

Israel Juarez Contreras

Postdoctoral Scholar, Biochemistry

Bio

BIO

I am a postdoctoral scholar in the lab of Rajat Rohatgi at Stanford University, where I study how membrane organization controls sterol accessibility and signaling. I earned my Ph.D. at UC San Diego with Itay Budin, where I uncovered how sterol structure and sphingolipid composition regulate membrane phase behavior in yeast and reconstituted systems. My current work translates these biophysical principles into disease-relevant contexts, with a focus on lysosomal lipid organization and sterol trafficking defects, including those associated with NPC1. Ultimately, I aim to establish an independent research program that defines how cells interpret membrane physical properties and how their dysregulation contributes to human disease.

PROFESSIONAL EDUCATION

- PhD, University of California, San Diego , Biochemistry and Molecular Biophysics
- MS, San Jose State University , Chemical Engineering
- BS, University of California, Merced , Bioengineering

STANFORD ADVISORS

- Rajat Rohatgi, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Coupling between sterol and sphingolipid structure in ordered membrane domains.** *bioRxiv : the preprint server for biology*
Juarez-Contreras, I., Kim, H., Budin, I.
2026
- **Transport of sphingolipids by yeast Npc2 supports phase separation of the vacuole membrane.** *The Journal of biological chemistry*
Kim, H., Lipp, N., Juarez-Contreras, I., Wong, A. M., Budin, I.
2026: 111370
- **Structural dissection of ergosterol metabolism reveals a pathway optimized for membrane phase separation.** *Science advances*
Juarez-Contreras, I., Lopes, L. J., Holt, J., Yu-Liao, L., O'Shea, K., Ruiz-Ruiz, J., Sodt, A., Budin, I.
2025; 11 (17): eadu7190
- **Using the yeast vacuole as a system to test the lipidic drivers of membrane heterogeneity in living cells.** *Methods in enzymology*
Kim, H., Juarez-Contreras, I., Budin, I.
2024; 700: 77-104