

Letícia Magpali

Postdoctoral Research Group

Department of Biology, Dalhousie University, Halifax, Canada

PhD Biology, Universidade Estadual de Campinas (Unicamp), Brazil

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Teaching Degree, Brazil

RESEARCH INTERESTS

Cetaceans | Phenotype-Genotype Evolution | Genomics | Bioacoustics | Bioinformatics

EDUCATION

- 2023-present** **PhD student, Biology** – Dalhousie University, Halifax, Canada
Title: Evolutionary dynamics of cetacean sounds: connecting phenotype and genotype across environments
Research focus: Evolutionary biology
Supervisors: Joseph Bielawski & Mariana Freitas Nery
- 2021-2022** **MSc student, Biology** – Dalhousie University, Halifax, Canada
Research focus: Molecular evolution
Supervisors: Joseph Bielawski & Mariana Freitas Nery
Transferred to the PhD program in April 2023.
- 2015-2021** **Teaching Degree, Biology** – Universidade Estadual de Campinas (Unicamp), Campinas, Brazil
- 2015-2019** **BSc Honours, Biology** – Universidade Estadual de Campinas (Unicamp), Campinas, Brazil
Title: Molecular evolution of hearing genes in freshwater and marine toothed whales
Supervisor: Mariana Freitas Nery

PUBLICATIONS

In preparation

Magpali, L.; Freitas, L.; Ramos, E. K. S.; de Souza, E. M. S.; Nery, M. F. Molecular evolution of hearing genes highlights multiple evolutionary paths for dolphin echolocation in different environments. *BMC Evolutionary Biology*.

Gomes-Lamounier, G.L; Aureliano, T.; Veras, M.M.; **Magpali, L.;** Coelho, M.S.Z.S.; Rodrigues, A.C.B.; Ghilardi, A.M.. Bone density in thoracic limbs as an ecomorphological indicator in toothed whales.

Submitted & under review

- 2023 Selleghin-Veiga, G.; **Magpali, L.**; Picorelli, A.; Silva, F. A.; Ramos, E.; Nery, M. F. Breathing air and living underwater: molecular evolution of genes related to antioxidant response in cetaceans and pinnipeds. *Molecular Biology and Evolution*. Submission ID: JMEV-D-23-00060
- 2023 Ramos, E.; Silva, F.A.; Picorelli, A.; Freitas, L.; Selleghin-Veiga, G.; **Magpali, L.**; Nery, M.F. Molecular footprints on osmoregulation-related genes associated with freshwater colonization by cetaceans and sirenians. *Journal of Molecular evolution*.

Published

- 2023 **Magpali, L.**, Bielawski, J. (2023) Why are whales big? Genes behind ocean giants. *Trends in Genetics*, 39(6), 436-438. <https://doi.org/10.1016/j.tig.2023.03.005>
- 2021 **Magpali, L.**, Machado, D. R., Araújo, T. Q., & Garraffoni, A. R. (2021). Long distance dispersal and pseudo-cryptic species in Gastrotricha: first description of a new species (Chaetonotida, Chaetonotidae, Polymerurus) from an oceanic island with volcanic rocks. *European Journal of Taxonomy*, 746(1), 62–93. <https://doi.org/10.5852/ejt.2021.746.1319>
- 2019 **Estevão, L. M. M.**; Nery, M. F. Molecular evolution of echolocation genes in cetaceans and bats. *Revista dos Trabalhos de Iniciação Científica da UNICAMP*, (26). <https://doi.org/10.20396/revpibic262018845>
- 2016 **Estevão, L. M. M.**; Garraffoni, A. R. S. Sistemática do gênero *Polymerurus* (Gastrotricha: Chaetonotidae) no Brasil. In: XXIV CONGRESSO DE INICIAÇÃO CIENTÍFICA DA UNICAMP, 2016, Resumos... Campinas, GALOÁ, [2018.10.19146/pibic-2016-52007](https://doi.org/10.19146/pibic-2016-52007).

