Daniel Yasumasa Takahashi
Brain Institute
Federal University of Rio Grande do Norte
(Jun 2023)

Personal Information

Address	Instituto do Cérebro, UFRN, Natal, RN -Brazil
Email	takahashiyd@gmail.com, takahashiyd@neuro.ufrn.br
Website	https://ethogenesis.science/

Positions held

2019 – Assistant Professor
Brain Institute
Federal University of Rio Grande do Norte, Natal, RN Brazil

2015 – 2019 Associate Research Scholar
Princeton Neuroscience Institute
Princeton University, Princeton, NJ USA

2010 – 2015 Postdoctoral Research Fellow
Princeton Neuroscience Institute
Princeton University, Princeton, NJ USA

2009 - 2010 Postdoctoral Research Fellow
Institute of Mathematics and Statistics
Universidade de São Paulo, USP, São Paulo, Brazil

2009 - 2009 Postdoctoral Research Fellow
Instituto de Matemática Pura e Aplicada, IMPA, São Paulo, Brazil

Education

2004 - 2009 PhD in Bioinformatics (Theoretical Neuroscience)
Universidade de São Paulo, USP, Sao Paulo, Brazil
Universidade de São Paulo
Thesis: Measures of information flow in neuroscience (advisors: Koichi Sameshima and Luiz Antonio Baccalá)

2004 - 2008	BSc in Applied Mathematics Universidade de São Paulo, USP, Sao Paulo, Brazil Senior thesis: Schwartz kernel theorem (advisor: Paulo Domingos Cordaro)
1998 - 2003	MD Universidade de São Paulo, USP, Sao Paulo, Brazil Graduation thesis: Applying artificial neural network in the diagnosis of Alzheimer's disease (advisor: Koichi Sameshima)

Honors and Awards

2018	Young Investigator Award from Brazilian Association of Bioinformatics and Computation Biology
2018	Cosyne travel award
2010-2012	Pew Latin American Fellowship
2009-2010	FAPESP Fellowship
2007	Travel Grant Award - 10th Tamagawa-Riken Dynamic Brain Forum
2006	Best Work Award - I Latin American School on Computational Neuroscience
2004-2008	CAPES Fellowship
2002	Oswaldo Cruz Award in medical research – Honorable mention
1998-2003	CNPq Fellowship
1997	Bronze medal – Brazilian Mathematical Olympiad

In the media

My research findings were covered by several national and international news media:
BBC News, BBC World Service Science in Action Radio, National Geographic News Watch, Daily Mail UK, Decoded Science, The Independent, Wired, io9, Science, Nature, National Public Radio, Deutschlandfunk, Science News, Journal da FAPESP, Estadão.

Invited talks

2023 –UFABC Mathematics seminar, São Paulo, *Brazil*
2022 – ESI Systems Neuroscience Conference - The ever-changing brain: Through development and evolution, Frankfurt, *Germany*
2022 – Gordon Research Conferences – Neural Mechanism of Acoustic Communication, Massachusetts, *USA*
2022 – CSHL Genetics & Neurobiology of Language, New York, *USA*
2021 – Connecting Brain Lecture Series (Max Planck Institute for Brain Research), *webinar*
2021 – XLIX Escola de Verão em Matemática da UnB, *webinar*

2020 - Seminário de Psicobiologia da UFRN, *webinar*
2020 - Seminar on Probability and Stochastic Process IME-USP, *webinar*
2020 - Probability Webinar IM-UFRJ, *webinar*
2020 - Mathematics and Neurobiology Intertwined, *webinar*
2020 - Dias Probabilísticos no Fundão, UFRJ, Rio de Janeiro, *Brazil*
2019 - ICe House Symposium, UFRN, Natal, *Brazil*
2019 - Brain Institute Seminar, UFRN, Natal, *Brazil*
2019 – Simpósio de Psicobiologia, Natal, *Brazil*
2019 - Neurocolloquium, Tübingen, *Germany*
2019 - InDiQ, Université Paris-Saclay, Orsay, *France*
2019 - LLR seminar, École Polytechnique, Palaiseau, *France*
2019 - Pararel Decision Processing seminar, Princeton University, Princeton, *USA*
2019 - Presidential seminar on Society and Neuroscience, Columbia University, New York, *USA*
2019 - Princeton Neuroscience in-house Seminar, Princeton University, Princeton, *USA*
2018 - Society for Neuroscience Annual Meeting, San Diego, *USA*
2018 - X-meeting 2018, São Paulo, *Brazil*
2018 - Fifty Years of Thermodynamic Formalism, Leiden, *Netherland*
2018 - International Congress of Neuroethology, Brisbane, *Australia*
2018 – Université Paris-Sud, Orsay, *France*
2018 – IMEC, Leuven, *Belgium*
2018 – Psychology Department, Indiana University, Bloomington, *USA*
2018 – LASCON, University of São Paulo, *Brazil*
2017 – SciBr, Boston University, Boston, *USA*
2016 – Marmoset Conference, Tokyo, *Japan*
2016 – Department of Life Sciences, University of Tokyo, Tokyo, *Japan*
2016 – Physics Department, Universidad Autónoma de San Luis Potosí, San Luis Potosí, *Mexico*
2016 – Riken Brain Science Institute, Saitama, *Japan*
2016 – International Congress of Psychology, Yokohama, *Japan*
2016 - Workshop on Evo-Devo of Vocal Learning and Plasticity, Tokyo, *Japan*
2016 - Second Neuromat Workshop, São Paulo, *Brazil*
2016 - Friedrich Miescher Institute for Biomedical Research, Basel, *Switzerland*
2016 – Neuroscience and Social Decision Seminar, Princeton University, *USA*
2015 – Institute of Mathematical Sciences and Computation, USP São Carlos, São Paulo, *Brazil*
2015 – Workshop on Stochastic chains, Hitting Times, Return Times, Long Range Dependence, UFSCAR, São Paulo, *Brazil*
2014 - First Neuromat Workshop, São Paulo, *Brazil*
2014 - Neuroscience and Social Decision Seminar, Princeton University, *USA*
2013 – Workshop on Statistical Methods for Neuronal Data, Paris, *France*
2013 – Department of Mathematics, Laboratoire J.A. Dieudonné, Université de Nice, Nice, *France*
2012 - Annual Meeting of the Pew Biomedical Sciences Programs, Panama, *Panama*
2012 – BRhyCoCo, New York University, *USA*
2012 – IBRG meeting, Princeton University, *USA*
2011 – Workshop on Chains and Systems with Interactions of Variable Range, São Paulo, *Brazil*
2011 – NUMEC Workshop, São Paulo, *Brazil*
2010 – Department of Mathematics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, *Brazil*
2010 – Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, *Brazil*
2009 - Jorma's Razor I, São Paulo, *Brazil*

2009 – NUMEC Workshop, São Paulo, *Brazil*
2009 – Department of Mathematics, Universitá degli Roma Tre, Rome, *Itali*
2008 – International Brain Research Organization (IBRO)/LARC Conference, Rio de Janeiro, *Brazil*
2006 – CONICYT-INSERM Workshop "Networks in Cognitive Systems", Complex System Institute, Valparaiso, *Chile*

Reviewer

Ad hoc reviewer for National Science Foundation (NSF)
Ad hoc reviewer for Leakey Foundation Research Grant
Ad hoc reviewer for scientific journals: Science, Nature Communication, Current Biology, Plos Biology, Plos Computational Biology, Animal Behaviour, Open Biology, Biology Letters, IEEE Transactions on Biomedical Engineering, Entropy, Frontiers in Psychology, Scientific Report, Biology Direct, Plos One, Frontiers in Neuroscience, Games, Entropy, Journal of Experimental Biology, Royal Society Open Science, American Journal of Primatology, BMC Biology

Articles

Google scholar = https://scholar.google.com/citations?user=DyIxrZUAAAAJ&hl=en

Vocal communication

Zhang YS, **Takahashi DY**, El Hady A, Ghazanfar AA (2022)
Active neural coordination of motor behaviors with internal states.
PNAS, 119 e2201194119

Narayanan DZ, **Takahashi DY**[#], Kelly LM, Hlavaty SI, Huang J, Ghazanfar AA[#] (2022)
Prenatal development of neonatal vocalizations.
eLife **11**:e78485.

