

Roberto Márquez, PhD.

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Education and Academic Positions

2021 – 2024	Michigan Postdoctoral Fellow and Assistant Professor (fixed-term) Department of Ecology and Evolutionary Biology University of Michigan. Ann Arbor, MI. USA.
2020 – 2021	Postdoctoral Scholar (Mentor: Marcus Kronforst) Department of Ecology and Evolution University of Chicago. Chicago, IL. USA.
2013 – 2020	PhD. Ecology & Evolution (Advisor: Marcus Kronforst) Department of Ecology and Evolution University of Chicago. Chicago, IL, USA.
2013	COLCIENCIAS Young Researcher and Innovator Biological Sciences Department Universidad de Los Andes. Bogotá, D.C. Colombia.
2012 – 2013	MS. Biological Sciences (Advisor: Adolfo Amézquita) Biological Sciences Department Universidad de Los Andes. Bogotá, D.C. Colombia.
2007 – 2011	BS. Biology (Honors; Advisor: Adolfo Amézquita) Universidad de Los Andes. Bogotá, D.C. Colombia.

Awards and Fellowships

2022	Outstanding Mentor Award, Undergraduate Research Opportunity Program, University of Michigan. Nominated jointly by all my students.
2021	Postdoctoral Fellowship, Michigan Society of Fellows, University of Michigan. USD \$200,000 over 3 years
2014	Dean's International Student Fellowship. Biological Sciences Division. University of Chicago. USD \$ 95,000 over 1 year
2012	Otto de Greiff National Award. Natural Sciences Category. Best Undergraduate Thesis from a Colombian university.
2011	Animal Behavior Society Genesis Award honorable mention. Best Undergraduate Student poster at the ABS meeting.

Publications

*Equal Contribution †Trainee co author ‡Corresponding Author

[Google scholar profile](#): h-index=7 i10-index=6

Manuscripts in review

16. Márquez, R.,[‡] Suárez-Mayorga, A. *In review*. *Hyla labialis* Peters 1863 (currently *Dendropsophus labialis*; Anura, Hylidae, Dendropsophinae): proposed precedence over *Hyla molitor* Schmidt, 1857 (currently *Dendropsophus molitor*). *Bulletin of Zoological Nomenclature*.
15. Rojas, B., Lawrence, J.P., Márquez, R. *In Press*. Amphibian coloration: Proximate mechanisms, function, and evolution. In: Moreno-Rueda, G., Comas, M. (eds). *Evolutionary Ecology of Amphibians*. CRC Press (Taylor & Francis). Boca Raton, FL. USA.

