

Center for Diversity & Inclusion

Summer Equity Research Internship Program

Impact Report 2022



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ABOUT THE EQUITY RESEARCH PROGRAM

The Equity Research Program attracts undergraduates throughout the nation. Selected students excel academically and come from socially and economically disadvantaged backgrounds. The goal of the Equity Research Program is to give hands-on research experience to under-served and under-represented students in health and sciences research. The Equity Research Program strives to increase the enrollment of talented disadvantaged and diverse applicants in OHSU (Oregon Health & Science University) academic programs. The program welcomes interns to an OHSU they can thrive in and create lasting connections. Learn more about the [Equity Research Program](#).

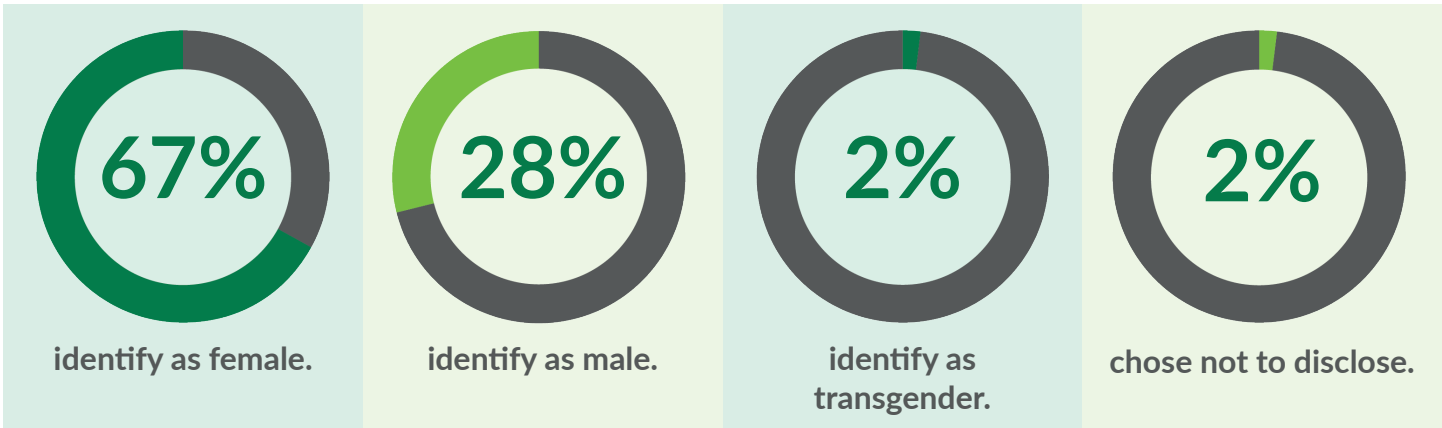
The Equity Research Program has six tracks: Biomedical Science, Health Systems and Policy, School of Medicine, School of Dentistry, School of Nursing, and School of Public Health. As part of the Equity Research Program, the interns conducted research in their respective labs and took part in weekly seminars. At the end of the internship, the interns presented their posters in a community event led by the Center for Diversity and Inclusion with the Ted. R Lilley CURE program.

The OHSU poster symposium event had six internship programs presenting their research to the OHSU community, friends, and family. The internship programs involved were: The Equity Research Program, Ted. R. Lilley CURE (Continuing Umbrella for Research Education) Program, Cell, Development and Cancer Biology Department, The Vollum/NGP Summer Undergraduate Program, Chemical Biology and Physiology Summer Internship Program and Accessing Science Careers Internship Program. Every year the poster symposium event brings the OHSU community together to celebrate our future providers and scientists. View the [Symposium flyer](#) and [program](#).

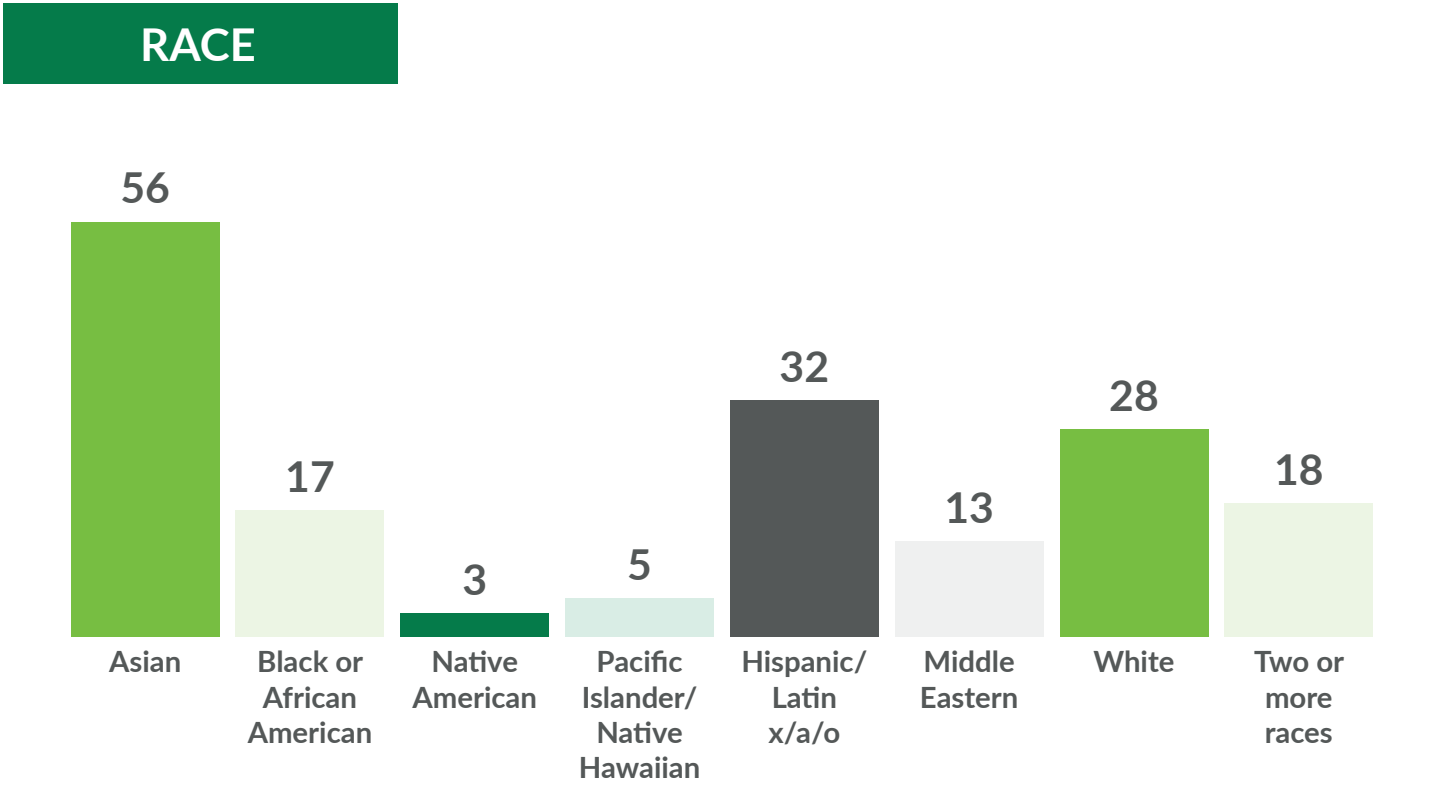
APPLICATION PROCESS AND DEMOGRAPHICS OF APPLICANTS

The Equity Research Program application process started in December of 2021; selections were made in March of 2022. We received a total of 172 applications. The 2022 cohort consisted of 40 interns.

