
MOLLY A. MATTY

University of Portland ◊ Portland, OR 97203

matty@up.edu ◊ www.mollymatty.com

I am a passionate scientist, mentor, and educator. I believe that empathy and enthusiasm are contagious; if we care and we are excited, we can accomplish our goals. I hope to continue making science an equitable, engaging, and fun pursuit for all learners.

EDUCATION

Duke University Ph.D., University Program in Genetics & Genomics Thesis Advisor: David Tobin, Ph.D. Thesis: “Chemical and genetic modulation of the host immune responses to mycobacterial infection”	2012-2018
North Carolina State University B.S. Chemistry, GPA: 3.99 Honors Thesis: “Developing an assay for telomere length in Collaborative Cross mice”	2008-2012

ACADEMIC & RESEARCH POSITIONS

University of Portland Assistant Professor Department of Biology	<i>Portland, OR</i> 2022-present
Salk Institute for Biological Studies Postdoctoral Research Fellow Advisor: Sreekanth Chalasani, Ph.D.	<i>San Diego, CA</i> 2019-2022
Marine Biological Laboratories: Neural Systems and Behavior Course Attendee	<i>Woods Hole, MA</i> Summer 2021
Duke University Graduate Student Advisor: David Tobin, Ph.D.	<i>Durham, NC</i> 2012-2019
MRC - Laboratory of Molecular Biology Visiting Researcher Advisor: Lalita Ramakrishnan, Ph.D.	<i>Cambridge, UK</i> Fall 2016

FELLOWSHIPS & AWARDS

Neural Systems and Behavior Post-Course Research Grant	Fall 2021
HHMI & Janelia Leading Edge Fellow	2021-Present
Genetics Society of America’s DeLill Nasser Award	2021
NSF Postdoctoral Research Fellowship in Biology (NSF PRFB)	2020-Present
Keystone Symposium Travel Award	2018
Duke Professional Development Grant Recipient	2014-2016
Duke University Chancellor’s Scholar Award	2012
NSF Graduate Research Fellowship (NSF GRFP)	2012-2017
N.C. State University Jacob and Betty Belin Scholar	2008-2012

PUBLICATIONS

- 11) **Matty, M. A.**, Lau, H. E., Singh, A., Haley, J. A., Chakraborty A., Kono, K., Reddy, K. C., Hansen, M. A, Chalasani, S. H., (2021) Intestine-to-neuronal signaling alters risk-taking behaviors in food-deprived *Caenorhabditis elegans*. *PLoS Genetics* 18(5): e1010178.
- 10) **Matty, M.A.**, Chalasani, S.H. (2020) Microbial Mind Control. *Cell Host & Microbe* 28(2):147-149
- 9) Espenschied, S.T., Cronan, M.R., **Matty, M.A.**, Mueller, O., Redinbo, M., Tobin, D.M., Rawls, J.F. (2019) Epithelial Delamination is Protective During Pharmaceutical-Induced Enteropathy. *Proceedings of the National Academy of Sciences USA* 116(34):16961-16970
- 8) Murdoch, C.M., Espenschied, S.T., **Matty, M.A.**, Mueller, O., Tobin, D.M., Rawls, J.F. (2019) Intestinal Serum Amyloid A suppresses systemic neutrophil activation and bactericidal activity in response to microbiota colonization. *PLoS Pathogens* 15(3): e1007381.
- 7) **Matty, M.A.**, Knudsen, D.R.[#], Beerman, R.W., Cronan, M.R., Hernandez, R.E., Tobin, D.M. (2019) Whole Animal Chemical Screening Identifies Modulation of P2RX7 as a Host-Directed Strategy for Control of Mycobacterial Infection. *eLife* 2019;8:e39123.
* highlighted article *Faculty of 1000*, 2019
[#] Undergraduate mentee
- 6) Cronan, M.R., **Matty, M.A.**, Rosenberg, A.F., Blanc,L., Dartois, V., Tobin, D.M. (2018) An Ex-plant Technique for High-Resolution Imaging and Manipulation of Mycobacterial Granulomas. *Nature Methods* 15:1098–1107.
- 5) Sullivan, C., **Matty, M.A.**, Jurczynszak, D., Gabor, K.A., Millard, P.J., Tobin, D.M., Kim, C.H. (2017) Infectious disease models in zebrafish. *Methods in Cell Biology* 138:101-36.
- 4) **Matty, M.A.**, Oehlers, S. O., Tobin, D.M. (2016) Live imaging of host-pathogen interactions in zebrafish larvae. *Methods in Molecular Biology* 1451:207-23.
- 3) **Matty, M.A.**, Beerman, R.W., Tobin, D.M.(2016) Drug-Inducible, Cell-Specific Manipulation of Intracellular Calcium in Zebrafish through Mammalian TRPV1 Expression. *Zebrafish* 13(4):374–375.
- 2) Beerman, R.W., **Matty, M.A.**, Au, G.G., Looger, L.L., Choudury, K.R., Keller, P.J., Tobin, D.M. (2015) Direct in vivo manipulation and imaging of calcium transients in neutrophils identifies a critical role for leading-edge calcium flux. *Cell Reports* 13(10):2107-17.
- 1) **Matty, M.A.**, Roca, F.J., Cronan, M.R., Tobin, D.M. (2015) Adventures within the speckled band: heterogeneity, angiogenesis, and balanced inflammation in the tuberculous granuloma. *Immunological Reviews*. 264:276-287.