Varella TT, Zhang YS, **Takahashi DY**[#], & Ghazanfar AA[#] (2022).
A mechanism for punctuating equilibria during mammalian vocal development.
PLoS computational biology, *18*(6), e1010173.

Takahashi DY, El Hady A, Zhang YS, Liao DA, Montaldo G, Urban A, Ghazanfar AA (2022)
Social-vocal brain networks in a non-human primate.
bioRxiv 2021.12.01.470701; doi: https://doi.org/10.1101/2021.12.01.470701

Zhang YS, **Takahashi DY**, El Hady A, Liao DA, Ghazanfar AA (2022)
Active neural coordination of motor behaviors with internal states.
bioRxiv 2021.12.10.472142; doi: https://doi.org/10.1101/2021.12.10.472142

Varella TT, Zhang YS, **Takahashi DY**[#], Ghazanfar AA[#] (2022)
A mechanism for punctuating equilibria during mammalian vocal development.
Plos Computational Biology, doi: 10.1371/journal.pcbi.1010173

Sliwa J, Mallet M, Christiaens M, **Takahashi DY** (2022)
Neural basis of multi-sensory communication in primates.
Ethology Ecology & Evolution, v. 34, 322-43.

Ghazanfar AA, Kelly LM, **Takahashi DY**, Winters S, Terret R, Higham JP (2020)
Domestication phenotype linked to vocal behavior in marmoset monkeys.
Current Biology, doi: 10.1016/j.cub.2020.09.049

Zhang YS, **Takahashi DY**, Liao DA, Ghazanfar AA[#] and Elemans CPH[#] (2019)
Vocal state change through laryngeal development.
Nature Communications, 10:4592 doi: 10.1038/s41467-019-12588-6

Gustison ML, Borjon JI, **Takahashi DY**[#], Ghazanfar AA[#] (2019)
Vocal and locomotor coordination develops in association with arousal state.
eLife, e41853, doi: 10.7554/eLife.41853

Ghazanfar AA, Liao DA, **Takahashi DY** (2019)
Volition and learning in primate vocal behavior.
Animal Behaviour, doi: 10.1016/j.anbehav.2019.01.021

Sliwa J, **Takahashi DY**, Shepherd SV (2018)
Mécanismes neuronaux pour la communication chez les primates.
Revue de Primatologie, 9, doi: 10.4000/primatologie.2950

Takahashi DY[#], Liao DA, Ghazanfar AA[#] (2017)
Vocal learning via social reinforcement by infant marmoset monkeys
Current Biology, v. 27, 1844-1852, doi: 10.1016/j.cub.2017.05.004

Teramoto Y, **Takahashi DY**[#], Holmes P[#], Ghazanfar AA[#] (2017)
Vocal development in a Waddington landscape.
eLife, 6:e20782. doi: 10.7554/eLife.20782

Borjon JI, **Takahashi DY**[#], Cervantes DC, Ghazanfar AA[#] (2016)
Arousal dynamics drive vocal production in marmoset monkeys.
Journal of Neurophysiology, v. 116, 753-764.

Takahashi DY, Fenley AR, Ghazanfar AA (2016)
Early development of turn-taking with parents shapes vocal acoustics in infant marmoset monkeys.
Philosophical Transaction of Royal Society B, v. 371, doi: 10.1098/rstb.2015.0370

Takahashi DY[#], Fenley AR, Teramoto, Y, Narayanan DZ, Borjon JI, Holmes P, Ghazanfar AA[#] (2015)

The developmental dynamics of marmoset monkey vocal production.
Science, v. 349, 730-734.

Choi JY, **Takahashi DY**[#], Ghazanfar AA[#] (2015)
Cooperative vocal control in marmoset monkeys via vocal feedback.
Journal of Neurophysiology, v. 114, 274-283.

Ghazanfar AA, **Takahashi DY** (2014)
The evolution of speech: vision, rhythm, cooperation.
Trends in Cognitive Sciences, v. 18, 543-553.

Ghazafar AA, **Takahashi DY** (2014)
Facial expressions and the evolution of the speech rhythm.
Journal of Cognitive Neuroscience, v. 26, 1196-1207

Takahashi DY[#], Narayanan DZ, Ghazanfar AA[#] (2013)
Coupled oscillator dynamics of vocal turn-taking in monkeys.
Current Biology, v. 23, 2162-2168.

Ghazanfar AA, **Takahashi DY**, Mathur NA, Fitch WT (2012)
Cineradiography of monkey lipsmacking reveals the putative origins of speech dynamics.
Current Biology, v. 22, p. 1176-1186.

Stochastic processes

Chazottes J-R, Gallo S, **Takahashi DY** (2022)
Gaussian concentration bounds for stochastic chains of unbounded memory.
Annals of Applied Probability, *in press*

Gallo S, Iacobelli G, Ost G, **Takahashi DY** (2021)
Self-Switching Markov Chains: Emerging dominance phenomena.
Stochastic Processes and their Applications, v. 143, 254-84.

Gallesco C, **Takahashi DY** (2021)
Mixing rates for potentials of non-summable variations.
Ergodic Theory and Dynamical System, doi: 10.1017/etds.2021.65

Gallesco C, Gallo S, **Takahashi DY** (2018)
Dynamic uniqueness for stochastic chains with unbounded memory.
Stochastic Processes and their Applications, doi: 10.1016/j.spa.2017.06.004

Gallo S, **Takahashi DY** (2014)
Attractive regular stochastic chains: perfect simulation and phase transition.
Ergodic Theory and Dynamical System, v. 34, 1567-1586

Gallesco C, Gallo S, **Takahashi DY** (2014)

Explicit estimates in the Bramson-Kalikow model.
Nonlinearity, v. 27, 2281-2296.

Gallo S, Lerasle M, **Takahashi DY** (2013)
Markov approximations of chains of infinite order in the $bar{d}$-metric.
Markov Processes and Related Fields, v. 19, 51-82.

Statistical methods for connectivity analysis - theory

Ost G, **Takahashi DY** (2022)
Sparse Markov Models for High-dimensional Inference.
arXiv preprint arXiv:2202.08007

Baccalá LA, **Takahashi DY**, Sameshima, K (2016)
Directed Transfer function: Unified asymptotic theory and some of its implications.
IEEE Transactions of Biomedical Engineering, v. 63, 2450-2460.

Takahashi DY and Lerasle M (2016)
Sharp oracle inequalities and slope heuristic for specification probabilities estimation in discrete random fields.
Bernoulli, v. 22, 325-344.

