

# Roberto Efraín Díaz (he/él)

## EDUCATION

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### University of California, San Francisco

*PhD Candidate - Biochemistry and Molecular Biology*

San Francisco, CA  
May 2017 - Present

Thesis: **Structural characterization of pH-sensitive residues in mammalian chitinases**

Thesis Advisor: James S. Fraser, Professor in Bioengineering and Therapeutic Sciences

### University of Miami

*Bachelor of Science with Honors - Neuroscience*

Coral Gables, FL  
August 2013 - May 2017

Thesis: **Modifying transcription factor CREB with transactivation domains VP16 and VP64 to increase neurite outgrowth**

Thesis Advisor: Vance P. Lemmon, Professor in Neurological Surgery

## SKILLS

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**Experimental** Bacterial and mammalian cell culture, Protein expression and purification, Enzyme kinetics, Single-molecule TIRF microscopy, X-ray crystallography, Isothermal titration calorimetry

**Computational** Python, PHENIX, COOT, PyMol, UCSF Chimera, FIJI

**Interpersonal** Leadership, Collaboration, Communication, Community Building, Inclusive Frameworks and Practices

## PUBLICATIONS *ORCID: 0000-0002-1172-9919*

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### **Type 2 innate immunity regulates hair follicle homeostasis to control Demodex pathosymbionts.** (2021)

Ricardo-Gonzalez RR, Kotas ME, TenVooren I, Marquez DM, Fassett MS, Lee J, Daniel SG, Bittinger K, **Díaz RE**, Fraser JS, Ansel KM, Spitzer MH, Liang HE, and Locksley RM.

doi:10.1101/2021.03.29.437438

### **Fragment binding to the Nsp3 macrodomain of SARS-CoV-2 identified through crystallographic screening and computational docking.** (2021)

Schuller M, Correy GJ, Gahbauer S, Fearon D, Wu T, **Díaz RE**, ..., Thompson MC, Gestwicki JE, von Delft F, Shoichet BK, Fraser JS, Ahel I.

doi:10.1126/sciadv.abf8711

### **Lessening the hazards of Florida Red Tides: a common sense approach.** (2020)

Hoagland P, Kirkpatrick B, Jin D, Kirkpatrick G, Fleming L, Reich A, Ullmann SG, Beet A, Hitchcock G, Kohler K, Li ZC, Garrison B, **Díaz RE**, Lovko V.

doi:10.3389/fmars.2020.00538

### **Differences in the chitinolytic activity of mammalian chitinases on soluble and crystalline substrates.** (2020)

Barad BA, Liu L, **Díaz RE**, Basilio R, Van Dyken SJ, Locksley RM, Fraser JS.

doi:10.1002/pro.3822

### **Neurological illnesses associated with Florida red tide (*Karenia brevis*) blooms.** (2018)

**Díaz RE**, Friedman MA, Jin D, Beet A, Kirkpatrick B, Reich A, Kirkpatrick G, Ullmann SU, Fleming LE, Hoagland P.

doi:10.1016/j.hal.2018.07.002

## RESEARCH EXPERIENCE

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### Fraser Lab - UCSF

*Graduate Student Researcher*

San Francisco, CA  
May 2018 - Present

**Elucidating the structural basis of broad pH optima in mammalian chitinases.**

**Skills:** protein expression and purification, mammalian cell culture, enzyme kinetics, X-ray crystallography

### Walter Lab - UCSF

*HHMI EXROP Undergraduate Researcher*

San Francisco, CA  
May - August 2016

**Identifying the regulatory mechanism behind mitochondrial DNA copy number.**

**Skills:** yeast cell culture, immunoprecipitation, immunoblotting, and protein biochemistry.

**Lemmon Lab - University of Miami Miller School of Medicine**

*Honors Thesis Researcher*

Coral Gables, FL  
December 2015 - May 2017

**Characterizing chimeric transcription factors in CNS regeneration.**

**Skills:** bacterial cloning, DNA gel electrophoresis, primary neuronal cell culture, and immunohistochemistry.

**Fuller Lab - University of Michigan**

*Undergraduate Researcher*

Ann Arbor, MI  
May - August 2015

**Determining the role of Bsp1p in trans-Golgi network transport.**

**Skills:** colony PCR, tandem affinity protein purification, and trans-Golgi network homotypic fusion assay.

**Britton Lab - University of Miami**

*Undergraduate Researcher*

Coral Gables, FL  
August 2014 - May 2016

**Understanding the mediating factors of attention biases and control in people with anxiety.**

**Skills:** physiology and behavioral task data analysis in SPSS.

**Dr. Steven G. Ullmann - University of Miami**

*Undergraduate Researcher*

Coral Gables, FL  
July 2014 - August 2017

**Examining the relationship between harmful algae blooms and neurological illness.**

**Skills:** statistical analysis of ED admissions data, spatiotemporal visualization of algae blooms and ED data using GIS, literature review, manuscript preparation

**Muller Lab - University of Miami Miller School of Medicine**

*Undergraduate Researcher*

Coral Gables, FL  
January - August 2014

**Characterizing microglial cell migration towards sites of nerve injury.**

**Skills:** leech vivisection, image analysis in ImageJ, statistical analysis of microglial cell distribution, movement, and displacement in SPSS.