RECOGNITIONS

Salk Institute's <i>Above and Beyond Award</i>	2021
8th Annual Postdoctoral Research Communication Symposium: 1st Place Speaker	2020
Salk Education Outreach Volunteer of the Year	2020
Zebrafish Disease Models Conference: Best Poster	2017
NC Science Olympiad Volunteer Award	2017
Genetics Society of America, Allied Genetics Conference: Best Poster	2016
N.C. State University PAMS SCOPE featured scholar	2012

TRAINING IN EDUCATION & RESEARCH MENTORSHIP

University of California - San Diego <i>Guest Lecturer (through UCSD Postdoc Teaching Group)</i>	<i>San Diego, CA</i> 2020-2022
Center for the Integration of Research, Teaching, and Learning (CIRTL) <i>"The College Classroom" Teaching Certificate</i>	<i>Virtual</i> 2021
Torrey Pines Leadership Development Program <i>"SBP Leadership Training"</i>	<i>Virtual</i> 2020
National Institute on Scientific Teaching <i>Certificate from MacMillan Learning</i>	<i>Virtual</i> Fall 2020
Introduction to College Teaching <i>UC-San Diego Teaching and Learning Commons</i>	<i>San Diego, CA</i> Summer 2020
Salk's "Entering Research Mentoring" <i>Salk Institute Office of Equity and Inclusion</i>	<i>San Diego, CA</i> Summer 2020
Genetic Solutions to Biological Problems: Zebrafish Genetics <i>Teaching Assistant</i>	<i>Durham, NC</i> 2017

SERVICE IN THE PURSUIT OF EQUITY IN MENTORING

Cancer Research Training Education Coordination (CRTEC) <i>Diversity Steering Committee</i>	<i>San Diego, CA</i> Spring 2022
Women in Science Society @ UC San Diego <i>Invited Panelist</i>	<i>San Diego, CA</i> Fall 2021
Afro-Academic, Cultural, Technological and Scientific Olympics (ACT-SO) <i>Mentor for high school students</i>	<i>San Diego, CA</i> Spring 2021-2022
<ul style="list-style-type: none">- Loba Salami, Otay Ranch High School, Class of 2023- First place in San Diego Regional Health and Medicine Competition<ul style="list-style-type: none">• Supported & empowered student in navigating, designing, and implementing a research project• Met weekly to help prepare original research project, experiments, and presentation	
UC San Diego's Faculty Mentor Program (FMP) <i>Mentor for one student</i>	<i>San Diego, CA</i> 2019-present
<ul style="list-style-type: none">- Nadia Haghani, UCSD Class of 2022<ul style="list-style-type: none">• Meet virtually and in-lab twice weekly to design and perform experiments• Editing and organizing research proposals, papers, and posters• Empowering a young scientist to reach her academic and professional goals on an independent research project	
Virtual Active Science Engagement (VASE) <i>Founder and mentor to 20 students</i>	<i>Virtual</i> 2020-present
<ul style="list-style-type: none">- More information on mentees and program<ul style="list-style-type: none">• Empowering over 40 undergraduates to engage with research topics and science careers• Teaching skills in scientific reading, resource curation, communication, and networking biweekly• Organizing weekly guest speakers and professional development opportunities virtually	