Sameshima K, **Takahashi DY**, Baccalá LA (2015)
On statistical performance of Granger-causal connectivity estimators.
Brain informatics, doi: 10.1007/s40708-015-0015-1

Takahashi DY, Galves A, Orlandi E (2015)
Identifying interacting pairs of sites in Ising models on a countable set.
Brazilian Journal of Probability and Statistics, v. 29, 443-459.

Takahashi DY, Baccalá LA, Sameshima K (2014)
Canonical information flow decomposition among neural structure subsets.
Frontiers in Neuroinformatics, doi: 10.3389/fninf.2014.00049 c

Baccalá LA, de Brito CS, **Takahashi DY**, Sameshima K (2013)
Unified asymptotic theory for all partial directed coherence forms.
Philosophical Transactions of the Royal Society A, v. 371, 20120158

Takahashi DY, Lerasle M (2011)
An oracle approach for interaction neighborhood estimation in random fields.
Electronic Journal of Statistics, v. 5, p. 534-571.

Takahashi DY, Baccalá LA, Sameshima K (2010)
Information theoretic interpretation of frequency domain connectivity measures.
Biological Cybernetics, v.103, p. 463-469.

Takahashi DY, Baccalá L, Sameshima K (2008)

Partial directed coherence asymptotics for VAR processes of infinite order.
International Journal of Bioelectromagnetism, v. 10, p. 31-36.

Takahashi DY, Baccalá LA, Sameshima K (2007)
Connectivity Inference via Partial Directed Coherence.
Journal of Applied Statistics, v. 34, p. 1259-1273.

Statistical methods for connectivity analysis – application

Guzman GE, **Takahashi DY**, Fujita A (2022)
A fast parameter estimator for large complex networks.
Journal of Complex Network, v. 10, doi: 10.1093/comnet/cnac022

Raphaldini B, Teruya AS, Raupp CF, Silva-Dias PL, **Takahashi DY** (2021)
Inference of the topology of geomagnetic field multipole interactions.
The European Physical Journal Special Topics, doi: 10.1140/epjs/s11734-021-00201-1

Raphaldini B, Teruya AS, Raupp CF, Silva-Dias PL, **Takahashi DY** (2021)
Information flow between MJO-related waves: a network approach on the wave space.
The European Physical Journal Special Topics, doi: 10.1140/epjs/s11734-021-00170-5

Raphaldini B, Teruya AS, Dias PLS, Massaroppe L, **Takahashi DY** (2020)
Stratospheric ozone and QBO interaction with the tropical troposphere on intraseasonal and interannual time-scales: a wave interaction perspective.
Earth System Dynamics, v.12, p.83-101.

Fujita A, Silva EL, Santos SDS, Bando SY, Soares GE, **Takahashi DY** (2019)
A semi-parametric statistical test to compare complex networks.
Journal of Complex Networks, cnz028, doi:10.1093/comnet/cnz028

Fujita A, **Takahashi DY**, Balardin JB, Vidal MC, Sato JR (2017)
Correlation between graphs with an application to brain network analysis.
Computational Statistics & Data Analysis, v. 109, 76-92

Fujita A, Vidal MC, **Takahashi DY** (2017)
A statistical method to distinguish functional brain networks.
Frontiers in Neuroscience, v. 11, doi:10.3389/fnins.2017.00066

Vidal MC, Sato JR, Balardin JB, **Takahashi DY**, Fujita A (2017)
ANOCVA in R: A Software to Compare Clusters between Groups and Its Application to the Study of Autism Spectrum Disorder.
Frontiers in Neuroscience, v. 11, doi:10.3389/fnins.2017.00016

Fujita A, **Takahashi DY**, Patriota AG, Sato JR (2014)

A non-parametric statistical test to compare clusters with applications in functional magnetic resonance imaging data.
Statistics in Medicine, v. 33, 4949-4962.

Fujita A, **Takahashi DY**, Patriota A (2014)
A non-parametric method to estimate the number of clusters.
Computational Statistics and Data Analysis, v. 73, 27-39.

Santos SS, **Takahashi DY**, Nakata A, Fujita A (2013)
A comparative study of statistical methods used to identify dependencies between gene expression signals.
Briefing in Bioinformatics, v. 15, 906-918.

Sato JR., **Takahashi DY**, Hoexeter, MQ, Massirer KM, Fujita A (2013)
Measuring network's entropy in ADHD: A new approach to investigate neuropsychiatric disorders.
Neuroimage, v. 77, 44-51.

Takahashi DY, Sato JR, Ferreira CE, Fujita A (2012)
Discriminating different classes of biological networks by analyzing the graphs spectra distribution.
PLoS ONE, v. 7(12): e49949. doi:10.1371/journal.pone.0049949

Sato JR , **Takahashi DY**, Arcuri SM, Sameshima K, Morettin PA, Baccalá, LA (2009)
Frequency domain connectivity identification: An application of partial directed coherence in fMRI.
Human Brain Mapping, v. 30, 452-461.

Dzirasa K., Ramsey AJ, **Takahashi DY**, Stapleton J, Potes JM, Williams JK, Gainetdinov RR, Sameshima K, Caron MG, Nicolelis MAL (2009)
Hyperdopaminergia and NMDA Receptor Hypofunction Disrupt Neural Phase Signaling.
The Journal of Neuroscience, v. 29, 8215-8224.

Sato JR, Felix MM, **Takahashi DY**, Amaro Jr E, Brammer MJ, Morettin PA (2006)
A method to produce evolving functional connectivity maps during the course of an fMRI experiment using wavelet based time-varying Granger causality.
NeuroImage, v. 31, 187-196.

Sato JR, **Takahashi DY**, Cardoso EF, Martin MGM, Amaro Jr E, Morettin PA (2006)
Intervention Models in Functional Connectivity Identification Applied to fMRI.
International Journal of Biomedical Imaging, doi: 10.1155/IJBI/2006/27483

Alzheimer disease

Raicher I, Shimizu M, **Takahashi DY**, Nitrini R, Caramelli P (2008)
Alzheimer's disease diagnosis disclosure in Brazil: a survey of specialized physicians' current practice and attitudes.
International Psychogeriatrics, v. 20, 471-481.

Shimizu M, Raicher I, **Takahashi DY**, Caramelli P, Nitrini R (2008)
Disclosure of the diagnosis of Alzheimer's disease: caregivers' opinions in a Brazilian sample.
Arquivos de Neuro-Psiquiatria, v. 66, 625-630.

Raicher I, **Takahashi DY**, Kanda PAM, Nitrini R, Anghinah R (2008)
qEEG spectral peak in Alzheimer's disease: a possible tool for treatment follow-up.
Dementia & neuropsychologia, v. 2, 9-12.

Vittielo AP, Ciriaco JG, **Takahashi DY**, Nitrini R, Caramelli P (2007)
Brief cognitive evaluation of patients attended in a general neurological outpatient clinic.
Arquivos de Neuro-Psiquiatria, v. 65, 299-303.

Nitrini R,Caramelli P, Herrera E, Castro I, Bahia VS, Anghinah R, Caixeta L, Radanovic M, Charchat-Fichman H, Porto CS, Carthery MT, Hartmann APBJ, Huang N, Smid J, Lima P, **Takahashi DY**, Takada LT (2005)
Mortality from dementia in a community-dwelling Brazilian population.
International Journal of Geriatric Psychiatry, v. 20, 247-253.

Nitrini R, Caramelli P, Herrera E, Bahia VS, Caixeta L, Radanovic M, Anghinah R, Charchat-Fichman H, Porto CS, Carthery MT, Hartmann APBJ, Huang N, Smid J, Lima P, Takada LT, **Takahashi DY** (2005)
Incidence of dementia in a community-dwelling Brazilian population.
Alzheimer Disease and Associated Disorders, v. 18, 241-246.

