Curriculum Summary

Name: Diego Trindade de Souza

Institute for Technological Research
Av. Prof. Almeida Prado, 532
Cidade Universitária
05508-901 - São Paulo, SP - Brasil
Email: diegotsouza@ipt.br

1.- Training

Year	Title or activity	Institution
2008	Undergraduate **Biological Sciences**	Instituto Superior de Educação Anísio Teixeira, Universidade Estadual de Minas Gerais.
2012	Master's Degree **Biotechnology**	Centro de Ciências da Saúde, Universidade Federal do Espírito Santo.
2016	PhD **Bioinformatics**	Instituto de Biociências, Universidade de São Paulo.

2.- Professional history

2022 to present - Full Researcher - Institute for Technological Research - Artificial Intelligence and Analytics Section

The focus of this work is on developing a solution for a sustainable way to store enterprise data by storing data on DNA. Collaborating to develop, build, and validate bioinformatics tools.

2021 to present - Post-doctorate - Dept. of Computer Science - IME USP

I am developing a post-doctoral internship at the Institute of Mathematics and Statistics at USP. In it I will focus on the implementation of machine learning techniques that will allow us to identify, from the heart rate variability signal, if or how individuals can distinctly affect each other's physiological states and emotional experiences in the absence of direct communication while playing a game.

2016 to 2020 - Post-doctorate - Dept. Botany - IB USP; Fellow CAPES and FAPESP

Between the years 2016 and 2018, I was responsible for developing a web query application for RNAseq and MS/MS data of *Araucaria angustifolia* embryogenesis produced by the lab. This application allows the laboratory users a simplified way to search the information available in the database, besides allowing some analysis (for example, sequence alignment

and differential expression analysis). This study has generated one paper (in submission) and 4 abstracts published in international conferences (that can be seen in the Lattes Curriculum).

Between the years 2018 and 2020, I was responsible for developing and integrating computational tools for transcriptome analysis of *Piper* species. Using Python and integration with the Arabidopsis Information Resource and Kyoto Encyclopedia of Genes and Genomes databases, it was possible to identify which genes and their molecular functions were being regulated during chemically mediated multitrophic (plant-insect-parasite) interactions. This study generated an abstract published in international conferences (that can be seen in the Lattes Curriculum).

2013 to 2016- Post-graduation (PhD) - Dept. of Genetics and Evolutionary Biology - IB USP, FAPESP Fellow

This study consisted in the implementation of methodologies and computational resources that allowed us to model the origin of more recent proteins, based on two aspects: (i) detecting their origin from exon shuffling (as a molecular mechanism, manifested by the formation of new architectures from pre-existing domains) and (ii) detecting their origin from ancestral genes, evidenced by Position-Specific Scoring Matrix created by PSI-BLAST software, and corroborated by structural overlap analysis with common topologies. The programming languages Perl, Python and R, and the database management platform MySQL were used for this. In addition to integration with several biological databases, including: Uniprot, Pfam, Gene Ontology. This study generated 4 abstracts published in international congresses (that can be seen in the Lattes Curriculum).

2010 to 2012- Post-graduation (MSc) - CCS - UFES - FAPES; CAPES Scholarship

Study that evaluated the changes in gene expression of yeast subjected to high hydrostatic pressure in order to identify the molecular targets responsible for this adaptation. Using R and the integration with the Saccharomyces Genome Database, it was possible to identify which genes and their molecular functions were being regulated during the high hydrostatic pressure stress suffered by yeast in fermentation vats. This study generated two papers, listed below, and 3 abstracts published in international conferences (that can be seen in the Lattes Curriculum).

2009 to 2010 - Basic Education Teacher - Elementary School II - Discipline: Sciences. City Hall of Contagem, PMC, Brazil

2007 to 2008 - Trainee and Scientific Initiation scholarship holder -Department of Biochemistry and Immunology -UFMG

3.- List of most relevant research results

3.1. **Souza, Diego T**.; Elbl, Paula M. ; Rosado, Daniele ; De Oliveira, Leandro F.; Navarro, Bruno V.; Matioli, Sergio R.; I. S. Floh, Eny . Building an embryo: an auxin gene toolkit for zygotic and somatic embryogenesis in Brazilian pine. GENE, v. 00, p. 146168, 2022.

3.2. Navarro, B.V., Elbl, P., de Oliveira, L.F., Piovezani, A.R., Dos Santos, A. L. W., **Souza, D.T**., et al. Cell-to-cell trafficking patterns in cell lines of Araucaria angustifolia (Brazilian pine) with contrasting embryogenic potential. Plant Cell Tiss Organ Cult (2021). https://doi.org/10.1007/s11240-021-02166-4

3.3. Bravim, Fernanda; Lippman, Soyeon I. ; Silva, Lucas F. ; **Souza, Diego T**.; Fernandes, A. Alberto R. ; Masuda, Claudio A. ; Broach, James R. ; Fernandes, Patricia M. B. . High hydrostatic pressure activates gene expression that leads to ethanol production enhancement in a Saccharomyces cerevisiae distillery strain. Applied Microbiology and Biotechnology, v. online, p. 1-15, 2012.

3.4. BRAVIM, F.; Silva, Lucas F.; **SOUZA, D. T**.; LIPPMAN, S.; BROACH, J. R.; Fernandes, A. Alberto R. ; Fernandes, Patricia M. B. . High Hydrostatic Pressure Activates Transcription Factors Involved in Saccharomyces cerevisiae Stress Tolerance. Current Pharmaceutical Biotechnology (Print), v. 13, p. 2712, 2012.

4.- Other Publications

4.1. Matioli, Sergio Russo; **Souza, Diego Trindade.** Introduction to Bioinformatics. 1st Edition. Campinas: Unicamp, 2021.

5.- Quantitative indicators.

Publications in periodicals with selective editorial policy: 5

Number of citations: 15 (ISI), 22 (Scopus), 44 (Google)

6-Link

Lattes resume: http://lattes.cnpq.br/6114507020608659

MyResearcherID (ISI): http://www.researcherid.com/rid/D-2473-2013

MyCitations (Google Scholar): https://scholar.google.com.br/citations?user=ijZcyb0AAAAJ

Linkedin: https://www.linkedin.com/in/diego-trindade-de-souza-746685116/