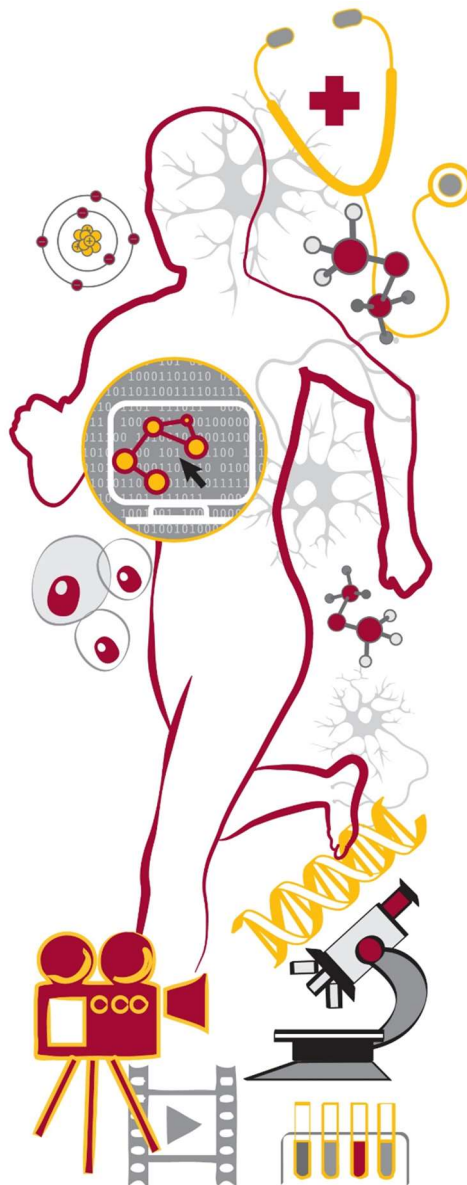


Bridge UnderGrad Science (BUGS) Summer Research Program



10th Annual BUGS Finale Symposium
Saturday, August 3, 2024
MCB101/MCB102 and via Zoom Webinar

Saturday, August 3, 2024

- 8:00 am Pre-meeting check-in (onsite @ Michelson Hall)
Zoom webinar: Meeting ID: 951 2619 0128 Passcode: 31415
<https://usc.zoom.us/j/95126190128?pwd=M01laE92eFpWclRsa3ZjMW5DaXVoUT09>
- 8:30am** Welcome and BUGS/Jr Program Introduction
by Stephen Bradforth, Professor of Chemistry and Executive Vice Dean, USC Dornsife
College of Letters, Arts and Sciences
- 8:40 am** Oral Presentations from **Group 1**
- 10:30 am Break – *proceed to Poster Session*
- 10:35 am** Undergraduate Poster Session from **Group 2**
- 11:05 am Break – *return to Conference Room*
- 11:15 am** Oral Presentations from **Group 3**
- 1:00 pm *Lunch Break*
- 1:30 pm** Poster Session **Group A** Presentations
- 2:00 pm Break – *change over for next Poster Session*
- 2:10 pm** Poster Session **Group B** Presentations
- 2:40 pm Break – *change over for next Poster Session*
- 2:50 pm** Poster Session **Group C** Presentations
- 3:20 pm Break – *change over for next Poster Session*
- 3:30 pm** Poster Session **Group D** Presentations
- 4:00 pm End Event

Saturday, August 3rd, 2024

GROUP 1: ORAL PRESENTATIONS [8:40am – 10:30am]

Katrina Dang • '25, USC Dornsife Human Biology PI: Helen Berman Mentors: Kate White, Wen Lin	<i>Visualizing the Structural Biology of Insulin Secretion in Undergraduate Curriculum</i>
Dave Ho • '26, USC Dornsife Human Biology PI: Lin Chen Mentors: Simon Webster	<i>Visualizing and Detecting Prion Formation</i>
Evelyn Lee • '24, USC Davis Human Development and Aging PI: Berenice Benayoun Mentors: Ryan Lu	<i>Utilizing Transcription Factor Gene Regulation to Investigate the Mechanism Modulating Female-Specific Macrophage Aging Dysfunction</i>
%Amber Tang • '26, USC Dornsife Biochemistry PI: Kate White Mentors: Rachel Knight	<i>Effect on Insulin Maturation from Disrupting Insulin Vesicle-Mitochondria Membrane Contact Sites</i>
Lan Mai • '26, UC Berkeley Molecular & Cell Biology PIs: Caleb Cornaby, Maurice O'Gorman	<i>Evaluation of the DHR-123 assay as a rapid test for the assessment of neutrophil specific chimerism in Chronic Granulomatous Disease patients post hematopoietic stem cell transplant</i>
*Zachary Song • '26, USC Davis Gerontology PI: Denis Evseenko Mentors: Nancy Q. Liu	<i>Investigating the Effects of a Systemic Drug Candidate for Osteoarthritis Pain on WT Mice Neuronal Cells</i>
*Jasmine Berry • '26, USC Viterbi Chemical Engineering PI: Nicholas Graham Mentors: Ali Basirattalab	<i>Quantitative Methyl Proteomics Reveals Protein Methylation Variation During the Cell Cycle</i>
Tedrik Markarian • '26, USC Dornsife PROGRAM PI/Mentor: Rusty Lansford	<i>Cardiovascular Development</i>
*Kevin Chaw • '26, USC Dornsife Biological Science (Biotechnology) PI: Justin Ichida Mentors: Jennifer Huang	<i>Testing Nr1h3 ASO as a Treatment for TAR4/4 ALS Mice Model</i>
*Shaakhini Satchi • '27, USC Davis Human Development & Aging PI: Mara Mather Mentors: Kaoru Nashiro, Paul Choi, Juliana Lee	<i>The Effects of Heart Rate Oscillations during Meditation on Plasma Amyloid Beta</i>
*Jiaqi (Wendy) Wen • '26, USC Dornsife MCDB PI: Zhongwei Li Mentors: Megan Schreiber	<i>Conditional Knockdown of HNF1B in Kidney Organoids to Unravel Its Role in Renal Development and Disease</i>
Lohith Dudhyala • '26, USC Dornsife Biochemistry PI: Santiago Morales Mentors: Alexa Monachino	<i>EEG Preprocessing Pipeline Comparison and Analysis</i>
*Arundati Iyer • '26, USC Keck Health Promotion & Disease Prevention PI: Albert Almada Mentors: Alma Zuniga Munoz	<i>Investigating the Role of the ART1-MARylation Pathway in MuSCs Activation and Muscle Repair</i>
*Nohemi Vela Guevara • '26, USC Dornsife Neuroscience PI: Michael Bonaguidi Mentors: Alisha Cayce	<i>Exercise-Induced Neurogenesis: A Novel Approach to Cognitive Recovery in Epilepsy Patients</i>
%Yingyan Xie • '26, USC Dornsife Human Biology PI: Steve Kay Mentors: Lili Zhou	<i>Investigating the role of CRY1 in Acute Myeloid Leukemia (AML)</i>

