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PROFESSIONAL EXPERIENCE

2025 – Associate Professor, Biological Sciences, St. John's University, Queens, NY
2017 – 2025 Assistant Professor, Biological Sciences, St. John's University, Queens, NY
2014 – 2017 Macrosystems Postdoctoral Fellow. Brigham Young University, UT
Advisor: Dr. Jack Sites (BYU), Dr. Barry Sinervo (UCSC)
2012 – 2014 Biodiversity Postdoctoral Fellow (Independent position). University of British Columbia, BC, Canada
2009 – 2012 National Evolutionary Synthesis Center (NESCent). Duke University, NC
Postdoctoral Fellow Independent Project:
Multivariate evolutionary analysis: integrating structural equation modeling and Phylogenetics. Mentor: Dr. David W. Pfennig (UNC-Chapel Hill, USA)

EDUCATION

2009 Ph.D. Ecology, Evolution and Behavior, University of Texas at Austin
Advisor: Dr. David C. Cannatella (UT-Austin)
2009 M.S. Statistics, University of Texas at Austin
Advisor: Dr. Claus O. Wilke (UT-Austin)
2002 B.A. Biology (Honors), Pontificia Universidad Católica del Ecuador
Advisor: Dr. Luis A. Coloma (PUCE)

PUBLICATIONS (PEER-REVIEWED)

Accepted:

Carvajal-Castro, J. D., G. Yagudayeva, R. Ortiz, **J. C. Santos**. 2025. Environmental factors influencing the evolution of adult hemoglobins in land reptiles. **Genome Biology and Evolution**.

J. C. Santos. 2025. Evolutionary Insights from Sequence Analysis of Interleukin 17A (IL17A). In review. (**Immune Mediators in Cancer, Methods in Molecular Biology. Springer, Yan Zhu-Coordinating Editor**).

Published:

Ortiz, R., rtiz, R., L. C. Dabydeen, C. Kosinski; P. Gera; J. D. Carvajal-Castro; V. Akilov; H. J. Howell; E. Powell; **J. C. Santos**. 2025. Skin transcriptomics of invasive Coqui frogs: stress responses, parasite signatures, and antimicrobial peptides. **PLOSOne** https://doi.org/10.1371/journal.pone.0328623a

Tarvin, R. D., J. L. Coleman, D. A. Donoso, M. Betancourth-Cundar, K. Lopez-Hervas, K. S. Gleason, J. R. Sanders, J. M. Smith, S. R. Ron, **J. C. Santos,** B. E. Sedio, D. C. Cannatella, and R. Fitch. 2025. Passive accumulation of alkaloids in putatively non-toxic frogs challenges paradigms of the origins of acquired chemical defenses. **eLife**. https://doi.org/10.7554/eLife.100011

López-Hervas, K., **J. C. Santos**, S. R. Ron, M. Betancourth-Cundar, D. C. Cannatella, and R. D. Tarvin. 2024. Deep divergences among inconspicuously colored clades of Epipedobates poison frogs. **Mol Phylogenet Evol.** 2024 Jun;195:108065. doi: 10.1016/j.ympev.2024.108065. Epub 2024 Mar 24. PMID: 38531492. https://www.sciencedirect.com/science/article/pii/S1055790324000575

Sinervo, B., R. A. Lara Reséndiz, D. B. Miles, J. E. Lovich, P. C. Rosen, H. Gadsden, G. C. Gaytán, P. G. Tessaro, V. H. Luja, R. B. Huey, A. Whipple, V. S. Cordero, J. B. Rohr, G. Caetano, **J. C. Santos**, J. W. Sites, and F. R. Méndez de la Cruz. 2024. Climate change and collapsing thermal niches of desert reptiles and amphibians: Assisted migration and acclimation rescue from extirpation. **Science of The Total Environment** 908: 168431. https://www.sciencedirect.com/science/article/abs/pii/S0048969723070596.

Wan, Y. C., M. J. Navarrete Méndez, L. A. O'Connell, L. H. Uricchio, A.-B. Roland, M. E. Maan, S. R. Ron, M. Betancourth-Cundar, M. R. Pie, K. A. Howell, C. L. Richards-Zawacki, M. E. Cummings, D. C. Cannatella, **J. C. Santos***, and R. D. Tarvin*. 2023. Selection on Visual Opsin Genes in Diurnal Neotropical Frogs and Loss of the SWS2 Opsin in Poison Frogs. **Molecular Biology and Evolution** 40:msad206. https://doi.org/10.1093/molbev/msad206. ***Shared senior co-authorship**

Chambers, E. A., R. D. Tarvin, **J. C. Santos**, S. R. Ron, M. Betancourth-Cundar, D. M. Hillis, M. V. Matz, and D. C. Cannatella. 2023. 2b or not 2b? 2bRAD is an effective alternative to ddRAD for phylogenomics. **Ecology and Evolution** 13:e9842. https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.9842

Femenias, M.M., **Santos, J.C.**, Sites, J.W.Jr., Avila, L.J., Morando, M. 2022. ExplorATE: A new pipeline to explore active transposable elements from RNA-seq data. Bioinformatics 38 (13), 3361-3366. https://academic.oup.com/bioinformatics/article/38/13/3361/6591201

Carvajal-Castro, J.D., Vargas-Salinas, F., Casas-Cardona, S., Rojas, B., **Santos, J.C.** 2021. Aposematism facilitates the diversification of parental care strategies in poison frogs Scientific Reports 11:19047. https://doi.org/10.1038/s41598-021-97206-6 https://www.nature.com/articles/s41598-021-97206-6

Ortiz, R., Gera, P., Rivera, C., **Santos, J.C.** 2021. Pincho: A modular approach to high quality de novo transcriptomics. Genes 12, 953. https://doi.org/10.3390/genes12070953

Zhao, L., **Santos, J.C.**, Wang, J., Ran, J., Tang, Y., Jianguo Cui J. 2021. Noise constrains the evolution of call frequency contours in flowing water frogs: a comparative analysis in two clades. Front Zool (2021) 18:37 https://doi.org/10.1186/s12983-021-00423-y.

