

LEANDRO DE MATTOS PEREIRA

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Professional aims:

To act as a researcher/scientist and professor in Computational Biology and AI. To establish myself as a reference in the field by generating products (articles, software) that can contribute to a better society and world.

Current Research Focus and Interests:

- Omics analyses, phylogenetics, and phylogenomics
- Biosynthetic gene cluster mining using bioinformatics: aiming identification of Natural products
- Mining and analysis of non-homologous functional enzymes with potential applications in biotechnology
- Computational biology and AI applied to biomedical science
- Foundation models for molecular biology and omics, and AI multi-agent chatbots applied in biological research.

Professional Experience:

- ✓ Actually, Junior Research at CIIMAR, on <https://bb4f.ciimar.up.pt/> Project, Interdisciplinary Centre for Marine and Environmental Research.
- ✓ Bioinformatician: Molecular Diagnostic Laboratory and Core Facility of Bioinformatics, Molecular Oncology Research Center, 44 hours load, CLT (2017 - 2019). Cancer Barretos Hospital.
- ✓ April 2016 – November 2018: Bioinformatician Researcher – CEO: Individual Microentrepreneur – DATABIOMICS. Computer training and education company. CNPJ:24.696.167/0001-05.
- ✓ October 2020 – JUNE 2021 - Bioinformatician Researcher – CEO: DATABIOMICS SOLUÇÕES EM ÔMICAS E BIOINFORMÁTICA LTDA

- ✓ Postdoctoral in Genomic of herpetofauna (March 2022 –2022). Vale Technological Institute.
- ✓ Short project participation in Genomics and Phylogenomic of SARS-CoV-2 (June 2021 – March 2022), Fiocruz - Pernambuco.
- ✓ Postdoctoral in Coral Microbiome (October 2019 – October 2020). Federal University of do Rio de Janeiro, sponsor: Shell.
- ✓ Postdoctoral in the Core Facility (December 2016 - April 2017) – Experimental Center Studies of Clinical Hospital of Porto Alegre - Research Center – UAMP.
- ✓ Postdoctoral (December 2014 – 2016) in Molecular Biology. Area: Genomic, Transcriptomic and Comparative Genomic Analysis of Nematode Parasites. Pontifical Catholic University of Rio Grande do Sul (PUCRS).
- ✓ Collaborator Researcher in Bioinformatician (2015 - 2016) at Petroleum Research Institute and Natural Resource, Pontifical Catholic University of Rio Grande do Sul (PUCRS).

Academic Formation

- ✓ PhD Computational Biology and Systems (2010-2014) - Oswaldo Cruz Institute, Fiocruz, Rio de Janeiro - RJ, Brazil. Area of Concentration: Functional Genomics, Evolution and Phylogenomic.
- ✓ Master's Degree in Biosciences and Biotechnology (2007-2009). State University of Northern Rio de Janeiro (UENF).
- ✓ Bachelor in Biological Sciences (2003-2007) with emphasis in Biotechnology. State University of Northern Rio de Janeiro (UENF). Campos - RJ, Brazil.

Scientific Initiation, CNPQ/PIBIC scholarship:

Development of a genetic transformation protocol for *Saccharum officinarum* sps. Awarded for best work at the scientific initiation congress at UENF – 2011.

Languages:

English level: Reading: Advanced, listening: Advanced, Spoken: Intermediate.

English course in progress (English live: <https://englishlive.ef.com/pt-br/>) and Private Lessons.

Additional Information:

Skills:

- **Programming Languages:** R (Bioconductor packages and statistical analyses), Perl, C, Seed, AWK, Snakemake, Python, SQL, SQL-lite, Bash, GitHub, Docker containers, Jupyter Notebook, REDCap (SQL).
- **Building one customized galaxy platform:** <https://www.faal-pred.ciimar.com/>
- **Front-End:** Streamlit

I have developed Python codes for the classification of enzyme substrates using AI, including transformers built from scratch, fine-tuning of ESM2, and programs utilizing Word2Vec and Random Forest/SVM. Additionally, I have experience with Python libraries

such as Scikit-Learn, PyTorch, Keras, TensorFlow, and others.

Member of Invicta Toastmasters - Portugal (<https://www.invictatm.com/>) since December 2023 - an international organization that meets to enhance communication, leadership, and active listening skills.

Experience in Molecular Biology Techniques:

PCR, RT-PCR, in vitro culture and plant regeneration, culture of microorganisms, DNA digestion by restriction enzymes, DNA and RNA extraction, transformation of *E. coli* and *A. tumefaciens*, transformation of plants.