Peer-reviewed publications

14. Ramírez-Castañeda, V., Westeen E.P., Frederick, J., Amini, S., Wait, D., Achmadi, A.S., Andayani, N., Arida, E., Arifin, U., Bernal, M.A., Bonaccorso, E., Sanguilla, M. B., Brown, R.M., Che, J., Condori, F.P., Hartiningtias, D., Hiller, A.E., Iskandar, D. T., Jiménez, R.A., Khelifa, R. **Márquez, R.**, Martínez-Fonseca, J. G., Parra, J.L., Peñalba, J.V., Pinto-García, L., Razafindratsima, O.H., Ron, S., Souza, S., Supriatna, J., Bowie, R.C. K., Cicero, C., McGuire, J.A., Tarvin, R.D. 2022. A set of principles and practical suggestions for equitable fieldwork in biology. *PNAS*. 119(34): e2122667119.
13. Chaves-Portilla, G.A., Salazar, E.N., Gil-Acero, J., Dorado-Correa, A., **Márquez, R.**, Rueda-Almonacid, J.V., Amézquita, A. 2021. A new species of Andean golden poison frog (*Andinobates*, Dendrobatidae) from the Eastern Andes of Colombia. *Zootaxa*. 5047(5): 531–546.
12. **Márquez, R.** 2021. How do batrachotoxin-bearing frogs and birds avoid self-intoxication? *Journal of General Physiology* 153(10): e202112988.
11. **Márquez, R.** Linderoth, T.P., Mejía-Vargas, D., Nielsen, R., Amézquita, A.,* Kronforst, M.R.* 2020. Divergence, gene flow and the origin of leapfrog geographic distributions: The history of color pattern variation in *Phyllobates* poison-dart frogs. *Molecular Ecology* 29(19): 3702-3719.
10. Gómez-Bahamón, V., **Márquez, R.**, Laverde, O.A., Jahn, A.E., Miyaki, C.Y., Restrepo, S., Cadena, C.D. 2020. Speciation associated with shifts in migratory behavior in a large radiation of birds. *Current Biology* 30(7): 1312-1321.
9. Mendoza A.M., **Márquez, R.**, Molina-Zuluaga, C., Mejía-Vargas, D., Palacios-Rodríguez, P. 2019. New records and distribution extension of the rare glassfrog *Hyalinobatrachium chirripoi* (Anura: Centrolenidae) on both sides of the Andes in Colombia. *Amphibian and Reptile Conservation* 13(2): 145-151 (e196).
8. **Márquez, R.**, Ramírez-Castañeda, V[†], Amézquita, A. 2019. Does batrachotoxin autoresistance co-evolve with toxicity in *Phyllobates* poison-dart frogs? *Evolution* 73 (2): 390-400.
7. Rogers, R.L*, Zhou, L*, Chu, C., **Márquez, R.**, Corl, A., Linderoth, T.P., Freeborn, L., McManes, M., Xiong, Z., Zheng, J., Guo, C., Xun, X., Kronforst, M.R., Summers, K., Wu, Y., Yang, H., Richards-Zawacki, C.L., Zhang, G*, Nielsen, R*. 2018. Genomic takeover by transposable elements in the Strawberry poison frog. *Molecular Biology and Evolution* 35 (12): 2913-2927.
6. Casas-Cardona, S[†], **Márquez, R.**, Vargas-Salinas, F. 2018. Different colour morphs of the poison frog *Andinobates bombetes* (Dendrobatidae) are similarly effective visual predator deterrents. *Ethology* 124 (4): 245-255.
5. Sepúlveda V.E*, **Márquez R.**, Turissini, D., Goldman, W., Matute, D.R. 2017. Genome sequences reveal cryptic speciation in the human pathogen *Histoplasma capsulatum*. *mBio* 8 (6): e01339-17.
4. **Márquez, R.**, Mejía-Vargas*, D., Palacios-Rodríguez, P., Ramírez-Castañeda, V[†], Amézquita, A. 2017. A new species of *Andinobates* (Anura: Dendrobatidae) from the Urabá region of Colombia. *Zootaxa* 4290 (3): 531-546.
3. Amézquita, A., **Márquez, R.**, Medina, R., Mejía-Vargas, D., Kahn, T.R., Suárez, G., Mazariegos, L. 2013. A new species of Andean poison frog, *Andinobates* (Anura: Dendrobatidae), from the northwestern Andes of Colombia. *Zootaxa* 3620 (1): 163–178.
2. Acevedo, A.A. Wake, D.B., **Márquez, R.**, Silva, K., Franco, R., Amézquita, A. 2013. Two new species of salamander, genus *Bolitoglossa* (Amphibia: Plethodontidae), from eastern Colombia. *Zootaxa* 3609 (1): 069–084.
1. **Márquez, R.**, Corredor, G., Galvis, C., Góez, D., Amézquita, A. 2012. Range extension of the critically endangered true poison-dart frog, *Phyllobates terribilis* (Anura: Dendrobatidae), in western Colombia. *Acta Herpetologica* 7(2): 341-345.

Other publications (not peer-reviewed)

1. Salazar, E.N. **Márquez, R.** Chaves-Portilla, G. Dorado-Correa, A.M. Amézquita, A. 2016. Supatá Golden Frog. *Andinobates supatae*. In: Kahn, TR. La Marca, E. Lötters, S. Brown, JL. Twomey, E. Amézquita, A. (Eds). Aposematic Poison Frogs (Dendrobatidae) of the Andean Countries: Bolivia, Colombia, Ecuador, Perú and Venezuela. Conservation International Tropical Field Guide Series. Bogotá.

Manuscripts in Preparation

3. Arkin, R.[†], Márquez, R.[‡] *In preparation*. The effects of dietary carotenoid and preformed vitamin A supplementation on poison-dart frog larvae.
2. Márquez, R.[‡] *In preparation*. Tadpole cannibalism in *Phyllobates* poison frogs.
1. Márquez, R.[‡], Mejía-Vargas, D., Gonzalez, M., Palacios-Rodríguez, P., Brown, J.L., Kronforst, M.R. *In preparation*. Disentangling the origin of a color pattern cline in *Phyllobates* poison frogs.