Laspiur, A., **Santos, J.C.,** Medina, S.M., Pizarro, J.E., Sanabria, E.A., Sinervo, B., Ibarguengoytía, N.R. 2021. Vulnerability to climate change of a microendemic lizard species from the central Andes. Scientific Reports 11:11653. https://doi.org/10.1038/s41598-021-91058-w

Shik, J.Z., Kooij, P.W., Donoso, D., **Santos, J.C.**, Gomez, E.B., Franco, M., Crumiere, A.J.J., Arnan, X., Howe, J., Wcislo, W.T., Boomsma, J.J. 2021. Nutritional niches reveal fundamental domestication tradeoffs in fungus-farming ants. Nature Ecology & Evolution 5: 122–134.

Vigle, G.O., Coloma, L.A., **Santos, J.C.**, Hernandez-Nieto, S., Ortega-Andrade, H.M., Paluh, D.J., Read, M. 2020. A new species of *Leucostethus* (Anura: Dendrobatidae) from the Cordillera Mache-Chindul in northwestern Ecuador, with comments on similar Colostethus and Hyloxalus. Zootaxa 4896: 342-372.

Santos J. C. 2020. Phylogenetic Analyses of Chemokine Receptors from Sequence Retrieval to Phylogenetic Trees. Invited chapter for "Immune mediators in cancer" for book series "Methods in Molecular Biology" (Ivana Vancurova and Yan Zhu, editors). Springer. 33 pages.

Carvajal-Castro, J., López-Aguirre, Y., Ospina-L, A., **Santos, J.C.**, Rojas, Vargas-Salinas, F. 2020. Much more than a clasp: evolutionary pattern of amplexus diversity in anurans. Biological Journal of the Linnean Society 129(3): 652–663, https://doi.org/10.1093/biolinnean/blaa009.

Caetano, G.H.O., **Santos, J.C.**, Godinho, L.B., Cavalcante, V.H.G.L., Diele-Viegas, L.M., Campelo, P.H., Martins, L.F. Oliveira, A.F.S., Alvarenga, J.M., Wiederhecker, H.C., de Novaes e Silva, V., Werneck, F.P., Miles, D.B., Colli, G.R., Sinervo, B.R. 2020. Time of activity is a better predictor of the distribution of a tropical lizard than environmental temperature. Oikos. 129(7): 953-963.
*****Highlighted:** Editor's Choice and Research

Caetano, G., **Santos, J.C.**, Sinervo, B. 2019. R-Package -- Mapinguari: Process-Based Biogeographical Analysis. https://cran.r-project.org/web/packages/Mapinguari/index.html. Online package for statistical analyses

Aburto-Oropeza et al. (including **Santos J C**) 2018. Harnessing cross-border resources to confront climate change. Environmental Science and Policy. Volume 87, September 2018, Pages 128-132

Santos, J.C., Tarvin, R.D., O'Connell, L.A., Blackburn, D.C., Coloma, L.A. 2018. Diversity within diversity: Parasite species richness in poison frogs assessed by transcriptomics. Molecular Phylogenetics and Evolution. Volume 125, August 2018, Pages 40-50

Diele-Viegas L., Vitt L.J., Sinervo B., Colli G.R., Werneck F.P., Miles D.B., Magnusson W.E., **Santos J.C.**, Sette C.M., Caetano G.H.O., Pontes E., Ávila-Pires T.C.S. 2018. Thermal physiology of Amazonian lizards (Reptilia: Squamata). PLoSOne. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0192834

Pontes-da-Silva, E., Magnusson, W.E., Sinervo, B., Caetano, G.H., Miles, D.B., Colli, G.R., Diele-Viegase, L.M., Fenker, J., **Santos, J.C.**, Werneck, F.P. 2018. Extinction risks forced by climatic change and intraspecific variation in the thermal physiology of a tropical lizard. Journal of Thermal Biology. 73 (2018) 50–60.

Medina, C.D., Avila, L.J., Sites J.W. Jr., **Santos J.C**., Morando, M. 2018. Alternative methods of phylogenetic inference for the Patagonian lizard group *Liolaemus elongatus-kriegi*

(Iguania: Liolaemini) based on mitochondrial and nuclear markers. Molecular Phylogenetics and Evolution. Volume 120, March 2018, Pages 158-169

Tarvin, R.D.*, Borghese, C.M.*, Sachs, W., **Santos, J.C.**, Lu, Y., O'Connell, L.A., Cannatella, D.C., Harris, R.A., Zakon, H.H. 2017. Interacting amino acid replacements allow poison frogs to evolve epibatidine resistance. *Science* 357, 1261–1266. * joint first coauthorship. http://science.sciencemag.org/content/357/6357/1261

Roland, A.B., **Santos, J.C**., Carriker, B.C., Caty, S.N., Tapia, E.E., Coloma, L.A., O'Connell, L.A. 2017. Radiation of the polymorphic Little Devil poison frog (*Oophaga sylvatica*) in Ecuador. Ecology & Evolution. 7(22): 9750–9762.

Taylor, G.W.*, **Santos, J.C.***, Perrault, B. J., Morando, M., Vásquez Almazán, C.R., Sites, J.W. 2017. Sexual dimorphism, phenotypic integration, and the evolution of head structure in casque-headed lizards. Ecology & Evolution. 7(21): 8989–8998. * joint first coauthorship with GWT as an undergraduate.

