Cristian Gonzalez-Colin

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PhD Student, Bioinformatics and Systems Biology

CONTACT

cris-gonzalezcolin | *cristian2420* | *0000-0002-3920-3740* | *LJI*
cristian2420.github.io | *cgonzalez@lji.org* | *cgonzalezcolin@ucsd.edu* | *UCSD*

RESEARCH INTEREST

Understanding the effect of genetic variants linked to human diseases in immune-related cell types, through the development of computational tools.

EDUCATION

University of California, San Diego — La Jolla, California
PhD in Bioinformatics and Systems Biology — In Progress

Center for Genomic Sciences, UNAM — Morelos, Mexico
BS in Genomic Sciences — 2016-2020

- Dissertation: Effects of disease risk-variants in gene expression at single cell level
- Thesis Comittee: Pandurangan Vijayanand, MD, PhD; Benjamin Schmiedel, PhD; Yvonne Rosenstein, PhD.
- Global Average: 9.3 out of 10

Faculty of Sciences, UNAM — Mexico City, Mexico
BS in Biology — 2015-2016

RESEARCH EXPERIENCE

PhD Student — 2022 – Present
Vijayanand Lab, La Jolla Institute for Immunology — La Jolla, California
Mentor: Pandurangan Vijayanand, MD, PhD

La Jolla Institute for Immunology — 2019-2022
Research Technician
Vijayanand Lab, La Jolla Institute for Immunology — La Jolla, California
Quantitative Trait Loci (QTLs) for gene expression
at bulk and single cell level, and histone marks in DICE database.

International Laboratory for Human Genome Research — 2018-2019
Undergraduate Researcher
Regulatory Genomics and Bioinformatics Lab — Queretaro, Mexico
Development of tools for the identification of conserved regulatory regions in Prokaryotes genomes for the RSAT suite tools.

Center for Genomic Sciences, UNAM — 2017-2019
Undergraduate Researcher
Computational Genomics Lab — Morelos, Mexico
Development of machine learning tools for the improvement and automatization of analysis and biocuration on the REGULONDB.

- Automatic summarization of transcription factors (TFs) properties from text literature.
- Supervised learning and text mining to retrieve regulatory interactions in bacterial literature.
- Text mining to retrieve transporter-substrate interactions.

INMEGEN — 2018-2019
Undergraduate Intership — 2015-2016
Faculty of Medicine-INMEGEN
Analysis of preterm birth genomic markers in Mexican population. — Mexico City, Mexico
Determination of cytokine concentration in preterm birth samples.

Publications

Pagadala, M., Sears, T. J., Wu, V. H., Pérez-Guijarro, E., Kim, H., Castro, A., Talwar, J. V., **Gonzalez-Colin, C.**, Cao, S., Schmiedel, B. J., Goudarzi, S., Kirani, D., Au, J., Zhang, T., Landi, T., Salem, R. M., Morris, G. P., Harismendy, O., Patel, S. P., Alexandrov, L. B., Mesirov, J. P., Zanetti, M., Day, C.-P., Fan, C. C., Thompson, W. K., Merlino, G., Gutkind, J. S., Vijayanand, P., Carter, H., "Germline modifiers of the tumor immune microenvironment implicate drivers of cancer risk and immunotherapy response". eng. In: *Nature communications* 14.1 (May 2023), p. 2744. DOI: 10.1038/s41467-023-38271-5. PMID: 37173324.

Schmiedel, B. J., **Gonzalez-Colin, C.**, Fajardo, V., Rocha, J., Madrigal, A., Ramírez-Suástegui, C., Bhattacharyya, S., Simon, H., Greenbaum, J. A., Peters, B., Seumois, G., Ay, F., Chandra, V., Vijayanand, P., "Single-cell eQTL analysis of activated T cell subsets reveals activation and cell type-dependent effects of disease-risk variants". eng. In: *Science immunology* 7.68 (Feb. 2022), eabm2508. DOI: 10.1126/sciimmunol.abm2508. PMID: 35213211.

Schmiedel, B. J., Rocha, J., **Gonzalez-Colin, C.**, Bhattacharyya, S., Madrigal, A., Ottensmeier, C. H., Ay, F., Chandra, V., Vijayanand, P., "COVID-19 genetic risk variants are associated with expression of multiple genes in diverse immune cell types". eng. In: *Nature communications* 12.1 (Nov. 2021), p. 6760. DOI: 10.1038/s41467-021-26888-3. PMID: 34799557.

Chandra, V., Bhattacharyya, S., Schmiedel, B. J., Madrigal, A., **Gonzalez-Colin, C.**, Fotsing, S., Crinklaw, A., Seumois, G., Mohammadi, P., Kronenberg, M., Peters, B., Ay, F., Vijayanand, P., "Promoter-interacting expression quantitative trait loci are enriched for functional genetic variants". eng. In: *Nature genetics* 53.1 (Jan. 2021), pp. 110–119. DOI: 10.1038/s41588-020-00745-3. PMID: 33349701.

Méndez-Cruz, C.-F., Blanchet, A., Godínez, A., Arroyo-Fernández, I., Gama-Castro, S., Martínez-Luna, S. B., **Gonzalez-Colin, C.**, Collado-Vides, J., "Knowledge extraction for assisted curation of summaries of bacterial transcription factor properties". eng. In: *Database : the journal of biological databases and curation* 2020 (Dec. 2020). DOI: 10.1093/database/baaa109. PMID: 33306798.

Conference Presentation

Poster presentation at Keystone Symposia: Gene Regulation: From Emerging Technologies to New Models. Summer 2022
The cis-regulatory lanscape reveals cell type- and context-depedent effects of disease-risk variants affecting human immune cell types.

Mentorship

Elizabeth Marquez-Gomez 2021-2023
Undergraduate Student, UNAM La Jolla, California
Vijayanand Lab, La Jolla Institute for Immunology

Teaching

Teaching Assistant Spring 2019
Center for Genomic Sciences Morelos, Mexico
Bioinformatics Course.
Professors: Julio Collado-Vides and Heladia Salgado

Outreach

Volunteer Summer 2023
Camp Connect Science Class

Certifications

Introduction to Deep learning, UAEM Fall 2015

Skills

Programming Languages: R, Python, Bash
Languages: English, Spanish