

# Rafael Luiz Buogo Coan

Ph.D. Biological Sciences (Genetics), Institute of Biosciences, UNESP. Botucatu, São Paulo, Brazil

## Education

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| 2017-2022 | <b>PhD in Biological Sciences (genetics)</b> with the project " <i>Investigation of the role of long non-coding RNAs in the context of Ewing sarcoma</i> ". Laboratory of Bioinformatics and Computational Biophysics, UNESP, Brazil.<br>Supervisor Dr. Ney Lemke.         |
| 2016      | <b>Visiting researcher</b> at Weill Cornell Medical College, working with cancer genomics.<br>Supervisors Dr. Ethel Cesarman and Dr. Olivier Elemento.   |
| 2014-2016 | <b>Masters in Biological Sciences (Genetics)</b> with the project " <i>High scale genomic analysis of repetitive elements focusing on B chromosomes of Astatotilapia latifasciata cichlid</i> ". Integrative Genomics Lab. UNESP, Brazil.<br>Supervisor Dr. Cesar Martins. |
| 2008      | <b>Visiting Student</b> at University of Columbia-Missouri with rotations through small animal soft tissue surgery, oncology, cardiology, and internal medicine.   |
| 2003-2008 | <b>Doctor in veterinary medicine (D.V.M.)</b> . UDESC, Brazil.   |

## Professional Research Experience

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| 2022 | <b>Postdoc</b> at University of Perugia.<br>Bioinformatics of ChIP-Seq and CUT&RUN datasets. |
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## Awards

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| 2014 | <b>The São Paulo Research Foundation (FAPESP)</b><br>Fellowship during 24 months of MS in Biological Sciences (Genetics) (2014/16763-6) |
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## Technical Skills

### Computer skills

- Programming languages: R, python, bash
- Experience with linux system admin with ubuntu, centOS and SUSE Enterprise
- Implementation of apache server and management of Sacibase (<http://sacibase.ibb.unesp.br/>), a database to visualize sequencing data using JBrowse
- Specific tools used daily including Git, Docker, R Markdown and Jupyter

### Bioinformatics skills

- Data analysis of high-throughput sequencing data including DNA-seq, RNA-seq and ChIP-Seq
- Genome informatics (RepeatMasker, RepeatExplorer, BAM files, bowtie, samtools, GATK, bedtools, hisat2, stringtie)
- RNA-Seq analysis of coding and lncRNA (assembly, annotation, and quantification – Salmon, DESeq2, edgeR)
- Known R and Bioconductor packages (tidyverse, GenomicRanges, WGCNA, etc)

## Lab Techniques

- DNA and RNA extraction, PCR, Sanger sequencing, fluorescent *in situ* hybridization, qPCR