Tarvin, R.D., Powell, E.A., **Santos, J.C.**, Ron, S.R., Cannatella, D.C. 2017. The birth of aposematism: High phenotypic divergence and low genetic diversity in a young clade of poison frogs. Molecular Phylogenetics and Evolution 109: 283–295.

Sinervo, B. and other 36 coauthors including **Santos, J.C.** 2017. Climate change and collapsing thermal niches of Mexican endemic reptiles. University of California Working Papers. Mexico Initiative.

Shik, J.Z., Gomez, E.B., Kooij, P.W., **Santos, J.C.**, Wcislo, W.T., Boomsma J.J. 2016. Nutrition mediates the expression of cultivar–farmer conflict in a fungus-growing ant. *PNAS* 113(36) 10121-10126.

Tarvin, R.D., **Santos, J.C.,** O'Connell L.A., Zakon H.H.**,** Cannatella D.C. 2016. Convergent Substitutions in a Sodium Channel Suggest Multiple Origins of Toxin Resistance in Poison Frogs. *Molecular Biology and Evolution* 33(4): 1068–1081. *http://mbe.oxfordjournals.org/content/early/2016/01/18/molbev.msv350.full.pdf+html*

Santos, J.C., Tarvin, R. D.*, O'Connell, L. A. 2015. A review of chemical defense in poison frogs (Dendrobatidae): Ecology, pharmacokinetics and autoresistance. Invited review Chemical Signals in Vertebrates (CSiV) Volume 13. ISBN 978-3319220253 * Graduate mentee.

Santos, J.C., Baquero, M.*, Barrio-Amorós, C.L., Coloma, L.A., Erdtmann, L.K., Lima, A.P., Cannatella, D.C. 2014. Aposematism increases acoustic diversification and speciation in poison frogs. Proceedings of the Royal Society B-Biological Sciences 281:9. DOI: 10.1098/rspb.2014.1761. Published 15 October 2014. * Graduate mentee.

Shik, J.Z., **Santos, J.C.**, Seal, J.N., Adam Kay, A., Mueller, U.G., Kaspari, M. 2014 Metabolism and the rise of fungus cultivation by ant societies. American Naturalist 184(3): 364-373.

Santos, J.C. 2012. Fast molecular evolution associated with high active metabolic rates in poison frogs. Molecular Biology and Evolution. 29(8): 2001-2018.

Barrio-Amorós, C.L., **Santos, J.C**. 2012. Three new cloud frogs (*Aromobates*: Dendrobatidae) from the Andes of Venezuela, with notes on *Aromobates saltuensis* and *A*. i*nflexus*, and the conservation status and phylogeny of *Aromobates*). Zootaxa 3422: 1-31.

Santos, J.C., Cannatella, D.C. 2011. Phenotypic integration emerges from aposematism and scale in poison frogs. Proceedings of the National Academy of Sciences USA 108: 6175-6180.

Barrio-Amorós, C.L., Rivero, R., **Santos, J.C.** 2011. New striking dendrobatid frog (Dendrobatidae: Aromobatinae, Aromobates) from the Venezuelan Andes. Zootaxa 3063: 39–52.

Barrio-Amorós, C.L., **Santos, J.C.** 2011. Redescription and generic assignation of *Dendrobates rufulus* Gorzula (Anura, Dendrobatidae) from Chimantá tepui, Venezuela. Salamandra 47(3): 155-160.

Páez-Vacas, M.I.*, Coloma, L.A., **Santos, J.C.** 2010. Systematics of the *Hyloxalus bocagei* complex (Anura: Dendrobatidae): description of two new species and recognition of *H. maculosus*. Zootaxa Monographs (2711): 1-149. *Undergraduate mentee.

Barrio-Amorós, C.L., **Santos, J.C.**, Jovanovic, O. 2010. A new dendrobatid frog (Anura: Dendrobatidae: *Anomaloglossus*) from the Orinoquian rainforest, southern Venezuela. Zootaxa 2413: 37-50.

Barrio-Amorós, C.L., **Santos, J.C.**, Molina, C.R. 2010. Diversity of dendrobatid frogs in Venezuela underestimated: Description of three new *Mannophryne* (Anura: Dendrobatidae: Aromobatinae). Phyllomedusa 9(1): 3-35.

Barrio-Amorós, C.L., **Santos, J.C.** 2010. Amphibia, Anura, Dendrobatidae, *Allobates femoralis* (Boulenger, 1884): First confirmed country records, Venezuela. CheckList 6 (2): 208-209.

Barrio-Amorós, C.L., Rivas, G.A., Molina, C.R., **Santos, J.C.**, Kaiser, H. 2010. Intraspecific variation in the endangered frog *Mannophryne riveroi* (Anura, Dendrobatidae, Aromobatinae), with comments on coloration and natural history. Herpetological Notes 3: 151-160.

Santos, J.C., Coloma, L.A., Caldwell, J.P., Summers, K., Ree, R., Cannatella, D.C. 2009. Amazonian amphibian diversity is primarily derived from late Miocene Andean lineages. PLoS-Biology 7:3 (March 10, 2009).

Barrio-Amorós, C.L., **Santos, J.C.** 2009. Description of a new *Allobates* (Anura, Dendrobatidae) from the eastern Andean piedmont, Venezuela. Phyllomedusa 8(2): 89-104.

Ron, S.R., **Santos, J.C.**, Cannatella, D.C 2006. Phylogeny of the túngara frog genus *Engystomops* (=*Physalaemus pustulosus* species group; Anura: Leptodactylidae). Molecular Phylogenetics and Evolution 39:392–403.

Graham, C.H., Ron, S.R., **Santos, J.C.**, Schneider, C.J., Moritz, C. 2004. Integrating phylogenetics and environmental niche models to explore speciation mechanisms in dendrobatid frogs. Evolution 58 (8): 1781-1793.

