drosophila melanogaster* CNS, and PNS gross analysis using entomological tools & fixation protocols.
- *Drosophila m.* Immunocytochemistry/Immunohistochemistry: blocked and probed cells and tissue to quantify protein markers using commercially available antibodies.

Other lab techniques and experience

- Microscopy: Bright, Fluorescent, Stereoscopic, and Spinning Disk/single/multi-photon laser/confocal experience. Exposure to image manipulation and quantification using FIJI/Image J. Exposure to 3D modeling using Amira Life sciences software.

- Plant and animal care: Greenhouse care, human cadaver for physiological sciences maintenance, microorganism husbandry (*Paramecium* & *Euglena*), fly husbandry (*Drosophila m.*), beetle husbandry (*Tribolium c.*), exposure to mouse care and other animal facilities.
- Data Analysis/Presentation: Qualitative, and quantitative analysis using Excel and preparation of results for presentations using Adobe Photoshop, PowerPoint. Compilation of observed data and scientific methods/techniques in Microsoft Word.
- Exposure to Institutional Review Board (IRB) methodologies.
- Clinical Experience: Instructed patients on what physician appointment would consist about as a volunteer in Mexican Institute of Social Security Hospital (IMSS). Signing patient consent forms and assisting physician.

OTHER SKILLS

- **Bilingual:** Native level Spanish fluency: translation, communication & writing.
- **IT Literacy:**
 - Experienced in high level IT services, able to use Windows XP-11, Mac OS, & Linux based operating systems as well as installation.
 - Experienced with Microsoft Office 365.
 - 80 WPM typing speed.
 - Chat support, phone & e-mail communications.
 - Troubleshooting. Computer building /maintenance/upgrade skills, Wireless, Routing.
 - Use of assistive Artificial Intelligence tools like ChatGPT with a critical thinking lens.
 - Familiarization with Free and Open-Source Software (FOSS) use and implementation.
 - Familiar with blockchain technology and use.
 - Some MATLAB & Python exposure.
- **E-Commerce retailer:** International sourcing, handling, and delivering products with tested customer service logistics to over 300 people with excellent feedback. High level knowledge of online retailer services like Amazon and eBay.
- **Financial Literacy:** Love to learn about tax rules, credit cards, debit, financial instruments of all kinds. I was able to finance a mortgage at the age of 25, and now at 30, have only 10% left to totally pay off my house! I am the first in my immediate family to have a mortgage/almost own my own home since my maternal grandfather.
- Ability to lift/move 70lbs at a time for further transportation.

HONORS, AWARDS & GRANTS

Selected as recipient of Galileo Circle College of Science Scholarship, University of Arizona	2018
Selected as recipient of Magellan Circle Scholarship for Philosophy, University of Arizona	2017
NSF: Undergraduate research grant by Western Alliance to Expand Student Opportunity	2016
Selected as recipient of Arizona Earn to Learn Scholarship, City of Tucson AZ	2015
Stephen Wolslager Foundation Scholarship, Pima Community College	2013 & 2014
AP Scholar Recognition	2012

LEADERSHIP ACTIVITIES/EXTRA CURRICULAR

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- Party for Socialism and Liberation (2024): Involved in volunteer efforts related to economic social justice and the self determination of peoples
 - Movement for a Peoples Party (2020): involved in support for the creation of a new political party in the United States, attend hub meetings, organization for reach out events via Zoom, and social media outreach.
 - United States of America 2020 Elections: Poll worker volunteering.
 - Symbiosis: An Exhibit of Biological Art (2017): Created and presented artwork for community events organized around a science-oriented community.
 - United States of America 2016 Elections: Organized teams and distributed information effectively in neighborhoods. Polished communication skills to deliver a strong message to a diverse audience in the state of AZ.
 - Boys and Girls Club of America (2012): Instructed children of ages 5-12 basic music lessons in guitar and air instruments as therapy for attention deficit as part of final high school project.