## HONORS AND AWARDS

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- Marsha P. Johnson and Sylvia Rivera Excellence in Leadership and Activism Award 2022
- Chancellor’s Edison T. Uno Award for Public Service 2022
- TETRAD Diversity, Equity, and Inclusion Spotlight Award 2021
- Dean’s Award for Excellence in Mentoring for Graduate Students and Postdoctoral Scholars 2021
- Howard Hughes Medical Institute Gilliam Fellowship for Advanced Study 2019 - 2022
- Ford Foundation Predoctoral Fellowship Honorable Mention 2019
- National Science Foundation Graduate Research Fellowship 2018 - 2023
- Howard Hughes Medical Institute Exceptional Research Opportunities Program 2016
- University of Michigan Summer Research Opportunity Program 2015
- Lois Pope Neuroscience Summer Research Fellowship 2014
- NIH–NIGMS Initiative for Maximizing Student Development Program 2014 - 2017
- General Honors Program 2014 - 2017
- Da Vinci Scholars Program 2013 - 2017
- Howard Hughes Medical Institute Undergraduate Research Training Program 2013 - 2017

## DIVERSITY, EQUITY, INCLUSION, AND JUSTICE PROJECTS

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**Diversity Network Initiative** I identified an unmet need to connect current and prospective PhD students from similar backgrounds. The DNI was created to build community and a professional network, share experiences, and provide insight into diversity and inclusion efforts at UCSF. Currently, seven basic science graduate programs participate in the Diversity Network Initiative. This initiative was developed in partnership with Dr. D’Anne Duncan, Asst. Dean of Diversity and Learner Success.

**Uncovering Bias and Discrimination in Graduate Admissions** As part of the **Justice, Equity, Diversity, and Inclusion Academic Leadership course** at UCSF, I conceived and implemented a capstone project involving the analysis of admissions outcomes by race and gender and interviews with student DEI leaders to identify areas of improvement for recruitment and retention of students from marginalized backgrounds. This project was developed in collaboration with Dr. Elizabeth Silva, Assoc. Dean of Graduate Programs; Dr. Jeff Nicklas, Sociology; and Anna Lipkin, Neuroscience PhD Candidate.

**Improving LGBTQ+ Inclusion in Scientific Conferences** I developed guidelines to promote LGBTQ+ inclusion and safety at conferences. They include avoiding conference locations with anti-LGBTQ+ legislation, creating scholarships for LGBTQ+ students, offering LGBTQ+ affirming programming, and other aspects of inclusive design. These guidelines were endorsed by 15 chapters of a national organization, and were communicated to national leadership for consideration.

## LEADERSHIP

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### **Native and Indigenous Scientists in Quantitative Biology Symposium**

*Organizing Committee Co-Chair*

*2021 - Present*

**Event Planning, and Content Development** Coordinated 18 talks, developed 2 panel discussions, and 2 professional development workshops reaching over 100 scientists.

**Fundraising** Secured over \$15,000 from UCSF campus partners to provide speakers, facilitators, and organizers with honoraria.

### **Graduate Program Task Force**

*Writing Group, Member*

*June 2020 - August 2021*

**Report on Addressing Systemic Racism in UCSF Basic Science Graduate Program** Advocated for structural changes, provided critical feedback on proposed recommendations, and solicited input from marginalized graduate students. Our work can be found in the report titled "Steps Towards Dismantling Systemic Racism and Anti-Blackness in UCSF Basic Science Graduate Programs"

### **Graduate and Postdoc Queer Alliance**

*President*

*2019-2021*

**2019 Fundraiser for LGBTQ+ Asylum Seekers** Hosted a community event for UCSF members, designed promotional materials, organized event speakers, and raised over \$1000 for **The LGBT Asylum Project**.

*Vice President*

*2018 - 2019*

**2018 Fundraiser for LGBTQ+ Rights** Hosted a community event for UCSF members, designed promotional materials, organized event speakers, and raised over \$2000 for **Lambda Legal**.

**LGBTQ+ Coffee Hour** Created and hosted a bi-weekly coffee hour for LGBTQ+ students, postdoctoral fellows, staff, and faculty to build community.

### **Trans Visibility in the Sciences**

*Organizing Committee, Chair*

*2019 - Present*

**Event Planning, and Content Development** Designed and facilitated a panel event featuring transgender scientists for an audience of over 100 UCSF and Gladstone Institute scientists.