GENDER

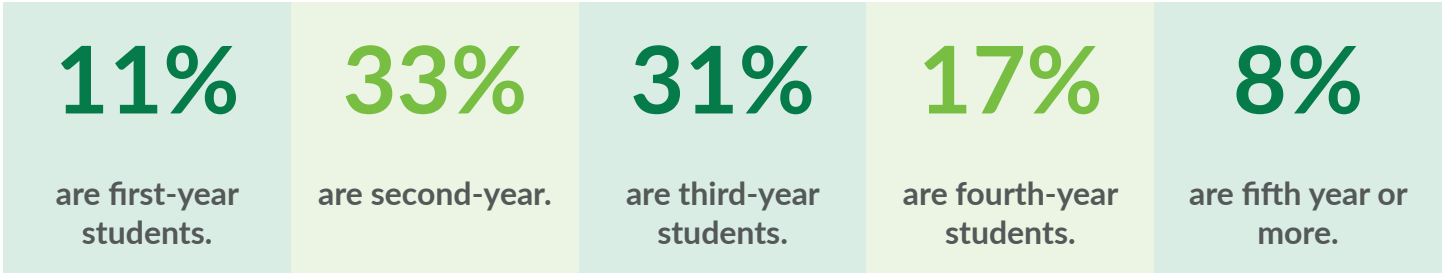


RACE



APPLICATION PROCESS AND DEMOGRAPHICS OF APPLICANTS

YEAR OF COLLEGE COMPLETED



SELECTION PROCESS

The 2022 Equity Research Program had a 23% gain in applicants from the previous year. The selection process was completed with the help of a selection panel. The selection panel was composed of student leaders, institutional leaders, and academic services leaders. Narrowing down the pool of applicants was challenging due to all the great applicants but we were able to complete a comprehensive review to ensure the top candidates were selected. After the applications were reviewed and scored, the applicants were then selected by mentors.

EQUITY SCORING PANEL

Parham Diba

Student M.D./Ph.D. program

Linzy Rodrigues

Operation Manager for the Center for Diversity and Inclusion

Graciela Vidal

Education Specialist (OHSU Education Improvement and Innovation)

Annae Nicholson

Student Learning Support Specialist

Umer Umer

Student Dental Graduate, student leader for CDI Student interest Group (Muslim Community at OHSU)

Staci Ganje

Administrator Coordinator, Student Access

Nikky Ulrich

Program Coordinator, Student Health and Wellness

Chennettee Jelleberg

OHSU Director of Office of Student Access

Chad Nix

School of Medicine CDI Student leader for CDI Student Interest Group (Queer Health Alliance OHSU)

Elijah Hart

Senior Clinical Research Assistant (former Equity Intern)

Anna Abel

School of Nursing student CDI Student leader for BSN Umoja (Monmouth)

Grace Fortson

OHSU Student Worker Center for Diversity and Inclusion

Erica Ronquillo

Graduate Teaching Assistant-SN Student Affairs and Diversity

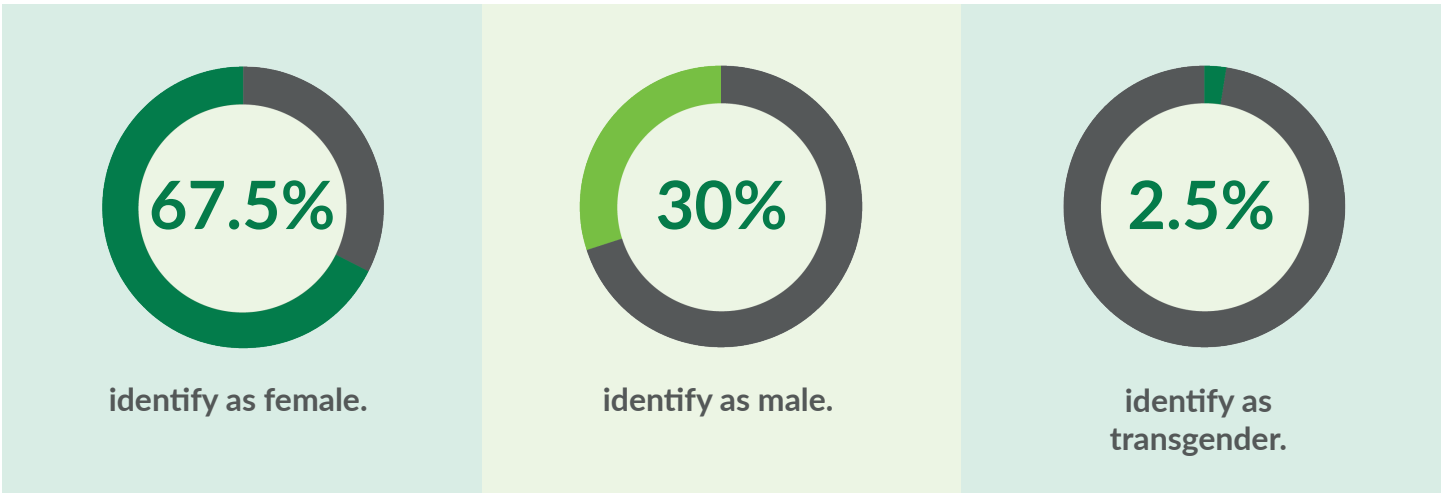
Kelsie Johnson

Administrator for the Center for Diversity and Inclusion

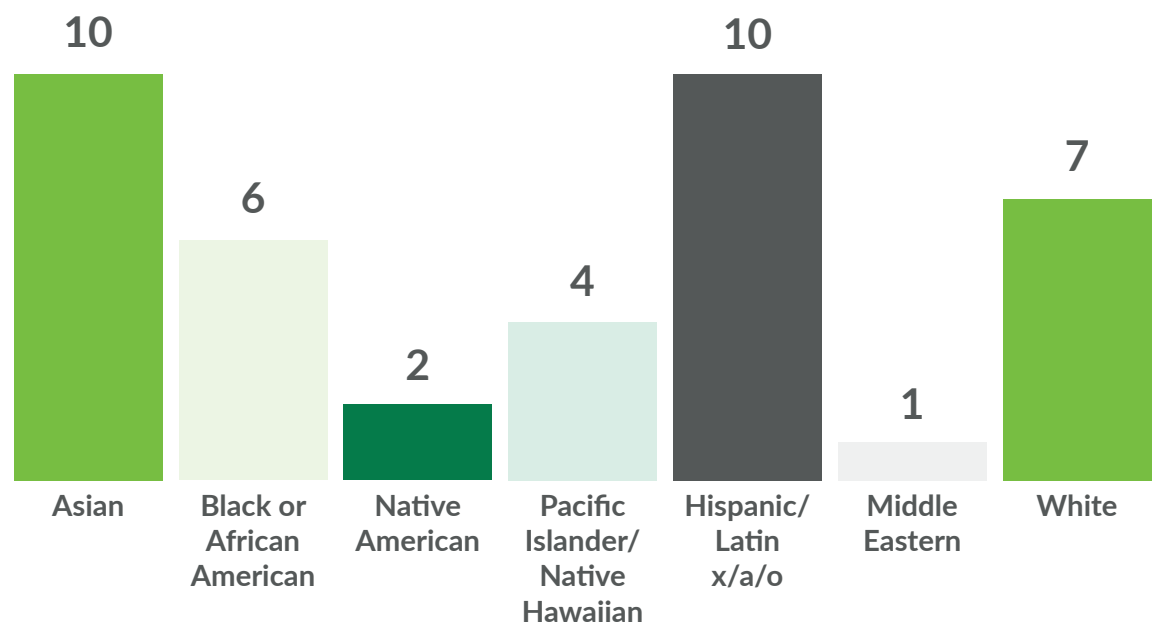
2022 EQUITY INTERNS DEMOGRAPHICS

This year’s Equity Research Program intern cohort was made up of forty interns.