Activities in teaching (classrooms and courses):

- ✓ 2017 - Preceptor in "NGS and Bioinformatics" in the Biology and Biomedicine Programs Care, Multiprofessional Residency Cancer - COREMU, 16-hour workload, 20 and 21 July. Barretos Cancer Hospital.
- ✓ 2018 - Preceptor in "NGS and Bioinformatics" in the Biology and Medicine Programs - Care, Multiprofessional Residency Cancer - COREMU, 16-hour workload, August 30th and 31st. Barretos Cancer Hospital.
- ✓ 2018 – Bioinformatics Course. IV Winter Course in Molecular Oncology, 23 – 27 July, 40 hours. Barretos Cancer Hospital.
- ✓ 2017 - Extension Course in Microbiome, workload: 44 hours. UFRGS – Clinical Hospital of Porto Alegre (HCPA).
- ✓ 2016 - Bioinformatics Course: “Genome Assembly, functional annotation and analysis of biological networks”, 20 hours workload. PUC-RS
- ✓ 2013 – Bioinformatics Winter Course Coordinator, workload of 40 hours. Oswaldo Cruz/Fiocruz Institute, RJ.
- ✓ 2011 – Professor of the Bioinformatics Winter Course, workload of 35 hours. Oswaldo Cruz Institute- Fiocruz, RJ.
- ✓ 2008 - Theoretical and Practical Course in Molecular Biology, Biological Sciences course, 78hours. UENF, Campos-RJ.
- ✓ 2007 - Volunteer Professor in a social course for university admission: UENF discipline: General Biology. 1 year workload.

Lectures, classes, and seminars given:

- ✓ 2017 – Class: Studies of the Human Microbiome associated with Cancer. Barretos Cancer Hospital.
- ✓ 2016 – Seminar: Bioinformatics applied to health and Biotechnology. Experimental Research Center, HCPA.
- ✓ 2014 – Lecture: Metabolic Potential of *A. cantonensis*: a Bioinformatics approach, Postgraduate Program in Cellular and Molecular Biology. PUCRS.
- ✓ 2011 - Lecture: Identification of Non-homologous Isofunctional Enzymes in genomes of pathogens: a search for potential therapeutic targets. XIII Scientific Initiation Seminar of the Biological Sciences Course. Piedade Campus of Gama Filho University.

- ✓ 2020- Lecture in XIII CIC biology week, Prospecting drugs against the SARS-COV-2 virus by bioinformatics and structural biology, University Center of Redentor, Itaperuna, Rio de Janeiro.

Complementary training:

- ✓ 2021-2022 - Extension Course on Microbial Diversity of Environmental Samples III at PUCRS in the period 05/20/2021 to 01/20/2022.
- ✓ 2021- Python for Data Science and IA. IBM – Coursera. Period of Five weeks with Final project (in walking).
- ✓ 2021- Cabana Course: "Innovative methods for viral detection and discovery in genomic and metagenomic", EMBL, November 2021, from 11/08/2021 to 11/12/2021. 40 hours.
- ✓ 2020 - Distance Extension Course on "Introduction to Computing for Bioinformatics (Python programming language)", promoted by the Department of Computer Science, Institute of Exact Sciences of the Federal University of Minas Gerais, in the period of 08/15/2020 on 10/15/2020, 40 hours.
- ✓ 2021- International School on Big Data and Epigenomics applied to Public Health with a duration of 30 hours, from 11/23/2020 to 11/25/2020.
- ✓ 2018- Data collection and management in research using REDCap at the Barretos Cancer Hospital - Pio XII Foundation, held from 22 to 25 January 2018, 12 hours.
- ✓ 2018- NEB Summer Course on "Survival Analysis" at the Barretos Cancer Hospital - Pio XII Foundation, held from January 3 to 5, 2018, 12 hours.
- ✓ 2013 - Advanced School of Functional Genomics, 90 hours, Rio de Janeiro (UFRJ). 2012 - RNA-Seq, 45hs. Federal University of Minas Gerais. UFMG. State of Minas Gerais, Brazil.
- ✓ 2012 - International Course on Systems Biology, 80hs. Oswaldo Cruz Institute, Rio de Janeiro, Brazil.
- ✓ 2012- RNAseq Course Held at the Federal University of Minas Gerais from May 14th to 18th, 2012 with a workload of 45 hours 100 point (concept A).
- ✓ 2011 - Functional Genomics and its applications in biomedicine, 80hrs Instituto Pasteur de Montevideo – Uruguay.
- ✓ 2010 - Advanced Methods of Phylogenetic Analysis, 90hrs Federal University of Rio de Janeiro (UFRJ) and European Institute of Molecular Biology (EMBL), 60hs, <http://cwp.embo.org/wpc09-02>.
- ✓ 2010 - V School of Modeling Biomolecular Systems, hours: 60hs. National Laboratory of Scientific Computing, Petrópolis-RJ.
- ✓ 2010 – 1 Summer Course: Topics in Computational Biology" State University of Norte Fluminense, 24 hours.
- ✓ 2006- Extension Course: Therapy and Treatment for Genetic Diseases" Carlos Chagas Biophysics Institute, UFRJ.
- ✓ Institute of the Federal University of Rio de Janeiro, with a workload of 16 hours on October 7th and 8th, 2006.
- ✓ 2004- Molecular Markers in Biodiversity Assessment, taught by Prof. Angela P. Victoria. State University of Norte Fluminense, November 19th to 21st, 2004.