***Florence Lin** • '27, USC Viterbi | Biomedical Engineering
PI: Jennifer Treweek | Mentors: Zikai Wang

Investigation of Anatomy and Functionality of Lateral Septum Projecting Dorsal Raphe Nucleus Serotonin System in Fear

***Tracy Wang** • '27, USC Davis | Human Development & Aging
PI: Stephanie Shishido | Mentors: Jeremy Mason

Characterization of Rare Cells in the Liquid Biopsy of Myocardial Infarction Patients

Audrey Her • '27, USC Dornsife | Chemistry
PI: Matthew Pratt | Mentors: Eldon Hard

Investigating the effect of Protein-L-Isoaspartate-O-Methyltransferase (PIMT) repair on the racemization of aggregation-prone proteins

GROUP 2: POSTER PRESENTATIONS [10:35am – 11:05am]

***Aava Abedinpour** • '26, USC Viterbi | Biomedical Engineering
PI: Megan McCain | Mentors: Alisa Peshina

Engineering an In Vitro System to Study the Effects of Mechanical Stretch on Human Myometrial Tissue Contractility

Daniel Choi • '26, USC Dornsife | Quantitative Biology
PI: Dion Dickman | Mentors: Chengji Qiu, Celine Dong

Investigating the Role of GluR for Homeostatic Potentiation of Drosophila

Luke Hinrichs • '25, USC Dornsife | Biological Sciences
PI: Vadim Cherezov | Mentor: Aleksey Raskovalov

Molecular Movie of β 2-Adrenergic Receptor

@Nick Huang • '26, USC Dornsife | Biochemistry
PI: Vadim Cherezov | Mentor: Aleksey Raskovalov

Crystallography of β 2-AR in complex with kavalactones for structure-based design of novel allosteric therapeutics

Hanson Huynh • '25, USC Dornsife | Chemistry
PI/Mentor: Valery Fokin

[not present] "Double Click" Probes for Modulating Acetylcholinesterase Activity

***Eddie Kim** • '26, USC Viterbi | Biomedical Engineering
PI: Eun Ji Chung | Mentors: Isabella Suzuki

Development and evaluation of K3-MCP1siRNA micelles as a novel therapy for ADPKD

Hannah J. Lee • '26, USC Viterbi | Biomedical Engineering
PI: Cristina Zavaleta | Mentors: Helen Salina, Olga Eremina

Development of a Novel Fluorescence Imaging Approach to Guide Intra-Operative Tumor Resection

Rina Okuda • '26, USC Dornsife | Biochemistry
PI: Clay Wang | Mentors: Mary Villarreal

Isolation of Secondary Metabolite (Putative Meroterpenoid) Produced by repaired Polyketide Synthase (PKS) Gene from Aspergillus Nidulans

***Danielle Richards** • '25, USC Dornsife | Molecular Biology
PI: Irene Chiolo | Mentors: Chetan Rawal

Characterization of Drosophila Nse5 domains and functions

Kyle Masuguchi • '26, USC Dornsife | Human Biology
PI: Dion Dickman | Mentors: Joshua Martinez

Characterization of the active zone component, Syd-1, in glutamatergic synaptic transmission

Svara Shah • '25, USC Dornsife | Human Biology
PI: Dion Dickman | Mentors: Joshua Martinez, Celine Dong

Investigating Heterosynaptic Structural Plasticity by Manipulating Survival and Growth at Tonic vs Phasic Inputs