## Publications

- [1] Ivan Rodrigo Wolf, Lucas Farinazzo Marques, Lauana Fogaça de Almeida, Lucas Cardoso Lázari, Leonardo Nazário de Moraes, Luiz Henrique Cardoso, Camila Cristina de Oliveira Alves, Rafael Takahiro Nakajima, Amanda Piveta Schnepfer, Marjorie de Assis Golim, Thais Regiani Cataldi, Jeroen G. Nijland, Camila Moreira Pinto, Matheus Naia Fioretto, Rodrigo Oliveira Almeida, Arnold J. M. Driessen, Rafael Plana Simões, Mônica Veneziano Labate, Rejane Maria Tommasini Grotto, Carlos Alberto Labate, Ary Fernandes Junior, Luís Antonio Justulin, **Rafael Luiz Buogo Coan**, Érica Ramos, Fabiana Barcelos Furtado, Cesar Martins, Guilherme Targino Valente. "Integrative Analysis of the Ethanol Tolerance of *Saccharomyces cerevisiae*". *Int. J. Mol. Sci.* 2023, 24, 5646. <https://doi.org/10.3390/ijms24065646>
- [2] Rafael Takahiro Nakajima; Diego Ferreira Marques; Luiz Augusto Bovolenta; **Rafael Luiz Buogo Coan**; Ivan Rodrigo Wolf; Adauto Cardoso Lima; Érica Ramos; Bruno Evaristo de Almeida Fantinatti; Lauana Fogaça de Almeida; Leonardo Nazário de Moraes; Lucilene Delazari dos Santos; Guilherme Valente; Cesar Martins. "Integrative and systemic analysis to study the functions of B chromosomes in *Astatotilapia latifasciata*". *Paper submitted*.
- [3] O. S. Michelle, V. D. Nascimento, **R. Coan**, E. Ramos, V. Nogaroto, K. Ziemniczak, G. T. Valente, O. Moreira-Filho, C. Martins, M. R. Vicari. DNA transposon invasion and microsatellite accumulation guide W chromosome differentiation in a Neotropical fish genome. *Chromosoma*, v. 1, p. 1-14, 2019. URL: <https://www.ncbi.nlm.nih.gov/pubmed/31456013>.
- [4] **R. L. B. Coan**, C. Martins. Landscape of Transposable Elements Focusing on the B Chromosome of the Cichlid Fish *Astatotilapia latifasciata*. *Genes* 2018, 9, 269. URL: <https://www.ncbi.nlm.nih.gov/pubmed/29882892>.
- [5] N. A. Bertocchi, T. D. De Oliveira, A. Del Valle Garnero, **R. L. B. Coan**, R. J. Gunski, C. Martins, F. P. Torres. Distribution of CR1-like transposable element in woodpeckers (*Aves Piciformes*): Z sex chromosomes can act as a refuge for transposable elements. *Chromosome Research*, v. 1, p. 1, 2018. URL: <https://www.ncbi.nlm.nih.gov/pubmed/30499043>.
- [6] B. O. Carmello\*, **R. L. B. Coan\***, A. Cardoso, E. Ramos, B. E. A. Fantinatti, D. Marques, R. A. Oliveira, G. T. Valente, C. Martins. The hnRNP Q-like gene is retroinserted into the B chromosomes of the cichlid fish *Astatotilapia latifasciata*. *Chromosome Research*, p. 1, 2017. URL: <https://www.ncbi.nlm.nih.gov/pubmed/28776210>.  
\* Equal contribution

## Abstracts

- [1] **Coan, R. L. B.**, Farias, C. B., Brunetto, A. T., Sinigaglia, M., Lemke, N. Bioinformatics analysis reveals novel long non-coding RNA candidates in Ewing sarcoma. X-meeting eXperience 2020.
- [2] Bovolenta, L. A., Cardoso, A., Nakajima, R., Oliveira, J., Fantinatti, B. E. A., **Coan, R. L. B.**, Martins, C. A wide tRNA-derived small RNA annotation in *Astatotilapia latifasciata* with B chromosome presence or absence. X-meeting eXperience 2020.
- [3] Caetano, Brunno F., Müller-Coan, Bárbara G., **Coan, Rafael L.**, Fantinatti, Bruno E., Oliveira, Deilson E. De. Abstract 3785: Identification of potential cellular targets for Epstein-Barr virus encoded microRNAs miR-BART7 and miR-BART9 by analysis. Proceedings: AACR Annual Meeting 2019; March 29-April 3, 2019; Atlanta, GA, 2019, Atlanta. *Tumor Biology*, 2019. p. 3785