- Serving the needs of globally distributed students by editing personal statements, exploring research program options, and discussing future career goals
- Partnering with researchers to develop Virtual Itty Projects to provide short research opportunities for VASE students

“Isolation Journal Club”

Organizer

Virtual
2020-present

- Meet weekly with six globally distributed young scientists to discuss 1-3 scientific articles
- Highlight the work of Black scientists from #BlackInSTEM weeks
- Discuss scientific concepts, data representation, and how to present scientific research

Biology Undergraduate and Master’s Mentorship Program (BUMMP)

Mentor to two students

San Diego, CA
2020-present

- Mayra Mendiola, UCSD Class of 2024
- Taylor Anderson, UCSD Class of 2022

- Fostering a sense of belonging among two undergraduate students from backgrounds historically under-served in biology

California Alliance for the Minority Participation (CAMP) conference

Mentor Judge

Virtual
February 2021

- Met with 3 undergraduate students to discuss their research projects

SACNAS Conference

Mentor Judge for Society for Advancement of Chicanos/Hispanics and Native Americans in Science

Virtual
October 2020

Continued mentoring relationship with Delaney Liskey, currently PhD student at Mayo Clinic

- Met with 5 undergraduate students to discuss their research projects
- Moderated graduate student talk session
- Maintained relationships with two undergraduates to continue mentoring through graduate school application process

National Summer Undergraduate Research Project (NSURP)

Mentor to 3 students

Virtual
Summer 2020

- Vanessa Langerica, California Polytechnic University-Pomona Class of 2022
- Enrique Piedra, Texas State University- San Marcos Class of 2023
- Gennoah Waldron, Swarthmore College Class of 2022

- Built confidence in undergraduates doing independent scientific research
- Met with each student twice weekly to discuss research, career goals, and networking
- Organized and edited mentee’s literature reviews and research proposals

Científico Latino’s Graduate School Mentorship Initiative (GSMI)

Mentor to 2 students

Virtual
2020-present

- name redacted, now in a PhD program at University of Virginia
- Syeda Hafsa Ali, lecturer at BUIITEMS in Quetta, Pakistan

- Meet monthly to discuss graduate school opportunities and applications
- Organizing and edit mentee’s personal statements
- Practicing mentee’s interview skills for virtual graduate school interviews

UC-San Diego Biology Bootcamp

Microrotation Advisor

San Diego, CA
2019 (4 students), 2020 (2 students)

- Acquainted first year graduate students to *C. elegans* as a model system
- Taught and demonstrated physiological health assays (Oil Red O staining) and behavioral assays (sensory integration and chemotaxis) in *C. elegans*
- Assisted in developing a scientific presentation to non-specialists

UC-San Diego

Rotation Advisor

San Diego, CA

Fall 2019, Fall 2020

- Melonie Vaughn, UCSD Neurosciences PhD student
- Jo-Hsien Yu, UCSD Biology PhD student

- Acquainted first year graduate students to *C. elegans* as a model system
- Taught and demonstrated behavioral assay (sensory integration) in *C. elegans*
- Introduced microscopy techniques and quantification tools necessary to visualize transcription factor localization
- Assisted in developing a scientific presentation to specialists

Heithoff-Brody High School Scholars Program

Mentor to 1 student

San Diego, CA

Summer 2019 & Summer 2021

- Nyah Brooks, currently at San Diego State University, Class of 2024

- Introduced a high school student to laboratory research
- Assisted in development of presentation skills to lay audience and specialists
- Developed experiments and assays for understanding food preference in *C. elegans*

SERVICE IN THE PURSUIT OF EQUITY IN EDUCATION

PUI Science Slack Book Club and Writing Club

Organizer

Virtual

2021

- Organized first book club for the Primarily Undergraduate Institution Science Faculty Slack
- Planned and led a month-long book club on *The Chicago Guide To College Science Teaching*
- Organize weekly teaming-building and networking co-working sessions

