Ian Vasconcellos Caldas

Curriculum vitae
(updated August 2, 2022)

Department of Computational Biology
Cornell University
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Education

2016–2022   PhD in Computational Biology at Cornell University.
Advisors: Dr. Andrew G. Clark and Dr. Philipp W. Messer.
Thesis: The inference of selective sweep parameters from their genomic footprint.

2013–2015   M.Sc. in Genetics at Federal University of Rio de Janeiro.
Advisor: Dr. Carlos G. Schrago.
Thesis: Strategies to estimate with precision the divergence time of placental mammals using the morphological clock.

2009–2013   B.Sc. in Genetics at Federal University of Rio de Janeiro.
Advisor: Dr. Carlos G. Schrago.
Thesis: Performance of Bayesian skyline plots to estimate the demographic history of structured populations.

Publications

Caldas, I. V., Clark, A. G., & Messer, P. W. (2022). Inference of selective sweep parameters through supervised learning. *bioRxiv*. https://doi.org/10.1101/2022.07.19.500702

Caldas, I. V., Kelley, L. H., Ahmed-Braimah, Y. H., & Maine, E. M. (2022). Smalldisco, a pipeline for sirna discovery and 3' tail identification. *bioRxiv*. https://doi.org/10.1101/2022.07.15.500275

Caldas, I. V. & Schrago, C. G. (2019). Data partitioning and correction for ascertainment bias reduce the uncertainty of placental mammal divergence times inferred from the morphological clock. *Ecology and Evolution*, *9*(4), 2255–2262. https://doi.org/10.1002/ece3.4921

Duneau, D., Sun, H., Revah, J., San Miguel, K., Kunerth, H. D., **Caldas, I. V.**, Messer, P. W., Scott, J. G., & Buchon, N. (2018). Signatures of insecticide selection in the genome of *Drosophila melanogaster*. *G3: Genes, Genomes, Genetics*, *8*(11), 3469–3480. https://doi.org/10.1534/g3.118.200537

Wei, K. H.-C., Lower, S. E., **Caldas, I. V.**, Sless, T. J. S., Barbash, D. A., & Clark, A. G. (2018). Variable rates of simple satellite gains across the *Drosophila* phylogeny. *Molecular Biology and Evolution*, *35*(4), 925–941. https://doi.org/10.1093/molbev/msy005

Flynn, J. M., **Caldas, I. V.**, Cristescu, M. E., & Clark, A. G. (2017). Selection constrains high rates of tandem repetitive DNA mutation in *Daphnia pulex*. *Genetics*, *207*(2), 697–710. https://doi.org/10.1534/genetics.117.300146

Selected conference presentations

2021	Great Lakes Annual Meeting of Evolutionary Genomics (GLAM).
	Talk: A machine learning approach to estimate the strength and mode of hard and soft selective sweeps.
2021	Society for Molecular Biology and Evolution (SMBE).
	Talk: Inferring parameters of selective sweeps through supervised learning.
2021	Probabilistic Modeling in Genomics (ProbGen).
	Talk: Inferring parameters of selective sweeps in *Drosophila melanogaster* through supervised learning.
2020	Population, Evolutionary and Quantitative Genetics (PEQG).
	Poster: Inferring parameters of selective sweeps in *Plasmodium falciparum* through supervised learning.
2019	Evolution.
	Poster: Inferring parameters of selective sweeps in *Plasmodium falciparum* through supervised learning.
2017	Society for Molecular Biology and Evolution (SMBE).
	Poster: Tandem short repetitive DNA recapitulates the evolutionary history in *Drosophila*.
2015	Evolution.
	Poster: Data partitioning improves the morphological clock of placental mammals.

Awards and scholarships

2021	Graduate Student Excellence Award, SMBE.
2016	Presidential Life Sciences Scholarship, Cornell University.
2013	Master's Research Scholarship, National Council for Scientific and Technological Development of Brazil (CNPq).

Professional society memberships

2017–present	Genetics Society of America (GSA).
2015–present	Society for the Study of Evolution (SSE).
2015–present	Society for Molecular Biology and Evolution (SMBE).

Further training

Leadership training

2020–2021	Co-facilitated the Graduate Student Survival Skills class, Cornell University.
2019	Future Professors Institute: Advancing Diversity in the Academy, Cornell University.
2017	Intergroup Dialogue Project, Cornell University.

Scientific workshops

2019	SLiM Workshop, Cornell University.
2018	Search for Selection, The National Institute for Mathematical and Biological Synthesis.
2017	High Performance Computing on Stampede 2, Cornell University.
2015	Applied Bayesian Modeling, Osvaldo Cruz Foundation.
2014	Paleobiological and Phylogenetic Approaches to Macroevolution, National Evolutionary Synthesis Center.