Grants and Fellowships

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| 2022 | Summer Support Grant. University of Michigan College of Literature Science, and the Arts.
USD \$5,900. Role: PI. |
| 2019 | Brien O'Brien and Mary Hasten Scholarship. University of Chicago and Marine Biological Laboratory.
USD \$1,500. |
| 2018 | National Science Foundation Enabling Discovery through Genomic Tools (EDGE).
USD \$1,600,000. Role: Co-prepared with Lauren A. O'Connell (PI) and Marcus R. Kronforst (Co-PI). |
| 2018 | University of Chicago Biological Sciences Division Dean's Council Student Travel Award.
USD \$600. |
| 2017 | Hinds Fund. Committee on Evolutionary Biology, University of Chicago.
USD \$2,000. Role: PI. |
| 2017 | National Science Foundation Doctoral Dissertation Improvement Grant.
USD \$20,956. Role: Co-PI (PI: Marcus Kronforst). |
| 2016 | Biological Sciences Division Recruitment Travel Award. University of Chicago.
USD \$350. |
| 2016 | Steiner award for student travel. Biological Sciences Division, University of Chicago.
USD \$1,460. |
| 2015 | National Geographic Society Young Explorers Grant.
USD \$4,600. Role: PI. |
| 2014 | Travel Award to attend the X Latin American Congress of Herpetology.
USD \$750. |
| 2014 | Full scholarship to attend the 19th Summer Institute in Statistical Genetics at the University of Washington. |
| 2014 | Hinds Fund. Committee on Evolutionary Biology, University of Chicago.
USD \$1,600. Role: PI. |
| 2014 | Travel grant to attend the Society for Systematic Biologists Phylogenomics Summer School.
USD \$250. |
| 2012 | Vice Chancellor for Research Basic Sciences Research Grant, Universidad de Los Andes.
USD \$20,400. Role: Co-PI (PI: Adolfo Amézquita). |
| 2012 | COLCIENCIAS Fellowship for Young Researchers and Innovators.
USD \$7,500. Role: PI. |
| 2012 | Seed grant. Faculty of Sciences. Universidad de Los Andes.
USD \$1,700. Role: PI. |
| 2012 | Travel stipend to attend the World Congress of Herpetology VII.
USD \$700. |
| 2012 | Society for the Study of Evolution international travel stipend.
USD \$960. |
| 2011 | Colombia Biodiversa Scholarship. Alejandro Angel Escobar Foundation.
USD \$1,600. Role: PI. |
| 2011 | Animal Behavior Society Latin American Travel Award.
USD \$1,365. |

Invited Presentations

*Student-invited

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| 2022 | Biology Department. Pontificia Universidad Javeriana. Bogota, D.C. Colombia. |
| 2022 | Department of Ecology and Evolutionary Biology. University of Michigan. Ann Arbor, MI. USA.
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2021	Strengthening Emerging Model System Biology Working Group. University of Michigan. Ann Arbor, MI. USA.
2021	Department of Biological Sciences. California State University. Long Beach, CA. USA.
2021	Institute of Science and Technology, Austria. Klosterneuburg, NOE. Austria.
2021*	Department of Biology. University of Rochester. Rochester, NY. USA.
2020	Department of Biological Sciences. University of Montana. Missoula, MT. USA.
2020	Colombian Association of Herpetology virtual seminar series. Medellín, AN, Colombia.
2020*	Department of Zoology. Southern Illinois University. Carbondale, IL. USA.
2020	School of Biological Sciences. University of Queensland. Saint Lucia, QLD, Australia.
2020	Behavioral Ecology Group. University of Melbourne. Melbourne, VIC. Australia.
2019	Natural Sciences Institute, Universidad Nacional de Colombia. Bogotá, D.C. Colombia.
2018	Department of Biological Sciences. Purdue University. West Lafayette, IN. USA.
2016	Institute for Mind and Biology. University of Chicago. Chicago, IL. USA.
2014	Invited talk at the X Latin American Congress of Herpetology. Cartagena, BO. Colombia.