***Justin Sunwoo** • '27, USC Dornsife | Biological Science
PI: Kate White | Mentors: Ashley Archambeau

Investigating Insulin Vesicle Subpopulations and Maturation

Jana Zatar • '26, USC Dornsife | Molecular Biology
PI: Irene Chiolo | Mentors: Anik Mitra

[Not Present] Role of protein-RNA interactions in promoting safe repair of heterochromatin

Anushka Dsouza ● '25, Alpha Secondary HS, Vancouver, BC
PI: Paul Seidler | Mentors: Marina Fayzullina

Generation of substoichiometrically yfp labelled tau fibrils using dual promoter vector

Alexander Do ● '25, Thomas Jefferson HS for Science & Technology, Alexandria, VA
PI: Megan McCain | Mentors: Stephanie Do, Alisa Peshina, James Eichenbaum

Photopatterning and Localization of Transdifferentiated Fibroblast Cells

GROUP 3: ORAL PRESENTATIONS [11:15am – 1:00pm]

***Nicholas Dorgan** ● '27, USC Viterbi | Biomedical Engineering
PI: Cristina Zavaleta | Mentors: Pegah Bagheri, Olga Eremina

Enhanced Cellular Profiling with Actively Targeted SERS NPs for Breast Cancer Diagnostics

%Thea Millam ● '25, USC Dornsife | Biochemistry
PI: Clay Wang | Mentors: Jennifer Shyong

Turning mcrA into a global activator via hybrid transcription factor engineering for novel fungal compounds discovery

Jessica Mai ● '26, USC Viterbi | Biomedical Engineering
PI: Megan McCain | Mentors: James Eichenbaum

Functionalized porous scaffold for investigating neurite extension

***Yutong Shao** ● '26, USC Dornsife | Neuroscience
PI: Zhen Zhao | Mentors: Feixiang Chen

Injectable Hydrogel-Mediated Sequestration of Inflammatory Cells in the Subarachnoid Space

***Erika Li** ● '26, USC Dornsife | Quantitative Biology
PI: Michael Jakowec | Mentors: Giselle Petzinger, Ryan Foreman

Exogenous L-Lactate Administration in an MPTP Mouse Model of Parkinson's Disease

***Janeel Calzaretta** ● '25, USC Dornsife | Neuroscience
PI: Constanza Cortes | Mentors: Hash Brown Taha

Skeletal muscle TFEB over expression mimics physiological benefits of exercise in a sex-dependent manner throughout aging

Kyle Phong ● '27, UCLA | Psychobiology
PI: Raymond Goldsworthy | Mentors: Matthew Ardis

Exploring the Relationship between Hearing Loss and Cognitive Decline

Samuel Liu ● '25, USC Dornsife; USC Viterbi | Human Biology; Data Science
PI: Jeremy Mason | Mentors: Stephanie Shishido

Predicting Bladder Cancer Recurrence and Survival After Cystectomy: A Machine Learning Approach

Kenneth Nguyen ● '25, USC Dornsife | Quantitative Biology
PI: Michael Bienkowski | Mentors: Terri Stephen

Machine Learning Quantification of Alzheimer's Disease Pathology within Human Post-mortem Tissue

Heesoo Kim ● '27, USC Dornsife | Human Biology
PI: Vadim Cherezov | Mentor: Aleksey Raskovalov

Molecular Movie of β_2AR Activation

Anusha Deshpande ● '25, USC Dornsife | Human Biology
PI: Irene Chiolo | Mentors: Anik Mitra

The role of the double-stranded RNA binding protein Blanks in the heterochromatin repair

Sudi Feng ● '25, USC Dornsife | Neuroscience
PI: Charles E. McKenna | Mentors: Sabrina Yang, Boris Kashemirov

Screening Small Molecule Inhibitors to Combat Fungal Diseases

Brian Lam ● '26, USC Dornsife | Biology
PI: Eun Ji Chung | Mentors: Isabella Suzuki

Assessing in vivo response to multiple doses of miR-145 micelles for atherosclerosis

Vienna Gao ● '25, USC Dornsife | Neuroscience
PI: Brian Dias | Mentors: William Taylor

Examining Cellular Activity in Learning and Memory

Allison Chang • '25, USC Dornsife | Neuroscience
PI: Dion Dickman | Mentors: Rebecca Stark

Dissecting Out Determinants of Synaptic Heterogeneity at the Drosophila NMJ

%Bhavesh Ashok • '25, USC Dornsife | Biochemistry
PI: Valery Fokin | Mentors: William Richards, Joshua Ibs

Insights into iodine-oxygen weak interactions

Jaylin Hsu • '25, UCLA | Molecular, Cell & Developmental Biology
PI: Kristan Leech | Mentors: Christina Holl, Maryana Bonilla Yanez, Aria Haver-Hill

Anterior Ground Reaction Forces Post-Stroke: Assessing Propulsion in the Paretic and Nonparetic Limbs at Different Speeds

Baishali Chaudhuri • '26, USC Dornsife | Biochemistry
PI: Peter Kuhn | Mentors: Stephanie Shishido, Jeremy Mason

[not present] Characterization of Liquid Biopsies in Leptomeningeal Disease through a Warm Autopsy Study

Isabelle Whetsel • '27, Wellesley College
PI: Jennifer Dien-Bard | Mentors: Samantha Zavala

[not present] Clinical and Genotypic Investigation of Group A Streptococcus

GROUP A: POSTER PRESENTATIONS [1:30pm – 2:00pm]

