# Felipe Eduardo Ciamponi

felipe.ciamponi@gmail.com

| | |
|---|---|
| Integrative and Systemic Biology Lab | Permanent address: |
| Center for Molecular Biology and | Rua Alvaro Tunis, 109 |
| Genetic Engineering (CBMEG) | Vila Trujillo, Sorocaba - SP, Brazil |
| State University of Campinas | +55 19 98342 7654 |
| Av. Cândido Rondon, 400 | |
| Cidade Universitária, Campinas - SP, Brazil | |
| +55 19 3521 1130 | |

## Education

**2018 - Present**  **PhD in Bioinformatics** (Expected thesis defense April 2022)

Center for Molecular Biology and Genetic Engineering (CBMEG), State University of Campinas

Thesis: "Systemic and integrative characterization of the geno-transcriptomic profile of an industrial S. cerevisiae strain response to lignocellulosic inhibitory compounds."

Supervisors: Dr. Marcelo Mendes Brandão and Dr. Thiago Olitta Basso

**2016-2018**  **MSc in Genetics and Molecular Biology**

Center for Medicinal Chemistry (CQMED), State University of Campinas

Thesis: "Identification of biological characteristics associated with RNA-binding proteins target sites."

Supervisors: Dr. Katlin Brauer Massirer and Dr. Michael Lovci

**2012 – 2015**  **BSc in Biological Sciences**

Institute of Biology, State University of Campinas

Final project: "Identification of truncated transcripts susceptible to nonsense-mediated decay in neuronal cells with mutations on TDP-43".

Supervisor: Dr. Katlin Brauer Massirer and Dr. Mario Henrique Bengtson

## Research experience

**2018 - Present**  **Graduate student**, Center for Molecular Biology and Genetic Engineering (CBMEG), State University of Campinas

- Implemented a novel methodology to identify co-expressed gene communities using small sample sizes (N ≤ 6) based on known protein-protein interaction sand gene expression changes.
- Applied network models to identify key genes and functional clusters associated to compound response.
- Performed integrative analysis for datasets from metabolomics, genomics and transcriptomics to create a unified model.
- Developed a relational database for comparative genomics of industrial yeast strains and a companion API tool and website.

Supervisors: Dr. Marcelo Mendes Brandão and Dr. Thiago Olitta Basso

**May 2021 – October 2021**

**PhD Intern**, Proteona, Singapore

- Developed pipelines for analysis of isoform expression in single-cell high-throughput RNA sequencing.
- Created a database for identifying biologically relevant regions that distinguish isoforms.
- Assisted in developing machine learning models that differentiate cells based on their disease-state.

Supervisor: Dr. Michael Lovci

**2016-2018**

**Graduate student**, Center for Medicinal Chemistry (CQMED), State University of Campinas

- Identified which transcripts are targeted by CAPRIN1 RNA-binding protein during stress conditions using eCLIP-seq data and predicted the sequence and structural motifs used by CAPRIN1 to identify and bind to it's target sequences.
- Integrated gene expression, alternative splicing and eCLIPseq data to create a computational model of the effects of CAPRIN1 binding to it's RNA targets.
- Developed a machine-learning method to extract and classify biological features associated with sets of genomic regions.

Supervisors: Dr. Katlin Brauer Massirer and Dr. Michael Lovci

**March 2018 – May 2018**

**Research intern,** Structural Genomics Consortium, Toronto.

- Performed analysis of alternative splicing patterns in samples derived from glioblastoma patients.

- Identified key alternative splicing events in "treated vs control" cell culture experiments and splicing patterns associated with drug response using samples from a cohort of glioblastoma patients.
- Predicted AS event impact on the protein structure and/or function based on ORF alteration.

Supervisor: Dr. Panagiotis Prinos

**2012 – 2015**   **Undergraduate research**, Center for Medicinal Chemistry (CQMED), State University of Campinas

- Computationally predicted aberrant splicing events that induced NMD upon TDP-43 depletion from public data.
- Developed a pipeline that integrates gene expression changes with altered splicing events.
- Performed cell culture, transfection, RNA and Protein extraction and qPCR in human HEK283 and mouse N2A cells.

Supervisor: Dr. Katlin Brauer Massirer and Dr. Mario Henrique Bengtson

## Teaching experience

**2017**   **Graduate teaching assistant,** State University of Campinas

Class: "Bioinformatics and Computational Biology for Data Analysis"

- Supported teacher in implementing curriculum for classes of 20+ graduate students.
- Taught classes on differential gene expression, including data handling and statistical models.
- Supported students during classes and office hours.

**2015**   **Undergraduate teaching assistant,** State University of Campinas

Class: "Molecular Genetics"

- Supported teachers in implementing curriculum for classes of 40+ undergraduate students.
- Assisted teachers in correcting assignments.
- Directly supervised a group of 6 students during practical classes and end-of-semester project.
- Supported students during classes and office hours.

# Publications

1. P. Sachamitr, J.C. Ho, F.E. Ciamponi, W. Ba-Alawi, F.J. Coutinho, P. Guilhamon, M.M. Kushida, F.M.G. Cavalli, L. Lee, N. Rastegar, V. Vu, M. Sánchez-Osuna, J. Coulombe-Huntington, E. Kanshin, H. Whetstone, M. Durand, P. Thibault, K. Hart, M. Mangos, J. Veyhl, W. Chen, N. Tran, B.C. Duong, A.M. Aman, X. Che, X. Lan, O. Whitley, O. Zaslaver, D. Barsyte-Lovejoy, L.M. Richards, I. Restall, A. Caudy, H.L. Röst, Z.Q. Bonday, M. Bernstein, S. Das, M.D. Cusimano, J. Spears, G.D. Bader, T.J. Pugh, M. Tyers, M. Lupien, B. Haibe-Kains, H. Artee Luchman, S. Weiss, K.B. Massirer, P. Prinos, C.H. Arrowsmith, P.B. Dirks; PRMT5 inhibition disrupts splicing and stemness in glioblastoma, Nature Communications. 12 (2021). https://doi.org/10.1038/s41467-021-21204-5.