SciREN: Science Research Educator Network - San Diego

Co-Organizer

Virtual: San Diego, CA

2020-present

- Organized the inaugural San Diego branch of SciREN
- Taught over 100 researchers how to develop lesson plans and share them with local educators
- Building a network of STEM researchers and San Diego-based K-12 educators

The League of Extraordinary Scientists and Engineers (LXS)

Volunteer Educator

San Diego, CA

January 2019-present

- Introduce Title 1 students to oceanographic research, tide pools, and microscopy
- Present hands-on experiments at San Diego County Public Schools
- Organize and perform hands-on community science presentations and experiments throughout the year

Salk Institute Education/Outreach

Volunteer Educator

San Diego, CA

April 2019-present

- Develop new educational materials for public engagement
- Organize lab tours for March of Dimes High School Science Day
- Present research to public through SciChats program

R.H. Fleet Science Center*Volunteer Educator**San Diego, CA*

January 2019-present

Skype-A-Scientist*Volunteer Virtual Educator**Virtual*

2018-present

San Diego Science Olympiad*Event Leader**San Diego, CA*

January-March 2019

- Wrote hands-on forensics-based test for middle school and high school events
- Proctored tests and managed team of volunteers

Duke Outreach in Genetics and Genomics (DOinGG)*Founder**Durham, NC*

2013-2019

- Developed and presented lesson plans in local elementary, middle, and high schools
- Organized hands-on community science presentations
- Collaborated with NC DNA Day and served as an ambassador, presenting DNA extraction techniques to schools and students at local juvenile detention center
- Collaborated with NC Science Olympiad to write and proctor tests

NC Science Olympiad Event Leader*Event Leader**Raleigh, NC*

2015-2017

- Developed, proctored, and graded hands-on regional and statewide tests in elementary, middle, and high school level genetics

Endless Frontier Science Radio for Duke University and Beyond*WXDU, 88.7FM Radio Host**Durham, NC*

2014-2016

- Interviewed researchers, community members, and students
- Edited and produced audio and hosted biweekly radio show

N.C. State University Tutorial Center*Supplemental Instructor**Raleigh, NC*

2010-2012

Duke Talent Identification Program (TIP)*Teaching Assistant**Lawrence, KS*

2010

INSTITUTIONAL SERVICE IN THE PURSUIT OF COMMUNITY BUILDING

Genetics Society of America Conferences Committee*Early Career Scientist Representative*

2021-2023

Genetics Society of America Early Career Scientist Leadership Program*Career Development Subcommittee, co-chair*

2020-2022

- Organized a team of 12 early career scientists to create and implement programming to assist in the career development of early career scientists
- Interviewed professionals, writing and editing blog posts, moderating discussion panels
- Coordinated Career Exploration Panels for international conferences

Salk Institute's Society of Research Fellows*Chair*

2019-2022

- Led meetings and organize a team of 16 trainees to develop community-building events and leadership opportunities for Salk trainees
- Advocated for the needs of graduate students and postdocs at Salk

Salk Institute's Black Association at Salk <i>Supporting Member</i>	2020-2022
<ul style="list-style-type: none"> • Organizing monthly movie nights exploring intersectionality • Organized first annual Black History Month events • Sharing resources and supporting the Black community at Salk 	
Salk Institute's Science at the Seaside Retreat <i>Organizing Committee, chair</i>	2019, 2020
San Diego Worm Community <i>Organizing Committee</i>	2019-2020
Duke Zebrafish Community <i>Organizing Committee</i>	2017-2018
Science Communication Conference (ComSciCon) Triangle <i>Organizing Committee</i>	2016-2017
Duke University Program in Genetics and Genomics <i>Student Representative to Faculty; Recruitment, Retreat, and Outreach Committees</i>	2012-2017

