



**UConn**

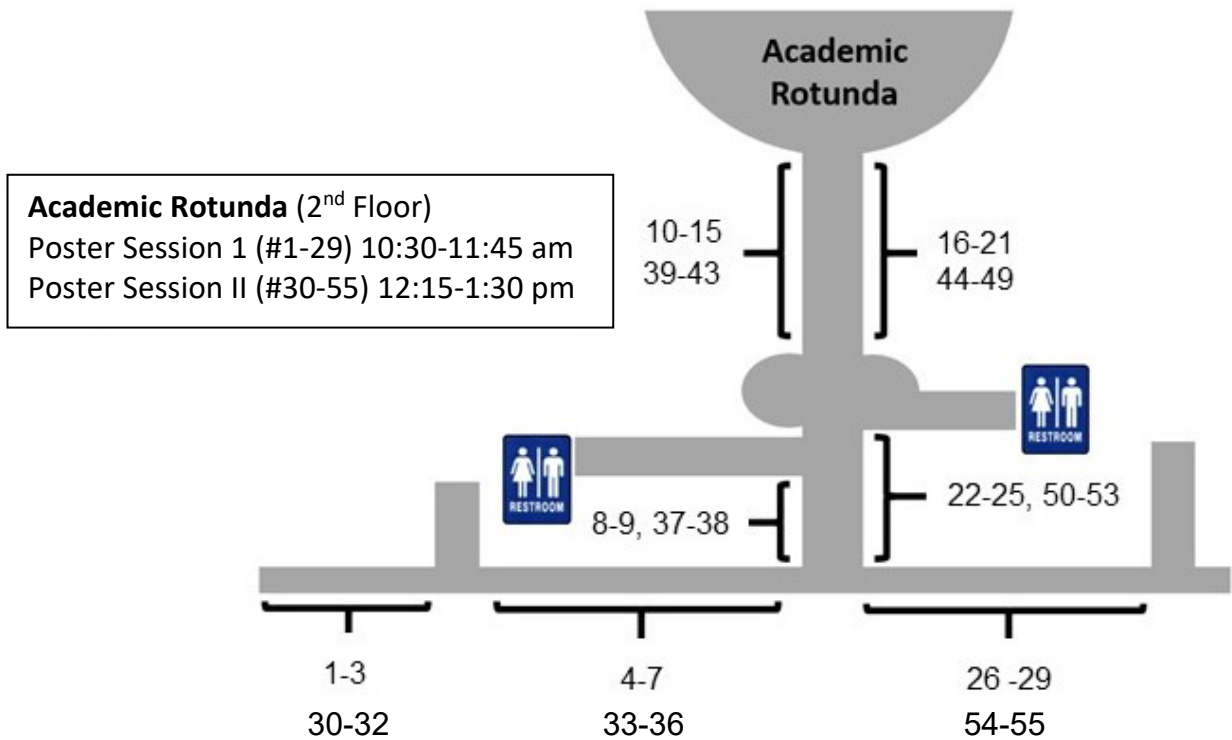
**SUMMER  
RESEARCH  
DAY**

**JULY 25, 2024**  
**Academic Rotunda, UConn Health**

# AGENDA at a glance

- 9:30 – 9:45 am**      **Welcome** (Academic Rotunda Room)  
                                 **Micah Heumann**, Director, Office of Undergraduate Research; Director, Health Research Program  
                                 **Caroline Dealy**, Director, TIP Innovation Fellows Program  
                                 **Abhijit Banerjee**, Associate Vice President for Research, Innovation, and Entrepreneurship
- 9:45 am - 10:30 am**      **Short Talks Session 1** (Academic Rotunda Room)
- 10:30 am - 11:45 am**      **Poster Session 1** (#1-29, Academic Rotunda Hallways; see map on next page)
- 11:45 am - 12:15 pm**      **Lunch** (provided for presenters) and Poster Swap
- 12:15 pm - 1:30 pm**      **Poster Session 2** (#30-55, Academic Rotunda Hallways; see map on next page)
- 1:30 pm - 2:15 pm**      **Short Talks Session 2** (Academic Rotunda Room)
- 2:15 pm – 2:30 pm**      **Closing** (Academic Rotunda Room) and Group Photo