- [4] **Coan, R. L. B.**, Muller-Coan, B. G., Lemke, N. Long non-coding RNA in cis regulation of protein coding genes reveals novel pathway involved in Ewing sarcoma metastasis. Second AACR International Conference - Translational Cancer Medicine: Cancer Discoveries for Clinical Application, 2018, São Paulo, SP, Brazil.
- [5] Muller-Coan, B. G., **Coan, R. L. B.**, Caetano, B., Oliveira, D. E. Pathway prediction analysis of miR-100-5p target genes differentially expressed in EBV-positive nasopharyngeal carcinoma cells in vivo. Second AACR International Conference - Translational Cancer Medicine: Cancer Discoveries for Clinical Application, 2018, São Paulo. SP, Brazil.
- [6] Caetano, B., Muller-Coan, B. G., **Coan, R. L. B.**, Fantinatti, B. E. A., Oliveira, D. E. Identification of potential cellular targets for Epstein-Barr virus encoded microRNAs miR-BART7 and miR-BART9 by in silico analysis. Second AACR International Conference - Translational Cancer Medicine: Cancer Discoveries for Clinical Application, 2018, São Paulo, SP, Brazil.
- [7] **Coan, R. L. B.**, Lemke, N. A systems biology approach to unravel the consequences of EWS-FLI1 fusion in Ewing Sarcoma. International conference: Frontiers in Molecular Oncology, 2018. São Paulo, SP, Brazil.
- [8] Müller-Coan, B. G., **Coan, R. L. B.**, Elgui de Oliveira D. In silico pathway enrichment analysis based on genes targeted by microRNAs deregulated in human nasopharyngeal cells in vitro expressing the LMP1 oncoprotein of Epstein-Barr virus strain M81. International conference: Frontiers in Molecular Oncology, 2018. São Paulo, SP, Brazil.
- [9] Müller-Coan, B. G., **Coan, R. L. B.**, Elgui de Oliveira D. Common and exclusive cellular pathways regulated by microRNAs differentially expressed in human nasopharyngeal cells in vitro expressing the LMP1 oncoprotein of Epstein-Barr Virus strains B95.8 and M81. International conference: Frontiers in Molecular Oncology, 2018. São Paulo, SP, Brazil.
- [10] Ahmad, SF, Margarido, VP, Jehangir, M, **Coan, RLB**, Valente, GT, & Martins, C. Genomic Analysis of Transposable Elements in *Astyanax correntinus* with Focus on B Chromosome. In: 21st International Chromosome Conference (ICC). July 10-13, 2016, Foz do Iguacu, Brazil. In Cytogenetic and Genome Research (Vol. 148, pp. 83-155).
- [11] **Coan, RLB**; Venturelli, NB; Martins, C. Repetitive DNA content of B chromosomes in the cichlid fish *Astatotilapia latifasciata*. In: Plant & Animal Genome XXIV, 2016, San Diego.
- [12] **Coan, RLB**; Martins, C. Exploring massive sequencing data to investigate the repetitive DNA content of B chromosomes. In: 4<sup>th</sup> Cytogenetics Brazilian Reunion, 2015, Atibaia
- [13] Ahmad, SF; Parise-Maltempi, P; Ramos, E; Fantinatti, BEA; **Coan, RLB**; Valente, GT; Martins, C. Searching for transposable elements in the genome of cavefish *Astyanax mexicanus*. In: 61<sup>st</sup> Brazilian Genetics Conference, 2015, Águas de Lindoia
- [14] Brun, MV; Colome, LM; Feranti, JPS; Guedes, RL; Simon, C; Paris, D; Ataíde, M; Sartori, LW; Pohl, VH; **Coan, RLB**. Video-assisted ovariosalpingohysterectomy with two portals in bitches – three case reports. In: 11<sup>th</sup> SOBRACIL Videosurgery Regional Conference, 2008, Búzios
- [15] Feranti, JPS; Brun, MV; Secchi, P; Valle, SF; Ataíde, M; Pohl, VH; Messina, SA; Guedes, RL; Simon, C; **Coan, RLB**. Laparoscopic nephrectomy in a dog with *Diocotophyoma renale*. In: 11<sup>th</sup> SOBRACIL Videosurgery Regional Conference, 2008, Búzios

## Presentations

Navigating the sea of genomic data. 2016. XVI Genetics Workshop. UNESP, Botucatu, Brazil

- 8 hours course to undergrads, covering NCBI databases, global and local alignments, genome assembly and annotation, repetitive element analysis and precision medicine applications

Exploring repetitive DNA with RepeatExplorer pipeline. 2015. I Pro-Amazon Workshop. UFPA, Belém, Brazil

- Methodology and applications of RepeatExplorer

## Workshop and Course Attendances

2021	NGS – Genome Variant Analysis – Swiss Institute of Bioinformatics
2020	X-meeting eXperience 2020.
2018	Second AACR International Conference - Translational Cancer Medicine: Cancer Discoveries for Clinical Application. 2018.
2018	Frontiers in Molecular Oncology.
2016	Plant & Animal Genome XXIV.
2015	I Pro-Amazon Workshop.
2015	XV Genetics Workshop.
2015	4 <sup>th</sup> Cytogenetics Brazilian Reunion.
2015	I Genomics Course. (40h). FEPAF, UNESP, Brazil.
2015	How to perform and to apply ChIP in cytogenetics. (3h). 4 <sup>th</sup> Cytogenetics Brazilian Reunion, Brazil.
2015	Bioinformatics Summer Course. (38h), USP, Brazil.