Simon Lizarazo Chaparro

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I am a highly motivated and detail-oriented PhD candidate with a strong background in genomics, bioinformatics, and neurobiology. I am enthusiastic about leveraging my expertise to contribute to cutting-edge genomics projects. My goal is to integrate genomics and statistics in a dynamic way via research that has far-reaching implications in both fields.

SKILLS

- **Programming:** R, Unix-Linux, GitHub, Python
- **Research Methods:** Primary Cell (Neuronal) and Cell Line Culture, Confocal Microscopy, Western Blot, Multielectrode Array, PCR.
- **Data Analysis:** Next-generation sequencing (ATAC-Seq, CLIP-Seq, RNA-Seq), Multielectrode Array Data, Advanced Data Analysis and Visualization, Statistical-Learning.

EDUCATION

PhD Molecular and Integrative Physiology — **Expected May 2025**
Molecular and Integrative Physiology, University of Illinois Urbana-Champaign — **GPA 4.0/4.0**

MS. Applied Statistics — **Expected May 2025**
Applied Statistics, University of Illinois Urbana-Champaign — **GPA 3.96/4.0**

BS. Pharmacy — **2018**
Pharmacy, Universidad Nacional de Colombia — **GPA 4.4/5.0**

SELECTED WORK AND RESEARCH EXPERIENCE

PhD Candidate in Bioinformatics — **Sept 2022 – To Date**
Van Bortle Lab, University of Illinois Urbana-Champaign, IL

- Development of a genomic atlas for RNA-Polymerase III non-coding RNAs through the analysis of high throughput sequencing data such as ATAC-Seq, Chip-Seq, and WGSB-Seq.
- Creation and leadership in the development of an R Package. *(github.com/VanBortleLab/ dominatR/)*
- Establishment of analysis pipelines for next-generation sequencing data.
- Investigation and analysis of interaction profiles between proteins and RNAs using eCLIP data.
- Review of manuscripts submitted to peer-reviewed journals.
- Mentorship of an undergraduate in Computer Science with collaborative efforts in building the R Package.
- Collaboration with interdisciplinary research teams and cross-functional groups.

Selected Skills: Next Generation Sequencing data analysis (ATAC-Seq, Chip-Seq, eCLIP-Seq, WGSB-Seq), Statistical Analysis.

PhD Candidate in Neurobiology — **Sept 2019 – Sept 2022**
Tsai Lab, University of Illinois Urbana-Champaign, IL

- Exploration of the role of the Fragile X Mental Retardation protein 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.

Selected Skill: Primary neuronal culture, PCR, Western Blot, Multielectrode Array, Behavioral experiments.

COURSES (SELECTED)

- **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, Cell and Membrane Physiology, Neuroimmunology.

- Selected Projects
  - *Investigating the function of the mouse hypothalamic preoptic region using scRNA-seq and MERFISH data produced by Moffit et all (2018)*
  - *Implementation of statistical learning to determine the accuracy of regression and classification tasks.*
  - *Impacts of environmental conditions on airborne disease progression*

SELECTED AWARDS AND HONORS

- 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**

SELECTED PUBLICATIONS

Peer Reviewed:

- 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 RPC7α (POLR3G) in cancer. *Cancers, 15, 4995*
- **Lizarazo S**, Yook, Y, & Tsai, NP (2022). Amyloid beta inducesFmr1-dependent translational suppression and hyposynchrony of neural activity via phosphorylation of eIF2α 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
- Liu DC, Soriano S, Yook Y, **Lizarazo S**, Eagleman DE and Tsai NP (2020) Chronic activation of Gp1 mGluRs leads to distinct refinement of neural network activity through non-canonical p53 and Akt signaling. *eNeuro* 7, 0438-19.2020

Abstracts Presented at Conferences:

- **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) Yook, Y; Liu, DC; Soriano, S; **Lizarazo, S**; Eagleman, DE; Tsai, NP. ''Chronic Activation of Gp1 mGluRs Leads to Distinct Refinement of Neuarl Network Activity Through Non-Canonical p53 and Akt Signaling''. Poster Presentation. Society for Neuroscience. Chicago, IL, USA. (Virtual)
- **Lizarazo Chaparro, 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 Chaparro, 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.