Santos, J.C., Coloma, L.A., Cannatella D.C. 2003. Multiple recurring origins of aposematism and diet specialization in poison frogs. Proceedings of the National Academy of Sciences USA 100(22): 12792–12797.

Paz-y-Mino, C., Burgos, R., Morillo, S.A., **Santos**, **J.C.,** Fiallo, B.F., Leone, P.E. 2002. BCR-ABL rearrangement frequencies in chronic myeloid leukemia and acute lymphoblastic leukemia in Ecuador, South America. Cancer Genetics and Cytogenetics 132:65-67.

PRESENTATIONS AT SCIENTIFIC MEETINGS AND SEMINARS

Yagudayeva, G. (SJU-GRAD), Biswas, A. (High School Student), Totini, Z. (High School Student), Carvajal-Castro, J.D. (SJU-GRAD), Mincher, E. (SJU-GRAD), Adhikary, Z. (SJU-GRAD), **Santos, J.C.** Silent Invaders: Investigating Parasites in Pet Trade Tree Frogs Through Transcriptomics and Morphology. Evolution Conference. Virtual. May 2025. **Role: Mentor**

Santos, J.C., Carvajal-Castro, J.D. (SJU-GRAD), Bakar, A. (SJU-GRAD), Yagudayeva, G.(SJU-GRAD), Salazar, D. Evolución de los nAChRs (receptores de acetilcolina) en anfibios tóxicos y sus depredadores reptiles. I Congreso Ecuatoriano de Herpetología. Loja, Ecuador. March 2025. Poster. **Role: Mentor**

Carvajal-Castro, J.D. (SJU-GRAD), Wang, Z. (Posdoc-Faculty), Yu, Y. (SJU-Faculty), **Santos, J.C.** Desentrañando la evolución molecular de los canales iónicos termosensibles en ranas neotropicales: un enfoque en TRPA1. I Congreso Ecuatoriano de Herpetología. Loja, Ecuador. March 2025. Oral presentation. **Role: Mentor**

Biswas, A. (High School Student), Totini, Z. (High School Student), Carvajal-Castro, J.D. (SJU-GRAD), Mincher, E. (SJU-GRAD), Adhikary, Z. (SJU-GRAD), Yagudayeva, G. (SJU-GRAD), **Santos, J.C.** Parasite X: Understanding the Ecological and Ethical Implications of a Liver Parasite in Pet-Trade Acquired Smilisca baudini. Urban Barcode Research Project Symposium. New York City College of Technology, NY. May 2025 **Role: Mentor**

Feurtado, C. (SJU-UG), Adhikary, Z. (SJU-GRAD), Yagudayeva, G. (SJU-GRAD**), Santos, J.C.** Extracting chemical defenses: evaluating alkaloid profiling in mock Dendrobatid alkaloids. St. John's Research Conference. St. John's University, NY, April 2025 **Role: Mentor**

Carvajal-Castro, J.D. (SJU-GRAD), Wang, Z. (High School Student), Yu, Y. (High School Student), **Santos, J.C.** Unraveling the Evolution of Thermosensitive Ion Channels in Poison Frogs. The 29th European Meeting for PhD students in Evolutionary Biology (EMPSEB29). Puchberg am Schneeberg, Austria. June, 2024

Allen, B. (SJU-UG), Lee, E. (High School Student), Yagudayeva, G. (SJU-GRAD), **Santos, J.C.** Advancing urban biodiversity: student-led de novo transcriptomics research on unknown Andean velvet worms. MSCHE Conference, Philadelphia, PA (**accepted abstract**). December, 2024

López-Hervas K, **Santos, J.C.**, Ron, S., Betancourth-Cundar, M., Cannatella, D.C., Tarvin, R.D. Deep Divergences Among Cryptic Clades of Epipedobates Poison Frogs. 10th World Congress of Herpetology. Borneo Convention Centre Kuching (BCCK), Sarawak, Malaysia. August 2024

Navarrete-Méndez, M.J., ..., **Santos, J.C.**, Tarvin, R.D. Selection on Visual Opsin Genes in Diurnal Neotropical Frogs and Loss of the SWS2 Opsin in Poison Frogs. 10th World Congress of Herpetology. Borneo Convention Centre Kuching (BCCK), Sarawak, Malaysia. August 2024

Tarvin, R.D., **..., Santos, J.C.**, ..., Cannatella, D.C. Passive Accumulation of Alkaloids in Putatively Non-toxic Frogs Challenges Paradigms of the Origins of Acquired Chemical Defenses. 10th World Congress of Herpetology. Borneo Convention Centre Kuching (BCCK), Sarawak, Malaysia. August 2024

Amini, S.S., Navarrete-Mendez, M.J., Ron, S.R., Saal, J., Wake, M.H., **Santos, J.C.**, Tarvin, R.D. Unexpected Maintenance of the Long-Wavelength Sensitive (LWS) Cone Opsin in Caecilians: An Ancient Group of Fossorial Amphibians. 10th World Congress of Herpetology. Borneo Convention Centre Kuching (BCCK), Sarawak, Malaysia. August 2024

Carvajal-Castro, J.D., Wang, Z., Yu, Y., **Santos, J.C.** Unraveling the Evolution of

Thermosensitive Ion Channels in Poison Frogs. The 29th European Meeting for PhD students in Evolutionary Biology (EMPSEB29). Puchberg am Schneeberg, Austria. June, 2024

Yagudayeva, G., Ragib, S., Chen, K., **Santos J.C.** Unveiling the hidden diversity: Using de novo transcriptomics for mitogenomic reconstruction and barcode analyses of Andean velvet worms (Onychophora)," The Evolution 2024 Conference. Montreal, QC, July 2024

Muratov. J., Yick, E., Lee, L., Yagudayeva, G., **Santos J.C.** A mitogenomic exploration on high-altitude dwelling invertebrates of the Andes," St. John's University Research Poster Session. St. John's University, NY, April 2024