AWARDS

Scholarships, fellowships and research grants

- Sept 2021 **Biology Graduate A- Fellowship (CAD \$11,900, 2 years)**
Dalhousie University, NS, Canada
- Sept 2021 **Nova Scotia Graduate Scholarship (CAD \$20,000, 2 years)**
Nova Scotia Government, NS, Canada
Project: How cetaceans use sound: investigating the genetic basis of cetacean vocal behavior
Supervisor: Joseph Bielawski
- Dec 2019 **FAPESP Undergraduate Research Scholarship (BRL \$1,488.96, 2 months)**
São Paulo Research Foundation
Project: Molecular evolution of echolocation genes in freshwater and marine cetaceans
Supervisor: Mariana Freitas Nery
- Jun 2019 **FAPESP Undergraduate Research Scholarship (BRL \$5,211.36, 7 months)**
São Paulo Research Foundation
Project: Molecular evolution of echolocation genes in freshwater and marine cetaceans

Supervisor: Mariana Freitas Nery

Jun 2018 **FAPESP Undergraduate Research Scholarship (BRL \$8,933.76, 1 year)**

São Paulo Research Foundation

Project: Molecular evolution of echolocation genes in freshwater and marine cetaceans

Supervisor: Mariana Freitas Nery

Apr 2016 **FAEPEX Undergraduate Research Scholarship (BRL \$4,800.00, 1 year)**

Fundo de Apoio ao Ensino, à Pesquisa e Extensão, Pró-reitoria de Pesquisa

Project: Systematics of genus *Polymerurus* in Brazil

Supervisor: André Rinaldo Senna Garraffoni

Academic distinctions

Aug 2022 **1st place in the award *Prêmio Destaque do ano no artigo científico do IB “João Pedro Mariz”*: best undergraduate scientific article of 2022** – Biology Institute, University of Campinas (category: Biodiversity)

Dec 2020 **First place in the selection process for the MSc program** (two-year, research thesis-based) of the Department of Genetics, Evolution, Microbiology and Immunology – University of Campinas (Unicamp)

Dec 2020 **PIBIC Award of Scientific Merit** – XXVIII {online} Conference of Undergraduate Research at UNICAMP, granted by CNPq (Brazilian National Council for Scientific and Technological Development): awarded to the 20 best works/presentations of the event (around 1000 candidates)

Jul 2020 **Best Poster Award (over all categories)** – I Meeting of Systematics, Biology and Evolution (SBE), granted by Transmitting Science

Feb 2019 **Evolution 2019 Travel Awards for Brazilian Researchers**, to attend Evolution 2019 Meeting in Providence, RI on June 21-25, 2019. | Society for the Study of Evolution (SSE), St. Louis, MO, United States of America

Sep 2018 **Honorable mention** – XXII International Congress of Genetics (ICG) in the Francisco Mauro Salzano Award

PARTICIPATION IN EVENTS

Oral presentations

2020 XXVIII Congresso {virtual} de Iniciação Científica da Unicamp (*XXVIII {online} Congress of Undergraduate Research at Unicamp*) – Unicamp, Campinas, SP, Brazil
Molecular evolution in dolphin hearing genes: different evolutionary pathways for marine and freshwater echolocation?

2020 **I Meeting of Systematics, Biogeography and Evolution (SBE)** – online
Adaptive evolution of hearing genes in echolocating dolphins

Poster presentations

- 2020 Biodiversity Genomics 2020** – online
Have different selective pressures shaped the evolution of echolocation genes between river and marine dolphins?
- 2019 Evolution Meeting 2019** – Providence, RI, United States of America
Hearing genes behind the evolution of echolocation in dolphins
- 2018 XXVI Congresso de Iniciação Científica da Unicamp (XXVI Congress of Undergraduate Research at Unicamp)** – Unicamp, Campinas, SP, Brazil
Molecular evolution of echolocation genes in cetaceans and bats
- 2018 2018 International Congress of Genetics** – Foz do Iguaçu, PR, Brazil
Molecular evolution of echolocation genes in freshwater and marine cetaceans
- 2016 XXIV Congresso de Iniciação Científica da Unicamp (XXIV Congress of Undergraduate Research at Unicamp)**, – Unicamp, Campinas, SP, Brazil
Sistemática do gênero *Polymerurus* (Gastrotricha: Chaetonotidae) no Brasil.

