

34th ANNUAL **UNDERGRADUATE BIOLOGY RESEARCH PROGRAM** CONFERENCE

January 21, 2023 | 8:30am - 12:00pm

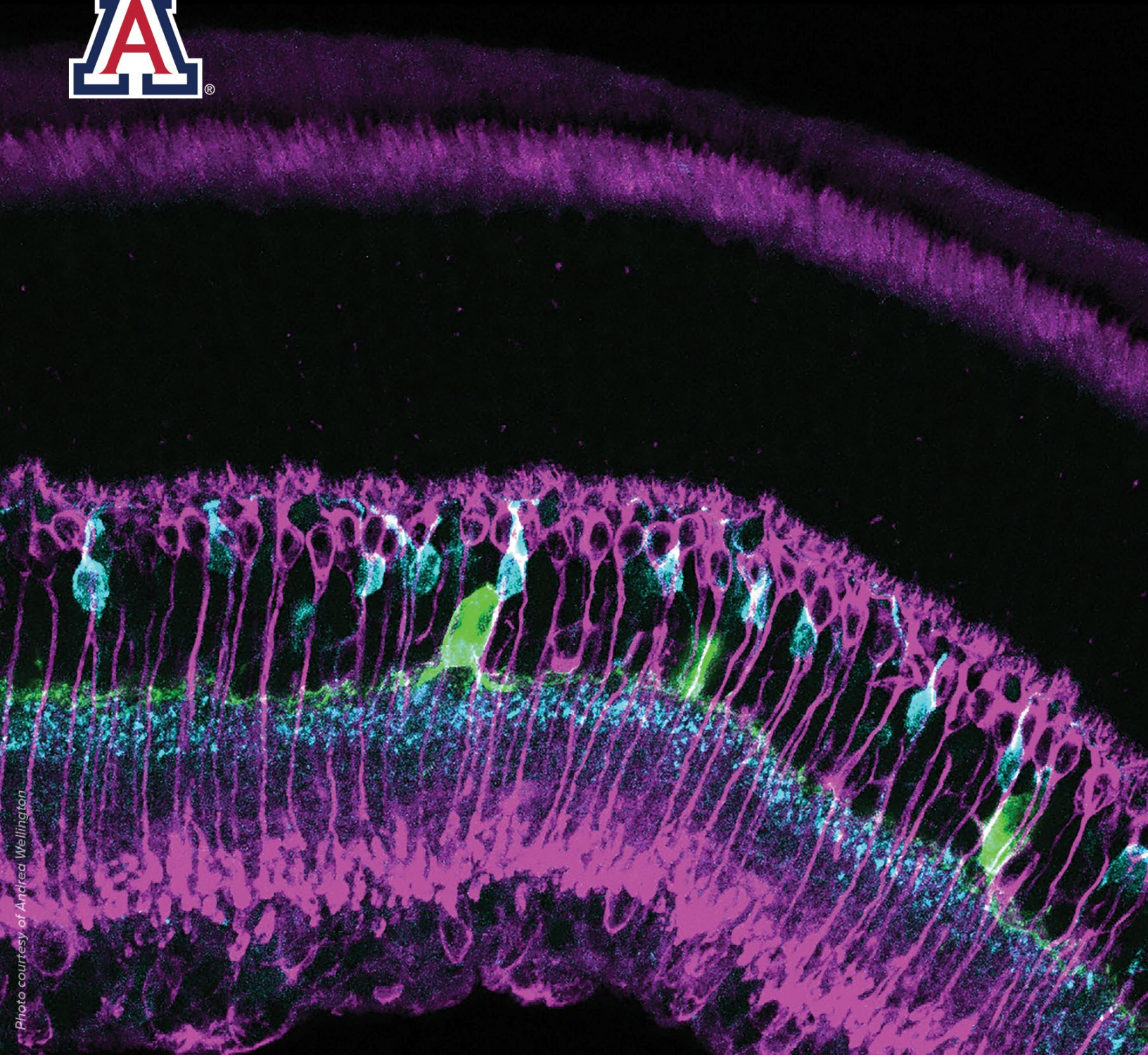


TABLE OF CONTENTS

Event Schedule	2
Map of ENR2 Building	3
Welcome	4
Today's Activities	
Acknowledgements	5
Keynote Address	6
Opportunity to Support BRAVO!	7
Poster Session and Recognition/Closing Remarks	8 – 10
Outstanding Mentor Awards	10 – 11
UBRP Participants and Mentors List	12 - 16

34th ANNUAL UNDERGRADUATE BIOLOGY RESEARCH PROGRAM CONFERENCE SCHEDULE

8:30 – 9:30am

KEYNOTE ADDRESS

ROOM N120, GROUND FLOOR

- Welcome & Acknowledgements by Jennifer Cubeta, UBRP Director
- Introduction of Keynote Speaker by Dr. Joyce Schroeder
- Keynote Address: “Immune Checkpoint Inhibition: A Balancing Act in Cancer Treatment” by Dr. Aanika Balaji, MD, UBRP/BRAVO! Alumna and Resident Physician at Johns Hopkins Medicine
- Conference Logistics by Jennifer Cubeta