Yagudayeva, G., Castro-Carvajal, J.D., Ortiz, R., **Santos J.C.** Life-history of reptiles correlates with hemoglobin-oxygen affinity at a global scale. The Evolution 2023 Conference. Albuquerque, NM, June 2023

Yick, E., Lee, L., Yagudayeva, G., **Santos J.C.** Assemblage of the mitochondrial genome of an unknown planarian species from the Andes and its phylogenetic comparison with temperate and lowland relatives," New York City College of Technology, Urban Barcode Research Project, May 2023

Castro-Carvajal, J.D., Ortiz, R., Yagudayeva, G., **Santos J.C.** Hemoglobin genes: Evolution across reptiles follows environmental variation tied to oxygen availability. Evolution 2022. June, 2022

Yagudayeva, G., Castro-Carvajal, J.D., Ortiz, R., **Santos J.C.** Life history of reptiles in hemoglobin-oxygen affinity. Evolution 2022. June, 2022

Carvajal-Castro JD, Ortiz R, **Santos JC.** Evolución molecular de la hemoglobina en reptiles y su asociación con rasgos de historia de vida. I Congreso Latinoamericano de Evolución (Spanish). November, 2021

Femenias M.M., **Santos J.C.**, Sites, J.W.Jr., Avila, L.J., Morando, M. Que Basua! Explorando elementos transponibles (TEs) a partir de datos de RNA-seq con o sin genoma de referencia. 6th Simposio Argentino de Jovenes Investigadores en Bioinformatica (Spanish). November, 2021

Femenias M.M., **Santos J.C.**, Sites, J.W.Jr., Avila, L.J., Morando, M. *Liolaemus parthenos* en pie de Guerra: Los albores de una Carrera armamentista entre elementos transpoibles (TEs) y su regulacion epigenetica. XXI Congreso Argentino de Herpetologia (Spanish). November, 2021

Femenias M.M., **Santos J.C.**, Sites, J.W.Jr., Avila, L.J., Morando, M. The use of selective alignment to explore transposons (TEs) derived from RNA-seq data. 5th Uppsala Transposon Symposium. October, 2021

Gera, P., Ortiz, R., **Santos, J.C.** Diversification and evolution of chitinase 1 (CHIT1) in neotropical frogs: an enzyme at the forefront against *Bd* infection. Asilomar Meetings (Virtual). January 10th, 2021

Santos, J.C., De Leon, J., Gera, P., Ortiz, R. Evolution of Toll-like Receptors (TLRs) in neotropical amphibians and their relationship with *Bd* Infection. Asilomar Meetings (Virtual). January 11th, 2021

Ortiz, R., Gera, P., **Santos, J.C.** Pincho: A modular approach to high quality de novo transcriptomics. Asilomar Meetings (Virtual). January 11th, 2021

De Leon III, B., Rivera, C., Jaiyasuriya, P., Vicinanza, M.), Cannatella, D., Tarvin, R., **Santos, J.C.** Life History Traits and Mitochondrial Protein Mutation Across Amphibia: Increased Diversification in Smaller. Evolution Meetings, Providence, RI. June 23th, 2019

Santos, J.C., Cheng, T., Lorea, T., Cannatella, D., Tarvin, R. Evolution of Diet Specialization across Neotropical Anurans: Alkaloid Sequestration and Environment. Evolution Meetings, Providence, RI. June 23th, 2019

Chambers, E.A., Tarvin, R.D., **Santos, J.C.**, Ron, S.R., Betancourth, M., Amézquita, A., Hillis, D.M., Matz, M.V., and Cannatella, D.C. A phylogenetic comparison of RADseq methods in two frog clades. Joint Congress on Evolutionary Biology, Monpellier, France. August 18-22, 2018

Santos, J.C., Sites, J.W. The environmental context of physiological performance across ectotherms. XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

Santos, J.C., Tarvin, R.D., O'Connell, L.A., Blackburn, D.C., Coloma, L.A. Diversity within diversity: Eukaryotic symbiont diversity of poison frogs assessed by transcriptomics. XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

Caetano, G., **Santos, J.C.,** Sinervo, B. Mapinguari – an R package to process species-based distribution modelling using ecophysiological data. XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

Tarvin, R.D., **Santos, J.C.,** Ron, S.R., Cannatella, D.C. Visual signal evolution in *Epipedobate*s poison frogs. XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

Amador, L., **Santos, J.C**., D'Elía, G., Núñez, J., Verkade, J.C., Coloma, L.A. Filogenia y delimitación de especies dentro del complejo de especies *Hyloxalus infraguttatus* (Anura, Dendrobatidae). XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

López-Hervas, K., Tarvin, R.D., Ron, S., **Santos, J.C.,** Betancourth, M., Amézquita, A., Cannatella, D.C. Es *Epipedobates boulengeri* un complejo de especies? Filogenia molecular de una ranita venenosa. XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

Carvajal-Castro, J.D., Casas-Cardona, S., Vargas-Salinas, F., **Santos, J.C.** Análisis comparativo del cuidado parental, transporte de renacuajos y aposematismo en ranas venenosas (Dendrobatidae). XI Congreso Latinoamericano de Herpetología. Pontificia Universidad Católica del Ecuador. July 24-28, 2017

Tarvin, RD, CM Borghese, W Sachs, **JC Santos**, L Yu, LA O'Connell, DC Cannatella, RA Harris, and HH Zakon. Evolution of alkaloid resistance in poison frogs revealed by comparative phylogenetics. Annual Meeting of the Society for Molecular Biology and Evolution, Austin, Texas. June 2017

Sinervo, B., **Santos J.C.**, Lara R. NSF Macrosystems PI meeting: Ecophysiological species distribution models for an Amazonian guild of lizards. NSF Headquarters. September 29-30, 2016