2. F.E. Ciamponi, N.F. Murad, D.P. Procópio, T.O. Basso, T.T. Franco, M.M. Brandão; Physiological data and transcriptional profile collected from the anaerobic chemostat cultures of Saccharomyces cerevisiae strain SA-1 supplemented with 5 mM of p-coumaric acid, Repositório de Dados de Pesquisa Da Unicamp. (2021). https://doi.org/10.25824/redu/2MRGL4.

3. F.E. Ciamponi, M.T. Lovci, P.R. Cruz, K.B. Massirer; BioFeatureFinder: Flexible, unbiased analysis of biological characteristics associated with genomic regions, BioRxiv. (2018). https://doi.org/10.1101/279612.

4. Q. Wu, D.Y. Nie, W. Ba-Alawi, Y.S. Ji, Z.W. Zhang, J. Cruickshank, J. Haight, F.E. Ciamponi, J. Chen, S. Duan, Y. Shen, J. Liu, S.A. Marhon, P. Mehdipour, M.M. Szewczyk, N. Dogan-Artun, W.J. Chen, L.X. Zhang, G. Deblois, P. Prinos, K.B. Massirer, D. Barsyte-Lovejoy, J. Jin, D.D. de Carvalho, B. Haibe-Kains, X.J. Wang, D.W. Cescon, M. Lupien, C.H. Arrowsmith; Altered RNA splicing initiates the viral mimicry response from inverted sines following type I PRMT inhibition in triple-negative breast cancer (Accepted, pending publication)

5. F.E. Ciamponi, N.F. Murad, D.P. Procópio, T.O. Basso, T.T. Franco, M.M. Brandão; Multi-omics network model reveals key genes associated to p-coumaric acid resistance in an industrial yeast strain (In review)

6. F.E. Ciamponi, T.O. Basso, T.T. Franco, M.M. Brandão; INDYdb: A comparative genomics database for industrial yeast strains (In preparation)

7. L. Alonso, F.E. Ciamponi, N.A. Migita, G.M.A. Gomes, M.T. Lovci, S. Aigner, G.W. Yeo, M.H. Bengtson, K.B. Massirer; Stress granule protein CAPRIN1 binds to G-quadruplex structures and microRNA sites of target RNAs (In preparation)

# Awards

**2022**  **Honorable Mention**
UNICAMP's Meeting on Genetics and Molecular Biology (GBMeeting)

**2017**  **Best Poster Award**
Brazilian Association of Bioinformatics and Computational Biology

**2016**     **Paulo Sodero Martins Award**

Brazilian-International Congress of Genetics

**2016**     **Best Poster Award**

Brazilian Association of Bioinformatics and Computational Biology

**2015**     **Poster Award IUBMB & SBBq**

International Union of Biochemistry and Molecular Biology

## Courses

**2022**     **Statistics for Biologists using R**

State University of Campinas, 40h

**2022**     **Illustrations for research articles**

State University of Campinas, 12h

**2016**     **From Genes to Drugs: An introduction to target-based drug discovery**

Center for Medicinal Chemistry, 60h

**2016**     **Computational Methods in Bioinformatics**

EMBRAPA Agricultural informatics, 64h

**2015**     **Identification, annotation and analysis of transcript expression**

Life Sciences Core Facility, 30h

## Other activities

**2018**     **Institutional Program of Scientific Initiation for High School**

State University of Campinas, Co-advisor

**2017**     **Identification, annotation and analysis of transcript expression**

Life Sciences Core Facility, Guest lecturer

**2016**     **Discovery of RNA binding protein target sites using enhanced CLIPseq**

Center for Molecular Biology and Genetic Engineering, Guest lecturer

**2015**     **TEDx UNICAMP Live**

Guest lecturer

## Additional information

| | |
|---|---|
| **Technical Skills** | • Data science, Bioinformatics, Python, R, Linux/Unix, REST APIs, Git version control, HPC clusters, SQL and Docker. |

| **Research interests** | • Computational biology applied to cancer "omics" for biomarker discovery and precision medicine applications. |
| --- | --- |
| | • Use systemic and integrative biology approaches to develop multi-omics models of response and/or prediction of phenotypes. |
| | • Develop novel methodologies, focusing on artificial intelligence and machine learning, for integrative data analysis (IDA). |

| **Languages** | • Portuguese (Native) |
| --- | --- |
| | • English (Fluent) |
| | • Spanish and French (Elementary) |

# References

**Dr. Marcelo Mendes Brandão**
Integrative and Systemic Biology Lab
Center for Molecular Biology and Genetic Engineering
+55 19 3521-1134
brandaom@unicamp.br

**Dr. Katlin Brauer Massirer**
RNA and microRNA Regulation Lab
Center for Medicinal Chemistry
+55 19 3521-1144
kmassire@unicamp.br

**Dr. Panagiotis Prinos**
Epigenetics cellular screening team
Structural Genomics Consortium Toronto
+1 416-946-0237
takis.prinos@utoronto.ca

**Dr. Michael Thomas Lovci**
Director Of Bioinformatics
Proteona
mlovci@proteona.com