Attendance

- 2020 TAGC Online, the Allied Genetics Conference** – Genetics Society of America
- 2019 Biodiversidade não é problema, é solução (Biodiversity is not a problem, but a solution)** – Unicamp, Campinas, SP, Brazil
- 2019 I Evolution day** – Unicamp, Campinas, SP, Brazil
- 2018 2ª Reunião da Associação Brasileira de Ciência Ecológica e Conservação e 6º Simpósio de Ecologia Teórica (2nd Reunion of the Brazilian Association of Ecology and Conservation and 6th Symposium on Theoretical Ecology)** – Unicamp, Campinas, SP, Brazil
- 2018 I Simpósio de Biologia Vegetal da Unicamp (I Unicamp Symposium on Plant Biology)** – University of Campinas, Campinas, SP, Brazil
- 2017 Workshop sobre pesquisa aplicada à gestão da fauna Silvestre (Workshop of applied research on wild fauna management)** – Fundação de Amparo à Pesquisa do Estado de São Paulo - FAPESP, São Paulo, SP, Brazil
- 2017 IV Simpósio GEAS-USP: Interferência do homem no meio marinho (IV Symposium GEAS-USP: Human Interference on the marine environment)** – University of São Paulo (USP), São Paulo, SP, Brazil
- 2015 XII Congresso Aberto aos Estudantes de Biologia (XII Open Congress to Biology Students)** – Unicamp, Campinas, SP, Brazil
Voluntary participation as monitor (accepted through selective process)

EVENT ORGANIZATION

- 2023** 16th Annual Dr. Patrick Lett Symposium – Dalhousie University, Halifax, NS, Canada
Position: Volunteer producing graphic materials
- 2017-19** XIV Congresso Aberto aos Estudantes de Biologia (*XIV Open Congress to Biology Students*) – Unicamp, Campinas, SP, Brazil
Position: event coordinator
- 2015-17** XIII Congresso Aberto aos Estudantes de Biologia (*XIII Open Congress to Biology Students*) – Unicamp, Campinas, SP, Brazil
Position: scientific committee
- 2016** XIV Profissão Biólogo (*XIV Profession Biologist*) – Unicamp, Campinas, SP, Brazil

PROFESSIONAL ACTIVITIES & VOLUNTEER WORK

Research experience

- 2020** Winter/Spring 2020 internship with the Sarasota Dolphin Research Program – Mote Marine Laboratory, Sarasota, Florida, USA
Duration: 2 months, 290 hours (approved for 3 months, completed earlier due to the Covid-19 pandemic)
- 2017-21** Research Internship at the Laboratory of Evolutionary Genomic – Department of Genetics, Evolution, Microbiology and Immunology, Biology Institute (Unicamp)
- 2015-17** Research Internship at the Laboratory of Meiofaunal Evolution – Department of Animal Biology, Biology Institute (Unicamp)

Teaching

- 2023** DalGrad PD Workshop: Science Communication – Dalhousie University, Halifax, NS, Canada
- 2022** Guest lecture, Cultural Evolution (BIOL5510) – Dalhousie University, Halifax, NS, Canada
Title: Gene culture coevolution
Course level: undergraduate and graduate
- 2021** Guest lecture, Filogeografía – Universidad de San Carlos de Guatemala
Title: Molecular evolution of echolocation genes in freshwater and marine dolphins
Course level: undergraduate
- 2021-22** Hired teaching assistant, Evolution (BIOL2040 - Fall and Winter) – Dalhousie University, Halifax, NS, Canada
- 2021** Hired teaching assistant, Evolução (BG091) – Biology Institute, Unicamp, Campinas, SP, Brazil
- 2019-20** Supervised Internship in Education (3 semesters) – Faculty of Education, Unicamp, Campinas, SP, Brazil

