DR. MAXIMILIANO S. BECKEL

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PROFESSIONAL SUMMARY

Proficient researcher holding a PhD in Biological Sciences with specialization in bioinformatics, computational biology, and transcriptomic data analysis. Demonstrated expertise in transcriptomics, with a focus on single-cell RNA sequencing (scRNA-seq). Established record of leading interdisciplinary research collaborations, resulting in publications in Q1 journals. Develops advanced statistical models and bioinformatics tools to facilitate biological discoveries. Extensive experience in teaching and mentoring, delivering advanced courses in data science, bioinformatics, and machine learning. Dedicated to scientific innovation and committed to advancing knowledge through research, teaching, and public outreach.

EDUCATION

PhD in Biological Sciences *2016 - 2022*
Director: Dr. Ariel Chernomoretz, University of Buenos Aires
Co-Director: Dr. Marcelo Yanovsky Leloir Institute Foundation
Grade: Outstanding

Specialist in Data Mining and Knowledge Discovery *2024*
Faculty of Exact and Natural Sciences
University of Buenos Aires

Bachelor's Degree in Biological Sciences *2010 - 2015*
Specialization: Bioinformatics and Computational Biology Faculty of Exact and Natural Sciences
Final GPA: 8.91/10 University of Buenos Aires

RESEARCH EXPERIENCE

Postdoctoral Researcher *2025*
Centro de Biologia Molecular Severo Ochoa. Madrid, Spain.

Postdoctoral Researcher *2024*
Angel H. Roffo Oncology Institute

Postdoctoral Researcher *2022 - 2024*
Director: Dr. Ariel Chernomoretz, Leloir Institute Foundation
Topic: Transcriptional dynamics in the articulation of development and the integration of neurons born in the adult hippocampus. Single-cell RNA-Seq data analysis, gene regulatory network inference. Collaboration with the Neural Plasticity Laboratory (Leloir Institute Foundation), led by Dr. Alejandro Schinder.

PhD Thesis *2016 - 2022*
Director: Dr. Ariel Chernomoretz, Leloir Institute Foundation
Co-Director: Dr. Marcelo Yanovsky

Topic: Global analysis of alternative splicing networks in *Arabidopsis thaliana* using a systemic approach and complex network paradigms. Development of a maximum entropy statistical model to understand genomic sequence variability related to the splicing process.

Intern, Molecular Neurobiology Laboratory *2014 - 2015*
Director: Dr. Damián Refojo IBioBA-CONICET

Intern, Plant Physiology Laboratory *2012 - 2013*
Directora: Dra. Moira Sutka Department of Biodiversity and Experimental Biology
Faculty of Exact and Natural Sciences
University of Buenos Aires

TEACHING ACTIVITIES

Professor — University CAECE *2024*
Course: Multivariate Analysis for the Biostatistics Specialization program.

Instructor — National University of Hurlingham (UNAHUR) *2022 - 2023*
Courses in data analysis and machine learning within the framework of "Argentina Programa 4.0", a national initiative aimed at training individuals in programming skills.
Courses taught: "Data Processing and Exploration", "Machine Learning", and "Unsupervised Modeling and Learning"

Instructor — School of Bioinformatics *2018 - 2021*
Two-week courses for undergraduate and graduate students at Leloir Institute Foundation, focusing on basic Linux operating system usage and programming in R for statistical analysis.

Instructor, CABANA Workshop: Advanced RNAseq and Network Analysis in Genomics
November 2019
Course providing training in handling transcriptomic data generated by RNAseq and analyzing them through complex networks paradigms.

High School Teacher *2017 - 2019*
Biology and Chemistry-Physics classes at ORT School ORT School

Biology Olympiad Coach *2017 - 2019*
Coaching for school, inter-school, and national levels ORT School

PUBLICATIONS

Rasetto NB, Giacomini D, Berardino AA, Vega Waichman T, Beckel MS, Di Bella DJ, ... & Schinder AF (2024). Transcriptional dynamics orchestrating the development and integration of neurons born in the adult hippocampus. Sci. Adv.10, eadp6039.DOI: https://doi.org/10.1126/sciadv.adp6039.

Waichman TV, Vercesi ML, Berardino AA, Beckel MS, Giacomini D, Rasetto NB, ... & Chernomoretz A (2024)., Bioinformatics Advances. https://doi.org/10.1093/bioadv/vbae062.

Beckel MS, Kaufman B, Yanovsky M, & Chernomoretz A (2023). Conserved and divergent signals in 5'splice site sequences across fungi, metazoa and plants. PLOS Computational Biology, 19(10), e1011540. https://doi.org/10.1371/journal.pcbi.1011540.

PhD thesis

Beckel MS (2022). Estudio de señales en cis y trans en la determinación de los patrones de splicing alternativo (Doctoral dissertation, Laboratorio de biología de sistemas integrativa. Instituto de Investigaciones Bioquímicas de Buenos Aires (IIBBA), Fundación Instituto Leloir). PDF.