Main Participation in Congress:

- ✓ Identification and Prediction of HBAG D-chain Sequence. Sebastião, I.; Santos, E, de Souza.; Pereira, L, M.; Morgante, P. G.; Santiago, S. S. during the 20th International Union for Pure and Applied Biophysics (IUPAB), 50th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq), 45th Congress of 50th Brazilian Society of Biophysics (SBBf) and 13th Brazilian Society on Nuclear Biosciences Congress (SBBN), virtually, Brazil, on October 4th to 8th, 2021.
- ✓ Molecular Characterization of Cloaca and Oropharynx of Pigeons (*Columba Livia*) using 16S rRNA Marker sequencing. Loiko, M. R.; de M. Pereira, Leandro; Varela, A. P. M.; Bueno, T. S.; Tochetto, C.; Morel, A. P.; Cerva, c.; Roehe, P. M.; Mayer, F. Q. In: 29 Congresso Brasileiro de Microbiologia, 2017, Fóz do Iguaçu. Microbiologia Veterinária, 2017.
- ✓ Microbial communities from a solid-state anaerobic biodigester fed with cattle manure. Borges, A. G.; Marcon, C, A, M, M.; Trindade, de Jesus, T.; Mattiello, S. P.; Shubeita, F, de Moraes.; de oliveira, R.; Pereira, L, M.; lovato, A.; Borges, L, G, dos Anjos.; Medina-silva, R. 8º Simpósio Brasil - Alemanha, Pró-Reitoria de Pesquisa, Inovação e Desenvolvimento, 02 a 06 de outubro de 2017.
- ✓ Identification of non-homologous isofunctional enzymes in the antioxidant system of plants and phytopathogens. Silva, R. A.; de Mattos Pereira, Leandro.; Silveira, M. C.; Monete R. Gomes.; Guimarães, A. C.; Miranda, A. B. In: X-meeting 2016, 2016, Belo Horizonte. Genômica e transcriptômica, 2016.
- ✓ Fungi community from paper and pulp industry sludge: a metabarcoding approach. Silva, R. M.; Adriana Giongo.; Kássia Gisele.; Hackbarth Heinz.; Zanoni, P. R. S.; Oliveira, R. R.; Leandro de M. Pereira.; Trindade, F. J.; Simao, T. L. L.; Lorena Benathar Ballod Tavares. In: VIII Congresso Brasileiro de Micologia, 2016, Florianópolis. Micology. 2016.
- ✓ Analysis of transposable elements in *Angiostrongylus cantonensis* (Nemathelminthes: Angiostrongylidae). Buzetto, A.G.; Pereira, L, M.; Wallau, Gabriel, da Luz; Rangel, A.R.; Morassutti, A.L.; Graeff-Teixeira, C. School of Bioinformatics - EGB 2015 - 27 to 31 July 2015.
- ✓ Analysis of the metabolic potential of *Angiostrongylus cantonensis*. Rangel, A.R.; Pereira, L, M.; Buzetto, A.G.; Wallau, Gabriel, da Luz.; Morassutti, A.L.; Graeff- Teixeira, C. School of Bioinformatics - EGB 2015 - 27 to 31 July 2015.
- ✓ Intragenomic Non- homologous Isofunctional Enzymes (NISE) in *Leishmania amazonensis*. Leandro M. Pereira.; Monete R. Gomes.; Tschoeke, D.; Mottram, J.; Dávila, A.; Antonio Miranda. In: X- meeting, 2013 Recife. Evolution, 2014.
- ✓ Non- homologous Isofunctional Enzymes (NISE) between *L. amazonensis* and *Homo sapiens*: a source for potential drug targets. Monete R. Gomes.; Leandro M. Pereira.; Tschoeke, D.; Mottram, J; Dávila.; A; A. B. Miranda. In: X-meeting, 2013 Recife. Molecular evolution, 2013.
- ✓ Expression profile of Nonhomologous Isofunctional Enzymes (NISE) in *Escherichia coli* K12 in different physiologic conditions. Mattos L.P; Monete R. Gomes.; Marcos Catanho.; Miranda A.B. In: X: meeting: International Conference of the Brazilian Association for Bioinformatics and Computational Biology 2011, Florianopolis. Evolution 2011.