## POSTER SESSION MAP



# SHORT TALKS Session 1

9:45-10:30 am

- 9:45 - 10:00 am** *Cancer in Adolescents and Young Adults*  
**Toriana Grooms '25** (English; College of Liberal Arts & Sciences), UConn Storrs  
Host TIP Company: [QCDX](#), UConn TIP (Technology Incubation Program), Farmington
- 10:00 - 10:15 am** *UConn's Technology Commercialization Services*  
**Eva LaRue Barber '24** (Allied Health; College of Agriculture, Health and Natural Resources)  
**Brandon McClean '25** (Professional Science Masters Program in Applied Genomics), UConn Storrs  
**Lance Miller '27** (Computer Science; College of Engineering), UConn Waterbury  
Host: UConn Technology Commercialization Services
- 10:15 - 10:30 am** *Telehealth and Integrated Care in Men's Health Urology: A Path to Improved Access, Outcomes, Provider Experience and Cost Savings*  
**Tarum Shriram '25** (Biology; College of Liberal Arts & Sciences), UConn, Storrs  
Host TIP Company: [Bastion Health](#), UConn TIP (Technology Incubation Program), Farmington

# POSTER SESSION 1

10:30-11:45 am (#1 - 28)

Academic Rotunda Room Hallways

- 1. Corneal Axonal Regeneration After Chemical Injury*  
**Aanvi Agrawal '27** (Molecular and Cellular Biology & Psychological Sciences, CLAS), UConn Storrs  
HRP Mentor: Royce Mohan, Professor, Paola Bargagna-Mohan, Assistant Professor, Department of Neuroscience
- 2. The Role of RFWD2 in Anxiety and Social Behaviors*  
**Laya Ananthkrishnan '27** (Allied Health Sciences, CAHNR), UConn Storrs  
HRP Mentor: Xin-Ming Ma, Associate Professor, Department of Neuroscience
- 3. Quantifying the Reactivity of a Novel Metal Oxide Catalyst*  
**Jayson Rhoades '26** (Biomedical Engineering; ENG), UConn Storrs  
Host TIP Company: [Nanoionix](#), UConn TIP (Technology Incubation Program), Farmington
- 4. Retention, Illicit Drug Use, and Psychiatric Severity of Older Adults Compared to Younger Adults with Opioid Use Disorder in Buprenorphine Treatment*  
**Jillian Bowen '25** (Pathobiology & Animal Science, CAHNR), UConn Storrs  
HRP Mentor: Carla J. Rash, Associate Professor, Department of Medicine
- 5. How CySCs are involved in the dedifferentiation of GSCs in Drosophila Testes*  
**Justin Carroll '25** (Biology, CLAS), UConn Storrs  
HRP Mentor: Mayu Inaba, Assistant Professor, Department of Cell Biology

6. *Discovery of Novel Biomarkers for Stroke Severity*

**Amber Chaing** '25 (Allied Health Sciences, CAHNR), UConn Storrs  
HRP Mentor: Rajkumar Verma, Assistant Professor, Neuroscience

7. *Antibiotic Induction of Shiga Toxin cargo in Enterohemorrhagic Escherichia Coli outer membrane vesicles*

**Udayan Chidambaram** '27 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Sivapriya Kalisan Vanaja, Assistant Professor, Immunology

8. *Sensitive Circulating Tumor Cell (CTC) Liquid Biopsy for Improved Diagnosis and Treatment*

**Samuel Hilliman** '24 (RAMP: Research and Mentoring for Post-baccalaureate Program; CLAS), UConn Storrs  
Host TIP Company: [QCDX](#), UConn TIP (Technology Incubation Program), Farmington

9. *Sunrise, Sunset: How the Gut Microbiome Responds to Light*

**Andreana DeCarlo** '26 (Biomedical Engineering, ENG), UConn Storrs  
HRP Mentor: Yanjiao Zhou, Assistant Professor, Medicine

10. *Role of RUNX2 in TGF $\beta$ -1 Induced Fibroblast Activation*

**Tracy Doan** '25 (Allied Health Sciences, CAHNR), UConn Storrs  
HRP Mentor: Yanlin Wang, Professor, Melanie Tran, Instructor, Nephrology

11. *Predicting Gestational Diabetes Using Machine Learning Methods*

**Tanush Vanarase** '26 (Computer Science Engineering, ENG), UConn Storrs  
Host TIP Company: [General Biomics](#), UConn TIP (Technology Incubation Program), Farmington

12. *The Benefits of Improving Dietary Fat Stage of Change on Preventing Diabetes, Directly and Through Weight Loss; A Randomized Intervention Implemented in Black Churches*

**Alveena Ehsan** '27 (Biomedical Engineering, ENGR), UConn Storrs  
HRP Mentor: Emil N. Coman, Assistant Professor in Residence, Health Disparities Institute, Public Health Sciences, Judith Fifield, Professor, Family Medicine, (Retired)