GENDER



RACE



2022 EQUITY INTERNS DEMOGRAPHICS



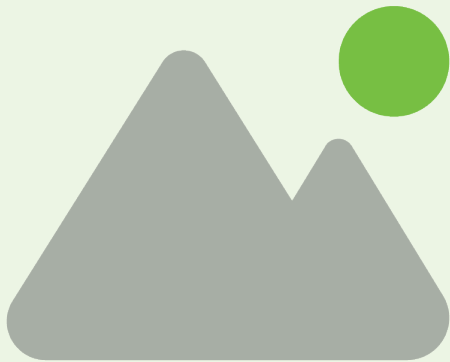
65%

are first generation college students.



58%

speak at least another language.



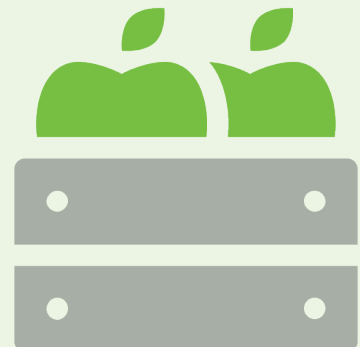
30%

attended school in a rural-area.



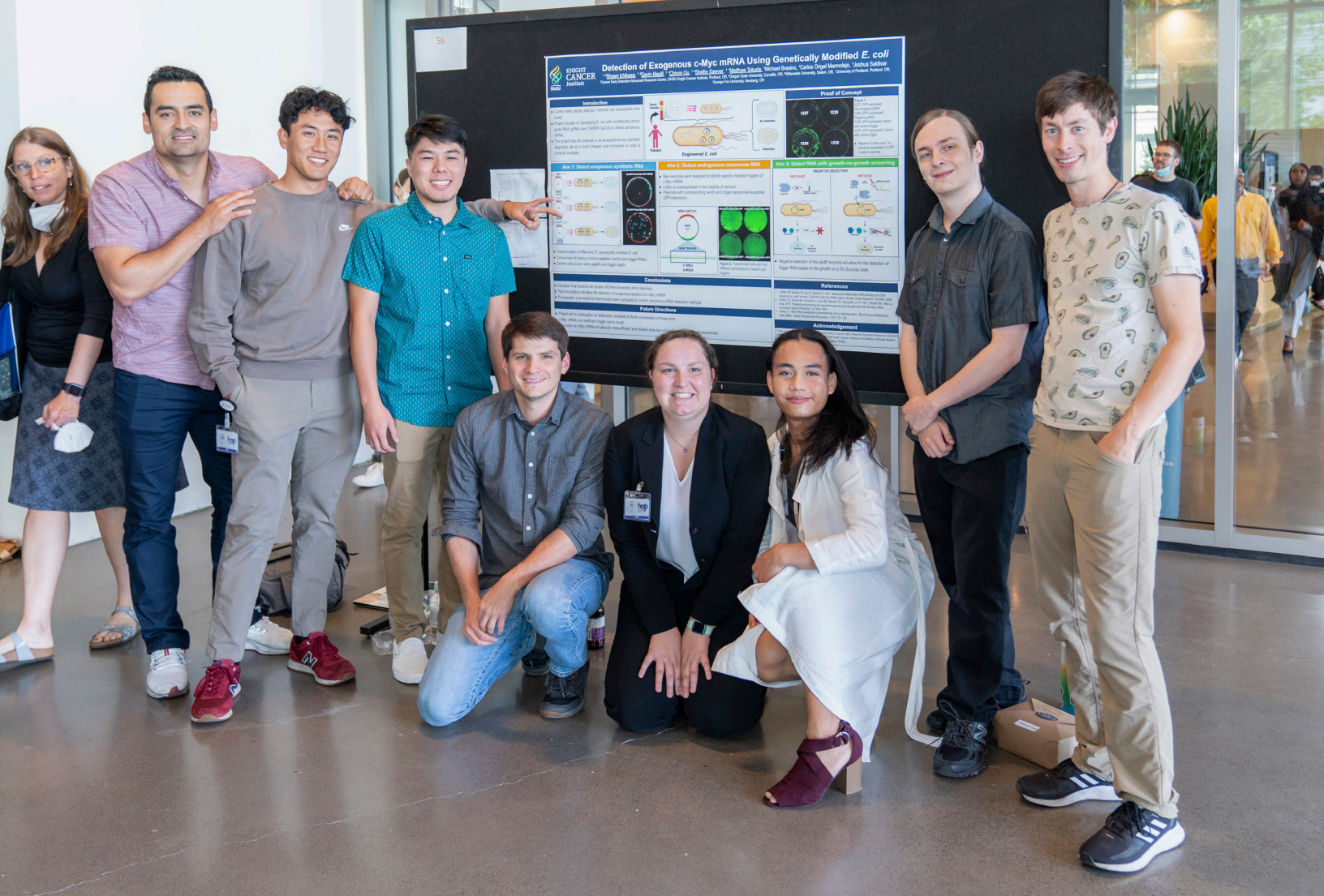
43%

stayed in PSU housing.



63%

opted to have groceries purchased by CDI.




INTERTRACKS



16

IN BIOMEDICAL SCIENCES TRACK



1

IN SCHOOL OF PUBLIC HEALTH TRACK




16

IN SCHOOL OF MEDICINE TRACK



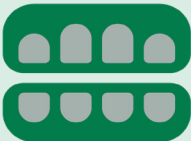
3

IN NURSING TRACK



1

IN HEALTH SYSTEMS & POLICY TRACK



3

IN DENTISTRY TRACK

PROGRAM SCHEDULE

In addition to the interns' research experience, the program included enrichment and professional development events throughout the eight-week internship. These events were open to other summer internships across OHSU.

[2022 Program Schedule](#)

Enrichment and professional development events included:

All-Campus Summer Welcome hosted by On Track OHSU

Attending Graduate School: A Student's Perspective

Dean of Admissions guest speaker

Educational/Enrichment Activities

Equity Program Orientation

Group hike at Washington Park

Knight Cancer VP speaker

Library services workshop - Literature Review

M.D./Ph.D. Information Session

Medical School Admissions speaker panel

PARC/MARC Research Presentation

Planning a Research Project

Presenting your Work: Talks & Posters

Time Management, Organizational Skills & OHSU Culture

Unconscious Bias Campus-wide Initiative (UBCI) Fundamentals training

VP of Equity speaker



“I believe that this internship strives to enrich the educational experience of minority students and their presence in the medical field. Personally, I felt as though I always had someone on the CDI team I could talk to if things weren’t going as planned, in all regards.”

“I had a great experience this past summer. My experience in the lab was the highlight for me, being able to be a part of the research team and contribute especially. In addition, my mentors were always helpful and guided me thoughtfully, as well as everyone I interacted with. I made some great relationships throughout as well.”