- ✓ Functional Genomics of Osmotolerance in *Gluconacetobacter diazotrophicus*. Oliveira, M.V.V.; Intorne, A.C.; Matos, L.P.; and Souza Filho, G, A., 2010. Identification of Key Genes Involved in Metal Resistance by Mutagenesis in *Gluconacetobacter diazotrophicus*. Intorne, A.C.; de Oliveira, M, V.; Pereira, L, M.; de Souza Filho, G, A. XXXIX Annual Meeting of The Brazilian Biochemistry and Molecular Biology Society at the Rafain Palace Hotel Convention Center, May 18th to 21st, 2010, Foz do Iguaçu, Paraná, Brazil.
- ✓ A Postgenome Assessment of Osmotolerance in *Gluconacetobacter diazotrophicus*. de Oliveira, M, V, V.; Intorne, A.C.; Mota Filho, J, P.; Pereira, L, M.; de Souza Filho, G, A. XXXIX Annual Meeting of The Brazilian Biochemistry and Molecular Biology Society at the Rafain Palace Hotel Convention Center, May 18th to 21st, 2010, Foz do Iguaçu, Paraná, Brazil.
- ✓ Analysis of proteins associated with the interaction between sugarcane and endophytic bacteria by Bioinformatics. Mattos, L, P., Silveira, V, S., de Souza Filho, G, A. IX UENF Post-Graduate Exhibition. June 2009. Campos dos Goytacazes, RJ.
- ✓ Expression profile of genes associated to innate immunity in sugarcane during the interaction with *Gluconacetobacter diazotrophicus*. Leandro, P, Mattos.; Rangel, A, L, S.; Silva, V, A.; Ferreira, B, S.; Carneiro, Jr, J, B.; Olivares, F, L.; de Souza Filho, G, A. 4th International Conference on AB3C, X-meeting, Brazilian Association for Bioinformatics and Computational Biology.
- ✓ Analysis of the Expression Profile of Innate Immunity-Associated Genes in Sugarcane During Interaction with *Gluconacetobacter diazotrophicus*. de Mattos, L, P.; Rangel, A, L.; Silva, V, A.; Ferreira, B, S.; Carneiro Jr, J, B.; De Souza Filho, G, A. 54th Brazilian Congress of Genetics, held in Salvador-BA, September 16-19, 2008.
- ✓ Analysis of morphological, physiological and gene expression alterations in rice plants subjected to salt and heat stress". Mattos, L, P.; Campos, W, F.; Ferreira, BS; Borges, R.; Miguel, E, C.; da wedge, M.; Dias, J, M, R.; Souza Filho, G, A. 53rd Brazilian Congress of Genetics, Águas de Lindóia - SP, September 2nd to 5th, 2007.
- ✓ Development of a Protocol for the transformation of sugarcane plants via *Agrobacterium tumefaciens*. VI Post-Graduate Exhibition at UENF. XI Scientific Initiation Meeting, IV Extension Exhibition, June 2006. Campos dos Goytacazes, RJ.
- ✓ Regulation of salt stress responsive genes encoding ion transport proteins in Sugarcane by Microarray assay. Annual Meeting of the Brazilian Society of Biochemistry and Molecular Biology – SBBq – Águas de Lindóia – SP. July 2006.
- ✓ Development of a Protocol for the transformation of sugarcane plants via *Agrobacterium tumefaciens*. V UENF Post-Graduate Exhibition. X Scientific Initiation Meeting, III Extension Exhibition, June 2005. Campos dos Goytacazes, RJ.

Articles published in Journals:

1. Hentschke, G. S., Santos, K. R. de S., Mattos, L. de, Oliveira, F., & Vasconcelos, V. M. (2024). A journey through cyanobacteria in Brazil: A review of novel genera and 16S rRNA sequences. *Cryptogamie, Algologie*, 45(6), 63-75. <https://doi.org/10.5252/cryptogamie-algologie2024v45a6>
2. Spatiotemporal transmission of SARS-CoV-2 lineages during 2020–2021 in Pernambuco—Brazil. Machado, Lais Ceschini; Dezordi, Filipe Zimmer; de Lima, Gustavo Barbosa; de Lima, Raul Emídio; Silva, Lilian Caroliny Amorim; Leandro de Mattos Pereira; da Silva, Alexandre Freitas; et al. *Microbiology Spectrum* (2024):