Shayan Ameri • '26, South Pasadena HS, S Pasadena, CA
PI: Benjamin Xu | Mentors: Galo Andres Apolo Aroca

Multiracial Angle-Closure Progression Study

Sophie Maya Ankeles • '26, Polytechnic School, Pasadena, CA
PI: Brian Dias | Mentors: Samantha Stack, Laura Korobkova, Nabeel Bhinderwala, Layla Vasquez

Tracking Perineuronal Nets through Development

Ethan Chang • '25, Troy HS, Fullerton, CA
PI: Zhen Zhao | Mentors: Tenghuan Ge

ATP13A5 as a Specific Marker for Brain Pericytes

Claire Chen • '25, South Pasadena HS, South Pasadena, CA
PI: Yasser Khan | Mentors: Munia Ferdoushi

Implementation of additive manufacturing, Python based API and Machine Learning for advancement of Wearables in Precision Psychiatry

Suhani Desai • '25, Yorba Linda HS, Yorba Linda, CA
PI: Gauri Rao | Mentors: Rajnikant Sharma, Quentin Valle

Efficacy of Meropenem and Polymyxin against Pseudomonas Aeruginosa: Time Kill Assay

&Connie Gov • '25, Alhambra HS, Alhambra, CA
PI: Fabien Pinaud | Mentors: Liying Wu

Investigating Nanoscale Organization of LINC Complex Utilizing Mutagenesis and Super-Resolution Imaging

#Ella Graber • '26, Harvard Westlake HS, Studio City, CA
PI: Rita Barakat | Mentors: Ash Rodgers

Revisiting the Stroop Task as a tool to study Language and Executive Functioning

&Anahit Grigorian • '25, Rose & Alex Pilibos Armenian School, Los Angeles, CA
PI: Benjamin Xu | Mentors: Galo Apolo, Ireland Conti, Alexander Ko

Multiracial Angle-Closure Progression Study

Diya Khanna • '26, Woodbridge HS, Irvine, CA
PI: Wendy Mak | Mentors: Naoko Kono

Associations between vascular inflammation and blood-based Alzheimer's disease biomarkers in post-menopausal women

&Elisha Kim • '25, Larchmont Charter School, Los Angeles, CA
PI: Lindsey Schier | Mentors: Katherine Merklings, Ciorana, Aracely Simental

Sweet Receptors Regulate the Expression of Genes Involved in Glucose Metabolism in the Taste Bud Cells

Holly Kong • '25, Belmont HS, Belmont, MA <i>PI: Ching-Ling (Ellen) Lien Mentors: Yuhan Sun</i>	<i>Morphological Analysis of Heart in a MIS-C Zebrafish Model</i>
Cynthia Kung • '26, Troy HS, Fullerton, CA <i>PI: Jennica Zaro Mentors: Benazir Oluoch</i>	<i>Expression and purification of ProInsulin-Transferrin for Treating Type II Diabetes</i>
Cory Lai • '26, La Salle College Prep, Pasadena, CA <i>PI: Ching-Ling (Ellen) Lien Mentors: Xidi Feng</i>	<i>Examine the role of estrogen on adrenomedullin expression in zebrafish cardiac lymphatic endothelial cells</i>
Madeline Lee • '26, San Marino HS, San Marino, CA <i>PI: Zhen Zhao Mentors: Tenghuan Ge, Yafei Qu</i>	<i>The role of ORF3a in hijacking exosomes during Severe Acute Respiratory Syndrome Coronavirus-2 infection</i>
Hengzhou (Ferris) Li • '27, Northwood HS, Irvine, CA <i>PI: Zhen Zhao Mentors: Tenghuan Ge</i>	<i>Systematic Analysis of the Murine Aging Brain Using Single-cell RNA Sequencing</i>
Donny Liang • '28, Rancho Bernardo HS, San Diego, CA <i>PI: Liya Xu Mentors: Jeremy Mason</i>	<i>Concentration evaluation of differentially expressed protein of aqueous humor from uveal melanoma eyes</i>
Luna Liang • '25, Glen A Wilson HS, Hacienda Heights, CA <i>PI: Thomas Lozito Mentors: Darian Gamble, Toni Castro-Torres, Zheyu Pan</i>	<i>Purification of Lizard Blastema Cells</i>
Rayhan Mahamed • '25, Arcadia HS, Arcadia, CA <i>PI: Lindsey Schier Mentors: Aracely Simental</i>	<i>Sweet Receptors Regulate the Expression of Genes Involved in Glucose Metabolism in the Taste Bud Cells</i>
Elliott Oakes • '25, Flintridge Preparatory School, La Cañada, CA <i>PI: Thomas Lozito Mentors: Zheyu Pan</i>	<i>Responses to Hedgehog Signaling in Lizard and Mouse Blastemas</i>
Lena Peresztegi • '26, Palos Verdes HS, Palos Verdes Estates, CA <i>PI: Janos Peti-Peterdi Mentors: Audrey Izuhara</i>	<i>Mechanistic Exploration of Macula densa Sensing of Systemic Metabolic States</i>
Sidak Sanghari • '25, The Harker School, San Jose, CA <i>PI: Denise Tran Mentors: Adam Leventhal</i>	<i>Experience and Satisfaction with a Mobile Phone Based Intervention for E-cigarette Use and Smoking Risk in Young Adults: A Mixed Method Study</i>
Kaarthiga Selvakkumaran • '26, Arcadia HS, Arcadia, CA <i>PI: Giorgia Quadrato Mentor: Tuan Nguyen</i>	<i>Culturing iPSC and Immunohistochemical Analysis of Human Cerebellar Brain Organoids Using Granule and Purkinje Cell Markers</i>
&Abdarrhman Sheer • '25, Francisco Bravo Medical Magnet HS, Los Angeles, CA <i>PI: Ali Soleimani Mentors: Sina Khazaei Nejad</i>	<i>Laser-Induced Graphene-Based Sensor for Detection of Sub clinical Mastitis</i>
&Jason Valdes • '28, Pomona College, Claremont, CA <i>PI: James Finley Mentors: Isaiah Lachica</i>	<i>Sympathetic Responses to Balance Disturbances While Walking</i>
Alyssa Wang • '26, Taipei American School, Taipei, Taiwan <i>PI: Jennica Zaro Mentors: Samantha Marcotte</i>	<i>Targeting the Mildly Acidic Microenvironment of Solid Tumors using pH-sensitive Cell Penetrating Peptides</i>
Grace Yu • '25, American HS, Fremont, CA <i>PI: Liya Xu Mentors: Chen-Ching Peng</i>	<i>Statistical evaluation of MACSPlex extracellular vesicle assay blanks for the quantification of aqueous humor analytes</i>