### **Out in Science**

*Organizing Committee, Co-Chair*

*2018 - Present*

**Event Planning, and Content Development** Identified LGBTQ+ scientists to invite, developed various discussion questions, and facilitated a panel event for an audience of over 200 UCSF and Gladstone Institute scientists.

### **Associated Students of the Graduate Division**

*Diversity Representative*

*2018 - 2019*

**Diversity and Allyship Breakfast** Secured financial and logistical support for a student-led recruitment event by establishing relationships with graduate program administrators. Developed surveys to identify discussion topics of interest to prospective students and identify current graduate students from marginalized backgrounds to serve as panelists.

**DEI Community Space** Organized a monthly community space for student DEI leaders to provide project updates, discuss obstacles, and collaborate on efforts to support marginalized students at UCSF.

### **Nu Rho Psi, National Honor Society in Neuroscience**

*President*

*2016 - 2017*

**Community Building, and Professional Development** Lead an executive board of nine members tasked with maintaining organization operations. Organized general body meetings, guest speaker events, graduate/medical student panels, and research engagement events. Promoted and maintained relationships between neuroscience faculty and students.

*Founding Chair*

*2015 - 2016*

**Founded First NRP Chapter in Florida** Worked closely with faculty sponsor to establish the first chapter in the state of Florida. Identified eligible faculty, graduate and undergraduate neuroscience students for local chapter membership.

## PRESENTATIONS

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### INVITED TALKS

- **Crystallographic fragment-based drug discovery against SARS-CoV-2**  
*U.S. Department of Energy Summer Undergraduate Lab Internship* July 2021  
*Metas Program at Contra Costa College* April 2021  
*California State University, Stanislaus* March 2021
- **Improving LGBTQ+ Inclusion in Scientific Conferences**  
*STEM Village* April 2020
- **The protein architecture behind mtDNA copy number regulation**  
*UCSF Summer Research Training Program Symposium* August 2016
- **Bsp1p, a possible yeast homolog of  $\beta$ -adducin, is required for Vps13p-dependent trans-Golgi network homotypic fusion**  
*University of Michigan Summer Research Opportunities Program Symposium* July 2015

### PANELS

- **Panelist**, Experiences in Science of Inclusivity, Diversity, Equity, and Acceptance  
*American Institute of Biological Sciences Council Meeting* November 2021
- **Panelist**, The Science & People of 500 Queer Scientists  
*500 Queer Scientists* June 2020
- **Panelist**, Queer Institute  
*UCSF School of Medicine* March 2020 - 2021
- **Moderator**, Out in Science  
*Gladstone Institutes* May 2019
- **Panelist**, Diversity and Allyship Breakfast  
*UCSF Graduate Division* January 2018 - 2022
- **Panelist**, UC Leadership Excellence through Advanced Degrees  
*UCSF Graduate Division* August 2018
- **Panelist**, NIH Bridges to Baccalaureate  
*UCSF Graduate Division* July 2018

### POSTER PRESENTATIONS

- **Bsp1p, a possible yeast homolog of  $\beta$ -adducin, is required for Vps13p-dependent trans-Golgi network homotypic fusion.**  
**Díaz RE**, De M, and Fuller R.S.  
*American Association for the Advancement of Science Annual Meeting.* February 2016
- **The neurological effects of Florida Red Tide (FRT) blooms.**  
**Díaz RE**, Moore T, Ullmann S, Hoagland P, Beet A, Jin D, Kirkpatrick B, Kirkpatrick G, Fleming L, and Hitchcock G.  
*Eighth Symposium on Harmful Algae in the U.S.* November 2015
- **Analysis of Different ATP Release Mechanisms Involved in the Attraction of Microglia to Nerve Lesions.**  
**Díaz RE**, and Muller K.J.  
*New England Science Symposium.* April 2015  
*Society for the Advancement of Hispanics/Chicanos and Native Americans in Science Conference.* October 2014

## UNIVERSITY SERVICE

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- **Lead Student Interviewer**, DEI Events Coordinator for UCSF Graduate Division 2022
- **Member**, UCSF Chancellor's LGBTQ Committee 2021 - 2022
- **Search Committee**, DEI Program Manager for UCSF Graduate Division 2020
- **DEI Committee**, UCSF TETRAD Graduate Program 2020 - 2022
- **Graduate Division Representative**, LGBTQ Student Association 2019 - Present
- **Search Committee**, Assistant Director for UCSF LGBT Resource Center 2019
- **Search Committee**, Assistant Director for UCSF Multicultural Resource Center 2019
- **Search Committee**, Director of UCSF Student Health and Counseling Services 2018

## MEDIA AND PRESS

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- **Interview**, My Fave Queer Chemist *June 2020*
- **Celebrating Diversity in STEM**, 500 Queer Scientists *June 2019*
- **Our Authentic Selves**, UCSF LGBT Resource Center *June 2019*