Tarvin, RD, W Sachs, C Borghese, **JC Santos**, LA O'Connell, DC Cannatella, HH Zakon, and A Harris. Evolution of epibatidine resistance in poison frogs. 8th World Congress of Herpetology, Hangzhou, China. August 2016

Tarvin, RD, W Sachs, C Borghese, **JC Santos**, LA O'Connell, DC Cannatella, HH Zakon, and A Harris. Evolution of epibatidine resistance in poison frogs. Society for the Study of Evolution, Austin, Texas. 2016

Santos J.C. Macroecology, Complex Phenotypes and Comparative Transcriptomics using 'Big Data' for Assessing the Biodiversity of Lizards and Amphibians. University of Rhode Island. March 2016

Santos J.C. Macroecology, Complex Phenotypes and Comparative Transcriptomics for Assessing the Biodiversity of Lizards and Amphibians. University of Missouri-Columbia. February 2016

Santos J.C. Macroecology, Complex Phenotypes and Comparative Transcriptomics for Assessing the Biodiversity of Lizards and Amphibians. Imperial College London. UK. January 2016

Santos J.C. Macroecology, Complex Phenotypes and Comparative Transcriptomics for Assessing the Biodiversity of Lizards and Amphibians. University of Bath. UK. December 2015

Sites J.W. Jr., **Santos J.C.** NSF Macrosystems PI meeting: MSB session on scaling individuals to regions. NSF Headquarters. Alexandria VA, August 2015

Sinervo B., Pittermann J., **Santos J.C.**, Miles D.B., Sites J.W. Jr., Bauer A., Corl A., Huey R.B. Plant mortality and beyond: quantifying climate-forced extinction risks for lizards,

amphibians, and plants. Invited Symposium on Climate Change. Botanical Society of America Meeting. Edmonton (Canada), July 2015

Taylor G.W.*, **Santos J.C.**, Perrault, B. J.*, Sites J.W. Jr. Sexual dimorphism in head and body structures in *Basiliscus* and *Corytophanes* species. Society for the Study of Amphibians and Reptiles meeting, University of Kansas, Lawrence, July 2015. * Undergraduate mentee

Santos J.C., Caetano G., Colli G.R., Tucker D., Sites J.W. Jr., Sinervo B. Species distribution models of Brazilian *Tropidurus* and *Mabuya* lizards based on eco-physiological and climatological predictors. ASN/SSB/SSE Meetings, Guarujá (Brazil), June 2015

Santos J.C., McGhie M.*, Wagstaff J.*, Pope A.J.*, Sites J.W. Jr., Stephen C. Characterization of genes with detoxifying function in desert iguanas derived from de novo transcriptome assemblies. ASN/SSB/SSE Meetings, Guarujá (Brazil), June 2015. * Undergraduate mentee

Tarvin R., **Santos J.C.**, O´Connell L.A., Zakon H.H., Cannatella D.C. La base genética de la resistencia contra los alcaloides en *Atelopus* y Dendrobatidae. X Congreso de Herpetología Neotropical, Cartagena (Colombia), Diciembre 2014

Santos, J.C. Tarvin, R., O'Connell, L. Chemical Ecology of Poison Frogs: Evolution of Alkaloid Sequestration and Autoimmunity. Invited symposium at the Chemical Ecology Society Meeting, University of Illinois-Urbana, July 2014.

Tarvin, R., **Santos, J.C.,** O'Connell, L., Zakon, H., Cannatella, D.C. Genetic basis of alkaloid resistance in harlequin toads and poison frogs. ASN/SSB/SSE Meetings, Raleigh, NC, June 2014.

Santos, J.C. Sistemática, Fenómica and Genómica: Un estudio integrativo de las ranas venenosas. Invited presentation, University of Puerto Rico-Rio Piedras. San Juan, Puerto Rico, April 2014.

Santos, J.C. Emergent properties: Aposematism, Phenomics and Biogeography. Invited seminar. Imperial College London, November 2013.

Santos, J.C. Emergent properties: Aposematism, Acoustics and Systematics. Biodiversity Lunchtime Internal Seminar Series (BLISS). University of British Columbia, BC March 2013

Santos, J.C. Emergent Properties in Poison Frogs: Aposematism, Bioacoustics and Systematics. Biodiversity Research Seminar Series. University of Oklahoma, OK, February 2013

Santos, J.C. Emergent properties: Aposematic calls. Biodiversity Research Seminar Series. University of British Columbia, BC September 2012

Santos, J.C. Emergent properties in the light of evolution: Aposematism, physiology, and bioacoustics. University of Missouri-St. Louis, MO September 2012

Santos, J.C. Faster rates of molecular evolution and metabolic features in poison frogs. Duke University, Durham, NC, March 2012

Santos, J.C. The evolution of complex phenotypes in poison frogs: Aposematism, acoustic signals and metabolic rates. East Carolina University, Greenville, NC, September 2011

Santos, J.C. Phenotypic integration in poison frogs. ASN/SSB/SSE Meetings, Norman, OK, June 2011

Santos, J.C. Phenotypic diversity, phylogeny, and natural history of poison frogs College of Charleston SC, February 2011

Santos, J.C. Rates of molecular evolution and life history traits in poison frogs. ASN/SSB/SSE Meetings, Portland OR, June 2010

Santos, J.C. Metabolic rates and molecular evolution in the poison frogs. Duke Systematics Group, May 2010

Santos, J.C. Evolution of complex traits in poison frogs: scale, metabolic rates, aposematism, and diet specialization. NESCent BBL Seminars, January 2010

Santos, J.C. Phylogeography and evolution of correlated traits under multiple origins of aposematism in the poison frog family. UT-EEB Population Biology Seminars, August 2009