GROUP B: POSTER PRESENTATIONS [2:10pm – 2:40pm]

Benjamin Baker • '26, Flintridge Preparatory School, La Cañada Flintridge, CA <i>PI: Young-Kwon Hong Mentors: Brandon Nakashima</i>	<i>Study of Lymphatic Vasculature in Fontan Patients</i>
Yilin Fang • '25, Los Gatos HS, Los Gatos, CA <i>PI: Peter Wang Mentors: Zhou Yuan</i>	<i>Engineering Armored Synnotch CAR T-cells for enhanced Treatment Efficacy</i>
Piya Goel • '25, Cerritos HS, Cerritos, CA <i>PI: G.K. Surya Prakash Mentors: Matthew Coe</i>	<i>Bromofluorocarbene Generation using Dibromofluoro Acetates and Esters</i>
Hugo Herrero-MacKenzie • '25, Li Po Chun United World College of Hong Kong, Hong Kong, China <i>PI: Paul Seidler Mentors: Ian Haworth, Zipeng Zheng</i>	<i>Correlations between Pharmacological Similarity and Innovation among Marketed Drugs</i>
Gavin Huang • '25, Conestoga HS, Berwyn, PA <i>PI: Andrea Belz Mentors: Naseela Pervez, Fred Morstatter</i>	<i>Applying Context Specific Metadata for Efficient Classification of Scientific Documents</i>
Caden Jin • '27, San Marino HS, San Marino, CA <i>PI: Young-Kwon Hong Mentors: Jin Suh Yu</i>	<i>The Morphology of Lymphatic Vessels in Familial Alzheimer's Disease</i>
Dhruvi Kulkarni • '25, Arcadia HS, Arcadia, CA <i>PI: G.K. Surya Prakash Mentors: Anushan Alagaratnam</i>	<i>Heterogeneous Catalyzed Reduction of Olefins and Carbonyls via Hydrogen Transfer from Cyclohexene</i>
#Sunny Lau • '25, Walnut HS, Walnut, CA <i>PI: Tin Aung Than Mentors: Sanda Win</i>	<i>Role of MAP Kinases in Regulation of Pyroptosis</i>
Claire Lee • '26, La Cañada HS, La Cañada, CA <i>PI: Young-Kwon Hong Mentors: Luping Zhao</i>	<i>Elucidating the Morphology of Uterine Lymphatics Across Estrous Phases</i>
Eric Lee • '26, La Cañada HS, La Cañada, CA <i>PI: Young-Kwon Hong Mentors: Jinsuh Yu</i>	<i>Foxo1 Inhibition contributes to increased Lymphatic Vascular Length, Width, and Area in vitro</i>
Hailey Lee • '26, Crescenta Valley HS, La Crescenta, CA <i>PI: Peter Wang Mentors: Nate Yoon</i>	<i>Investigation of Mechanosensitive Proteins in 3D Spheroid Models</i>
Ryan Lee • '26, La Cañada HS, La Canada, CA <i>PI: Young-Kwon Hong Mentors: James Yu</i>	<i>Drug Screening on Vessels</i>
Jessie Li • '25, The Bishop Strachan School, Toronto, ON, CAN <i>PI: Gangning Liang Mentors: Yvonne Tsai, Rongying Lu, Zhenzhong Deng</i>	<i>ONECUT2 gene body DNA methylation predicts its expression status and aggressiveness of prostate cancer</i>
Melody Liu • '25, Arnold O. Beckman HS, Irvine, CA <i>PI: Lauran Lukas Mentors: Hualin Zhang, Lauren Garcia</i>	<i>Feasibility of Lead GRID collimators for Electron Spatially Fractionated Radiation Therapy</i>
Abe Lobsenz • '25, Staples HS, Westport, CT <i>PI: Paul Seidler Mentors: Angela Albanese</i>	<i>Magneto-Mechanical Disaggregation of Tau Protein Fibrils with EGCG-Functionalized Superparamagnetic Nanoparticles</i>
#Akash Mittapally • '27, Northwood HS, Irvine, CA <i>PI: Andrea Belz Mentors: Naseela Pervez, Fred Morstatter</i>	<i>Building Author to Author Collaboration Network for the NASA SBIR Program</i>
Conor Roehmholdt • '25, La Cañada HS, La Cañada, CA <i>PI: Britni Belcher Mentors: Kathleen Page</i>	<i>Harnessing Machine Learning to Predict Hyperinsulinemia in Children</i>