INTERN COHORT

Read on for a profile of each intern from the 2022 Equity Research Program cohort.



Abel Getachew

GEORGETOWN UNIVERSITY - THEOLOGY AND RELIGIOUS STUDIES ON PRE-MED TRACK

MENTORS Henry Lin, M.D., M.B.A.; Doris Valenzuela-Araujo, M.D.

Assessment of pediatric patient experience with subspecialty pediatric care in patients with limited English proficiency.

The purpose of this research is to determine whether a language barrier negatively affects the clinical experience of pediatric patients with limited English proficiency. This study may help develop new communication guidelines for healthcare professionals to enhance the experience of pediatric patients with limited English proficiency receiving subspecialty care.



Alison Paguio

SEATTLE UNIVERSITY - CELL AND MOLECULAR BIOLOGY

MENTORS Julie Saugstad, Ph.D.; Ursula Sandau, Ph.D.; Trevor McFarland; Sarah Catherine Baker, M.S.

Genotyping human fibroblast cell lines derived from patients with Niemann Pick type C disease.

The main focus of my project was to confirm the genotypes of Niemann Pick Type C mutations from four human fibroblast cell lines. The techniques used for this project included cell culture, DNA extraction, PCR, agarose gel electrophoresis, and Sanger sequencing.



Angela Cano-Hernandez

LINFIELD UNIVERSITY - NURSING

MENTORS Hector Olvera Alvarez, Ph.D., P.E.; Kathryn Wildeck

Systematic review and meta analysis on simulated nature exposure and stress recovery.

The Total Environment and Wellness Lab studies human-environment interaction. Recent findings demonstrate that exposure to nature can have positive effects on stress that urban exposure cannot. In addition to its therapeutic benefits, it can easily be implemented into healthcare settings.



Anh Nguyen

PORTLAND STATE UNIVERSITY - BIOLOGY

MENTOR Avathamsa Athirasala, B.Tech, M.S.

Single cell analysis of 3D tissues.

The goal of the project is to analyze spatial trends in cell behavior within 3D engineered tissues to identify the effects of microscale geometric features of the tissue on cell behavior. This makes different combinations of microgel to optimize which shapes, sizes, and environment are the best to characterize the cell's response for regenerations. This research will enhance the knowledge of how cell structures such as stiffness level and geometry can control the stem cells' behavior and their ability to regenerate and replicate. Furthermore, it will play a critical role in learning how to speed up the process of healing and cell regeneration in damaged tissue for inflammatory diseases.



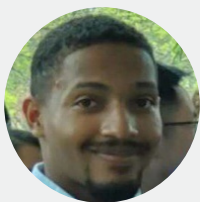
Anthony Phan

PORTLAND STATE UNIVERSITY HONORS COLLEGE - BIOLOGY AND CHEMISTRY

MENTORS Danielle Konetski Ph.D.

Optimization of MCF7 spheroid growth duration and seeding density and the fabrication of microfluidic devices.

Dr. Konetski focuses on implementing organ-on-chip model systems through manufacturing two different types of microfluidic devices to examine the relationship between tumorigenesis and gut dysbiosis. In addition to manufacturing microfluidic devices, this project will optimize growth conditions of MCF7 spheroids as a model of breast tumors. Antibody staining of polarity markers will be leveraged to assess the optimal starting cell density and harvesting day.



Anthony Scaife

BOISE STATE UNIVERSITY BIOLOGY WITH CELLULAR, MOLECULAR, AND BIOMEDICAL EMPHASIS

MENTOR Daniel Zuckerman, Ph.D.

Using molecular dynamics to investigate allostery in the LC-8 protein.

LC-8 is a hub homodimer protein found throughout the eukaryotic cell that provides an extreme example of binding complexity with over 100 client proteins involved in a range of cell functions. While other allosteric systems have observable changes in conformation, LC-8 appears to hold its shape after initial binding and instead either becomes more or less flexible. More research is needed to understand the specific movements of the LC-8 protein bound to client protein. This project focuses on the use of Molecular Dynamics computer simulation to learn details of the dynamical and structural underpinnings of experimentally observed allostery.



Audrey Eggum-Wright

PROVIDENCE COLLEGE - BIOLOGY

MENTORS Julie Saugstad, Ph.D.; Ursula Sandau, Ph.D.; Trevor McFarland; Sarah Catherine Baker, M.S.

Genotyping Niemann-Pick Disease type C mutants.

This summer I have worked with several brilliant scientists to learn new protocols and techniques to apply while learning more about a rare disease called Niemann-Pick Disease, specifically type C. We utilized polymerase chain reactions (PCRs), gel electrophoresis, and sanger sequencing to confirm mutations in several fibroblast samples we received from a partner.



Betty Gobeze

WESLEYAN UNIVERSITY - NEUROSCIENCE AND BEHAVIOR

MENTOR Fikadu Tafesse, Ph.D.

Understanding the nucleocapsid protein of SARS-CoV-2.

In the Tafesse lab, one of the main focuses is developing nanobodies to use as a tool to study the biology of viral infections. In this project we assessed candidate nucleocapsid nanobodies and determined whether they have binding activity against the nucleocapsid protein of SARS-CoV-2. With this we can understand the impact of blocking this protein and whether it can affect viral replication.



Bruno Salas Garcia

OREGON STATE UNIVERSITY - MICROBIOLOGY

MENTOR Cristiane Miranda Franca D.D.S., M.S., Ph.D, M.S.; Maria Elisa Quezado Lima Verde D.D.S., M.S.

Printability and shape fidelity of hydrogels and resins for tissue engineering and organs on-a-chip.

The aim of this project is to optimize different printing techniques for tissue engineering applications. It involves accurately printing and controlling the shape and stiffness of microgels as well as fabrication of microfluidic devices. To that end, different materials require different strategies to ensure accurate and consistent printing.



Casey Starr

LINFIELD UNIVERSITY SCHOOL OF NURSING - NURSING BSN

MENTOR Terry Morgan, Ph.D.

Cell- and size-specific extracellular vesicle miRNA analysis by nanoFACS.

Our project used nanoscale flow cytometry, specifically flow activated sorting (FACS) and reverse transcription polymerase chain reaction (qRT-PCR), to determine the significance of microRNA (miRNA) in extracellular vesicles (EVs) from pancreatic ductal adenocarcinoma (PDAC). We began with sorting our PDAC cells on the flow cytometer where we sorted EV's and liposomes. We then took them as well as our controls to isolate miRNA. Then we were able to begin the qRT-PCR process to yield the results.



Chivon Ou

UNIVERSITY OF PORTLAND - NURSING

MENTORS Michael Brasino, Ph.D.; Carlos Origel Marmolejo, Ph.D.;
Joshua Saldivar, Ph.D.

Detection of exogenous c-Myc mRNA using genetically modified E. Coli.

The Knight Cancer Institute's Cancer Early Detection Advanced Research Center studies methods to detect cancer in its early stages. Our team's goal is to detect cancerous RNA in patient plasma using modified *E. Coli* bacteria, a potentially more cost-effective diagnostic tool than current technologies offered. This group represented OHSU and their findings at the 2022 International Genetically Engineered Machine (iGEM) science competition.



Christine Bynum

SPELMAN COLLEGE - BIOLOGY AND SPANISH

MENTORS Narendra Singh, Ph.D.; Anthony Tahayeri

Optimization and fabrication of degradable cell guide for 3D single cell printing.