- 2018-19** Volunteer Biology teacher at the community preparatory course for university entrance exam Emancipa – Campinas, SP, Brazil
- 2018-19** Volunteer teaching assistant, Ecologia Básica (*Fundamental ecology* - BE480) – Biology Institute, Unicamp, Campinas, SP, Brazil
- 2015-16** Assessor of Commercial Projects at AlphaBio Junior Enterprise – Unicamp, Campinas, SP, Brazil

Supervision

- 2021-22 Hannah Griffin** (co-supervised with Joseph Bielawski)
Gut Microbiome bcrA Gene Potentially Predictive Of Secondary Antibiotic Outcomes Of Infection And Febrile Neutropenia As Determined By The Pg-Bsm Model
Program: BSc Honors, Biology
- 2021-22 Rebecca Smith** (co-supervised with Joseph Bielawski)
Modeling Associations Between DNA From The Gut Microbiome, And Secondary Clinical Outcomes Of Infection In Pediatric Cancer Patients
Program: BSc Honors, Biology

Academic service

- 2023-** Member of the Respect, Equity & Diversity (RED) Committee – Biology Department, Dalhousie University, Halifax, NS, Canada
- 2023-** Equity, Diversity, Inclusion & Outreach representative at the Biology Graduate Student Organization (BOGS) – Dalhousie University, Halifax, NS, Canada
- 2022-23** Graduate Student Mentor for Together@Dal Grad Edition – Dalhousie University, Halifax, NS, Canada
- 2022-** Volunteer assistant with the Dalhousie Science Scholars and Leaders Program – Dalhousie University, Halifax, NS, Canada.
- 2017-19** Student representative at the Biology Institute Congregation – Unicamp, Campinas, SP, Brazil.

Community work

- 2022 -** Volunteer for the Women, Life, Freedom Movement – Halifax, NS, Canada

SCIENCE COMMUNICATION & OUTREACH

- 2023** Founder, organizer and lecturer - Decolonizing Molecular Evolution: free workshops for brazilian students
- 2023** Guest speaker in the YouTube channel [Julia Maciel](#)
- 2022** Guest speaker in the podcast [Rock com Ciência](#)
- 2021** Guest speaker in the podcast [Netos de Darwin](#)

- 2020 - Owner, administrator and content producer in the science communication twitter [Rainha das Baleias](#) (4966 followers on April 19)
- 2020 - Co-host of the CetusCast twitter spaces, along with [Gabriel Gomes](#) and [André Rodeguero](#), which has recently received a **\$1000 CAD funding from Diversity of Nature** (Dalhousie University)
- 2018 Volunteer organizer of *Ciência nas ruas* (*Science in the streets*)

