

CLARISSE M. BETANCOURT ROMÁN

Master of Science, Ecology and Evolutionary Biology

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SUMMARY OF QUALIFICATIONS

- Skilled and dynamic interdisciplinary biologist with eight years of experience designing experiments for biology and microbiology research in university, industry, and national research laboratories
- Effectively provided leadership for management and specialized technical functions on multiple research projects while supervising and providing training to new and existing members in laboratory techniques for biological assays
- Trilingual (Spanish, English, and Portuguese) fast learner with strong initiative, exceptional interpersonal skills, able to efficiently work individually, and committed to make great contribution while working in a small or large interdisciplinary team

SKILLS & EXPERTISE

Molecular biology techniques: DNA isolation and quantification, PCR, qPCR, gel electrophoresis, high-throughput sequencing library preparation (amplicon and shotgun sequencing)

Microbiology techniques: fungi and bacteria isolation and cultivation, aseptic techniques, growth media preparation, agar plate preparation, spectrophotometry, light microscopy, flow cytometry

Expertise on laboratory equipment: PCR and qPCR instrumentation, Agilent Bioanalyzer, Eppendorf epMotion liquid handling system, autoclave machines, ultra and bench top centrifuges, analytical balances, tissue homogenizers

Languages: Spanish (native language), English (fluent) and Portuguese (fluent)

Computer skills: MAC and PC user, Microsoft Office (Word, Excel, Outlook and Power Point), PRISM, data collection and management

Training skills: able to provide supervision and training on a one on one or group environment

PROFESSIONAL EXPERIENCE

2016 – 17 **Microbiome Scientist (Consultant)**, Phylagen Inc.

- Rapidly merged into managing the data production of several major projects for a fast-paced start-up company
- Generated microbiome data for client deliveries, including to the US Government and multiple Fortune 500 companies, as well as R&D projects, and internal company milestones
- Developed laboratory protocols for next-generation sequencing applications specializing on low biomass samples

2014 – 16 **Laboratory Manager**, Biology and the Built the Environment Center (BioBE Center)

- Effectively provided leadership for the management and direction of all specialized technical functions to multiple microbiome projects
- Optimized laboratory protocols from sample collection to analysis including DNA isolation, PCR, qPCR

- Prepared libraries for high-throughput metagenomic analyses of hundreds of complex biological samples
- Successfully organized the first BioBE outreach initiative for over 20 local high school students
- Coordinated biosafety lab protocols; trained students, visiting scientists and collaborators on molecular techniques

2012 – 14 **Graduate Student Researcher**, University of Michigan

- Developed bioassay to identify the virulence of fungal pathogen in live vertebrate and invertebrate hosts
- Performed amphibian surveys in the US and Brazil to identify fungal pathogens in wildlife populations
- Improved amphibian fungal pathogen isolation methods using aseptic techniques acquiring 50 new strains
- Handled 640 vertebrates and performed all functions in accordance with animal handling protocols
- Maintained bacterial and fungal pathogen cultures in a biosafety level 2 laboratory

2012 **Research Intern**, University Michigan Biological Station

- Worked as a research intern on a diverse team environment to accomplish research objectives
- Created innovative experimental techniques to study the nitrogen flow from soil fungi to plants
- Applied microscopy technique to quantify and identify fungal cells in soil samples

2011-12 **Research Technician**, Herbarium and Tropical Limnology Laboratory University of Puerto Rico Río Piedras

- Executed study to identify riparian plant species diversity following restoration resulting in a publication
- Provided leadership while managed laboratory inventory and maintained lab equipment
- Ameliorated mounting methods, adding hundreds of plant specimens to the herbarium collection
- Effectively explained research projects results to non-scientific audiences (30 people avg./week)

2011 **Research Intern**, NASA – Goddard Space Flight Center

- Generated remote sensing image analysis to provide park managers a tool to monitor the effects of land use change surround parks on water quality
- Actively participated in professional development workshops to improve interpersonal skills

2010 **Research Intern**, NASA – Marshall Space Flight Center

- Developed hydrodynamic model to study the impact of land use and climate change on aquatic ecosystems
- Worked efficiently with an interdisciplinary group of urban planners, engineers and biologists

2010 **Research Assistant**, Aquatic Ecology Laboratory, University of Puerto Rico – Río Piedras

- Processed hundreds of river water samples to identify aquatic insects and managed research datasets
- Conducted field studies examining the influence of urban development on aquatic insects diversity

EDUCATION

2014 Master of Science, Ecology and Evolutionary Biology, University of Michigan

2011 Bachelor of Science, Environmental Sciences, University of Puerto Rico- Río Piedras Campus

PUBLICATIONS

Emerson J, Adams R, **Betancourt-Román CM**, Brooks B, Coil D, Dahlhausen K, Ganz H, Hartmann EM, Hsu T, Justice N, Lima IP, Luongo J, Lympelopoulou D, Gomez-Silvan C, Rothschild-Mancinelli B, Balk M, Huttenhower C, Nocker A, Vaishampayan P, and Rothschild LJ. 2017. *Schrödinger's microbes: Tools for distinguishing the living from the dead in microbial ecosystems*. Microbiome, In Press.

Hartmann EM, Hickey RJ, Hsu T, **Betancourt-Román CM**, Chen J, Kline J, Brown GZ, Halden RU, Huttenhower C, and Green JL. 2016. *Antimicrobial Chemicals Are Associated With Elevated Resistance In The Indoor Dust Microbiome*. Environmental Science & Technology, doi: [10.1021/acs.est.6b00262](https://doi.org/10.1021/acs.est.6b00262).