Anghinah R, Caramelli P, **Takahashi DY**, Nitrini R, Sameshima K (2005)
EEG alpha band coherence analysis in healthy adults: preliminary results.
Arquivos de Neuro-Psiquiatria, v. 63, 83-86.

Hartmann APBJ, Almeida SM, Livramento JA, Nitrini R, **Takahashi DY**, Caramelli P (2004)
Hyperphosphorylated tau protein in the cerebrospinal fluid of patients with Alzheimer's disease and other dementias: preliminary findings.
Arquivos de Neuro-Psiquiatria, v. 62, 751-755.

Diagnosis in medicine

Lopes RI, Nogueira L, Albertotti CJ, **Takahashi DY**, Lopes RN (2008)
Comparison of of virtual cystoscopy and transabdominal ultrasonography with conventional cystoscopy for bladder tumor detection.
Journal of Endourology, v. 22, 1725-1729.

Sameshima K, **Takahashi DY**, Baccalá, LA (2005)
Avaliando a complexidade da dinâmica cardiovascular por entropia amostral.
Revista Brasileira de Hipertenção, v. 12, 27-32.

Costa GGO, Ctenas BB, **Takahashi DY**, Mion O, Mello JJF, Butugan O (2005)
Comparação entre a Rinometria Acústica, 'Peak Flow'Nasal Inspiratório e sua Correlação com Sintomas e Sinais Clínicos de Rinite.
Arquivos de Otorrinolaringorologia, v. 9, 203-211.

Book Chapters

Sliwa J, **Takahashi DY**, Shepherd SV (2017)
Neural mechanisms of communication
In: The Wiley Handbook of Evolutionary Neuroscience, ed: Shepherd, Wiley-Blackwell, 444-477

Ghazanfar AA, **Takahashi DY** (2016)
The evo-devo of vocal communication: insights from marmoset monkeys
In: Evolution of nervous systems, ed: Kaas, Academic Press, 317-324

Santos SS, **Takahashi DY**, Sato JR, Ferreira CE, Fujita A (2016)
Statistical Methods in Graphs: Parameter Estimation, Model Selection, and Hypothesis Test
Mathematical Foundations and Applications of Graph Entropy, v. 98, 183-202

Takahashi DY, Baccalá LA, Sameshima K (2014)
Information partial directed coherence
In: Methods in Brain Connectivity Inference through Multivariate Time Series Analysis, ed: Baccalá, Sameshima. CRC Press, 75-86.

Baccalá LA, **Takahashi DY**, Sameshima K (2014)
Asymptotic PDC properties
In: Methods in Brain Connectivity Inference through Multivariate Time Series Analysis, ed: Baccalá, Sameshima, CRC Press, 113-131.

Baccalá LA, **Takahashi DY**, Sameshima K (2006)
Computer intensive testing for the influence between time-series
In: Handbook of Time Series Analysis ed: Wilterhalter; Schelter; Timmer, Springer, 411-435.

Sameshima K, **Takahashi DY** (2004)
Métodos Quantitativos em Medicina
In: Métodos Quantitativos em Medicina ed: Massad, Ortega, Silveira. Manole, v.1, 493-526.

Takahashi DY, Charchat H, Nitrini R, Caramelli P, Sameshima K (2000)
Exploração de redes neurais artificiais no auxílio ao diagnóstico neuropsicológico da doença de Alzheimer.
In: Anais do I congresso de lógica aplicada à tecnologia – LAPTEC 1, Plêiade, v.1, 359-371.

Articles Published in Peer-Reviewed Proceedings

Biazzi RB, Fujita A, **Takahashi DY** (2021)
Predicting soft robot's locomotion fitness.
Proceedings of the Genetic and Evolutionary Computation Conference Companion 2021, 81-82.

Takahashi DY, Narayanan DZ, Ghazanfar AA (2013)
Development of self-monitoring essential for vocal interaction in marmoset monkeys
ICDL-EPIROB Conference, doi: 10.1109/DevLrn.2013.6652553

Takahashi DY, Narayanan DZ, Ghazanfar AA (2013)
A computational model for vocal exchange dynamics and their development in marmoset monkeys
ICDL-EPIROB Conference, doi: 10.1109/DevLrn.2012.6400844

Brito SC, Baccalá LA, **Takahashi DY**, Sameshima K (2010)
Asymptotic behavior of generalized partial directed coherence
IEEE Engineering in Medicine and Biology Society. Conf. , v.1, p.1718 - 1721.

Takahashi DY, Baccalá LA, Sameshima K (2010)
Frequency domain connectivity: an information theoretic perspective
IEEE Engineering in Medicine and Biology Society. Conf. , v.1, p.1726 - 1729.

Baccalá LA, **Takahashi DY**, Sameshima K (2007)
Generalized Partial Directed Coherence
InternationalConference on Digital Signal Processing, v.1. p.162 - 166

Takahashi DY, Charchat H, Caramelli P, Nitrini R, Sameshima K (2000)
Análise da não-linearidade do modelo diagnóstico neuropsicológico da doença de Alzheimer por redes neurais artificiais
Anais do VII congresso brasileiro de informática em saúde

Comments

Takahashi DY (2019)
Vocal learning: shaping by social reinforcement
Current Biology, v.29, R125-R127

Takahashi DY (2018)
Animal communication: chit-chat in meerkats
Current Biology, v.28, R1298-R1300

Takahashi DY, Ghazanfar AA (2014)
Vocal communication is multi-sensorimotor coordination within and between individuals
Behavioral and Brain Sciences, v.37, 572-573.

Research Supports

Current supports

2022-2025 – CNPq DAAD (co-PI)
Complex random networks

2013-2023 –FAPESP 2013/ 07699-0 (collaborator)
Center for Neuromathematics.

Completed supports
2016-2018 - FAPESP 2016/13422-9 (collaborator)
Statistical methods on graphs applied in life science.

2014-2016 – CNPq 462064/2014-0 (collaborator)
Finitary coding and chains of long memory

2012-2014 – USP project (collaborator)
Mathematics, computation, language, and the brain

2012-2014 – CNPq 480108/2012-9 (collaborator)
Stochastic modeling of the brain activity

2008-2009 – FAPESP 2008/08171-0 (PI)
Modeling neuronal population by interactive particle system of variable length interaction

Caio Matheus Prates Batalha Faria

Rua Valson Lopes, 70, apartment 56B, São Paulo, São Paulo, Brazil
caio.batalha@yahoo.com.br
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A final year PhD candidate with a research background in molecular biology and systems biology. My main research interests are in the biology of aging and systems biology fields.

Education

University of São Paulo (ongoing)

PhD

Used a systems biology approach, particularly network science and causal discovery, to analyze age-related patterns in gene expression data of humans during aging, and find potential candidate genes for interventions aimed at modulating age related alterations. Currently writing thesis. Joint supervisors: Professor Nadja Cristhina de Souza Pinto, Department of Biochemistry, Chemistry Institute (University of São Paulo), and Professor André Fujita, Institute of Mathematics and Statistics (University of São Paulo).

University of São Paulo (2018)

MsC

Explored the relationship between the mTOR protein, a known modulator of longevity in model organisms, and DNA repair, using molecular biology techniques. Supervisor: Professor Nadja Cristhina de Souza Pinto, Department of Biochemistry, Chemistry Institute (University of São Paulo).

