

TV CORE

December 2025

Monthly Newsletter



MARISSA BOROCHOFF

Marissa is a fourth-year undergraduate student at UC San Diego, majoring in Global Health with minors in Health Care Social Issues and General Biology. On a pre-medical track, she joined the lab in 2023 as an undergraduate researcher, where she primarily worked on blood processing alongside Aleks while supporting a wide range of projects under the guidance of Brendan and Magali. You may know her name from the emails regarding this newsletter, which she and Aleks started and continue to create each month.

In the summer of 2024, Marissa expanded her research experience by working with Niamh Higgins at the Anti-Viral Research Center, where she contributed to her first research paper. The manuscript has recently been submitted for publication—a milestone she is both excited and deeply proud of, marking an important step in her development as a young scientist.

Outside of the lab, Marissa enjoys spending time in spaces that help her recharge. She loves cooking, a newer hobby that has quickly become a favorite, along with reading on the beach, trying new restaurants around San Diego (and ranking them on the app Beli!), and traveling. Having grown up in Los Angeles, she feels grateful that her family lives just a short drive away and makes a point to visit them whenever she can.

Marissa's interests extend well beyond research. For the past 4 years, she has been involved in many volunteer initiatives, one of them being Homeless Heal, which allows her to teach classes on public health topics each quarter at shelters across San Diego. After her freshman year, she earned her EMT certification and has since explored a variety of hands-on and service-oriented roles. Most recently, she worked as a Behavioral Technician with LEARN Autism Spectrum Therapies and as a Teaching Assistant through UC San Diego's School of Biology. Through these experiences, she has developed a growing appreciation for the human side of medicine and the many ways science, education, and care intersect.

Reflecting on her journey so far, Marissa continues to explore the many facets of medicine that excite her, motivated by curiosity, service, and a desire to keep learning. After multiple health scares and ongoing issues, she thanks Sara for her constant support and everyone else in the lab who have become exemplary role models and friends. We are grateful to have her as part of our lab community and look forward to seeing where her path leads next.

PROJECT HIGHLIGHT

Christophe Vanpouille et al., 2025

The study **Longitudinal T Cell Phenotypic Dynamics During Sustained ART in People with HIV** investigates how T-cell immunity changes over long-term antiretroviral therapy (ART) by analyzing more than 200 longitudinal samples from 79 people with HIV who maintained viral suppression for a median of six years. Using multiparametric flow cytometry, the researchers measured activation, proliferation, exhaustion, cytotoxicity, and regulatory markers across CD4⁺ and CD8⁺ T-cell subsets. They found that CD4⁺ T-cell counts continued to rise while CD8⁺ T-cell counts declined, leading to improved CD4/CD8 ratios. Markers of immune activation (CD38⁺HLA-DR⁺) and cellular cycling (Ki67⁺) decreased significantly across both T-cell compartments, indicating reduced immune activation during sustained treatment. Exhaustion markers (PD-1 and TIGIT) declined in CD4⁺ memory subsets but remained unchanged in CD8⁺ T cells, and cytotoxic activity (CD107a) remained stable over time.

The study also revealed a decline in regulatory T cells (particularly effector memory Tregs) suggesting partial normalization of immune regulation under ART. No significant differences were found between women and men in any T-cell phenotype trajectory, and no associations emerged between T-cell markers and HIV reservoir size or activity.

Overall, the findings indicate that while long-term ART promotes substantial but incomplete immune restoration, persistent CD8⁺ T-cell exhaustion and continued cytotoxic activity suggest ongoing antigenic stimulation, potentially driven by residual HIV activity or chronic co-infections such as CMV.

"THE DAY I WAS TOLD I WASN'T DOING SCIENCE —AND WHY I'M GRATEFUL FOR IT"

This reflective essay challenges traditional definitions of success in academic medicine by recounting Sara Gianella Weibel's experience being told she was "not independent enough" and "not doing real science."

Through her work in translational HIV research and deeply collaborative, community-centered programs like The Last Gift, she comes to reject the myth of the lone, independent scientist. She argues that true scientific impact is built on interdependence: on mentorship, empathy, teamwork, logistics, and the emotional labor that sustains research. The piece critiques established inequitable metrics that privilege individualism, speed, and visibility while undervaluing relational work disproportionately done by women and caregivers. Ultimately, Dr. Gianella embraces a different vision of scientific achievement: one defined by collective progress, community trust, and the growth and well-being of the people around her.

FUND CALIFORNIA SCIENCE!!

“I study how HIV persists in the body and how we can better treat and ultimately cure it, while also mentoring the next generation of scientists and physicians. I support the California Science and Health Research Bond because HIV research—and the communities it serves—is increasingly under threat. Funding was cut for one of my studies solely because it involved transgender women. This bond is essential to protect vital research and our educational mission so we can continue advancing health and equity for all Californians.

– Sara Gianella Weibel
Professor of Medicine
UC San Diego

Why I Support the CA Science Bond

“We, the undersigned scientists, write to register our strong support of Senate Bill 607 (Wiener, 2025). This bill places a bond on the 2026 ballot to create and fund the California Foundation for Science and Health Research, which would award grants and make loans to public or private research companies, universities, institutes, and health care organizations in the State of California for scientific research and development.”

Let us strongly endorse SB 607 and look forward to California continuing to lead the world in scientific research and innovation.

SIGN HERE!



<https://www.fundcascience.org/>



SHOUTOUT!

Upcoming birthdays:

Mattia (1/1)

Luana (1/7)

Elizabeth is back with us in the lab!



COMING UP FOR 2026

January in San Diego brings cooler weather, clear skies, and plenty to look forward to. It's peak whale-watching season, with gray whales migrating along the coast, and a great time for beach walks, tide-pooling, and outdoor hikes without the summer crowds. The new year also means fresh starts around the city with new exhibits, community events, and a return to routine after the holidays.

Holidays Observed in January:

- **New Year's Day** – January 1
- **Martin Luther King Jr. Day** – January 20

San Diego will host "The Art of Banksy: Without Limits" exhibition at the Del Mar Fairgrounds, starting **January 30, 2026**, for a limited run through February/March 2026, featuring over 200 works including originals, prints, sculptures, and immersive installations like an Infinity Room, offering a deep dive into the anonymous street artist's world

HOLIDAY POTLUCK EVENT