# Zuni Ng • '25, Arcadia HS, Arcadia, CA PI: Sanda Win Mentors: Tin Aung Than	<i>Sub-cellular localization of SH3BP5 and SH3BP5L in hepatocytes</i>
# Kirthi Paramasivan • '25, Oak Park HS, Oak Park, CA PI: Fengzhu Sun Mentors: Rachel Yuqiu Wang, Will Yue Huang	<i>Utilization of Integrated Heterogeneous Studies in Screening of Colorectal Cancer Algorithm</i>
Shravya Sethi • '27, Gretchen Whitney HS, Cerritos, CA PI: Brian Lee Mentors: Roberto Martin Del Campo Vera	<i>Impact of Electromagnetic Interference from ICU Devices on Intracranial Electrodes: An In-Vitro Study Using Depth and Grid ECoG Electrodes</i>
Trisha Srivastava • '26, Moorpark HS, Moorpark, CA PI: Andrea Belz Mentors: Naseela Pervez, Fred Morstatter, Charles Parker	<i>Using Nasa Abstracts To Find Author To Author Connections</i>
Conner Wang • '28, Polytechnic School, San Marino, CA PI: Paul Seidler Mentors: Angela Albanese	<i>Monoaminergic neurotransmitters are polyphenol-type modulators of protein aggregation</i>
# Yingchi Xiao • '26, Arcadia HS, Arcadia, CA PI: Sanda Win Mentors: Tin Aung Than	<i>SAB (SH3BP5) and JNK mediated mechanism of ferroptosis</i>
Xiaolan Linda Yao • '25, St. Francis HS, Mountain View, CA PI: Gangning Liang Mentors: Yvonne Tsai, Rongying Lu, Zhenzhong Deng	<i>ONECUT2 Gene Body DNA Methylation Predicts Its Expression Status And Aggressiveness of Prostate Cancer</i>

GROUP C: POSTER PRESENTATIONS [2:50pm – 3:20pm]

Shakti Arun • '25, Norton HS, Norton, MA PI: Unmesh Jadhav Mentors: Maria Quiloan	<i>Repressive H3K27me3 modification maintains tissue identity</i>
Shibani Bansal • '26, West Ranch HS, Santa Clarita, CA PI: Deepa Bhojwani Mentors: Ravi Bansal	<i>Brain Basis for Neurotoxicity in CAR T-Cell Therapy for Acute Lymphoblastic Leukemia</i>
Mia Zara Blanco • '26, West Ranch HS, Stevenson Ranch, CA PI: Cristina Zavaleta Mentors: Helen Salinas	<i>Fluorescence Stability Assessment of Novel Drug & Cosmetic Dyes for Cancer Imaging Applications</i>
Austin Chen • '25, Rancho Cucamonga HS, Rancho Cucamonga, CA PI: John Andrew Mackay Mentors: Ashley Ramierz, Shin-Jae Lee, Sara Attia	<i>Utilizing AlphaFold 3 to Predict the Qualitative Binding of ELP-KCF18 Fusion Protein to Interleukin-6s</i>
Reed Dietrick • '25, Westridge School for Girls, Pasadena, CA PI: Alexandra Kovach Mentors: Caleb Cornaby	<i>Comparison of Novel Expanded Flow Cytometry Assay for Minimal/Measurable Residual Disease (MRD) in B-Lymphoblastic Leukemia (B-ALL) with Gold Standard Assay</i>
Nidhi Dubey • '26, Neuqua Valley HS, Naperville, IL PI: Unmesh Jadhav Mentors: Maria Quiloan	<i>Cytokine IL10 Facilitates Epithelial Regeneration</i>
Krish Dutta • '25, Yorba Linda HS, Yorba Linda, CA PI: Michael Press Mentors: Bin Xie, Simon Davenport, Morgan Weatherred	<i>Evaluation of HER2 Expression in Human Breast Cancer Samples by Immunohistochemistry</i>
Syed Hussain • '25, Arcadia HS, Arcadia, CA PI: Hussein Yassine Mentors: Cristelle Hugo	<i>Assessing Conditions for Cellular Senescence in APOE4 Astrocytes</i>