<http://dx.doi.org/10.1128/spectrum.04218-23.10.1128/spectrum.04218-2>

3. **In the Dawn of an Early Invasion: No Genetic Diversity of *Angiostrongylus cantonensis* in Ecuador?** Pathogens Álava, L. S., Piloazo, C. B., Alvarez, H. H., Rivera, L. R., Ortega, M. R., Nodarse, J. F., Pereira, L. de M., Simões, R. de O., & Vilela, R. do V. (2023). Pathogens, 12(7), 878. <https://doi.org/10.3390/pathogens12070878>
4. **Coral Microbiome Manipulation Elicits metabolic and genetic restructuring to mitigate heat stress and evade Mortality.** Santoro, E. P.; Borges, R. M.; Espinoza, J. L. Freire., M.; Messias, C. S. M. A.; Villela, H. M. D.; **Mattos, L. P.**; Vilela, C. L. S.; Rosado, J. G.; Cardoso, P. M.; Rosado, P. M.; Assis, J. M.; Duarte, G. A. S.; Perna, G.; Rosado, A. S.; Macrae, A.; Dupont, C. L.; Nelson, K.E.; Sweet, M. J.; Voolstra, C. R.; Peixoto, R. S. Novembro de 2021. **Science Advance**. v. 7, p. eabg3088, 2021. DOI: 10.1126/sciadv. abg3088.
5. **De novo transcriptome reveals blood coagulation/antithrombin factors and infection mechanisms in *Angiostrongylus cantonensis* adult worms.** Leandro de Mattos Pereira.; Milene Pereira Guimarães de Jezuz.; Amaranta Ramos Rangel.; Bruna Dalcin Baldasso.; Amanda Bungi Zaluskic.; Carlos Graeff-Teixeira.; Alessandra Loureiro Morassutti. **Parasitology**. 1 – 44. <https://doi.org/10.1017/S0031182021000469>. pp.
6. **In depth transcriptome unravels the biotechnological potential of the *Bothrops jararaca* venom gland.** Leandro de Mattos Pereira.; Miss Elisa Alves Messias.; Miss Bruna Sorroche.; Miss Angela das Neves Oliveira.; Lidia Maria Rebolho Batista Arantes.; Ana Carolina de Carvalho.; Anita Mitico Tanaka-Azevedo.; Kathleen Grego.; André Carvalho.; Matias Melendez. September 17, 2020. **J. Venom. Anim. Toxins incl. Trop. Dis**, vol. 26 Botucatu 2020 Epub Oct 21, 2020. DOI: <https://doi.org/10.1590/1678-9199-jvatitd-2019-0058>.
7. **SARS-CoV-2 mutations in Brazil: from genomics to putative clinical conditions.** L. F. S. M. Timmers.; J. V. Peixoto.; R. G. Ducati, J. F. R.; Bachega.; **L. P. de Mattos.**; R. A. Caceres.; F. Majolo.; G. L. da Silva.; M. I. Goetttert.; O. A. Dellagostin.; J. A. P. Henriques.; L. L. Xavier.; S. Laufer. Janeiro de 2021. <https://doi.org/10.1038/s41598-021-91585-6>. **Science Reports**, 11, article number: 11998 (2021).
8. **Mollusk microbiota shift during *Angiostrongylus cantonensis* infection in the freshwater snail *Biomphalaria glabrata* and the terrestrial slug *Phillocaulis soleiformis*.** Leandro de Mattos Pereira#.; Joana Borges Osório#.; Alessandra Loureiro Morassutti.; Jeremy Potriquet.; Adriana Giongo.; Renata Russo F. Cândido.; Jason Mulvenna.; Malcolm Jones, Carlos Graeff- Teixeira. Parasitology Research volume 119, pages2495–2503(2020). DOI: 10.1007/s00436-020-06743-y.
9. **Identification of cross-reactive markers to strengthen the development of immunodiagnostic methods for angiostrongyliasis and other parasitic infections.** Bianca Cognato.; Sukwan Handali.; **Leandro de Mattos**, José Barradas.; Alexandre Da Silva.; Carlos Graeff-Teixeira. **Experimental Parasitology**. 2020 Nov; 218:107999. DOI: 10.1016/j.exppara.2020.107999. Epub 2020 Sep 18.
10. **Microbial communities in anaerobic digesters change over time and sampling depth.** Adriana Giongo.; Granada, C. E.; Borges, L. G. A.; **Leandro de M. Pereira.**; Trindade, F. J.; Mattiello, S. P.; Oliveira, R. R.; Shubeita, F. M.; Lovato, A.; Marcon, C.; Renata Medina- Silva. **Braz J Microbiol**. 2020 Sep;51(3):1177-1190. doi: 10.1007/s42770-020-00272-7.
11. **Meiofaunal diversity in the Atlantic Forest soil: A quest for nematodes in a native reserve using eukaryotic metabarcoding analysis.** Carla Müller.; Leandro de Mattos Pereira.; Carina Lopes.; Juvenil Cares.; Adriana Giongo.; Luiz Gustavo dos Anjos Borges.; Carlos Graeff-

Teixeira.; Alessandra Loureiro Morassutti. *Forest Ecology and Management*. v. 453, p. 117591, 2019. DOI: 10.1016/j.foreco.2019.117591.

