# Cristian Gonzalez-Colin

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PhD Student, Bioinformatics and Systems Biology


CONTACT

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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 — 2022 - Present

**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 - UCSD** — 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

**Talk at La Jolla Institute for Immunology Retreat** — Winter 2022
*Single-cell eQTL analysis of activated T cell subsets reveals activation and cell type-dependent effects of disease-risk variants*

**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.*

**Poster presentation at La Jolla Institute for Immunology Retreat** — Winter 2019
*Disease-risk variants affect the cis-regulatory landscape of human immune cell types.*

## Professional memberships

**American Association of Human Genetics** — 2024 - Present
*Member*

**International Society for Computational Biology** — 2022 - Present
*Member*

## Mentorship

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

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| Teaching | **Teaching Assistant**<br>*Center for Genomic Sciences*<br>Bioinformatics Course.<br>Professors: Julio Collado-Vides and Heladia Salgado | Spring 2019<br>Morelos, Mexico |
| Outreach | **Camp Connect Science Class**<br>*Volunteer - science talk to foster kids* | Summer 2023 |
| Certifications | **Introduction to Deep learning, UAEM** | Fall 2015 |
| Skills | **Programming Languages:** R, Python, Bash<br>**Languages:** English, Spanish | |