Despite improved regenerative material for cell loss, 3D single-cell printing upholds promising results for cell regeneration. 3D cell bioprinting research focuses on the fabrication of complex multitypic tissue constructs alongside functional vascular networks for regenerative applications. Various materials such as agarose, isomalt, polymer, etc., will be dissolution tested for cell guides for single-cell printing and cell stacking.



Danny Zhu

PORTLAND STATE UNIVERSITY - BIOCHEMISTRY

MENTOR Lydie Trautmann, Ph.D.

Persistence of HIV-specific T cells in Thai children after early ART initiation.

To determine the HIV reservoir and HIV-specific immunity among infants living with HIV, they intake the drug ART in the first six months after childbirth and are also under HIV suppression at a period of five years. The rationale is that patients that have early ART initiation in the first 8 weeks after birth, are correlated with decreased size of HIV reservoir compared to infants starting after 8 weeks since birth. Thus it is believed early intervention with ART will lead to lower levels of HIV reservoir size, but the effect of HIV-specific immunity, and immune activation is unknown.



Ella Rasmussen

PORTLAND COMMUNITY COLLEGE - NURSING

MENTOR Amy Ross, Ph.D.

SFIT on immune system recovery in breast and prostate cancer patients.

The SON Simulated Forest Immersion Therapy lab investigates how the forest affects psychology and physiology. In our study the aim is to investigate differences in immune system biomarkers between assigned gender groups when exposed to SFIT. In particular, cancer patients commonly suffer from Natural Killer Cell (NK Cell) depletion after chemotherapy or radiation therapy. Our populations of interest are breast and prostate cancer patients who are within one year from first diagnosis and experience depleted NK Cells.



Emily Kostyuk

UNIVERSITY OF PORTLAND - BIOLOGY

MENTORS Donna Hansel, M.D., Ph.D.; Juanya Huan, Ph.D.

Understanding COX-2 and PD-L1 expression in Non-Muscle Invasive Bladder Cancer (NMIBC) treated with Bacillus-Guérin Immunotherapy (BCG).

The Hansel Laboratory studies cellular pathways in bladder cancer. Recent studies suggest that the tumor micro-environment, specifically the COX-2/PGE2 and PD-1/PD-L1 pathways, play a crucial role in tumor response to BCG. Studying COX-2 and PD-L1 expression in NMIBC will provide a better understanding of tumor resistance which may aid in directing the limited BCG resources to NMIBC patients who will benefit most from the treatment, while allowing potentially non-responsive patients to pursue a different course of treatment.



Gavin Magill

WILLAMETTE UNIVERSITY - BIOLOGY

MENTORS Michael Brasino, Ph.D.; Carlos Origel Marmolejo, Ph.D.;
Joshua Saldivar, Ph.D.

Detection of exogenous c-Myc mRNA using genetically modified *E. Coli*.

The Knight Cancer Institute's (KCI) Cancer Early Detection Advanced Research (CEDAR) Center studies methods to detect cancer in its early stages. Our team's goal is to detect cancerous RNA in patient plasma using modified *E. Coli* bacteria, a potentially more cost-effective diagnostic tool than current technologies offered. This group represented OHSU and their findings at the 2022 International Genetically Engineered Machine (iGEM) science competition.



Hannah Cooper

UNIVERSITY OF NOTRE DAME - NEUROSCIENCE

MENTORS Monica Hinds, Ph.D., M.S.E., B.S.E.; Meghan Fallon

Endothelial cell function in response to topographical micro-patterning.

Dr. Monica Hinds's lab researches the development and treatment of cardiovascular disease, with a focus on endothelial cell cytoskeletal signaling. Previous findings showed that by topographically micropatterning endothelial cells, we can imitate the morphology of endothelial cells exposed to fluid shear stress in vivo, but by using static, in vitro assays. I am investigating how morphology and cytoskeletal alignment alters endothelial cell function by measuring the concentrations of activated Protein C and the amount of tissue factor expressed by topographically micro-patterned endothelial cells.



Hinda Farah

PORTLAND STATE UNIVERSITY - PSYCHOLOGY/PRE-MED

MENTOR Sean Rice, Ph.D.

Facilitators and barriers to help-seeking behavior in veterans.

Although exposed to various forms of trauma throughout service and deployment and at higher risk of developing mental illness, veterans are less likely to seek and utilize mental health services. Delayed mental health treatment can impede healing and have negative effects on both the veteran and the veteran's loved ones. This literature review intends to identify facilitators to help-seeking and treatment-seeking behavior to determine how to better engage veterans and minimize barriers.



Jimena Ignacio Caballero

OREGON STATE UNIVERSITY - BIO HEALTH SCIENCES

MENTORS Jaime Peterson, M.D., M.P.H.; Veronica Carrasco, B.A.

Understanding the importance of school readiness and the journey to education for children in Latino communities.

School Readiness lab uses community based participatory research methods to engage Latino parents, pediatricians, and educators to develop, test and implement novel primary care solutions to promote school readiness. Latino children often have strong social skills but may be entering kinder behind in math and literacy skills, this create gaps compared to their affluent peers. Using narrative inquiry and critical discourse analysis we co-design culturally responsive school readiness interventions in the pediatric clinic space to: promote early literacy and math, build on the strengths of families, boost trust in themselves and frequently visit the doctor's office. We hope every Latino parent will be empowered to be their child's first teacher and educational guide.



Julee Dunn

PORTLAND COMMUNITY COLLEGE - BIOSCIENCE TECHNOLOGY

MENTORS Stuart Ibsen, Ph.D.; Ella Stimson, B.S.

Development of a protease activity assay for prostatic acid phosphatase in early-stage ovarian cancer.

Prostatic acid phosphatase has been highlighted as a new biomarker for ovarian cancer and we are developing an assay that measures its protease activity. We have developed and tested novel peptides to be applied to the charge-changing peptide assay. This work will contribute to future investigations of protease activity in early-stage ovarian cancer.



Kalei Chin

WHITMAN COLLEGE - BIOPHYSICS BIOCHEMISTRY AND MOLECULAR BIOLOGY

MENTORS Bingbing Li, M.D., Ph.D.; Xiangshu Xiao, Ph.D.

Testing compounds for inhibition of EWSR1-ATF1-driven transcription activity in Clear Cell Sarcoma of Soft Tissue (CCSST).

Clear cell sarcoma of soft tissue is a rare and aggressive sarcoma that develops in the tendons and aponeuroses in lower extremities and presently has no therapy. The cancer is caused by the fusion of the Ewing's sarcoma gene EWSR1 with activating transcription factor 1 (ATF1) to give the EWSR1-ATF1 fusion protein. The aim of my research is to test different compounds against the fusion protein to see if they inhibit transcription activity.



Katalina Wong

UNIVERSITY OF PORTLAND - NURSING

MENTOR Seiko Izumi, Ph.D., R.N., and FPCN.

A cluster randomized trial implementing advance care planning in primary care.

Advance health care planning is crucial to ensuring that patients receive the care that matters most to them. This conversation of identifying preferences and goals is commonly overlooked until it is too late. This research study explores how to implement advance care planning into routine primary care practice.



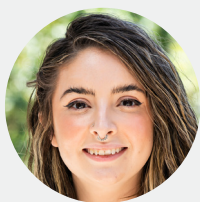
Kaye Ann Obando

NORTHERN MARIANAS COLLEGE - BUSINESS ADMIN EMOHASIS IN COMPUTER APPLICATIONS

MENTORS Summer Gibbs, Ph.D.; Jocelyn Jones

TRIPODD: A novel fluorescence imaging platform for in situ measurement of drug distribution and proteomic therapeutic response.