ORAL PRESENTATIONS

Stanford Department of Microbiology Invited Speaker: <i>The microbiota as an internal and external state in C. elegans</i>	<i>Palo Alto, CA</i> July 2022
UCSD / Salk Biology Retreat Invited Speaker: <i>Intestine-to-neuronal signaling alters behaviors in C. elegans</i>	<i>Virtual</i> September 2021
East Carolina University's Research In Progress Meeting Invited Speaker: <i>"Hangry Worms: Internal State Determines Behavioral Responses in C. elegans"</i>	<i>Virtual: Greenville, NC</i> January 2021
8th Annual Postdoctoral Research Communication Symposium <i>"What Can We Learn from a Worm?"</i>	<i>Virtual: San Diego, CA</i> December 2020
Centenary Institute TB Program Meeting Invited Speaker: <i>"Whole Animal Chemical Screening Identifies Modulation of P2RX7 as a Host-Directed Strategy for Control of Mycobacterial Infection"</i>	<i>Sydney, Australia</i> August 2019
International Zebrafish Conference Invited Speaker: <i>"A Chemical Screen Identifies a Purinergic Receptor as a Host Target for Control of Mycobacterial Infection in Zebrafish"</i>	<i>Madison, WI</i> June 2018
Duke Innate Immunity Symposium Invited Speaker: <i>"A Whole Animal Chemical Screen Identifies P2RX7 Modulation as a Host-Directed Strategy for Control of Mycobacterial Infection"</i>	<i>Durham, NC</i> April 2018
Keystone Symposium: Intrinsic Host Defenses and Counter Defenses Invited Speaker: <i>"Whole Animal Chemical Screen Identifies P2RX7 Modulation as a Host-Directed Strategy for Control of Mycobacterial Infection"</i>	<i>Monterey, CA</i> March 2018
University of Bristol, Host: Paul Martin, Professor of Cell Biology Invited Seminar Speaker: <i>"Two Fishy Stories"</i>	<i>Bristol, UK</i> November 2016
Center for Host Microbial Interactions Supergroup <i>"Fishing for Host-Directed Therapies"</i>	<i>Durham, NC</i> September 2015
Duke Women in Science and Engineering (WISE) Symposium Invited Speaker: <i>"Calcium Signaling in Immune Cells"</i>	<i>Durham, NC</i> April 2015

Molecular Genetics and Microbiology Departmental Seminar <i>“Host Directed Therapies for Mycobacterial Disease: A Zebrafish Chemical Screen”</i>	<i>Durham, NC</i> October 2014
N.C. State Honors Program <i>Class of 2012 Graduation Speaker</i>	<i>Raleigh, NC</i> May 2012

POSTER PRESENTATIONS

The International Worm Meeting, 2021	<i>Virtual Conference</i>
The Allied Genetics Conference (TAGC), 2020	<i>Virtual Conference</i>
Zebrafish Disease Models Conference (ZDM10), 2017	<i>San Diego, CA</i>
Southeastern Mycobacterial Conference, 2017	<i>Athens, GA</i>
Genetics Society of America, 2016	<i>Orlando, FL</i>
Triangle Zebrafish Meeting, 2016	<i>Durham, NC</i>
Molecular Genetics and Microbiology (MGM) Annual Retreat, 2015	<i>Wilmington, NC</i>
Zebrafish Disease Models Conference (ZDM8), 2015	<i>Boston, MA</i>
Triangle Zebrafish Symposium, 2015	<i>Durham, NC</i>
Molecular Genetics and Microbiology (MGM) Retreat, 2014	<i>Wilmington, NC</i>

COMMUNITY INVOLVEMENT

Porchlight Community Services (local food pantry) <i>Grant Writer</i>	<i>San Diego, CA</i> March-September 2020
San Diego Comic-Con <i>Educational Panelist [Virtual]: “The supernatural can be super normal”</i> <i>Educational Panelist: “More science in your fiction”</i>	2020 2019
Girls on the Run <i>Coach</i>	<i>Durham, NC</i> 2014
<ul style="list-style-type: none"> Coached afterschool program about positive physical and mental health for 3rd-5th grade girls 	
WKNC 88.1 FM <i>General Manager</i>	<i>Raleigh, NC</i> 2011-2012
<ul style="list-style-type: none"> Directed staff of 120 students, \$60,000 budget, and professional development of 20 paid staff members Oversaw the daily activities of the fifth largest college radio station for quality of sound, community involvement, and technical operations 	
<i>Disc Jockey</i>	2009-2012
N.C. State Alternative Spring Break <i>Team Leader</i>	<i>Crownpoint, NM</i> 2011