Betancourt-Román CM, O'Neil CC, and James TY. 2016. *Rethinking The Role Of Invertebrate Hosts In The Life Cycle Of The Amphibian Chytridiomycosis Pathogen*. Parasitology, doi: [10.1017/S0031182016001360](https://doi.org/10.1017/S0031182016001360).

Jenkinson, TS, **Betancourt-Román, CM**, Lambertini, C, Valencia-Aguilar, A, Rodriguez, D, Nunes-de-Almeida, C, Ruggeri, J, Belasen, A, da Silva Leite, D, Zamudio, KR, Longcore, J, Toledo, LF, and James, TY. 2016. *Amphibian-Killing Chytrid In Brazil Comprises Both Stable Endemic And Recently Expanded Populations*. Molecular Ecology, doi: [10.1111/mec.13599](https://doi.org/10.1111/mec.13599).

Manrique-Hernández, H, Ortiz-Zayas, J, Heartsill-Scalley, T, **Betancourt-Román, CM**, and Barreto-Orta, M. 2016. *Assessing Restoration Outcomes In Light Of Succession: Management Implications For Tropical Riparian Forest Restoration*. Ecological Restoration, doi: [10.3368/er.34.2.147](https://doi.org/10.3368/er.34.2.147).

James TY, Toledo LF, Rödder, D, da Silva Leite, D, Belasen, A, **Betancourt-Román CM**, Jenkinson TS, Lambertini C, Longo AV, Ruggeri J, Collins, JP, Burrowes, P, Lips, K, Zamudio, KR, and Longcore, JE. 2015. *Disentangling The Host, Pathogen, And Environmental Determinants Of Recently Emerged Wildlife Diseases: Lessons From The First 15 Years Of Amphibian Chytridiomycosis Research*. Ecology and Evolution, doi: [10.1002/ece3.1672](https://doi.org/10.1002/ece3.1672).

PRESENTATIONS Selected talks and posters

2015 **Betancourt-Román, CM**, and Hartmann, EM. *Live/Dead Determination In Dust With Flow Cytometry And PMA*. Workshop in Live/ Dead determination at the University of California- Davis. Davis, California, USA. *Talk*.

2015 **Betancourt-Román, CM**, Hartmann, EM, and Green, JL. *Towards Assessing The Viability Of The Indoor Microbiome Using Flow Cytometry*. Healthy Buildings 2015 America. Boulder, Colorado, USA. *Poster*.

2015 **Betancourt-Román, CM**, Hartmann, EM, Bohannan, B, and Green, JL. 2015. *Microbiome Viability In Indoor Dust*. 11th annual University of Michigan Early Career Scientists Symposium, Ecosystems Within Organisms: Ecology And Evolution Of The Microbiome. Michigan, USA. *Poster*.

- 2013** **Betancourt-Román, CM**, Jenkinson, TS, Toledo, LF, Longcore, JE, Zamudio, KR, da Silva Letie, D, and James, TY. *Differential virulence of Batrachochytrium dendrobatidis among panzootic, novel, and hybrid lineages*. Amphibian Pathogens Annual Meeting. Tempe, Arizona, USA. *Talk*.
- 2011** **Betancourt-Román, CM**, Estes, MG and Al-Hamdan, MZ. *Impacts Of Land Use And Climate Change On Hydrologic Processes In Shallow Aquatic Ecosystems*. OCEANS 2011 IEEE Conference. Santander, Spain. *Talk*.

ACADEMIC AND COMMUNITY SERVICE

- 2016** **Outreach Event Coordinator**, Microbiome Science Youth Outreach Event, BioBE Center
- 2015-16** **Board Member**, Centro Latino Americano (non-profit organization)
- 2014** **Group Leader**, Females Excelling More in Math, Engineering and Science, University of Michigan
- 2013-14** **Diversity Committee Member**, University of Michigan Dept. of Ecology and Evolutionary Biology
- 2013-14** **Research Mentor**, Mycology Lab, University of Michigan
- 2013-14** **Graduate Student Mentor**, Big-Little Sibs Program, University of Michigan Dept. of Ecology and Evolutionary Biology
- 2009-10** **Group Leader**, Centro Ambiental Santa Ana at Bayamón, Puerto Rico

GRANTS, HONORS AND AWARDS

- 2015** Harnisch Foundation Sponsorship
- 2015** Healthy Buildings 2015 America Meeting, Best Poster Presentation Award
- 2015** Healthy Buildings 2015 America Meeting Travel Grant
- 2014** Rackham Graduate Student Research Grant, University of Michigan
- 2013** Ecology and Evolutionary Biology Department Travel Grant, University of Michigan
- 2013** Rackham Conference Travel Grant, University of Michigan
- 2013** Wehmeyer Endowment in Fungal Taxonomy Grant, University of Michigan
- 2011** Puerto Rico Louis Stroke Alliance for Minority Participation Travel Grant
- 2007-09** National Science & Mathematics Access to Retain Talent Grant (SMART)

REFERENCES

Jessica L. Green, Ph.D (BioBE supervisor)
Director, Biology and the Built Environment Center
Alec Kay Keith Professor of Biology
 Institute of Ecology and Evolution, University of Oregon
 Email: jlgreen@uoregon.edu

Timothy Y. James, Ph.D (Master's advisor)
Associate Professor
 Department of Ecology and Evolutionary Biology, University of Michigan
 Email: tyjames@umich.edu

Roxana Hickey, Ph.D (Research collaborator)
Microbiome Data Scientist
 Phylagen, Inc.
 Email: roxana@phylagen.com