In advanced cancer patients, personalized medicine has often failed to provide curative treatments. In situ drug target availability (DTA) evaluation in conjunction with local protein expression is crucial for determining therapeutic efficacy. However, the existing technology available to do both of these analyses are insufficient. This unmet analytical need will be answered by developing the only fluorescence imaging technology capable of concurrently assessing the complex relationships of drug distribution (iPAI) and proteomics (cyCIF) at the single-cell level: TRIPODD (Therapeutic Response Imaging through Proteomics and Optical Drug Distribution and Binding). This tool will enable characterization of drug target availability (DTA) and resistance mechanisms easier as well as correlate the relationship of iPAI and cyCIF to effectiveness. Furthermore, complementing DTA and proteome maps will assist in the evaluation of effective combinatorial therapies.



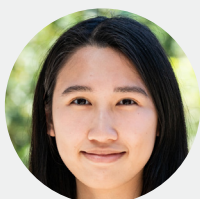
Liliana Diaz

PORTLAND STATE UNIVERSITY - BIOLOGY AND PUBLIC HEALTH

MENTOR Jaime Peterson, M.D., M.P.H.

The school readiness gap in low-income Latino families.

School Readiness lab uses community-based participatory research methods to engage Latino parents, pediatricians, and educators to develop, test, and implement novel primary care solutions to promote school readiness. Latino children often have strong social skills but may be entering kinder behind in math and literacy skills, this creates gaps compared to their affluent peers. Using narrative inquiry and critical discourse analysis we co-design culturally responsive school readiness interventions in the pediatric clinic space to: promote early literacy and math, build on the strengths of families, boost trust in themselves, and frequently visit the doctor's office. We hope every Latino parent will be empowered to be their child's first teacher and educational guide.



Lucy Wu

UNIVERSITY OF PORTLAND - NURSING

MENTOR Joshua Lupton, M.D.

The association between trends in end-tidal CO₂ and outcomes among patients with non-shockable out-of-hospital cardiac arrests.

End-tidal CO₂ (ETCO₂) values have frequently held a prognostic role for out-of-hospital cardiac arrests but previous studies indicating the predictive utility of ETCO₂ for resuscitation have primarily focused on initial ETCO₂ values. Our study evaluates the trend of ETCO₂ values throughout cardiopulmonary resuscitation, specifically those with non-shockable rhythms in observation of whether ETCO₂ trends are associated with odds of return of spontaneous circulation and patient survival to hospital discharge.



Luz Mejia-Flores

PORTLAND STATE UNIVERSITY - APPLIED HEALTH AND FITNESS/PUBLIC HEALTH

MENTORS Chara Rydzak, M.D., Ph.D.; Alice Fung, M.D.

Diversity, equity, and inclusion in radiology: how can we do better?

Throughout the field of Radiology, there has been a noticeable absence of women and minorities entering the field. OHSU has been a big part in making significant efforts to increase diversity, equity and inclusion within their institution as a whole. Our findings have demonstrated that within the OHSU Department of Diagnostic Radiology, we have much we can improve, and ways that we can continue to increase awareness, training and protocols for all levels of the department, to continue to increase diversity, equity and inclusion at OHSU.



Maiya Martinez

FORT LEWIS COLLEGE - CELLULAR AND MOLECULAR BIOLOGY

MENTORS Hung Nguyen Ph.D.; Selva Baltan, M.D., Ph.D.

HDAC Inhibitor MS-275 Preserves the axonal mitochondria membrane potential against ischemic injury.

The Baltan Lab studies white matter recovery after ischemic stroke in young and aging, our recent findings have indicated that Histone Deacetylase inhibitor such as MS-275 promotes axonal function recovery and preserves white matter integrity in both young and aging mice. Using mouse optic nerves, we investigate whether preservation of mitochondrial membrane potential is a mechanism underlying the protection of MS-275 against ischemic injury.



Matthew Tokuda

GEORGE FOX UNIVERSITY - BIOMEDICAL ENGINEERING

MENTORS Michael Brasino, Ph.D.; Carlos Origel Marmolejo, Ph.D.;
Joshua Saldivar, Ph.D.

Detection of exogenous c-Myc mRNA using genetically modified *E. Coli*.

The Knight Cancer Institute's (KCI) Cancer Early Detection Advanced Research (CEDAR) Center studies methods to detect cancer in its early stages. Our team's goal is to detect cancerous RNA in patient plasma using modified *E. Coli* bacteria, a potentially more cost-effective diagnostic tool than current technologies offered. This group represented OHSU and their findings at the 2022 International Genetically Engineered Machine (iGEM) science competition.



Michael Arciniega

UNIVERSITY OF OREGON - HUMAN PHYSIOLOGY

MENTOR Angelica Morales, Ph.D.

The effects of alcohol on cortical thickness.

The overarching goal of this poster is to determine the association between cortical thickness in the frontal cortex and alcohol use. Using data from a previous study conducted here at OHSU, we were able to run statistical analyses on how alcohol consumption over a three month period affects cortical thickness in the frontal cortex. A literature review was conducted to help determine the significance of these results.



Nicholas Alvarez

WASHINGTON STATE UNIVERSITY - MICROBIOLOGY-MOLECULAR BIOLOGY

MENTORS Jonathan Pruneda, Ph.D.; Tyler Franklin, Graduate Student

Revealing the Structure of PvHECT with nanobodies.

The goal of this project was to reveal the structure of an E3 ligase -PvHECT- that was previously isolated by using nanobodies to bind to and stabilize its structure for it to be analyzed using x-ray crystallography. Ubiquitin (Ub) is a relatively small protein that is highly conserved amongst eukaryotic organisms and is involved in many posttranslational modifications for intracellular signaling. It is primarily used by eukaryotes to tag molecules for various cellular processes including protein degradation by the host cell proteasome. This is accomplished through covalently attaching a target protein to one of the seven lysine residues on the Ub molecule (K6, K11, K27, K29, K33, K48, and K63); a process named ubiquitination. Ubiquitination is achieved by the sequential action of three different enzyme classes: The Ub activating enzymes—E1, the Ub conjugating enzymes—E2, and the Ub ligases—E3. E3 ligases typically control the substrate specificity, and in the case of the HECT family of E3 ubiquitin ligases, they also control the type of ubiquitin chain attached to the substrate.



Nicole Hernandez

LINFIELD UNIVERSITY - PORTLAND CAMPUS - NURSING

MENTORS Menolly Kaufman, Ph.D, M.P.H.; Ann Martinez Acevedo, M.P.H.

Peer workers and their impacts on pregnant people with substance use disorder.

Peer services are an element of Nurture Oregon, which is an integrated model focusing on providing pregnant people with substance use treatment and maternity services. Looking at the literature of peer workers will show the outcomes for patients and whether there are any gaps.



Princess Mason

UNIVERSITY OF OREGON - PSYCHOLOGY

MENTORS Gavin Golas, Ph.D.; Scott Wong, Ph.D.

Structural analyses of rhesus rhadinovirus glycoprotein m.

The Wong lab investigates rhesus rhadinovirus (RRV) as a model of the human cancer-causing Kaposi's sarcoma-associated herpes virus (KSHV). Recent studies have found that KSHV gM can functionally substitute for RRV gM in chimeric RRV; however, this virus has an abnormal growth phenotype. Since differential glycosylation may be involved, we used the glycosylation inhibitor tunicamycin to analyze the glycosylation patterns on both KSHV and RRV gM.