12. **Microbiota profile and impact of *Fusobacterium nucleatum* in colorectal cancer patients of Barretos Cancer Hospital.** Ana Carolina de Carvalho.; **Leandro de Mattos Pereira.**; José Guilherme Datorre.; Wellington dos Santos.; Gustavo Noriz Berardinelli.; Marcus de Medeiros Matsushita.; Ronilson Oliveira Durães.; Denise Peixoto Guimarães.; Rui Manuel Reis. **Frontiers in Oncology**. 2019 DOI:10.3389/fonc.2019.00813.
13. **Distinct deep subsurface microbial communities found in Permian sandstones separated by mudstone.** Adriana Giongo.; Taiana Haag.; Renata Medina-Silva.; Roberto Heemann.; **Leandro M. Pereira.**; Priscilla M. Zamberlan.; Fernanda P. Valdez.; Rafael R. Oliveira.; Eduardo Eizirik.; Adriano R. Viana.; and João Marcelo M. Ketze. **GeosciencesJournal**. v. 23, p. 1-8, 2019. DOI: 10.1007/s12303-019-0028-5.
14. **Communities Change with Intensity of Vegetation Coverage in Arenized Soils from The Pampa Biome.** Granada, Camille E.; Vargas, Luciano Kayser.; Lisboa, Bruno Brito.; Giongo, Adriana.; Martinho, Caroline Thais.; Pereira, **Leandro de M. Pereira**; De Oliveira, Rafael R.; Bruxel, Fernanda.; De Freitas, Elisete Maria.; Passaglia, Luciane M. P. **Frontiers in Microbiology**, V. 10, P. X, 2019. DOI: 10.3389/fmicb.2019.00497.
15. **Guarana (*Paullinia Cupana* Mart.) Alters Gut Microbiota and Modulates Redox Status, Partially Via Caffeine in Wistar Rats.** Kleber Silveira, Alexandre.; Moresco, Karla Suzana.; Mautone Gomes, Henrique.; Da Silva Morrone.; Maurílio; Kich Grun, Lucas.; Pens Gelain, Daniel.; **de Mattos Pereira, Leandro.**; Giongo, Adriana.; Rodrigues De Oliveira, Rafael.; Fonseca Moreira, José Cláudio. September 2018. **Phytotherapy Research** 32(5). DOI: 10.1002/ptr.6185.
16. **Comparison of The Nasopharynx Microbiome Between Influenza and Non-Influenza Cases of Severe Acute Respiratory Infections: A Pilot Study.** Borges, Luiz Gustavo Dos Anjos.; Giongo, Adriana.; Pereira, **Leandro de Mattos.**; Trindade, FernandaJ.; Gregianini, Tatiana Schäffer.; Campos, Fabrício Souza.; Ghedin, Elodie.; Da Veiga, Ana Beatriz Gorini. **Health Science Reports**, v. 1, P. E47-1, 2018. DOI:10.1002/hsr2.47.
17. **Mining of Potential Drug Targets Through the Identification of Essential and Analogous Enzymes in The Genomes of Pathogens of *Glycine Max*, *Zea Mays* and *Solanum lycopersicum*.** Silva, Rangeline Azevedo Da.; Pereira, **Leandro de Mattos.**; Silveira, Melise Chaves.; Jardim, Rodrigo.; Miranda, Antonio Basilio De. **Plos One**, V. 13, P.E0197511-20, 2018. DOI: <https://doi.org/10.1371/journal.pone.0197511>.
18. **Biogas from slaughterhouse wastewater anaerobic digestion is driven by the archaeal family Methanobacteriaceae and bacterial families Porphyromonadaceae and Tissierellaceae.** Granada, Camille E.; Hasan, Camila; Marder, Munique; Konrad, Odorico; Vargas, Luciano K.; Passaglia, Luciane M.P.; Giongo, Adriana; De Oliveira, Rafael R.; **de M.Pereira, Leandro**; De Jesus Trindade, Fernanda; Sperotto, Raul A. October 2017. **Renewable Energy** 118. DOI: 10.1016/j.renene.2017.11.077.
19. **Microbial diversity from chlorophyll maximum, oxygen minimum and bottom zones in the southwestern Atlantic Ocean.** Medina-Silva, Renata; De Oliveira, Rafael R.; Pivel, Maria A.G.; Borges, Luiz G.A.; Simão, Taiz L.L.; **Pereira, Leandro M.**; Trindade, Fernanda J.; Augustin, Adolpho H.; Valdez, Fernanda P.; Eizirik, Eduardo; Utz, Laura R.P.; Groposo, Claudia.; Miller, Dennis J.; Viana, Adriano R.; Ketzer, João M.M.; Giongo, Adriana. **JOURNAL OFMARINE SYSTEMS**, v. 171, p.

MARSYS3021, 2017. DOI: <https://doi.org/10.1016/j.jmarsys.2017.10.008>.