13. *Long Term Spatial Memory in Mouse Models Using VR*

**Quinn Fong** '25 (Physiology and Neurobiology, CLAS), UConn Storrs  
HRP Mentor: Andres Grosmark, Assistant Professor, Neuroscience, Neuroscience Department

14. *Use of BaTiO<sub>3</sub> Nanoparticles for Megavoltage Radiation Dose Enhancement*

**Maya Ganguli** '26 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Henry Smilowitz, Associate Professor, Cell Biology

15. *The Effect of Timing of Traumatic Events on Parents' Supportive Responses on Children's Negative Emotions*

**Caitlin Ith** '25 (Psychological Sciences & Human Development and Family Sciences, CLAS), UConn Storrs  
HRP Mentor: Dr. Carolyn Greene, Assistant Professor, Psychiatry

16. *Reconstructing an Intracellular Network for a Breast Cancer Cell Line Under Hypoxic Conditions*

**Simran Jain** '27 (Biomedical Engineering, ENGR), UConn Storrs  
HRP Mentor: Dr. Paola Vera-Licona, Assistant Professor, Center for Cell Analysis and Modeling

17. *Methods to Label Specified Dentate Granule Cells*

**Mannat Kadian** '27 (Molecular and Cellular Biology, CLAS), UConn Storrs  
HRP Mentor: Sebnem Tuncdemir, Assistant Professor, Neuroscience

18. *The Behavioral Effects of Cholinergic Drugs on Cognitive Flexibility in Mice*  
**Katarina Kalajic** '26 (Psychological Sciences, CLAS), UConn Storrs  
HRP Mentor: Timothy Spellman, Assistant Professor, Neuroscience
19. *The Role of Transcription factor PU.1 on Kidney Inflammation and Fibrosis*  
**John Kaszycki**, 2026 (Biological Sciences, CLAS), UConn Storrs  
HRP Mentor: Yanlin Wang, Professor, Nephrology
20. *Coronin 1A Remodels Inflammatory Microenvironment After AKI*  
**Edward Malakh** '26 (Molecular Cell Biology, CLAS & Nutritional Sciences, CAHNR), UConn Storrs  
HRP Mentor: Yuan Gui, Postdoctoral Researcher, Nephrology
21. *rhPRG4: A Potential Therapeutic and Delivery Enhancer for Age Related Macular Degeneration*  
**Mohnish Peddi** '26 (Biomedical Engineering, ENGR), UConn Storrs  
HRP Mentor: Tannin A. Schmidt, Associate Professor, Biomedical Engineering
22. *Optimization of Handheld Bioprinter Extrusion Control with a Stepper Motor System*  
**Alison Powell** '26 (Mechanical Engineering, ENGR), UConn Storrs  
HRP Mentor: Ali Tamayol, Associate Professor, Biomedical Engineering
23. *Peristalsis Model for Multi-Scale Modeling of the Gut Microbiome*  
**Colin Slavin** '26 (Biomedical Engineering, ENG), UConn Storrs  
HRP Mentor: Eran Agmon, Assistant Professor, Center for Cell Analysis and Modeling, Molecular Biology and Biophysics, and Biomedical Engineering
24. Automated Neuronal Spike Sorting Using Spike interface in Python  
**Abhinav Swaminathan** '27 (Computer Science & Engineering, ENGR), UConn Storrs  
HRP Mentor: Manuel Castro-Alamancos, Neuroscience
25. *Smartphone-Based DNA Biomarker Detection: Innovating Early Disease Detection and Health Monitoring with Microfluidic Technology*  
**Yusuf Zaidi** '25 (Mathematics/Statistics, CLAS), UConn Storrs  
HRP Mentor: Changchun Liu, Biomedical Engineering
26. *Honey as a Cryoprotectant: Testing the Enhancement of Post-Thaw Viability and Cytotoxicity of Natural Killer (NK) Cells*  
**Tracy Lacson** '25 (Professional Science Masters Program, Applied Biochemistry & Cell Biology; CLAS) UConn, Storrs  
**Thaomy Phung** '27 (Physiology & Neurobiology, CLAS), UConn Storrs  
Host TIP Company: [Enable Life Sciences](#), UConn TIP (Technology Incubation Program), Farmington
27. *Spin Properties of Organic Radical Ions for Quantum Sensing with Spin-Correlated Radical Pairs*  
**Rilee Martzloff** '25 (Chemistry; CLAS) UConn Storrs  
Undergraduate Research Mentor: Tomoyasu Mani, Chemistry
28. *Non-Eluting Covalently Bound Antibacterial Polymers on Various Substrates*  
**Thu Do** '26 (Biomedical Engineering, ENG) UConn Storrs  
**Amalia Klinowski** '25 (Statistics, CLAS) UConn, Storrs  
Host TIP Company: [DeBogy Molecular](#), UConn TIP (Technology Incubation Program), Farmington