PROFESSIONAL TRAINING

- 2023 SMBE Virtual Lab Training – Society for Molecular Biology and Evolution (SMBE)
- 2022 How to identify marine species – Marine Animal Response Society (MARS)
- 2022 Marine Animal Response in the Canadian Maritime Provinces – MARS
- 2022 Responder Health and Safety – MARS
- 2021 Webinar Series on Underwater Acoustics – Discovery of Sound in the Sea (4h)
- 2020 Identificação de cetáceos (*Cetacean Identification*) – Mar de Ideias, Florianópolis, SC, Brazil (3h)
- 2020 Introduction to Bayesian Inference in Practice – Transmitting Science (32h)
Fully funded, granted as part of the Best Poster Award at I SBE Meeting
- 2020 Introdução Evolução Estelar e Exoplanetas. (*Introduction to Star Evolution and Exoplanets*) – Brazilian Society for the Advancement of Science (12h)
- 2020 Desenvolvimento e sustentabilidade: uma visão econômico-ecológica. (*Development and sustainability: an ecological-economic vision*) – Brazilian Society for the Advancement of Science (12h)
- 2020 Como preparar, avaliar, publicar e divulgar um arquivo científico (*How to prepare, evaluate, publish and communicate a scientific article*) – Brazilian Society for the Advancement of Science (12h)
- 2020 Minicurso prático de Bioinformática: alinhamento e visualização de sequências (*Practical Bioinformatics short course: sequence alignment and viewing*) – Universidade Federal de São Paulo (Unifesp), São Paulo, SP, Brazil (6h)
- 2020 Minicurso prático de Bioinformática: terminal Linux e dados de sequências biológicas (*Practical Bioinformatics short course: Linux terminal and biological sequence data*) – Unifesp, São Paulo, SP, Brazil (6h)
- 2019 Boas práticas de TI aplicadas ao gerenciamento de servidores Linux para análises de dados biológicos (*Good IT practices to Linux servers management in biological data analysis*) – Unicamp, Campinas, SP, Brazil (20h)
- 2019 Ensembl Browser Workshop - offered by the Brazilian Association for Bioinformatics and Computational Biology (AB³C) at Unicamp, Campinas, SP, Brazil (8h)
- 2019 XVII Curso de Bioinformática: Algoritmos e Técnicas Computacionais Para Montagem e Análise de Genomas (*XVII Course of Bioinformatics: Algorithms and computational techniques to genome assembly and analysis*) – Central Laboratory of High Performance Technologies (LaCTAD), Unicamp, Campinas, SP, Brazil (30h)
Fully funded, granted via selective process
- 2018 Introdução à Bioinformática Genômica e Pós-genômica (*Introduction to Genomic and Post Genomic Bioinformatics*) | 2018 International Congress of Genetics – Foz do Iguaçu, PR, Brazil (3,5h)

- 2018 Extensão universitária em Tópicos de Biologia Marinha (*Topics in Marine Biology*) – Center for Marine Biology (CEBIMar), USP, São Paulo, SP, Brazil (72h)
- 2017 Baleias e Golfinhos, 2ª edição (*Whales and dolphins 2nd edition*) – USP, São Paulo, SP, Brazil (12h)
- 2017 O mundo dos cetáceos (*The cetacean world*) – Unicamp, Campinas, SP, Brazil (8h)
- 2016 Biologia, Ecologia e Conservação do Boto-Cinza (*Biology, Ecology and Conservation of the Guiana dolphin*) – Research Institute Cananéia (IPEC), Cananéia, SP, Brazil (12h)
- 2015 Ecologia e comportamento de animais marinhos (*Ecology and behavior of marine animals*) | XII Open Congress to Biology Students (XII CAEB) – Unicamp, Campinas, SP, Brazil (8h)
- 2015 Biologia celular da interação parasita-hospedeiro (*Celular biology of host-parasite interaction*) | XII Open Congress to Biology Students (XII CAEB) – Unicamp, Campinas, SP, Brazil (8h)

SCIENTIFIC SOCIETIES

- 2022 Genetics Society of America
- 2022 Society for Marine Mammalogy
- 2020 - Society for Molecular Biology and Evolution (SMBE)
- 2018 - Society for the Study of Evolution (SSE)
- 2018-20 Sociedade Brasileira de Genética (*Brazilian Society of Genetics*)
- 2018-20 Associação Brasileira de Ciência Ecológica e Conservação (*Brazilian Society of Ecological Science and Conservation*)

SKILLS

- Languages: Portuguese (Native), English (Advanced - TOEFL IBT), French II (university course), Spanish (intermediary)
- Programming languages: Bash, Python, R
- Tools: Office (Word, PowerPoint, Excel), Photoshop/CorelDraw
- Operational systems: Linux, MacOS, Windows

May/2023