Rania AbdulWahed

PORTLAND STATE UNIVERSITY - SCIENCE/PRE-MED PATHWAY

MENTORS Amira Al-Uzri, M.D.; Kyle Patubo

The effect of physical distance between the primary home residence and OHSU on kidney transplant outcome.

A retrospective study that looks into the OHSU database of the pediatric kidney transplant population transplanted between June 2015 - June 2020 from age 1 to 21 in both males and females. To determine if the distance from the medical center and how rural and urban areas of the patient's primary residence would effect acute rejection, hospitalization rate, and follow up appointment within the first two years after transplant surgery.



Ruthanne Zareyna

LINFIELD UNIVERSITY - BIOCHEMISTRY AND MOLECULAR BIOLOGY

MENTOR Joséphine Briand, Ph.D.

Optimization of miRNA Transfection in MCF7 cell line.

miRNA-195-5p is a microRNA that has been described as a potential tumor suppressor in breast cancer and has been found to target the expression of the protein E2F3, also related to breast cancer. To better understand this mechanism, the breast cancer cell line MCF7 has been transfected with miRNA-195-5p. Then, two things have been studied: First, the transfection efficiency to make sure that the miRNA actually enters the cells, and second, the level of E2F3 mRNA and protein.



Samantha Mercado

UNIVERSITY OF PORTLAND - BIOLOGY

MENTOR Virginia Cuzon Carlson, Ph.D.

The DREADDED putamen: Using chemogenetics to determine the role of the putamen in alcohol drinking.

The Cuzon Carlson lab focuses on alcohol addiction and understanding the state of disease in the brain. It was discovered that the putamen of the brain in a rhesus macaque plays a large role in habitual actions. Through manipulation of the putamen, we aim to inhibit alcohol consumption.



Sang Thanh Dang

PORTLAND STATE UNIVERSITY ALUMNI - PRE-MEDICINE

MENTOR David Sheridan, M.D.

Timeliness of sepsis recognition in septic ED patients.

This is a retrospective cohort study of OHSU ED patients diagnosed with sepsis during their admission. Sepsis is a highly time-sensitive condition in terms of patients' treatments and hospital outcomes. Efficient recognition and management of sepsis in the ED can combat the high mortality rate increase of 8% for every hour treatment is delayed. This study looks at the time of arrival, time of first vital signs, time of lab results, time of sepsis resuscitation and current existing criteria for identifying sepsis based on vitals, symptoms and lab workup.



Seanna Talavera Bataclan

UNIVERSITY OF GUAM - BIOMEDICAL SCIENCES, MINORING IN WOMEN & GENDER STUDIES

MENTOR Katherine E. Zuckerman, M.D., M.P.H., FAAP

Assessing the quality and usability of mobile health applications used to screen for Autism Spectrum Disorder (ASD) in low-income and minority families.

The Zuckerman lab focuses on health care quality and equity for children with autism. The health project assesses factors such as usability and accessibility of mobile health applications for autism screening in low-income or racial/ethnic minority families. By coding and analyzing qualitative parent interviews, we are able to observe the strengths and weaknesses of these tools and develop best practice recommendations for mobile health autism tools in the future.



Shawn Ichikawa

OREGON STATE UNIVERSITY - BIOENGINEERING

MENTORS Michael Brasino, Ph.D.; Carlos Origel Marmolejo, Ph.D.;
Joshua Saldivar, Ph.D.

Detection of exogenous c-Myc mRNA using genetically modified E. Coli

The Knight Cancer Institute's Cancer Early Detection Advanced Research Center studies methods to detect cancer in its early stages. Our team's goal is to detect cancerous RNA in patient plasma using modified E. Coli bacteria, a potentially more cost-effective diagnostic tool than current technologies offered. We plan to represent OHSU and present our findings at the 2022 International Genetically Engineered Machine (iGEM) science competition this fall.



Shelby Sawyer

WILLAMETTE UNIVERSITY - BIOCHEMISTRY

MENTORS Michael Brasino, Ph.D.; Carlos Origel Marmolejo, Ph.D.;
Joshua Saldivar, Ph.D.

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Tua'au Laolagi

SOUTHERN OREGON UNIVERSITY - GRADUATE

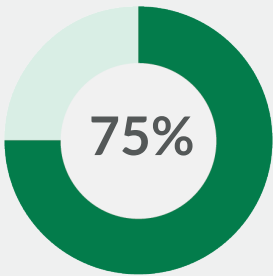
MENTOR Adem Yildirim, Ph.D.

Investigating various peptide and polymer amphiphile concentrations for effective size and ultrasound responsivity.

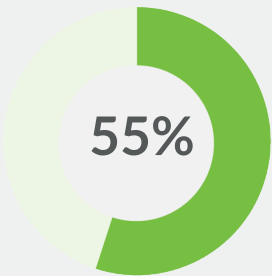
Though ultrasound has been determined to be a reliable form of imaging and treatment, the current contrast agents such as fluorocarbon micro-bubbles have shown poor stability in biological conditions. Currently investigated alternatives using polymer and albumin coated hydrophobically modified mesoporous silica nanoparticles (hMSNs) have displayed poor biodegradability and blood circulation. This project seeks to determine if various concentrations of peptide amphiphile coatings will provide similar size distributions and ultrasound responsivity and act as a segue to test biodegradability and blood circulation for future studies.

INTERN POST-PROGRAM EVALUATION

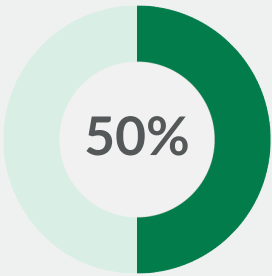
Equity interns were asked to respond to a series of questions about their experience in the program. The information gathered will help with future outreach and planning purposes. The data below is from 50% of cohort who responded to the questionnaire.



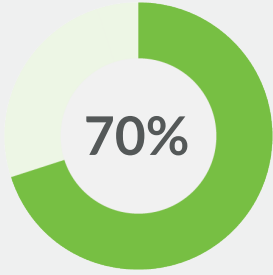
strongly agreed that their lab mentors provided them with necessary tools and guidance to do well in lab



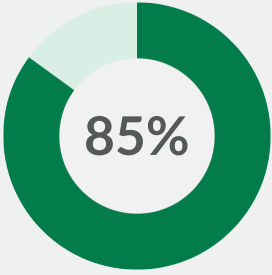
strongly agreed that they were provided sufficient time and resources to complete their projects



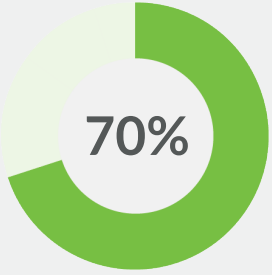
strongly agreed that their housing accommodations for the program were satisfying



strongly agreed that they were satisfied with the food resources provided to them during the program



strongly agreed that during the 8 weeks they gained knowledge and skills that they can apply to future research



strongly agreed that after completing the program, they feel more confident in their abilities to reach their education and career goals



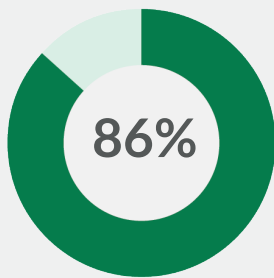
“This internship was an incredible opportunity for me to learn and gain valuable experience I can apply to my future career goals. I believe the program was thoughtfully organized and the people running it were extremely supportive and kind. I am very grateful for the opportunity to do research at OHSU. It was everything I could have hoped for and more.”