Federal University of the ABC (2013)

BSc Industrial Engineering

BSc Science and Technology

Joint BSc, with high interdisciplinary content, focusing on STEM, with a few credits in humanities.

Federal Institute of Cubatão (2008)

High school.

Teaching/supervising experience

Teaching assistant, University of São Paulo

- Teching assistant 3 times for the Experimental Biochemistry course and 2 times for the Molecular Biology course
- Assisting with programme development and student assessment
- Assisting in wet lab experiments and bioinformatics assignments
- Delivering teaching sessions

Guest lecturer, MSc Health Sciences, Albert Einstein Hospital - São Paulo

- Delivered lectures on the "Aspects of the Research on Aging" course by invitation for 3 years
- Student assessment

Molecular biology summer school lecturer, University of São Paulo (2017)

- Coordinating summer school programme
- Devising and delivering interactive wet lab experiments

Publications

- Alencar RR, Batalha CMPF, Freire TS, de Souza-Pinto NC. Enzymology of mitochondrial DNA repair. Enzymes. 2019;45:257-287. doi: 10.1016/bs.enz.2019.06.002.
- Batalha CMPF, Vercesi AE, Souza-Pinto NC. The Many Roles Mitochondria Play in Mammalian Aging. Antioxid Redox Signal. 2022 May;36(13-15):824-843. doi: 10.1089/ars.2021.0074.
- Welsh H, Batalha CMPF, Li W, Mpye KL, Souza-Pinto NC, Naslavsky MS, Parra EJ. A systematic evaluation of normalization methods and probe replicability using infinium EPIC methylation data. Clin Epigenetics. 2023 Mar 11;15(1):41. doi: 10.1186/s13148-023-01459-z.
- Batalha CMPF, Fujita A, de Souza-Pinto NC. Combination of differential expression and co-expression network analyses identify novel conserved age-associated changes among different tissues. bioRxiv 2023.05.26.542445; doi: https://doi.org/10.1101/2023.05.26.542445.
- Rowies FT, Batalha CMPF, Nakahara TS, Malnic B, de Souza-Pinto NC. Expression of DNA repair genes is modulated during differentiation of olfactory sensory neurons. bioRxiv 2023.04.06.535865; doi: https://doi.org/10.1101/2023.04.06.535865.

Research skills

- Application of systems biology and bioinformatics techniques: differential expression analysis, network science, causal discovery, mendelian randomization, enrichment analysis, differential methylation analysis, linear models (simple and mixed), genome alignment, among others.

- Application of wet lab molecular biology and biochemistry techniques: western blot, RT-PCR, enzyme assays, Searhorse analyzer, flow cytometry, cell culture, mitochondria isolation, agarose DNA electrophoresis, among others.
- Programing languages: R and Python.

Other qualifications

- English (fluent)
- Spanish (intermediate)

Employment

Consultant, KPMG Structured Finance, São Paulo (2012-2014)

- Structuring projected finances of infrastructure projects
- Market research for infrastructure projects
- Business valuation
- Other types of financial modeling

Intern, Novelis/Aditya Birla, São Paulo (2011-2012)

- Market research
- Writing a monthly newsletter about the Brazilian market in some specific sectors of interest of the company
- Prospecting engineering companies

BIOGRAPHICAL SKETCH

NAME: Bizinelli, Daniela

POSITION TITLE: PhD student

ORCID: https://orcid.org/0000-0001-5815-8423

A. Personal Statement

I graduated with a degree in Pharmacy at Herminio Ometto University Center (2019), where I was recognized as the best student of the undergraduate course and received the Paulo Minami award granted by the Regional Pharmacy Council (CRF-SP). I recently completed a Master's Degree in Oncology, investigating oncogenic signaling pathways modulators in colon cancer liver metastasis using computational strategies. With my Master's project and other research collaborations, I have developed skills in data integration, manipulation, analysis, and visualization, not limited to, but focused on transcriptomics, proteomics, and DNA methylation. Also, my recent experience at Vejle Hospital (University of Southern Denmark) as a guest student taught me even more about how to apply my knowledge to different projects and collaborate with translational research, keeping up with wet lab activities and linking it with in silico analysis. Currently, I am a PhD student in the Interunit Bioinformatics Graduate Program at the University of São Paulo (USP).

B. Education/Training

Institution and Location	Degree	Completion Date MM/YYYY	Field of Study
Herminio Ometto University Center, Araras, São Paulo, Brazil	Graduate	12/2019	Pharmacy
A.C.Camargo Cancer Center, São Paulo, Brazil	M.Sc.	08/2022	Oncology
University of Southern Denmark, Vejle, Denmark	Intership	10/2022	Bioinformatics
University of São Paulo, São Paulo, Brazil	Ph.D.	Expected 01/2027	Bioinformatics

C. Additional Training

	Year	Title	Event/Local
Mini-course (online)	2021	Understanding the Most Out of Differential Gene Expression from Scratch.	16th international conference of the AB3C – X-Meeting XPerience 2021.
Extension course (online)	2021	Mass Spectrometry Applied to Metabolomic, Proteomic and Lipidomic Analysis.	Federal University of São Paulo – UNIFESP, São Paulo, Brazil.
International course (online)	2020	Computational Systems Biology of Cancer 3rd Edition.	Institut Curie, Paris.
Mini-course	2019	R software.	Herminio Ometto University Center, São Paulo, Brazil.

D. Poster Presentation and Invited Talks

Bizinelli, D., Klug, K.K., Macedo, K.T., Varella, N., dos Santos,G.O., Labate, M.T.V., Labate, C.A., Camillo, C.M.C., Marchi, F.A. (2023, June). An integrative approach to explore promises targets identifies potential signaling modulators in drug-resistant colon cancer liver metastasis [Poster presentation]. X-Meeting / BSB 2023.
Bizinelli, D., Marchi, F.A., Fujita A. (2023, June). Deciphering oncogenic signaling networks and cellular co-localization profiles by spatial transcriptomics data [Poster presentation]. X-Meeting / BSB 2023.

Bizinelli, D., Oyama, K.T., Silva, V.S., Mello, C.A.L., Olivieri, E.H.R., Mota, L.D.C, Andrade, M.B., Martins Jr., D.C., Barbosa, P.N.V.P., Rogatto, S.R., Marchi, F.A. (2021, October). A multi-omic integrative approach to explore vulnerabilities in drug-resistant colon tumors and hit oncogenic signaling modulators [Online poster presentation]. 16th international conference of the AB3C – X-Meeting XPerience 2021.

Bizinelli, D., Oyama, K.T., Silva, V.S., Mello, C.A.L., Olivieri, E.H.R., Mota, L.D.C, Andrade, M.B., Barbosa, P.N.V.P., Marchi, F.A. (2021, September). A machine learning-based strategy exploring multiomic data identifies oncogenic signaling modulators in drug-resistant colon cancer [Online project presentation]. GENETICS 2021 - Brazilian Congress of Genetics.

Bizinelli, D., Oyama, K.T., Marchi, F.A. (2021, June). Identification of Oncogenic Signaling Modulators in Metastatic Colon Tumors [Online poster presentation]. Next Frontiers to Cure Cancer 2021.

Bizinelli, D., Marchi, F.A. (2021, January). Protegenomic investigation of oncogenic signaling modulators associated with mutational status in patients with metastatic colon cancer [Online poster presentation]. Scientific Meeting of A.C.Camargo Cancer Center, São Paulo, Brazil.