## **BOX LUNCH (provided for presenters)**

**11:45– 12:15 pm**

Academic Rotunda Room or Courtyard, weather permitting

*Turkey, Ham & Cheese, Veggie*

*\*lunch for guests is available for purchase at the UCH cafeteria, Main floor*

Poster Session 1 presenters: take down your posters

Poster Session 2 presenter: hang your posters

## **POSTER SESSION 2**

**12:15-1:30 pm (#30-55)**

Academic Rotunda Hallways

29. *Magnetic Control of Emission from Molecular Qubits in Solid States*

**Isabella Bruzzese '27** (Physics, CLAS), UConn Storrs

**Noen Jian '26** (Chemistry, CLAS), UConn Storrs

**Neo Lin '25** (Chemistry, CLAS), UConn Storrs

Undergraduate Research Mentor: Tomoyasu Mani, Chemistry

30. *Rapid Detection of the toxin-producing algae, Alexandrium catenella, utilizing Loop-Mediated Isothermal Amplification (LAMP)*

**Alyna Beardslee** (Molecular and Cell Biology, CLAS & Diagnostic Genetic Sciences, CAHNR), UConn Storrs

**Jada Gist** (Marine Sciences, CLAS), UConn Storrs and Avery Point

**Mariella Petrovic** (Molecular and Cell Biology, CLAS), UConn Storrs

**Mahathi Veluri** (Molecular and Cell Biology, CLAS), UConn Storrs

Guest program: UConn iGEM (International Genetically Engineering Machine) program

iGEM mentor, Kate Castellano, Assistant Professor, Molecular and Cell Biology

31. *Hox Expression in Murine Fatigue Loading Stress Fracture Model*

**Jennifer Alaska '26** (Biomedical Engineering, ENGR), UConn Storrs

HRP Mentor: Benjamin Sinder, Assistant Professor, Orthopedic Surgery

32. *Shaping the Future of Men's Health Urology: How AI is Transforming Urology for Better Patient Outcomes and Provider Efficiency*

**Yusuf Zaidi '25** (Mathematics, CLAS), UConn Storrs

Host TIP Company: [Bastion Health](#), UConn TIP (Technology Incubation Program), Farmington

33. *Extracellular Matrix Protein 1 Metabolically Regulates the Kidney Fibrotic Microenvironment*

**Bansal Riddhi '27** (Molecular and Cell Biology Major, CLAS), UConn Storrs

HRP Mentor: Dong Zhou, Assistant Professor, Nephrology

34. *Circulating Cell-Free DNA Analyses Aiding to Define Its Biomarker Potential for Late-Life Depression*

**Emily Brayton '25** (Molecular and Cell Biology, CLAS), UConn Storrs

HRP Mentor: Breno Diniz, Associate Professor, Psychiatry and UConn Center on Aging

35. *Tandem Affinity Purification of a Second, Divergent TATA-Binding Protein in a Putative Transcription Factor IID Complex in Trypanosoma brucei*

**Rakshan Chada** '25 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Arthur Günzl, Professor, Genetics and Genome Sciences

36. *Development of Laboratory Bioassay for Antifouling Coatings*

**Matthew Li** '27 (Biomedical Engineering, ENG), UConn Storrs  
Host TIP Company: [Nanoionix](#), UConn TIP (Technology Incubation Program), Farmington

37. *Cdc73/Parafibromin in Mesenchymal Progenitors and Tumorigenesis*

**Melanie Chen** '26 (Physiology and Neurobiology, CLAS), UConn Storrs  
HRP Mentor: Jessica Costa, Assistant Research Professor, Center for Molecular Oncology and the Center for Regenerative Medicine and Skeletal Development

38. *Investigating Purinergic Receptor P2X4 (P2X4R) Trafficking in Ischemic Strokes*

**Shreya Chintalapudi** '26 (Physiology and Neurobiology and Spanish, CLAS), UConn Storrs  
HRP Mentor: Rajkumar Verma, Assistant Professor, Neuroscience Department