“My lab skills and confidence to pursue my target career in neuroscience improved dramatically, as well as the network opportunities I gained access to through OHSU. Overall, it was an extremely positive experience.”

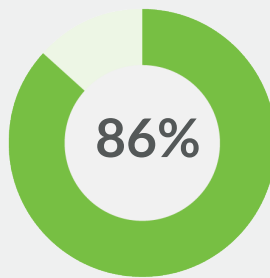
“It was a very enriching experience where we heard from many wonderful people about their experiences. It was a powerful tool for me because, due to their experience and advice, I learned more about myself and the people around me.”

MENTOR POST-PROGRAM EVALUATION

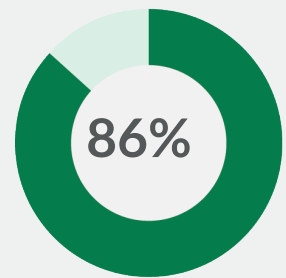
The program mentors were asked to respond to questions about their experience in the program. The information gathered will help with future outreach and planning purposes. The data below is from 34% of the mentors who responded to the questionnaire.



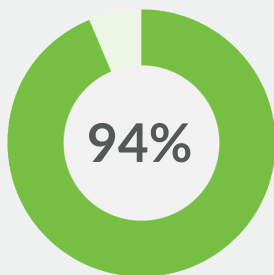
are interested in participating as a mentor with the program next year



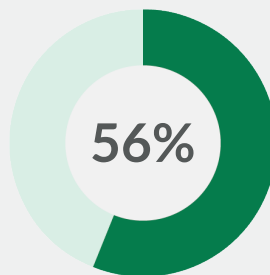
said mentorship expectations and guidelines were clearly communicated



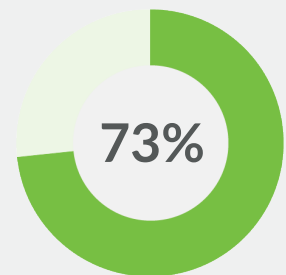
felt sufficiently prepared to be a mentor



agreed that the intern(s) placed in their lab gained new skills and knowledge that they will be able to apply in the future



felt that there was great improvement in interns' critical thinking and problem solving



felt that their interns had great improvement in general research ability



“The program was fabulous again! The growth in our student was amazing! She will be giving a poster presentation at a national meeting in October.”

“Enjoyed the poster session very much - great idea combining with other internship programs at OHSU.”

“The more we can build in basic, intermediate, and advanced research skill development as part of the larger program curriculum the better. Especially across diverse fields of study where there may be different research methods utilized.”

“Thank you for all your hard work and all the support you provided!”



CONCLUSION

The 2022 Equity Interns successfully met the program's expectations and showed a commitment to continuing their education in medicine and sciences. The Center for Diversity and Inclusion will continue to strive to open pathways for our future providers and science researchers. The future is bright for medicine and science because of these young leaders.

ACKNOWLEDGMENTS

The success of the Equity Research Program is possible with the support of our all collaborators listed below. The Center for Diversity and Inclusion would like to express our gratitude to all the individuals that contributed to the 2022 Equity Research Program.

OHSU Provost Office – Thank you for all you do for pathway programs at OHSU and for supporting the Equity Research Program.

All the Equity Program mentors - Thank you mentors! You continue to open doors for our future researchers and providers. (See all the mentors listed under their respective intern).

All the folks that presented and shared their expertise (names listed in Equity Program schedule, too many to list here) The Equity Program schedule is dynamic and a great source of professional development. Thank you for all your contributions.

Jen Cai and the **Wellness Team** - Thank you for helping CDI with food security resources and for speaking to our cohort during their orientation. Your team helped the interns have a great experience.

Karen Serensun and **Student Central** - Thank you for help providing gym access to the food pantry for our interns.

Nikki Ulrich - Thank you for being an amazing resource for our interns. Food security is imperative. Your contribution to the Equity Research Program internship is invaluable.

Catering Team FNS (Food Nutrition Services), Justin, Mich, and Joey - You all are incredible, thank you for your dedication. Joey, thank you for always going above and beyond, you helped us move all those tables to the shade. Mich, thank you for being so reliable and always coming through for us. Your help with planning and assessing numbers for food, made for excellent enrichment events.

Melanie and Derrik from the CURE Program - Thank you for a great partnership. Your collaboration in planning for the poster symposium event helps make the event a fantastic collaborative demonstration of the OHSU community. It is a pleasure and honor to work together with you all to support our future scientists and providers.

Center for Diversity and Inclusion team: Dr. Derick Du Vivier, Linzy Rodrigues and Octaviano Merecias-Cuevas, Jhoselyn de la Garza, Briana Nathanielsz-Bowden. Thank you for contribution to the Equity Research program and to the poster symposium event. Your collaborative spirit is inspiring.

ACKNOWLEDGMENTS

Luisa Paredes (School of Nursing student worker) - You were instrumental in helping CDI ensure we communicated grocery item requests from our interns. This allowed for accurate and timely delivery of food. Thank you for being a great food resource liaison for our cohort.

Office of Visitors and Volunteers, Angel Almanza - We could not have done our internship without all your help and support. Post-pandemic onboarding can be so challenging in a large institution. You were simply amazing and helped us every step of the way. Angel, you are an amazing collaborator and we so appreciate all the support you provided our interns. Thank you.

Student Interest Group leaders - We love that you all are a part of the Equity Program, some of their favorite activities are ones where they can meet you all, share their experience, and learn from the journey that you all have taken. Thank you for your leadership and continuing to set the standards when it comes to being a student leader.

OHSU ID badge team, Aden Romeo - Thank you for all your help ensuring that our interns had access to specific areas of OHSU. We appreciate your timely responses and also for supporting our interns throughout their time at OHSU. As some access requests came up, your team did a fantastic job of helping.

Accounts Payable stipends team and Wyatt Swayngim (CDI fiscal manager) - Thank you for your help processing the stipends for our interns. You helped us meet expectations, and set for timelines as far when our stipends receive their deposits.

Greg Sabatka (OHSU Contracts) - Thank you for your help with the contract work for PSU housing. We appreciate your team helping the program go smoothly through the important work that happening behind the scenes.

PSU Housing - Thank you for your hospitality for our interns this summer. We are grateful for your flexibility and the services provided to our administrative team.

Gabriela Hernandez Duran, Past CURE and Equity Program participant - Thank you for being part of our program, meeting our interns, reflecting on your experience, providing tips to gain maximum benefit from the internship, and your encouragement. All of these meant so much to our cohort. We are lucky to have you part of our community.

Jessica Yu - Thank you for being part of the Equity program, your wisdom makes you an incredible resource for aspiring science researchers. We very much appreciate you paying inspiration and knowledge forward.

ACKNOWLEDGMENTS

EdComm and Jordan Sleeth (photographer) - Thank you for your efficient and professional photography services.

Jhoselyn de la Garza (CDI Sr. Comms Specialist) - Thank you so much for your help with the symposium program, flyer and this summary report. Your work during Equity was integral and we could not have done it all without you.

Thank you to all our **judges** for the 2022 Symposium Poster Symposium event.