20. **Essential role of K⁺ uptake permease (Kup) for resistance to sucrose-induced stress in *Gluconacetobacter diazotrophicus* PAI 5.** De Oliveira, Marcos V. V.; Intorne, Aline C.; De, Luciano; Vespoli, S.; Andrade, Leandro F.; De, **Leandro Pereira, M.**; Rangel, Patrícia L.; De Souza Filho, Gonçalo A. **Environmental Microbiology Reports**, v. XX, p. XX-XX, 2016. <https://doi.org/10.1111/1758-2229.12503>.
21. **Recycled Paper Sludge Microbial Community as a Potential Source of Cellulase and Xylanase Enzymes.** Heinz, Kássia G. H.; Zanoni, Patrícia R. S.; Oliveira, Rafael R.; Medina- Silva, Renata; Simão, Taiz L. L.; Trindade, Fernanda J.; Pereira, **Leandro M. Pereira**; Tavares, Lorena B.; Giongo, Adriana. August 2017. **Waste and Biomass Valorization**, 8(6). DOI: 10.1007/s12649-016-9792-x.
22. **The Comparative Genomics and Phylogenomic of *Leishmania amazonenses* Parasite.** Davila, Alberto; Tschoeke, Diogo; Nunes, Gisele; Jardim, Rodrigo; Lima, Joana; Dumaresq, Aline; Gomes, Monete; **De Mattos Pereira, Leandro**; Loureiro, Daniel; Stoco, Patricia; De Matos Guedes, Herbert; de Miranda, Antonio; Ruiz, Jeronimo; Pitaluga, André; Silva, Floriano; Probst, Christian; Dickens, Nicholas; Mottram, Jeremy; Grisard, Edmundo. **Evolutionary Bioinformatics**, v. 10, p. 131, 2014. DOI:10.4137/EBO.S13759.
23. **Essential role of the Czc determinant for cadmium, cobalt and zinc resistance in *Gluconacetobacter diazotrophicus* PAI 5.** Aline C. Intorne.; Marcos V. V. de Oliveira; **Leandro de M. Pereira**; Gonçalo A. de Souza Filho. **International Microbiology**, v. 15, p. 69-78, 2012. DOI:10.2436/20.1501.01.160.
24. **Self-incompatibility in passion fruit: cellular responses in incompatible pollination.** Madureira, H. C.; Pereira, T. N.; Cunha, M.; Klein, D. E.; Oliveira, M. V. V.; **Leandro de M. Pereira**; de Souza Filho, G. A. **BIOLOGIA**, v. 69, p. 5, 2014. DOI: 10.2478/s11756-014-0353-0.

Articles in Phase of Submission:

1. **De novo transcriptome assembly of *Amyntas gracilis* reveals the potential of giant hemoglobin (HbAg) as a marker of environmental metal pollution.** Sebastião, I. a,b; Pereira, L. M. c; Bachega, F. R. d; Ramos, L. a,b; Souza, C. O. a,b; Carvalho, F. A. O. e; Morgante, P. G. a; Santiago, P. S. (2024). *Journal to be defined*.
2. **Microbiome signature in natural lakes over an extensive lateritic crust in the Amazon savanna.** Leandro de Mattos Pereira, José Augusto Pires Bittencourt, Vitor Cirilo Araujo Santos, Ronnie Alves, Eder Pires, Prafulla Kumar Sahoo, José Tasso Felix Guimarães, Bruno Garcia Simões, Guilherme Oliveira, and Gisele Lopes Nunes. (2024). *Microbiome*.
3. **Global diversity of FAAL enzymes and prediction of their substrate specificity using FAALPred (Deep Learning).** Anne Liong, Leandro de Mattos Pereira, and Pedro N. Leão. *NARs*.
4. Important information: Participation in at least 3 other projects as a collaborator in bioinformatics research at CIIMAR que irao resultar em publicacoes.

Trademark registration (August 2020), Industrial Patent Institute (INPI):

Databiomics.

Periodical reviewer:

PLOS Neglected Tropical Diseases (2019, June).

Frontier in Bioinformatics, Section Drug Discovery in Bioinformatics (Actual).

Guest Editor of Frontiers. Topic: Integrating Bioinformatics and AI to Natural Product-based Drug Discovery and Development

<https://www.frontiersin.org/research-topics/63365/integrating-bioinformatics-and-ai-to-natural-product-based-drug-discovery-and-development>

Outreach

LinkedIn Newsletter (Editor and Writer, currently 6 publications: text and video):
Mathematics/AI Meets Biology. <https://www.linkedin.com/pulse/ais-potential-impact-biodiversity-restoration-marine-leandro-7vrcf>

My video here: https://youtu.be/HbSAY_IjbCY

My channel: <https://www.youtube.com/@Databiomics?app=desktop>

Master Co-Supervision (2015-2017):

Co-orientation of master's Dissertation of Amaranta Ramos (title: In silico investigation of metabolic pathways of *Angiostrongiliasis*), Post-graduation Program in Molecular Biology of PUCRS.

Co-supervisor of the master's thesis of Alice Giovana Buzetto (title: In silico investigation of transposons in *Angiostrongiliasis*), Post-graduation Program in Molecular Biology of PUCRS.

Technical activity:

Evaluator of AD-HOC Project of PUCRS- Scientific Initiation Scholarships - 2017. Reviewer of an Article in Plos Neglected Tropical Diseases may – 2019.