39. *A Marketing Understanding of Environmentally Friendly Coatings for Aquaculture*

**Alex Levicky** '25 (Marketing, School of Business), UConn Stamford

40. *Investigating Cartilage Healing Mechanisms in the TMJ (Jaw Joint) using a Clinically-relevant Pig Model*

**Rebecca Denhart** '27 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Caroline Dealy, Associate Professor, Orthodontics, Biomedical Engineering, Orthopedic Surgery, and Cell Biology

41. *Characterizing the Molecular Pathways of Secondary Neurodegeneration Following a Closed Head Blast Injury*

**Clyde D'Souza** '26 (Molecular and Cell Biology & Applied Mathematical Sciences, CLAS), UConn Storrs  
HRP Mentor: Ephraim Trakhtenberg, Assistant Professor, Neuroscience

42. *Investigating SMARCE1 Alternative 3'UTR mRNA Isoform Function in Human ES Cells*

**Eric Elliott** '25 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Pedro Miura, Associate Professor, Genetics and Genome Sciences

43. *Harm Reduction Vending Machines in Opioid Overdose Prevention*

**Cailyn Fuss** '25 (Allied Health Sciences, CAHNR), UConn Storrs  
HRP Mentor: Megan O'Grady, Assistant Professor, Public Health Sciences, Director, Center for Prevention, Evaluation, and Statistics (CPES)

44. *Isolation of NPR2 and Determination of its Protein Binding Interactions*

**Zachary Halstead** '26 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Steven Chou, Assistant Professor, Molecular Biology and Biophysics

45. *Measuring Quality in Medicaid-Certified Nursing Homes in Connecticut using CoreQ, a Nursing Home Resident and Family Member Satisfaction Survey*

**Anushka Jain** '26 (Physiology and Neurobiology & English, CLAS), UConn Storrs  
HRP Mentor: Ellis Dillon, Assistant Professor, Center on Aging

46. *The Effects of 4-AP and CBX on Spontaneous Activity of Pyramidal Neurons in the Mouse Model of Alzheimer's Disease*

**Madhav Jami** '27 (Physiology and Neurobiology, CLAS), UConn Storrs  
HRP Mentor: Srdjan Antic, Associate Professor, Neuroscience

47. *Novel Mouse Model Containing Conditional Hox11 Alleles Recapitulates Phenotype of Global Knockout*

**Ruupala Kalaiarasu** '27 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Danielle Rux, Assistant Professor, Orthopedic Surgery

48. *Defining the Substrate Determinants of a Salmonella Aminoacyl-tRNA Deacylase that Prevents Errors in Protein Synthesis*

**Sharva Karthikeyan** '27 (Biological Sciences, CLAS), UConn Storrs  
HRP Mentor: Oscar Vargas-Rodriguez, Assistant Professor, Molecular Biology and Biophysics

49. *Associations between Quality of Mother and Father Figure Relationships and Substance Use Among Emerging Adults with Mental Illness and Serious Antisocial Behavior*

**Fatima Khan** '26 (Physiology and Neurobiology, CLAS), UConn Storrs  
HRP Mentor: Kristyn Zajac, Associate Professor, Calhoun Cardiology Center and Medicine

50. *Roles of Histone Inheritance in Regeneration and Tumorigenesis*

**Vedansh Patel** '26 (Molecular and Cell Biology, CLAS), UConn Storrs  
HRP Mentor: Mayu Inaba, Assistant Professor, Cell Biology

51. *Analysis and Visualization of Molecular Clusters in 3D*

**Harrison Perone** '26 (Mechanical Engineering, ENGR), UConn Storrs  
HRP Mentor: Michael Blinov, Assistant Professor, Center for Cell Analysis and Modeling

52. *Could a Simple Blood Test Detect Tinnitus? Serum Prestin as a Potential Blood Biomarker of Sound Induced Tinnitus*

**Amelia Schaefer** '25 (Psychological Sciences, CLAS), UConn Storrs  
HRP Mentor: Alice Burghard, Assistant Professor, Neuroscience

53. *Examining the Impact of p53 Loss During Hematopoietic Differentiation from hiPSCs*

**Theodhora Sumbulla** '26 (Biological Sciences, CLAS), UConn Waterbury  
HRP Mentors: Hideyuki Oguro, Assistant Professor, Travis Roeder, Graduate Student, Cell Biology

54. *Developing a Shortened Version of the Modified Rhyme Test for Speech Intelligibility Assessment*