Santos, J.C. Evolution of alkaloid profiles in poison frogs. ASN/SSB/SSE meetings 2008. Minneapolis/St. Paul, Minnesota. June, 2008

Santos, J.C. Poison frog diversity explained by repeated dispersals during the Miocene-Pliocene boundary. UT-EEB Population Biology Seminars, March 2008

Santos, J.C., Cannatella, D.C. 2006. Evolution of physiological adaptations associated with aposematism in poison frogs (Dendrobatidae). Joint Meetings of The Herpetologist's League and The Society for the Study of Amphibians and Reptiles. New Orleans, USA; July 2006

Ron, S.R., Cannatella, D.C., **Santos, J.C.** Filogenia y evolución del canto de *Physalaemus* del grupo de especies *pustulosus* (Anura: Leptodactylidae): Variaciones sobre un mismo tema. VII Congreso Latinoamericano de Herpetología. Cuernavaca, México 2005

Santos, J.C., Coloma, L.A., Caldwell, J.P., Summers, K., Cannatella, D.C. Biogeography of the Poison Frogs. Joint Meetings of the Herpetologist's League and The Society for the Study of Amphibians and Reptiles. Tampa, USA; June 2005

Coloma, L.A., Cannatella, D.C., **Santos, J.C.** Evolution of behavior in poison frogs (Anura: Dendrobatidae) reconsidered. Animal Behavior Society XLI Meeting, Oaxaca, México, 2004

Cannatella, D.C., Ron, S.R., **Santos, J.C.** Phylogenetic relationships in *Physalaemus*: how comparative analysis provides a framework for studies of behavioral evolution. Animal Behavior Society XLI Meeting, Oaxaca, México, 2004

AWARDS

2021 Elected member of SIGMA XI

2012 Departmental Postdoctoral Fellow, Department of Ecology and Genetics, Evolutionary Biology Centre, Uppsala University-Sweden (*declined*)

2012 Science without Borders program: Young post-doctoral researchers (Atração de Jovens Talentos-Brazil) (*declined*)

2012 Smithsonian Postdoctoral Fellow (2012 Competition). Smithsonian Institution, Washington DC (2nd position, *alternative*)

2011 Smithsonian Postdoctoral Fellow (2011 Competition). Smithsonian Institution, Washington DC (2nd position, *alternative*)

TEACHING EXPERIENCE

2021- Present *Principal Instructor. BIO/BIT 209: Bioinformatics – Workshop in Applied Bioinformatics using R and Python*. Graduate Course. St. John's University. https://corytophanes.github.io/BIO_BIT_Bioinformatics_209/

2017- Present *Principal Instructor. Biology 1001: Evolution, Classification, Population Biology and Ecology*. Undergraduate Core Course. St. John's University

2015 *Principal Instructor. Biology 559R: Introduction to Phylogenetic Comparative Methods*. Graduate Course. Brigham Young University. This course website, http://www.jcsantosresearch.org/Class_2014_Spring_Comparative/index.htm

2013 – 2014 *Guest Lecturer on Multivariate Statistics*. University of British Columbia

2008 – 2009 *Graduate Instructor. Biostatistics*., University of Texas at Austin. Developed, organized, taught laboratories and experimental designs for senior undergraduates with a Biology majors.

2007 – 2008 *Graduate Instructor. Physiology and Functional Anatomy*. University of Texas at Austin. Organized and taught laboratories for pre-med/pre-nurse undergraduates

2005 – 2006 *Graduate Instructor. Laboratory Experience in Genetics*. University of Texas at Austin. Developed, organized, taught laboratories and experimental designs for undergraduates with a Biology majors.

2003 *Graduate Instructor. Genetics.* University of Texas at Austin. Organized and directed discussion sections for undergraduates

GRADUATE STUDENTS MENTORING (SJU PHD STUDENTS: 4; SJU MS: 8 STUDENTS)

2025 – Zinnia Adhikary. PhD Biology at St. John's University
2022 – Genrietta Yagudayeva. PhD Biology at St. John's University
2021 – Md. Abu Bakar. PhD Biology at St. John's University
2021 – Juan David Carvajal. PhD Biology at St. John's University
2023 – 2024 Aryaana Khan. MS Biology at St. John's University
2022 – 2024 Devashri Narayan. BS/MS Biology at St. John's University
2019 – 2023 Randy Ortiz. PhD Biology at St. John's University
2019 – 2021 Joseph De Leon. BS/MS Biology at St. John's University
2017 – 2019 Maryna Vicinanza. MS Biology at St. John's University
2017 – 2019 Priyangi Jayasuriya. MS Biology at St. John's University
2017 – 2019 Benjamin de Leon III. BS/MS Biology at St. John's University
2017 – 2019 Christopher Rivera. MS Biology at St. John's University
2014 – 2017 Sebastian Kirchhof. PhD Graduate Research. MFN-Berlin (Germany)
2015 – 2017 Emerson Pontes da Silva. MS Ecology. Instituto Nacional de Pesquisas da Amazonia (INPA) - Brazil
2014 – 2017 Gabriel Caetano. PhD Graduate Research. University of California, Santa Cruz
2013 – 2017 Rebecca Tarvin. PhD Graduate Research. University of Texas at Austin. Currently: Postdoctoral Fellow UT-Austin
2016 – 2017 Luisa Diele-Viegas. MS Ecology. Museu Paraense Emílio Goeldi/CZO, C.P. 399, 66017-970 Belém, Pará, Brazil. Currently: Graduate student Universidade Estadual do Rio de Janeiro (UERJ)
2012 – 2013 Ailin Blasco. MS Graduate Research. Pontificia Universidad Católica del Ecuador
2010 – 2011 Margarita Baquero. Master's Thesis Co-advisor. USFQ (Ecuador)