Bizinelli, D. (2020, October). Oncogenetics [Invited talk]. Herminio Ometto University Center, Araras, São Paulo, Brazil.

Bizinelli, D., Santos, N.T.H., Faldoni, F.L.C., Navarro, F.F. (2019, October). In vitro functional assays of Cacti-Nea effect on human breast adenocarcinoma [Poster presentation]. Herminio Ometto University Center, Araras, São Paulo, Brazil.

Bizinelli, D., Santos, N.T.H., Faldoni, F.L.C., Navarro, F.F. (2019, September). In vitro evaluation of cell viability and betalains quantification of nutraceutical Cacti-Nea [Poster presentation]. FeSBE Annual Meeting, Campos do Jordão Convention Center, São Paulo, Brazil.

E. Academic Awards

Year	Honors	Event/Local
2021	Honorable Mention Award for poster presentation in the "omics" category (online). Project: "*A multi-omic integrative approach to explore vulnerabilities in drug-resistant colon tumors and hit oncogenic signaling modulators*".	16th international conference of the AB3C – X-Meeting XPerience 2021.
2021	Darcy Fontoura de Almeida Award for best project presented in the "genomics and bioinformatics" category (online). Project: "*A machine learning-based strategy exploring multiomic data identifies oncogenic signaling modulators in drug-resistant colon cancer*".	GENETICS 2021 - 66th Brazilian Congress of Genetics.
2021	Finalist in the poster presentation section (online). Project: "*Proteogenomic investigation of oncogenic signaling*	Scientific Meeting of A.C.Camargo Cancer Center, São Paulo, Brazil.

	modulators associated with mutational status in patients with metastatic colon cancer".	
2020	Finalist (co-author) in the poster presentation section. Project: "*Oncogenic signaling modulation by the activity of enhancers and promoters in colon cancer microenvironment with immune-responsive and non-responsive genomic profile*".	Scientific Meeting of A.C.Camargo Cancer Center, São Paulo, Brazil.
2020	Paulo Minami Award for best student in Pharmacy degree, from January 2015 to December 2019, granted by the Regional Pharmacy Council of São Paulo (CRF-SP).	Herminio Ometto University Center, Araras, São Paulo, Brazil.
2019	Award for poster presentation. Project: "*In vitro functional assays of Cacti-Nea effect on human breast adenocarcinoma*".	13th Scientific Initiation Congress PIBIC-CNPq at Herminio Ometto University Center, Araras, São Paulo, Brazil.

F. Peer-reviewed Publications

[Under review – #BIOPHA-D-23-03921] Calanca N, Noronha Francisco AL, **Bizinelli D**, Kuasne H, Camargo Barros Filho M, Campos Troncarelli Flores B, Antonio Lopes Pinto C, Aparecida Rainho C, Botelho Pereira Soares M, Albuquerque Marchi F, Kowalski LP, Regina Rogatto S. DNA methylation-based depiction of the immune microenvironment and immune-associated long non-coding RNAs in oral cavity squamous cell carcinomas. *Biomed. Pharmacother.*

Bizinelli D, Flores Navarro F, Lima Costa Faldoni F. Maca Root (*Lepidium meyenii*) Extract Increases the Expression of MMP-1 and Stimulates Migration of Triple-Negative Breast Cancer Cells. *Nutr Cancer*. 2022;74(1):346-356. doi:10.1080/01635581.2021.1882511

G. Other Contributions to Science

Collaborator student in the project "*Heterogeneity of oncogenic signaling associated with colon cancer metastases resistant to systemic therapy: Investigation by proteogenomics and modeling of complex networks*" (FAPESP Regular Grant #2019/20414-0), with Dr. Fabio Albuquerque Marchi as principal researcher.
I was part of the project during my Master's degree and was responsible for patient screening and collection of their biological samples. One of the hypotheses of my master's project was associated with this grant, where I was responsible for bioinformatic analysis trying to identify modulators in several oncogenic signaling pathway. We hope that our findings can impact the personalization of treatment for patients with colon cancer liver metastasis allowing new therapy modalities that can improve survival.

Collaboration in the project "*Diagnostic strategies for tuberculosis and identification of the complex microbiome associated with disease development and progression*", with Dr. Patricia Pintor dos Reis as principal researcher (São Paulo State University - UNESP, Botucatu, São Paulo, Brazil).
In this project, our aim was to identify potential molecular signatures that could characterize patients with latent and active disease, which would have a great impact on the care of patients with tuberculosis and would allow the development of efficient and lower cost prognostic strategies. For this, I participated in data integration analysis to apply the results in a machine learning algorithm.

Collaboration in the project "*Identification of miRNAs profile in mucoepidermoid carcinoma cells*", with Dr. Cláudia Malheiros Coutinho Camillo as principal researcher (A.C.Camargo Cancer Center, São Paulo, Brazil).
I was responsible for data manipulation, analysis, and visualization, conducting statistical tests to verify differences in miRNAs profiles between groups of salivary tumor samples with different clinical characteristics and treatments.

Jaqueline Yu Ting Wang

Sao Paulo SP, Brazil
jaqueytw@gmail.com
+55 11 97648 8734
linkedin.com/in/jaqueline-wang

PROFESSIONAL SUMMARY

Versatile and creative professional positioned to excel within a role requiring organization, attention to details and multidisciplinary knowledge. Well-versed in Perl programming language, shell scripting and R.

PROFESSIONAL EXPERIENCE

The Human Genome and Stem Cell Research Center (HUG-CELL), Sao Paulo, BR
Bioinformatics specialist, Dec 2017 - present
Create pipelines to process and analyze NGS data, support the research in completing assigned experiments and team leader of bioinformatics group.

- Highly skilled in the use of technology for research purposes. Become competent in Bash, SQL, R and Perl programming languages.
- Very experienced in the processing of human sequencing data, including whole genome sequencing (WGS).

PUBLICATIONS

- Wang, J.Y.T., Whittle, M.R., Puga, R.D. et al. Noninvasive prenatal paternity determination using microhaplotypes: a pilot study. BMC Med Genomics 13, 157 (2020). https://doi.org/10.1186/s12920-020-00806-w
- Naslavsky, M.S., Scliar, M.O., Yamamoto, G.L., Wang, J.Y.T. et al. Whole-genome sequencing of 1,171 elderly admixed individuals from Brazil. Nat Commun 13, 1004 (2022). https://doi.org/10.1038/s41467-022-28648-3
- Fu, J.M., Satterstrom, F.K., Peng, M. et al. Rare coding variation provides insight into the genetic architecture and phenotypic context of autism. Nat Genet 54, 1320–1331 (2022). https://doi.org/10.1038/s41588-022-01104-0
- Castelli, E.C., De Castro, M.V., Naslavsky, M.S. et al. MUC22, HLA-A, and HLA-DOB variants and COVID-19 in resilient super-agers from Brazil. Frontiers in Immunology 13, 1 (2022). https://doi.org/10.3389/fimmu.2022.975918
- Teles e Silva, A.L., Glaser, T., Griesi-Oliveira, K. et al. Rare CACNA1H and RELN variants interact through mTORC1 pathway in oligogenic autism spectrum disorder. Transl Psychiatry 12, 234 (2022). https://doi.org/10.1038/s41398-022-01997-9
- De Castro, M.V., Santos, K.S., Apostolico J.S. et al. Recurrence of COVID-19 associated with reduced T-cell responses in a monozygotic twin pair. Open Biology 12, 210240 (2022). https://doi.org/10.1098/rsob.210240