Teaching Experience

Instructor of Record

2022	University of Michigan (1 course): Principles and Applications of Evolutionary Genetics (self-designed lecture and lab course).
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Laboratory Section Instructor of Record

2015	University of Chicago (1 course): Evolution and Ecology.
2012 – 2013	Universidad de los Andes (3 courses): Animal Behavior (self-designed lab section); Animal Physiology; Biology for Psychology.

Workshops

2022	From genes to behavior: Functional genetic tools in diverse organisms: Co-organized and taught a one-day workshop at the Animal Behavior Society Meeting. Lead organizer: Zoe Donaldson.
2022	University of Michigan Ecology and Evolution Frontiers Masters Program Field School: Led a day-long problem-based learning session where Masters students collected and analyzed data and presented results for a small field project.

Teaching Assistant

2015 – 2018	University of Chicago (4 courses): Population Genetics (graduate course); Molecular Phylogenetics (graduate course); Ecology in the Anthropocene; Molecular and Cell Biology.
2010 – 2011	Universidad de los Andes (4 courses): Animal Behavior; Animal Physiology; Biology for Psychology; Vertebrate Zoology.

Curatorial Experience

2009	Collection assistant (volunteer). Collection of Amphibians and Reptiles, ANDES Museum of Natural History. Universidad de los Andes, Bogotá, Colombia.
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Additional Training

2022	Teaching Academy training program for new faculty (one semester). Center for Research on Learning and Teaching. University of Michigan.
2021	Mentoring Training for Postdocs workshop (8 weeks). Biological Sciences Division, University of Chicago.
2019	<i>Xenopus</i> genome editing workshop. Marine Biological Laboratory. Woods Hole, MA. USA.
2017	Course Design and College Teaching graduate course (one quarter). University of Chicago Center for Teaching.
2014	Summer Institute on Statistical Genetics. University of Washington.
2014	Phylogenomics Summer School. Society for Systematic Biologists

Student Mentoring

Graduate

2014 – 2017	Valeria Ramírez-Castañeda. MSc. student at Universidad de los Andes, Colombia. Masters thesis co-advised with Adolfo Amézquita.
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Undergraduate

2022 – Present	Kyle Albertch. Undergraduate researcher. University of Michigan.
2021 – Present	Christopher Talbot. Undergraduate researcher. University of Michigan.
2021 – Present	A'liya Spinner. Undergraduate researcher. University of Michigan.
2021 – 2022	Jonathan Sarasa. Undergraduate researcher. University of Michigan.
2022	Zoe Gargiulo. Undergraduate researcher. Washtenaw Community College.
2021 – 2022	Rachel Arkin. Undergraduate researcher. University of Michigan. Senior thesis advisor
2018 – 2019	Kaylin Janicke. Undergraduate Intern. Southern Illinois University.
2017 – 2018	Olivia Catau. Undergraduate researcher. University of Chicago. Senior thesis co-advised with Mark Webster and Marcus Kronforst.
2017	Madison Olmsted. Undergraduate Intern. University of Chicago.
2015 – 2016	Santiago Casas-Cardona. Undergraduate researcher. Universidad del Quindío. Senior thesis co-advised with Fernando Vargas-Salinas.

Thesis evaluator

2022	Hugo A. Zárate. Senior thesis at Universidad Javeriana, Bogotá.
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Public outreach

2022	Designer of an exhibit on genetics, evolution and development of poison frog colors at the University of Michigan's Natural History Museum. Expected to go live in the summer of 2023.
2021 – Present	Support scientist in the Frogger's School Program , a partnership between herpetologists and K12 science teachers aimed at creating engaging educational experiences through the care and use of live poison frogs in the classroom.
2021 – Present	Participant of the " Science at Work: Biodiversity Lab " exhibit at the University of Michigan's Museum of Natural History, where visitors can watch and interact (via headsets) with scientists as they work at the bench.
2014 – Present	Visits to 18 K-12 classrooms and after-school programs across the US, often through the Skype a Scientist program. Topics have included evolutionary biology, herpetology, conservation, science as a career, and how scientific facts come to be.

- 2015 – 2017 Volunteer teaching assistant for the “Brains!” workshop at the University of Chicago, guiding 7th grade students from the Chicago South Side through an introduction to electrophysiology and neuroscience. Led by Dr. Stephanie Palmer.
- 2013 Participant in the Biodiversity Fair at Colegio la Inmaculada in Orocué, Casanare, Colombia, where we conducted activities with elementary school students aimed at discussing local biodiversity, its conservation, and myths around “infamous” animals such as toads and snakes.