CONFERENCE PRESENTATIONS

Poster Presentation *2023*
Title: "Buffering effect of PRMT5-mediated splicing regulation in Arabidopsis thaliana"
3rd Molecular Biosystems Conference - Puerto Varas, Chile.
Authors: BECKEL Maximiliano, RABINOVICH Andrés, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Poster Presentation *Octubre 2021*

Title: "The input shapes the output: commonly used neuronal activation protocols induce different transcriptional responses"

XXXVI Annual Meeting of the Argentinian Society for Neuroscience, virtual meeting

Authors: LUKIN Jeronimo, BECKEL Maximiliano, GIUSTI Sebastian, CHERNOMORETZ Ariel, KADENER Sebastian, MARIN - BURGIN Antonia, REFOJO Damian

Poster Presentation *Noviembre 2020*

Title: "Genomic structure of ankyrin repeat arrays"

ISCB Latin America Bioinformatic Conference

Authors: FREIBERGER María, BECKEL Maximiliano,GALPERN Ezequiel, CHERNOMORETZ Ariel, FERREIRO Diego

Poster Presentation *Noviembre 2019*

Title: "Detecting pairwise correlations in 5' donors' RNA sequences"

X Argentinian Bioinformatics and Computational Biology Congress

Authors: KAUFMAN Bruno, BECKEL Maximiliano, CHERNOMORETZ Ariel

Poster Presentation *Noviembre 2019*

Title: "Genomic structure of ankyrin repeat arrays"

X Argentinian Bioinformatics and Computational Biology Congress

Authors: FREIBERGER María, BECKEL Maximiliano,GALPERN Ezequiel, CHERNOMORETZ Ariel, FERREIRO Diego

Poster Presentation *Noviembre 2018*

Title: "Recognition, variability and regulation of 5' splicing sites"

IX Argentinian Bioinformatics and Computational Biology Congress

Authors: BECKEL Maximiliano, RABINOVICH Andrés, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Poster Presentation *Septiembre 2018*

Title: "Recognition, variability and regulation of 5' splicing sites"

Simposium Fronteras en Biociencias

Authors: BECKEL Maximiliano, RABINOVICH Andrés, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Oral and Poster Presentation *Noviembre 2017*

Title: "Splicing site recognition and regulation"

VIII Argentinian Bioinformatics and Computational Biology Congress

Authors: BECKEL Maximiliano, RABINOVICH Andrés, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Poster Presentation *Noviembre 2017*

Title: "Integrating co-splicing and gene correlation networks to uncover splicing regulatory patterns"

VIII Argentinian Bioinformatics and Computational Biology Congress

Authors: RABINOVICH Andrés, BECKEL Maximiliano, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Oral and Poster Presentation *Noviembre 2017*

Title: "Splicing site recognition and regulation"

II Simposio Argentino de Jóvenes Investigadores en Bioinformática

Authors: BECKEL Maximiliano, RABINOVICH Andrés, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Poster Presentation *Noviembre 2017*

Title: "Integrating co-splicing and gene correlation networks to uncover splicing regulatory patterns"

II Simposio Argentino de Jóvenes Investigadores en Bioinformática
Authors: RABINOVICH Andrés, BECKEL Maximiliano, ISERTE Javier, YANOVSKY Marcelo, CHERNOMORETZ Ariel

Support Staff *Noviembre 2016*
ISCB Latin America Bioinformatic Conference

Poster Presentation *Noviembre 2016*
Title: "Análisis y detección de correlaciones en relevamientos transcripcionales de gran escala"
2nd Latin America Student Council Symposium
Authors: RABINOVICH Andrés, BECKEL Maximiliano, CHERNOMORETZ Ariel

Poster Presentation *Mayo 2017*
Title: "Análisis y detección de correlaciones en relevamientos transcripcionales de gran escala"
2do Bioinformatics and Computational Biology Student Meeting
Authors: RABINOVICH Andrés, BECKEL Maximiliano, CHERNOMORETZ, Ariel

SCIENTIFIC OUTREACH

Participant — "Night of the Museums" — 2016 - 2019
Bioinformatics and Structural Biology Stand, Leloir Institute Foundation
Role: Public reception, explanation of scientific topics, participation in interactive activities

Presenter — Tecnopolis Park — 2015
Mathematics Stand
Role: Science outreach to primary and secondary school students, coordination of guided tours

FELLOWSHIPS RECEIVED

Postdoctoral Fellowship — 2022 - 2024
National Agency for Scientific and Technological Promotion

Doctoral Fellowship — 2016 - 2022
CONICET

AWARDS

EUDEBA Awards *2015*
Award for the academic performance of students of the University of Buenos Aires who received financial aid scholarships during their studies.

COMPUTER SKILLS

Programming Languages:	R, Python, SQL, Bash
Software & Tools	Bioinformatics databases, Samtools, BCFtools, GATK, Docker
Data Analysis	TensorFlow, PyTorch, XGBoost, GLM, caret

RELEVANT COURSES

Advanced Clinical Genomics School (FCEN - UBA)

Generalized Linear Models: Applications in R (Institute of Calculus - FCEN - UBA)

Data Science with R: Advanced Statistical Analysis Tools (Institute of Calculus - FCEN - UBA)

LANGUAGES

Spanish: Native

English: Fluent