

Simon Lizarazo-Chaparro

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[slizarazo21.github.io](https://github.com/slizarazo21)

PERSONAL STATEMENT

I am a highly motivated and detail-oriented PhD candidate with a strong background in genomics, data analysis, bioinformatics, and molecular biology. I am enthusiastic about leveraging my expertise to contribute to cutting-edge genomics projects. My goal is to integrate genomics and statistics dynamically via research that has far-reaching implications in both fields. Additionally, I am a quick learner, readily adapting to new challenges and technologies to enhance my research and contributions.

EDUCATION

PhD Molecular and Integrative Physiology	Expected Aug 2025
<i>Molecular and Integrative Physiology, University of Illinois Urbana-Champaign</i>	
MS. Applied Statistics	2024
<i>Applied Statistics, University of Illinois Urbana-Champaign</i>	
MS. Molecular and Integrative Physiology	2022
<i>Molecular and Integrative Physiology, University of Illinois Urbana-Champaign</i>	
BS. Pharmacy	2018
<i>Pharmacy, Universidad Nacional de Colombia</i>	

RESEARCH EXPERIENCE

Graduate Research Assistant	Sept 2022 – To Date
<i>Van Bortle Lab, University of Illinois Urbana-Champaign, IL</i>	
- Development of a genomic atlas for RNA-Polymerase III non-coding RNAs through the analysis of high throughput sequencing complex data such as RNA-Seq, ATAC-Seq, Chip-Seq, and WGSB-Seq. Data mining from TCGA, ENCODE, GEO, SRA, CHIP-Atlas and other public data. - Creation and leadership in the development of an R Package. (github.com/VanBortleLab/ dominatR/) - Establishment and optimization of analysis pipelines for next-generation sequencing data. - Investigation and analysis of interaction profiles between proteins and RNAs using eCLIP data. - Development of sequencing libraries for ATAC-Seq and small RNA-Seq - Guidance and mentorship to undergraduates and master students in computational research.	
Computational Scientist Intern in Immunology – Rheumatoid Arthritis.	May 2024 – Aug 2024
<i>Johnson & Johnson Research & Development, Spring House, PA</i>	
- Development of an association framework between peripheral and tissue transcriptomic data (scRNA-Seq, RNA-Seq) for Rheumatoid Arthritis. - Identification of effective biomarkers useful for predicting treatment response and patient stratification across different ongoing clinical trials.	
Graduate Research Assistant	Sept 2019 – Sept 2022
<i>Tsai Lab, University of Illinois Urbana-Champaign, IL</i>	
Exploration of the role of the Fragile X Messenger Ribonucleoprotein in mRNA translation regulation within an Alzheimer's Disease model.	

- Employment of mouse models and primary neuronal cultures for delving into molecular mechanisms associated with mRNA translation in Alzheimer's Disease.
- Guidance and mentorship to undergraduates and multiple rotation students in experimental research.

Undergraduate Research Visiting Scholar
Pinal Lab, Purdue University, IN

Jun 2017 – Dec 2017

- Design of 3D Integrated Pharmaceuticals for Smart Precision Medicine.
- Assessment of release profiles for controlled delivery systems according to US Pharmacopeia for drugs with different polarity.

Undergraduate Research Assistant

Jun 2014 – Dec 2017

Hata Lab, Universidad Nacional de Colombia, Bogota

- Screening of antiplasmodial activity of different Colombian endemic plants.
- Evaluation of the antiplasmodial activity of the chloroform extract of *Miconia theaezans*.
- Optimization of extraction and fractioning methods for vegetable extracts with different polarity.

TEACHING EXPERIENCE

Teaching Assistant – University of Illinois at Urbana-Champaign

- Neuro and Molecular Pharmacology – MCB 466 **Spring 2022**
- Systems and Integrative Physiology – MCB 402 **Spring 2021**

Teaching Assistant – Universidad Nacional de Colombia

- Bioassays – 2018865 **Spring 2017**

COURSES

• **University of Illinois at Urbana Champaign**

Statistics and Probability II, Statistical Learning I & II, Unsupervised Learning, Bioinformatics, Infectious Disease Modeling, Statistical Modeling, Applied Statistical Methods, Bayesian Statistics.

Relevant Projects:

- *Investigating the function of the mouse hypothalamic preoptic region using scRNA-seq and MERFISH data produced by Moffit et al (2018)*
- *Impacts of environmental conditions on airborne disease progression*
- *A hierarchical Bayesian method for gene set enrichment analysis*
- *A movie recommender shiny app: https://sleezch.shinyapps.io/movie_recommender/*