Professional Service

Manuscript and Grant/Award Review

- 2013 – Present Peer-reviewer for 18 journals: *The American Naturalist*, *Biological Journal of the Linnean Society*, *BMC Evolutionary Biology*, *Catálogo de Anfibios y Reptiles de Colombia*, *Journal of Chemical Ecology*, *Evolution*, *Evolutionary Ecology*, *Gene*, *Genetica*, *Journal of General Physiology*, *Molecular Biology and Evolution*, *Molecular Ecology*, *Molecular Phylogenetics and Evolution*, *The Journal of Natural History*, *Phyllomedusa*, *Proceedings of the Royal Society B*, *The South American Journal of Herpetology*, and *Wellcome Open Research*.
- 2022 Student presentation judge at 2 scientific meetings: *Colombian Congress of Herpetology*, *Population, Ecological, and Quantitative Genetics*.
- 2022 Judge in the ProQuest Distinguished Dissertation Awards. University of Michigan.
- 2019 – 2020 Proposal reviewer for the Botas al Campo (Boots on the Ground) initiative of the Colombian Association of Herpetology, which funds herpetological research by undergraduates and recent graduates.
- 2016 Reviewer of the Manual for Collecting Genetic Material in Field Studies issued by the Alexander von Humboldt Institute of Colombia.

Adviser/Consultant

- 2020 – Present Member of the IUCN's Amphibian Specialist Group Colombia, a task force focused on re-evaluating the conservation status of Colombia's amphibians.
- 2019 – 2021 Expert advisor on Colombian dendrobatid frogs for the Alliance for Zero Extinction.
- 2020 Academic adviser for Fundación EduPacífico, a nonprofit organization seeking to increase access to higher education for underserved communities in Western Colombia.

Workshop/Symposium organizer

- 2022 Workshop: “From genes to behavior: Functional genetic tools in diverse organisms”
Animal Behavior Society meeting. Led by Zoe Donaldson.
- 2017 Symposium on Coloration and Genetics in Poisonous Frogs.
Latin American Congress of Herpetology. Co-organizer: Rebecca D. Tarvin.
- 2014 Symposium on the Evolution of Communication Signals in Amphibians and Reptiles
Latin American Congress of Herpetology. Co-organizer: Fernando Vargas-Salinas.

University Service

- 2022–2023 Member of the Social Committee.
Department of Ecology and Evolutionary Biology. University of Michigan.
- 2016 – 2018 Graduate Student Representative.
Department of Ecology and Evolution. University of Chicago.
- 2012 Member of the Graduate Student Committee.
Faculty of Sciences. Universidad de los Andes.

Conference Presentations

- 2022 Colombian Congress of Herpetology. Cali, Valle, Colombia.
- 2022 Animal Behavior Society. San José, Costa Rica.
- 2022 Evolution 2022. Cleveland, OH. USA.
- 2022 Population Quantitative, and Evolutionary Genetics. Pacific Grove, CA. USA.
- 2020 World Congress of Herpetology. Dunedin, New Zealand.
- 2019 Midwest Population Genetics Meeting. Chicago, IL. USA.
- 2019 Evolution 2019. Providence, RI. USA.
- 2018 Joint Meeting of Ichthyologists and Herpetologists. Rochester, NY. USA.
- 2017 XI Latin American Congress of Herpetology. Quito, Ecuador.
- 2016 Colombian Congress of Herpetology. Medellín, Colombia.
- 2016 Midwest Population Genetics Meeting. Chicago, IL. USA.
- 2016 World Congress of Herpetology. Tonglu, China.
- 2016 Evolution 2016. Austin, TX. USA.
- 2014 X Latin American Congress of Herpetology. Cartagena, Colombia.
- 2014 Evolution 2014. Raleigh, NC. USA.
- 2013 Behaviour 2013. Newcastle-Gateshead, UK.
- 2012 World Congress of Herpetology. Vancouver, BC. Canada.
- 2012 Evolution 2012. Ottawa, ON. Canada.
- 2011 Behavior 2011. Bloomington, IN. USA.
- 2011 Evolution 2011. Norman, OK. USA.
- 2010 Colombian Congress of Zoology. Medellín, Colombia.