- Castelli, E.C., de Almeida, B.S., Muniz, Y.C.N. et al. HLA-G genetic diversity and evolutive aspects in worldwide populations. Sci Rep 11, 23070 (2021). https://doi.org/10.1038/s41598-021-02106-4
- Costa, C.I.S., Silva Montenegro, E.M., Sarrei, M. et al. Copy number variations in a Brazilian cohort with autism spectrum disorders highlight the contribution of cell adhesion genes. Clin Genet 101(1), 134-141 (2021). https://doi.org/10.1111/cge.14072
- Alvizi, L., Brito, L.A., Kobayashi, G.S. et al. m ir152 hypomethylation as a mechanism for non-syndromic cleft lip and palate. Epigenetics 17(13), 2278-2295 (2022). https://doi.org/10.1080/15592294.2022.2115606
- Souza, L., Gurgel-Giannetti, J., Sampaio, G. et al. Limb girdle muscular dystrophies. Neuromuscular disorders 30, S91-S92 (2020). https://doi.org/10.1016/j.nmd.2020.08.157
- Borges, J.B., Oliveira, V.F., Ferreira, G.M. et al. Genomics, epigenomics and pharmacogenomics of familial hypercholesterolemia (FHBGEP): A study protocol. Res Social Adm Pharm 17(7), 1347-1355 (2021). https://doi.org/10.1016/j.sapharm.2020.10.007
- Souza, L.S., Almeida, C.F., Yamamoto, G.L. el al. Manifesting carriers of X-linked myotubular myopathy: Genetic modifiers modulating the phenotype. Neurology Genetics 6(5), e513 (2020). https://doi.org/10.1212/NXG.0000000000000513
- Martins Trevisan, C., Naslavsky, M.S., Monfardini, F. el al. Variants in the Kisspeptin-GnRH Pathway Modulate the Hormonal Profile and Reproductive Outcomes. DNA and cell biology 39(6), 1012–1022 (2020). https://doi.org/10.1089/dna.2019.5165
- Naslavsky, M.S., Scliar, M.O., Nunes, K. et al. Biased pathogenic assertions of loss of function variants challenge molecular diagnosis of admixed individuals. American journal of medical genetics. Part C, Seminars in medical genetics 187(3), 357-363 (2021). https://doi.org/10.1002/ajmg.c.31931
- Bride, L., Naslavsky, M., Yamamoto, G.L. el al. TCF7L2 rs7903146 polymorphism association with diabetes and obesity in an elderly cohort from Brazil. PeerJ 9, e11349 (2021). https://doi.org/10.7717/peerj.11349
- Castelli, E.C., de Castro, M.V., Naslavsky, M.S. el al. MHC Variants Associated With Symptomatic Versus Asymptomatic SARS-CoV-2 Infection in Highly Exposed Individuals. Frontiers in immunology 12, 742881 (2021). https://doi.org/10.3389/fimmu.2021.742881

EDUCATION

PhD. in Bioinformatics, January 2023 - Present
UNIVERSITY OF SAO PAULO, Sao Paulo, BR
Modules included: “The post genomics era, tools and approaches in bioinformatics” and Human Molecular Genetics and Genomics.

MSc. in Bioinformatics, 2015 - 2017
UNIVERSITY OF SAO PAULO, Sao Paulo, BR
Modules included: Introduction to Systems Biology, Algorithms in Bioinformatics, Introduction to Computing for Bioinformatics and Database for Bioinformatics.
Dissertation title: Noninvasive prenatal paternity determination by microhaplotypes.

Multi Professional Expertise in Oncology, 2015
INSTITUTO ISRAELITA DE ENSINO E PESQUISA ALBERT EINSTEIN, Sao Paulo, BR
Modules included: Conceptual Bases and Diagnostic Tools Applied to Oncology, Cancer Treatment Modalities and Management in Oncology, Oncological Diseases: Solid Tumors and Haematological, Palliative Care and Symptom Control.

BSc. in Physics and Biomolecular Sciences, 2007 - 2011
UNIVERSITY OF SAO PAULO, Sao Paulo, BR
The BSc. in Physical and Biomolecular Sciences is based on a molecular approach to biological phenomena, through which knowledge and methods are used from physics, molecular biology and biochemistry. The students also learn about problem diagnosis, molecular modeling, in addition to computational simulations of various types of systems. Such acquired knowledge is integrated with specific biotech applications, such as design and modeling of pharmaceutical drugs, genetic engineering and protein engineering, biomaterials, nanobiotechnology and bioinformatics.

Scientific initiation in a Laboratory, 2011
UNIVERSITY OF SAO PAULO, Sao Paulo, BR
The objective of the study was to learn more about Multilocus Sequencing Type (MLST), a technique for epidemiological analysis of Vancomycin-Resistant Enterococci. In order to type *Enterococcus faecalis*, PCR, and its purification products were used along with analysis of sequencing through software Vector NTi (Invitrogen) and the exploration of MLST website to look for alleles and STs numbers for the isolates.

Teacher assistant of Physic-Chemistry, 2011
UNIVERSITY OF SAO PAULO, Sao Paulo, BR
Assisted teachers by helping students with general questions, classroom assignments, laboratory activities, and lab reports.

LANGUAGES

Portuguese (native)
English (bilingual oral and written fluency)
French (proficient)
Chinese - Mandarin (oral)

Curriculum Vitae

Identification:

Name: Leonardo Sanches
Address: Av. Prof. Lineu Prestes, 748, Laboratory 1812 - Butantã, São Paulo - SP, 05508-900
Email: leonardo2.sanches@usp.br
Lattes iD: http://lattes.cnpq.br/1796879990589201

Summary:

Biologist with a degree from the University of São Paulo (USP) and a background in scientific research. Completed undergraduate research and a master's degree at the Ecology and Evolution Laboratory of the Butantan Institute, focusing on antimicrobial peptides from snakes. Driven by a strong interest in bioinformatics, I shifted my focus to cancer genomics. Currently pursuing a Ph.D. in Biochemistry at the Genomics and Gene Expression in Cancer Laboratory of the Institute of Chemistry at USP, with a research project exploring the functionality of cancer-associated long non-coding RNAs (lncRNAs) through co-expression network analysis. I am highly motivated, eager to learn and study new techniques, and committed to contributing to the advancement of knowledge in the field.

Areas of Expertise:

- Bioinformatics
- Biochemistry / Molecular Biology

Skills:

- Co-expression network analysis
- Transcriptomics analysis using RNA-seq data
- Bioinformatics tools and pipelines
- Python programming
- R programming
- Linux and Bash scripting
- Genomic data visualization
- Genetics
- Philogeny Analysis
- Molecular biology techniques

Languages:

- English: Proficient in comprehension, reasonable speaking and writing skills.
- Portuguese: Proficient in comprehension, speaking, reading, and writing.
- Spanish: Proficient in comprehension, reasonable speaking, reading, and basic writing skills.