<p>Maya Itani • '25, Flintridge Preparatory School, La Cañada, CA PI: Mark Lew Mentors: Alejandra Valenzuela</p>	<p><i>An Overview of Two Studies: The Parkinson's Progression Markers Initiative (PPMI) Clinical - Establishing a Deeply Phenotyped PD Cohort & Development of a novel tear-based biomarker for diagnosis of Parkinson's Disease using RT-QuIC to detect oligomeric alpha sinuclein</i></p>
<p>Syan Jain • '25, Brophy College Preparatory, Phoenix, AZ PI: Michael Campbell Mentors: Alexandria Koedel, Alessandro Lisi</p>	<p><i>Investigating Nucleotide and Haplotype Variation in the HBB Gene in Geographically and Ethnically Diverse Human Populations from Africa</i></p>
<p>Dixon Karmindro Jr • '26, Crossroads School for Arts & Sciences HS, Santa Monica, CA PI: Gage Crump Mentors: Kelsey Elliot</p>	<p><i>Oral Odontogenesis in Zebrafish</i></p>
<p>Alexandra Meyer • '25, Phillips Exeter Academy, Exeter, NH PI: Fumito Ito Mentors: Angelina Lim, Joshua Ni</p>	<p><i>Impact of glucocorticoids on efficacy of immune checkpoint inhibitor therapy and biomarker performance in patients with non-small cell lung cancer</i></p>
<p>Ethan Pham • '27, Corona del Mar HS, Corona del Mar, CA PI: Hussein Yassine Mentors: Isaac Asante</p>	<p><i>Fish Oil Metabolism in APOE ε4 Carriers and Noncarriers</i></p>
<p>Vy Pham • '26, Flintridge Preparatory School, La Cañada, CA PI: Louis Dubeau Mentors: Gülbahar Kutluturk</p>	<p><i>Role of Smell on Ovulation and Ovarian Cancer Risk</i></p>
<p>Aviv Pilipksi • '25, Harvard-Westlake School, Studio City, CA PI: Stephen Bradforth Mentors: Brandon Young, Shivalee Dey</p>	<p><i>Characterizing the Surface and Bulk Activity of Tryptophan, Tyrosine, and Phenylalanine Using Alkylbenzene and Extended-Chain Cresolate Models</i></p>
<p>Kaoru Saito • '25, La Cañada HS, La Cañada, CA PI: Hyungjin Eoh Mentors: Jae-Jin Lee, Gi Yong Lee, Stephanie Dihadjo</p>	<p><i>Multiple Adaptive Strategies of M. Tuberculosis to Resist Environmental Stresses</i></p>
<p>Areen Sandhu • '27, Stockdale HS, Bakersfield, CA PI: Valery Fokin Mentors: Sage Cordsen</p>	<p><i>Hydrolytic Stability of a Modified Anti Opioid Overdose Drug</i></p>
<p>Gyan Kumar Shrivastava • '25, Northwood HS, Irvine, CA PI: Valery Fokin Mentors: Joshua Ibs</p>	<p><i>Synthesis of Anandamide Scaffolds for Screening of Hydrolytic Stability</i></p>
<p>Navya Sreeraj • '25, Oak Park HS, Oak Park, CA PI: Hussein Yassine Mentors: Christopher Lasher</p>	<p><i>Measuring HDLs and LDLs through Ion Mobility for Alzheimer's Research</i></p>
<p>Audrey Sung • '25, Orange Lutheran HS, Orange, CA PI: Gage Crump Mentors: Muniza Junaid, Oluchi Ofoegby</p>	<p><i>Identifying the Role of Pitx Genes in the Development of the Zebrafish Craniofacial Domain</i></p>
<p>Rajan Tavathia • '25, Mt. Carmel HS, San Diego, CA PI: Michael Campbell Mentors: Alessandro Lisi</p>	<p><i>Understanding the Adaptive Evolution of Sweet and Umami Taste Genes In Globally Diverse Human Populations</i></p>
<p>Edward Wallace • '25, Santa Monica HS, Santa Monica, CA PI: Cristina Zavaleta Mentors: Olga Eremina, Pegah Bagheri</p>	<p><i>Colorful Assessment of Active Targeting Potential of Gold-Based Nanoparticles for Multiplexed Raman Proteomics Imaging</i></p>
<p>&Si Qi Wei • '25, Temple City HS, Temple City, CA PI: Lihua Liu Mentors: Han Shen</p>	<p><i>Lung Cancer Incidence Trends by Gender and Subtype in California</i></p>

GROUP D: POSTER PRESENTATIONS [3:30pm – 4:00pm]