AWARDS AND HONORS

- Best Flash Talk – CDB Retreat. – Department of Cell and Developmental Biology. **UIUC** **2024**
- Department travel fellowship – Department of Molecular and Integrative Physiology. **UIUC** **2024**
- David and Julie Mead Graduate Fellowship – School of Molecular Biology. **UIUC** **2022**
- Travel fellowship. Alzheimer's Association International Conference **2022**
- Department travel fellowship – Department of Molecular and Integrative Physiology. **UIUC** **2021**
- Merit Scholarship Admission – Department of Molecular and Integrative Physiology. **UIUC** **2019**
- UREP-C – Undergraduate Research Experience Scholarship. **Universidad Nacional de Colombia** **2017**
- Tuition fee remission for being between the best 15 students with the highest GPA. **2012-2017**
Universidad Nacional de Colombia (7/12 semesters)

PUBLICATIONS

Peer Reviewed:

- Singh DK, Cong Z, Song YJ, Liu M, Chaudhary R, Liu D, Wang Y, Prasanth R, K C R, **Lizarazo S**, Akhnoukh M, Gholamalamdari O, Moitra A, Jenkins LM, Bhargava R, Nelson ER, Van Bortle K, Prasanth SG, Prasanth KV (2024) . MANCR lncRNA Modulates Cell-Cycle Progression and Metastasis by Cis-Regulation of Nuclear Rho-GEF. *Mol Cell Biol.* 44(9):372-390
- KC R, Cheng R, Zhou S, **Lizarazo S**, Smith D, Van Bortle K (2024). Evidence of RNA Polymerase III recruitment and transcription at protein coding gene promoters. *Molecular Cell* 84, 4111–4124
- Yook Y, Lee KY, Kim E, **Lizarazo S**, Yu X, Tsai NP (2024). Hyperfunction of post-synaptic density protein 95 promotes seizure response in early amyloid beta pathology. *EMBO reports*, 25 (3), 1233 – 1255.
- Cheng R, Zhou S, KC R, **Lizarazo S**, Mouli L, Jayanth A, Liu Q, VanBortle K (2023). A combinatorial regulatory platform determines expression of RNA polymerase III subunit RPC7 α (POLR3G) in cancer. *Cancers*, 15, 4995
- **Lizarazo S**, Yook, Y, & Tsai, NP (2022). Amyloid beta induces Fmr1-dependent translational suppression and hyposynchrony of neural activity via phosphorylation of eIF2 α and eEF2. *Journal of Cellular Physiology*, 1–14.
- Liu DC, Lee KY, **Lizarazo S**, Cook JK and Tsai NP (2021) ER stress-induced modulation of neural activity and seizure susceptibility is impaired in a fragile X syndrome mouse model. *Neurobiol Dis* 158, 105450

Under Review and in Preparation:

- Zhou S, **Lizarazo S**, Mouli L, Chorghade S, Cheng R, KC R, Kalsotra A, Van Bortle K (2024). Cancer-associated snR-A noncoding RNA interacts with core splicing machinery and disrupts processing of mRNA subpopulations. (Preprint) bioRxiv.
- **Lizarazo S**, Cheng R, Zhou S, KC R, Van Bortle K. An RNA polymerase III tissue and tumor atlas delineates context- and cancer-specific transcription patterns and disease signatures. (in Preparation)

Abstracts Presented at Conferences:

- **Lizarazo S**, KC R, Zhou S, Cheng R, Van Bortle K. ‘A multi tissue and cancer atlas of Pol III activity uncovers context specific transcriptional expansion to genes implicated in disease progression’. Poster presentation. RNA Rustbelt Meeting, Newark, OH, USA
- **Lizarazo S**, KC R, Zhou S, Cheng R, Van Bortle K. ‘A multi tissue and cancer atlas of Pol III activity uncovers context specific transcriptional expansion to genes implicated in disease progression’. Poster presentation. Biology of Genomes. Cold Spring Harbor, NY, USA
- **Lizarazo S**, Yook Y, Tsai, NP. ‘Amyloid Beta induces Fmr1 dependent translational suppression and hyposynchrony of neural activity’. Poster Presentation. Alzheimer’s Association International Conference. Chicago, IL, USA.
- **Lizarazo, S**; Yook, Y; Tsai, NP. “Role Of Fragile X Mental Retardation Protein in Amyloid Beta Induced Translational Suppression”. Poster Presentation. Society for Neuroscience. Chicago, IL, USA. (Virtual)
- **Lizarazo, S**; Cano Vega, M. A. “Design of 3D Integrated Pharmaceuticals for Smart Precision Medicine.” Oral Presentation. Undergraduate Research Experience Purdue – Colombia Symposium. West Lafayette, IN, USA.
- **Lizarazo, S**; Cano Vega, M. A; Liechty, Evan T; Pinal, Rodolfo. “Design of Multiplexed Pharmaceuticals.” Poster Presentation SMART Films Consortium Meeting. Purdue University. West Lafayette, IN, USA.
- **Lizarazo, S**; Hata Uribe, Y. “Implementation of the HPLC-BASED Activity Profiling Approach to the Isolation of Antiprotozoal Compounds.” Poster Presentation XXVI SILAE and IX COCOCRO, Cartagena de Indias, Colombia

JOURNAL REVIEWER

- Genome Biology
- Cell Reports
- Biochemical Journal