UNDERGRADUATE STUDENTS MENTORING (SJU UNDERGRADUATE STUDENTS: 21)

2024 – Justin Veerasami (SJU) – Juan D. Castro-Carvajal (mentor)
2024 – Reda C. Arif (SJU) – Md. Abu Bakar (mentor)
2023 – Jessica Muratov (SJU) – Md. Abu Bakar (mentor)
2023 – Eric Lee (SJU) – Md. Abu Bakar (mentor)
2023 – Catlin Murphy (SJU) – Md. Abu Bakar (mentor)
2023 – Sarah E. Meller (SJU) – Juan D. Castro-Carvajal (mentor)
2023 – Zada N. O'Connor (SJU) – Juan D. Castro-Carvajal (mentor)
2023 – Richard A. Correa-Lampasona (SJU) – Juan D. Castro-Carvajal (mentor)
2023 – Giuliana Frisina (SJU) – G. Yagudayeva (mentor)
2022 – Eileen Li (SJU) – Md. Abu Bakar (mentor)
2022 – Anna Jiang (SJU) – Md. Abu Bakar (mentor)
2022 – Joanne Luna (SJU) – G. Yagudayeva (mentor)
2022 – Bridget Allen (SJU) – G. Yagudayeva (mentor)
2020 – 2023 Victoria Akilov (SJU) – R. Ortiz (mentor)
2019 – 2022 Priyanka Gera (SJU)
2020 – 2021 Carolyn Kosinski (SJU)

2019 – 2020 Qasim S. Hussain (SJU)
2019 – 2019 Gabriella Tjitropranoto (SJU)
2019 – 2019 Gabriella Sosa Medina (SJU)
2019 – 2019 Isabella Vargas (SJU)
2018 – 2019 Giang (Jacelyn) Vo (SJU)
2017 Karem Lopez. Universidad Central del Ecuador (Ecuador)
2017 Juan David Carvajal. Universidad del Quindio (Colombia)
2014 – 2017 Megan McGhie. Brigham Young University
2014 – 2017 Gregory Taylor. Brigham Young University
2015 – 2016 Benjamin Bay. Brigham Young University
2015 – 2016 Benjamin J. Perrault. Brigham Young University
2015 Shayla Draper. Brigham Young University
2015 Jadon Wagstaff. Utah Valley University
2013 Karen Castillo. Universidad de Nariño (Colombia)
2012 N. Lily Negash and Johnny Kim. Duke University
2011 Adeeb Minhaj and Barbara Blachut. Duke University
2011 Pramodh Ganapathy and Will Hyung. Duke University
2010 – 2011 Maria Nayfa. Duke University. Work-study student
2010 Undergraduate Diversity at Evolution program with two mentees at the 2010 ASN/SSB/SSE meetings. Portland, OR
2009 – 2010 Mónica Páez-Vacas, Pontificia Universidad Católica del Ecuador.
2008 Elaine Klein. University of Texas at Austin
2008 Italo Tapia. Pontificia Universidad Católica del Ecuador
2007 – 2008 Margarita Baquero. Pontificia Universidad Católica del Ecuador.
2007 Daniel Scantlebury. University of Texas at Austin
2006 Rafael Guerrero. Universidad de los Andes, Colombia
2006 Juliana Gómez. Universidad de los Andes, Colombia

HIGH SCHOOL STUDENTS MENTORING (HS: 7 STUDENTS)

2023 – 2024 Diya Amin & Eshaal Irfan (Cardoso High School) - *Urban Barcode Research Program*
2022 – 2023 Erika Yick & Leo Lee - *Urban Barcode Research Program*
2020 – 2021 Rochelle Avezki (Townsend Harris High School) - *Urban Barcode Research Program*
2020 – 2021 James Tu (The Kew-Forest School) - *Urban Barcode Research Program*
2018 – 2018 Rauja Khan (Queens High School for the Sciences)

PROFESSIONAL SERVICE

Ad-hoc reviewer for *The American Naturalist, Asian Herpetological Research, Biological Conservation, BMC Evolutionary Biology, Biological Journal of the Linnean Society, Biotropica, eLife, Ethology, Journal of Biogeography, Journal of Ecology, Journal of Thermal Biology*, *Biodiversity and Conservation, Current Zoology, Caldasia, Climate Change Ecology, Copeia, Frontiers Ecology and Evolution, Functional Ecology, Ecology Letters, Frontiers in Zoology, Gene, Genome Biology and Evolution*, *Helminthologia, Herpetological Conservation and Biology, Molecular Biology and Evolution, Nature Communications, Proceedings of the Royal Society-B Series*, *Revista de Biología Tropical, Herpetologica, Tropical Zoology*, *Zootaxa*, *Zoological Journal of the Linnean Society*

Ad hoc reviewer grants: National Science Foundation (NSF) in 2024. UK Royal Society Grants (Dorothy Hodgkin Fellowships) in 2020 Leverhulme Trust (UK) in 2019 and Natural Sciences and Engineering Research Council of Canada (NSERC) in 2014

Invited editor: *Proceedings of National Academy of Sciences* (2022)

PhD committee member: Alberim Kurtishi (SJU), Jingjing Tong (SJU), Jiahong Han (SJU)
Master committee member: Shen Zhang (SJU), Randy Ortiz (SJU)
Master in Sciences (2016): Biology – Proposal Reviewer: *Universidad de Quindio* (Colombia)
Master in Sciences (2015): Biology – Proposal Reviewer: *Universidad de Costa Rica* (Costa Rica)
Master in Sciences (2012-2014): Biology – Final Report Reviewer: *Universidad de los Andes* (Colombia)

PROFESSIONAL SOCIETIES

Society for Molecular Biology & Evolution
Society for the Study of Evolution
Society for the Study of Amphibians and Reptiles
American Society of Naturalists
Society of Systematic Biologists