Evaluator of scientific works at the VIII Scientific Journey of IAM (Aggeu Magalhães Institute) – Fiocruz – Pernambuco – 2021.

Member of the evaluation board of graduation course:

Participation In Board of Wagner Fagundes. "Comparative analysis of the molecular mechanisms of resistance in potato cultivars (*Solanum tuberosum* L.) challenged with the fungus *Alternaria solani* Sorauer, the causative agent of the black-necked pigeon. 2016. Work of Course Completion (Graduation in Biological Sciences) - Pontifical Catholic University of Rio Grande do Sul.

Participation in banking of Thaiane Lima Assessment of Simian Malaria in Rio Grande do Sul. 2016. Work of Completion of Course (Graduation in Biological Sciences) - Pontifical Catholic University of Rio Grande do Sul.

Evaluation of Undergraduate Drafts:

2016 - Adriano Crestani. Influence of the misuse of Pyrethroids on the decline of *Apos melifera* bee population in a rural community in Rio Grande do Sul. Pontifical Catholic University of Rio Grande do Sul.

2016 - Amanda Bungi Zaluski. Analysis of the sex ratio and gonadal development of the *Tartatura-comb*, *Eretmochelys imbricata* (Testudines: cheloniidae) in the archipelago of Fernando de Noronha, PE. 2016. Pontifical Catholic University of Rio Grande do Sul.

2016 - Amanda Kessler. Comparison of Insect Communities in an agricultural area under

organic management and an area with application of pesticides. Pontifical Catholic University of Rio Grande Do Sul.

2016 - Kássia Ramos. Effect of pollution on interaction networks of nocturnal flower-visiting plants in a region of mixed rain forest in southern Brazil. Pontifical Catholic University of Rio Grande do Sul.

2016 - Letícia Sehn. Phytoremediation of Itapuã stream, Viamão / RS-Brasil, using the aquatic macrophyte *Azolla filiculoides*. Pontifical Catholic University of Rio Grande do Sul. 2016 - Livia Machado Schlemmer. Evaluation of serum BNDF levels in wistar rats with enriched environment and the effect of different diets. Pontifical Catholic University of Rio Grande do Sul.

Member of evaluation of master project:

Participation in Aline Taisa de Oliveira Lourenço's first master's Monitoring Board. April 25, 2019, Enrolled in the Postgraduate Program in Oncology at the Barretos Cancer Hospital - Pio XII Foundation.

Participation in Aline Taisa de Oliveira Lourenço's second monitoring panel for the master's degree. December 19, 2019, Enrolled in the Postgraduate Program in Oncology at the Barretos Cancer Hospital - Pio XII Foundation.

Evaluation of master dissertation:

Aline Taisa de Oliveira Lourenço. Abril 25, 2019, Master in Oncology of the Hospital de Câncer de Barretos Fundação Pio XII. Analysis of Microbiota of Sepsis by Genomic Sequencing.

Member of evaluation of doctorate thesis:

Participation in the evaluation of the PhD thesis defense of Fabricio Brum Machado on December 17, 2020. The thesis, titled "Integrative Computational Analysis of Transcriptomic Data from Soybean (*Glycine max*)," was defended as part of the Postgraduate Program in Plant Biotechnology at the Center for Biosciences and Biotechnology at the State University of Norte Fluminense Darcy Ribeiro (UENF). Supervisor: Thiago Motta Venancio.

Participation in the evaluation of the PhD thesis defense of Eduardo Vieira de Souza. The thesis, titled "Identification and Characterization of Small Mycobacterial ORFs through Proteogenomic Analyses," was defended in 2023 as part of the Doctoral Program in Cellular and Molecular Biology at the Pontifical Catholic University of Rio Grande do Sul, with the coordination of the Coordination for the Improvement of Higher Education Personnel (CAPES). Supervisor: Cristiano Valim Bizarro.

Grants approved:

CAPES Process: 406149/2016. Study of Biological Markers of Parasitism in two species of *Angiostrongylus* and potential biomedical application. PUCRS. Universal Call Grand – CNPQ. Coordinator: Alessandra Loureiro Morassutti

Grant 2023 - Approved as Principal Investigator:

Unravelling Fatty Acyl -AMP Ligase substrates in Cyanobacteria through an Integrated Approach of Bioinformatics, Unsupervised Learning, and Natural Language Processing- CPCA-IAC/AV/591374/2023. Advanced Computing Project Competition: Artificial Intelligence in Cloud (2nd Edition), \$133,000 USD <https://www.fct.pt/concursos/concurso-de-projetos-de>

computacao-avancada-inteligencia-artificial-em-cloud-2-edicao-1

Project submitted to the Research Funding Agency FCT - Portugal, currently under evaluation, amount: €250,000:

CyanoFattyGAISpecify: Unveiling the Fatty Acid Substrate Specificities of Enzymes in Cyanobacteria through an Integrated Approach of Bioinformatics, Supervised Learning, Generative AI, and Synthetic Biology.