Education:

2021 - Present

Ph.D. in Biochemistry (CAPES Grade 6) University of São Paulo (USP), Brazil Title: Exploring Cancer-Associated lncRNAs Functionality through Co-expression Networks Analysis Advisor: Eduardo Moraes do

Rego Reis Scholarship: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Brazil

2020 (Interrupted)

Ph.D. interrupted in 2021 in Bioinformatics (CAPES Grade 4) University of São Paulo (USP), Brazil Advisor: Eduardo Moraes Rego Reis Interruption year: 2021

2015 - 2017

Master's Degree in Toxinology (CAPES Grade 5) Instituto Butantan (IBU), Brazil Title: Expression of B-defensins in the snake Bothrops jararaca Year of Completion: 2017 Advisor: Nancy Oguiura Scholarship: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Brazil

2009 - 2014

Bachelor's Degree in Biological Sciences University of São Paulo (USP), Brazil Title: Interaction of crotamine, a myotoxin from rattlesnake venom, with artificial membranes Advisor: Nancy Oguiura

Scientific Production:

1. OGUIURA, NANCY ; SANCHES, LEONARDO ; DUARTE, PRISCILA V. ; SULCA-LÓPEZ, MARCOS A. ; MACHINI, MARIA TERÊSA . Past, Present, and Future of Naturally Occurring Antimicrobials Related to Snake Venoms. ANIMALS, v. 13, p. 744, 2023.
2. VALENTE, RICHARD HEMMI ; LUNA, MILENE SCHMIDT ; DE OLIVEIRA, URSULA CASTRO ; NISHIYAMA-JUNIOR, MILTON YUTAKA ; JUNQUEIRA-DE-AZEVEDO, INÁCIO DE LOIOLA ; PORTES-JUNIOR, JOSÉ ANTONIO ; CLISSA, PATRICIA BIANCA ; VIANA, LUCIANA GODOY ; SANCHES, LEONARDO ; MOURA-DA-SILVA, ANA MARIA ; PERALES, JONAS ; YAMANOUYE, NORMA . Bothrops jararaca accessory venom gland is an ancillary source of toxins to the snake. Journal of Proteomics, v. 177, p. 137-147, 2018.
3. VIALA, VINCENT LOUIS ; HILDEBRAND, DIANA ; FUCASE, TAMARA MIECO ; SCIANI, JULIANA MOZER ; PREZOTTO-NETO, JOSÉ PEDRO ; RIEDNER, MARIA ; SANCHES, LEONARDO ; NISHIMURA, PAULA JULIANA ; OGUIURA, NANCY ; PIMENTA, DANIEL CARVALHO ; SCHLÜTER, HARTMUT ; BETZEL, CHRISTIAN ; ARNI, RAGHUVIR KRISHNASWAMI ; SPENCER, PATRICK JACK . Proteomic analysis of the rare Uracoan rattlesnake Crotalus vegrandis venom: Evidence of a broad arsenal of toxins. TOXICON, v. 107, p. 234-251, 2015.
4. COSTA, BRUNO A. ; SANCHES, LEONARDO ; GOMIDE, ANDREZA BARBOSA ; BIZERRA, FERNANDO ; DAL MAS, CAROLINE ; OLIVEIRA, EDUARDO B. ; PEREZ, KATIA REGINA ; ITRI, ROSANGELA ; OGUIURA, NANCY ; HAYASHI, MIRIAN A. F. . Interaction of the Rattlesnake Toxin Crotamine with Model Membranes. JOURNAL OF PHYSICAL CHEMISTRY B, v. 118, p. 5471-5479, 2014.

Additional Education:

2023

6th Researchers School at Campus USP São Carlos (14 hours), University of São Paulo (USP) (online course)

2021

Bioinformatics for Biologists: An Introduction to Linux, Bash Scripting (15 hours), Wellcome Genome Campus (online course)

2020

Introduction to Genomic Technologies (6 hours), Johns Hopkins University (online course)
Python for Genomic Data Science (8 hours), Johns Hopkins University (online course)
Genomic Data Science with Galaxy (8 hours), Johns Hopkins University (online course)
R Programming (57 hours), Johns Hopkins University (online course)

2018

Summer Course Workshop in Bioinformatics (8 hours), University of São Paulo
Summer Course in Bioinformatics (40 hours), University of São Paulo

2017 Annual Biosafety Course (8 hours), Instituto Butantan
Introduction to the R Language - hands-on (32 hours), Instituto Butantan

2016

Theoretical and Practical Fundamentals of Phylogenetic Systematics (40 hours), Instituto Butantan
Endnote Workshop - reference management tool (7 hours), Instituto Butantan

2015

Basic Concepts for the Study of Toxinology (30 hours), Instituto Butantan

2012

Biochemistry of Venoms (4 hours), University of São Paulo

2011

Apoptosis, Checkpoints, and Cancer (12 hours), University of São Paulo
Reptile Terrarium (4 hours), University of São Paulo

2010

Human Evolution: Molecular vs. Paleontological (12 hours), University of São Paulo
Forensic Entomology (12 hours), University of São Paulo

Presentations:

LACEN: An R Package for lncRNAs Functional Annotation Using Co-Expression Networks. SBBq. 2022.(Conference Presentation).

LACEN: An R Package for lncRNAs Functional Annotation Using Co-Expression Networks. I Simpósio dos Pós-Graduandos da Bioquímica. 2022. (Symposium Presentation).

Expression of B-defensins in Bothrops jararaca snake. 2017. (Conference Presentation).

Expressão de beta-defensinas na serpente Bothrops jararaca. 2016. (Symposium Presentation).

Expressão de B-defensinas na serpente Bothrops jararaca. 2016. (Seminar Presentation).

Interaction of the Rattlesnake Toxin Crotamine with Model Membranes. 2014. (Other Presentation).

Interação da crotamina com vesículas unilamelares gigantes. 2014. (Seminar Presentation).

Interaction of crotamine with giant unilamellar vesicles. 2013. (Conference Presentation).

Interação de crotamina com vesículas unilamelares gigantes. 2012. (Conference Presentation).

Participation in Events, Congresses, Exhibitions, and Fairs:

FEBRACE. Evaluator at FEBRACE. 2023. (Fair).

FEBRACE. Evaluator at FEBRACE. 2022. (Fair).

I Simpósio dos Pós-Graduandos da Bioquímica. 2022. (Symposium).

SBBq. 2022. (Congress).

FEBRACE. Evaluator at FEBRACE. 2020. (Fair).

FEBRACE. Evaluator at FEBRACE. 2019. (Fair).

XIV Congresso Brasileiro de Toxinologia. Expression of B-defensins in Bothrops jararaca snake. 2017. (Congress).

Simpósio da Pós-Graduação em Toxinologia do Instituto Butantan. Expressão de beta-defensinas na serpente Bothrops jararaca. 2016. (Symposium).

Reunião Científica Anual do Instituto Butantan. Interaction of Crotamine with giant unilamellar vesicles. 2014. (Other).

Seminários do Laboratório de Ecologia e Evolução do Instituto Butantan. Interação da crotamina com vesículas unilamelares gigantes. 2014. (Seminar).

Reunião Científica Anual do Instituto Butantan. Interaction of Crotamine with giant unilamellar vesicles. 2013. (Meeting).

XI Congress of the Pan American Section of the International Society on Toxinology. Interaction of Crotamine with giant unilamellar vesicles. 2013. (Congress).

Reunião Científica Anual do Instituto Butantã. Interaction of Crotamine with giant unilamellar vesicles. 2012. (Meeting).

Reunión y Taller Científico Técnico de la Red Iberoamericana CYTED. Interação de crotamina com vesículas unilamelares gigantes. 2012. (Other).

Seminários do Laboratório de Ecologia e Evolução do Instituto Butantan. Interaction of Crotamine with giant unilamellar vesicles. 2012. (Seminar).

Workshop on Synthetic Biology and Robotics. 2011. (Other).

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/