Navyasri Basetty • '25, Granada Hills HS, Granada Hills, CA <i>PI: Le Trinh Mentors: Maggie Struble</i>	<i>Tissue-specific mutagenesis via CRISPR/Cas9 for investigating potential cardiac regulators</i>
Yongzhen Wilson Chen • '26, Arcadia HS, Arcadia, CA <i>PI: Zhaoxia Qu Mentors: Fremont Gao</i>	<i>Single-cell Analysis of Gene Expression Changes under Lung Pathogenic Conditions</i>
Hannah DeMerit • '25, Flintridge Preparatory School, La Cañada, CA <i>PI: Bilal Ersen Kerman Mentors: Hussein Yassine</i>	<i>Analysing ApoE Endocytosis In Human Neurons</i>
Kaavya Dhand-Kalluri • '26, PALY HS, Palo Alto, CA <i>PI: Raymond Goldsworthy Mentors: Matthew Ardis, Julianne Papadopoulos</i>	<i>Comparing Performance on Melody and Instrument Identification Training Between Cochlear Implant Users and Normal Hearing Participants</i>
Jiayue (Abby) Geng • '25, San Marino HS, San Marino, CA <i>PI: Clay Wang Mentors: Jennifer Shyong, Stella Dziedzic, Thea Millam</i>	<i>Generating a Natural Product Library by Genetically Manipulating mcrA in Penicillium expansum (IMV074)</i>
Max Herman • '25, Polytechnic School, Pasadena, CA <i>PI: Clay Wang Mentors: Jennifer Shyong, Stella Dziedzic</i>	<i>Comparison of the Metabolic Profile in the Terrestrial and Marine Strains of Penicillium chrysogenum</i>
Mason Hong • '26, La Salle College Preparatory, Pasadena, CA <i>PI: Francesco Cutrale Mentors: Le Ai Trinh</i>	<i>Exploring Microscopes and Technologies</i>
Pranav Kolli • '27, Arnold O. Beckman HS, Irvine, CA <i>PI: Matthew Pratt Mentors: Eldon Hard</i>	<i>Assessment of Reverse-high Phase Liquid Chromatography and Ion-exchange Chromatography on Alpha-Synuclein Concentration and Purity</i>
Marcus Lee • '26, Palos Verdes Peninsula HS, Rolling Hills Estates, CA <i>PI: Joseph Wiemels Mentors: Eric Nickels</i>	<i>Role of DNA Methylation in Acute Lymphoblastic Leukemia</i>
Youhan Liu • '26, South Pasadena HS, S Pasadena, CA <i>PI: Clay Wang Mentors: Stella Dziedzic, Jennifer Shyong</i>	<i>Generating a Natural Product Library by Genetically Manipulating mcrA in Penicillium camemberti</i>
Lila Talley Paterson • '25, St. Paul's School, Concord, NH <i>PI: Martine Culty Mentors: Niki Mohajer</i>	<i>The Effect of Environmental Chemicals and Pharmaceuticals on Sertoli Cell Functions</i>
Matthew Ren • '26, Harvard-Westlake HS, <i>PI: Beiyun Zhou Mentors: Jinzhong Zhou, Yixin (Jason) Li</i>	<i>Analyze the Wnt5a Expression in Alveolar Epithelial Type II Cells and Fibroblasts Using RNAscope</i>
Saya Rutgers • '25, Palisades Charter HS, Los Angeles, CA <i>PI: Le Trinh Mentors: Emily Shaw</i>	<i>Split Fluorescent Protein to Enable Efficient Tagging of Endogenous Proteins</i>
Lidia Tian • '25, Temple City HS, Temple City, CA <i>PI: Jian Yu Mentors: Haris Saeed, Yoshiaki Soto</i>	<i>Targeting KRAS in Mutant Colorectal Cancer Cells via Translational Inhibition</i>
Zoe Tran • '26, Laguna Beach HS, Laguna Beach, CA <i>PI: Dion Dickman Mentors: Elizabeth Loxterkamp, Rebecca Stark</i>	<i>Transcriptomic Atlas of Motor Neurons and Muscles in Drosophila Melanogaster</i>
Lisa Zhang • '25, South Pasadena HS, S Pasadena, CA <i>PI: Peter Qin Mentors: Difei Wu</i>	<i>Study of DNA binding to Gold Nanoparticles</i>
Sophia Zhang • '26, Arcadia HS, Arcadia, CA <i>PI: Beiyun Zhou Mentors: Yixin (Jason) Liu</i>	<i>Effect of Grp78 Knockout on Mitochondrial Dysfunction in Alveolar Epithelial Type II Cells</i>

Jeffrey Zhao • '25, Diamond Bar HS, Diamond Bar, CA
 PI: Le Trinh | Mentors: Maggie Struble

Tissue-specific mutagenesis via CRISPR/Cas9 for investigating potential cardiac regulators

Sitka Crump • '27, John Marshall HS, Los Angeles, CA
 PI: Thomas Lozito | Mentors: Toni Castro

[not present] The roles of osteoclasts and phagocytes in lizard tail regeneration

Nihitha Reddy • '24, Massachusetts Academy of Math & Science, Worcester, MA
 PI: Dong Song | Mentors: Wooseong Choi

[not present] Automating Time-Series Data Annotation for Identifying Neural Activity Phases

Etan Lerner • '26, Shalhevet HS, Los Angeles, CA
 PI: Dion Dickman | Mentors: Joshua Martinez

[not present] A CRISPR-based screen to identify Drosophila glutamate receptors necessary for adult geotaxis and larval locomotion

Our sincere thanks to...

- *The students, faculty, mentors and colleagues for their support and participation in the 2024 BUGS Summer Research Program.*
- *Dr. Arthur & Mrs. Frances Peskoff for establishing the Trudi Berwin Student Support Fund which supported (in full or in part) undergraduates (names starred (*) in the program).*
- *Sandeep and Neeti Dang for establishing the Dang Family Endowed Undergraduate Research Fund which supported one undergraduate (@).*
- *The Gala Family Foundation which provided partial (matching) support for undergraduate stipends (%).*
- *The Jae S. Lim Foundation for their continuing support of the BUGS Jr program (which funded (#) 6 high school students).*
- *The Mayfield Family Foundation for their support of the BUGS Jr program (which funded (&) 7 high school students).*
-



For information or to donate to the Bridge Institute or the BUGS/BUGS Jr Programs:

Contact us at: bridgeinstitute@usc.edu 213-821-9823

<https://bridge.usc.edu>

or

Make an appointment to visit us at:

Bridge Institute; USC Michelson Center for Convergent Bioscience;
1002 Childs Way; MCB 309; Los Angeles, California 90089-3502