**Vangmayee Upadhyay** '27, (Allied Health Sciences, CAHNR), UConn Storrs  
HRP Mentor: Insoo Kim, Assistant Professor, Medicine

55. *Mapping the Endosteal vs Periosteal Contribution to Cortical Bone Formation*

**Anthony Zuo** '27 (Biological Sciences, CLAS), UConn Storrs  
HRP Mentor: Benjamin Sinder, Assistant Professor, Orthopedics Surgery



## SHORT TALKS Session 2

1:30 – 2:15 pm

Academic Rotunda Room

- 1:30 - 1:45 pm** *Combating Lyme Disease: Combining Lateral Flow Immunoassay Tick Detection with Antibiotic-Loaded Microneedle Patch Therapy*  
**Shea Solomon '25** (Diagnostic Genetic Sciences, CAHNR), UConn Storrs  
**Julina Vanyi '25** (Allied Health, CAHNR), UConn Storrs  
Host TIP Company: [Therapeutic Bandage](#), UConn TIP (Technology Incubation Program), Storrs
- 1:45 – 2:00 pm** *B2B Marketing of Bastion Men's Health Solution to Fortune 500 Companies*  
**Sherlyn Puello '26** (Marketing, School of Business), UConn Hartford  
Host TIP Company: [Bastion Health](#), UConn TIP (Technology Incubation Program), Farmington
- 2:00 – 2:15 pm** *Impacting the Lifeblood of Business: Concept, Connection, and Execution*  
**Nooshin Farashaeib '25** (Digital Media Design Masters; School of Fine Arts), UConn Storrs  
**Brooke Kvedar '25** (Biology, CLAS), UConn Storrs  
**Michael Zocco '25** (Marketing, School of Business), UConn Storrs  
Host TIP Company: [The Feel-Good Lab](#), UConn TIP (Technology Incubation Program), Farmington

## CLOSING

2:15 – 2:15 pm

Academic Rotunda Room

Group Photo

# ACKNOWLEDGEMENTS

On behalf of the Health Research Program and the TIP Innovation Fellows Program, we thank all of the people who have advised and mentored the participating students this summer. This community of mentors includes faculty, staff, postdoctoral scholars, and graduate students that mentor HRP fellows; the CEOs and staff of the UConn-affiliated TIP companies that host TIP fellows; guest speakers and presenters who have shared their expertise and insights; and the numerous advocates for these programs who encouraged students to apply and participate. We also thank the members of the UConn community who have supported the operations of these programs, making it possible for students to engage in these summer learning opportunities at UConn Health and at TIP locations across the state of Connecticut.

We thank the University's President, Radenka Maric, for her sustained commitment to developing experiential learning opportunities for our students and to fostering creativity, innovation, and entrepreneurship in education and research.

The Office of Undergraduate Research wishes to thank the sponsors of the Health Research Program:

- Provost Anne D'Alleva, Vice Provost Gladis Kersaint, Vice Provost Amy Gorin, and Office of the Provost
- Vice President for Research, Innovation, and Entrepreneurship Pamir Alpay, Associate Vice President Lindsay DiStefano, Associate Vice President Julie Schwager, and the Office of the Vice President for Research
- Dean Bruce Liang and the School of Medicine
- Dean Steven Lepowsky and the School of Dental Medicine
- Associate Vice Provost Jennifer Lease Butts and Enrichment Programs

The TIP Innovation Fellows Program wishes to thank its sponsors:

- Associate Vice President for Research, Innovation, and Entrepreneurship Abhijit Banerjee, and Technology Commercialization Services
- The Technology Incubation Program (TIP) and Paul Parker, Director
- Vice President for Research, Innovation, and Entrepreneurship Pamir Alpay, and the Office of the Vice President for Research
- Associate Vice Provost Tadarrayl Starke and the Institute for Student Success and McNair Scholars Program
- Executive Director David Ouimette and the Office of First Year Programs and Learning Communities
- Dean Ofer Harel and the College of Liberal Arts and Sciences
- Dean Indrajeet Chaubey and the College of Agriculture, Health, and Natural Resources
- Dean Kazem Kazerounian and the School of Engineering
- Dean Philip Hritcko and the School of Pharmacy
- Dean Steven Lepowsky and the School of Dental Medicine
- Dean Alain Frogley and the School of Fine Arts
- Dean Deborah Chyun and the School of Nursing
- UConn RAMP (Research and Mentoring for Postbaccalaureates) Program
- UConn Professional Sciences Masters Programs

Finally, we thank the student participants for their curiosity, enthusiasm, and commitment to deep engagement with their summer projects.