9:30 – 11:30am

STUDENT POSTER SESSIONS

SECOND FLOOR, ROOMS S210, S215, S223, S225, & S230

- Odd-numbered posters present from 9:30 - 10:30am
- Even-numbered posters present from 10:30 - 11:30am
- Refreshments available in the Slot Canyon Café

11:35am – 12:00pm

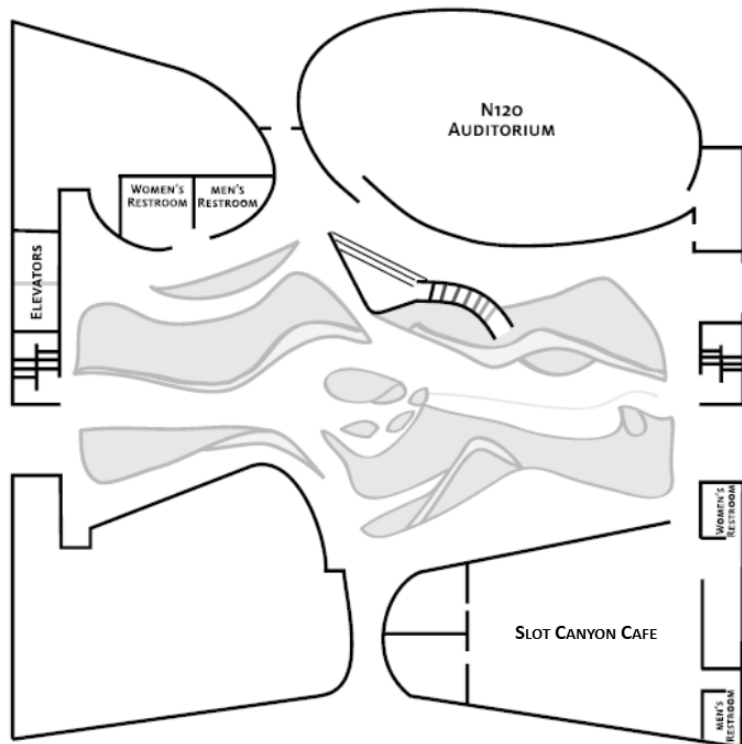
RECOGNITION, AWARDS, AND CLOSING REMARKS

ROOM N120, GROUND FLOOR

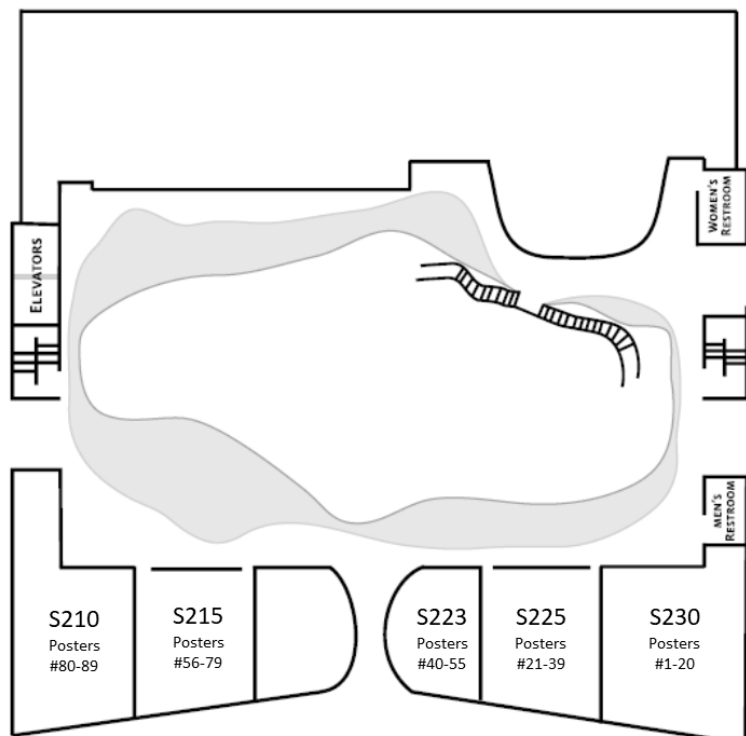
- Recognition of Graduating Seniors, Summer Small Group Leaders Ambassador Officers, & Pen Pals
- Recognition of Outstanding Mentor Award Nominees
- Outstanding Postdoctoral Mentor Award
- Outstanding Faculty Mentor Award

VENUE MAP: ENVIRONMENT AND NATURAL RESOURCES 2 BUILDING

GROUND FLOOR *Main Auditorium & Refreshments*



SECOND FLOOR *All Student Posters*



WELCOME

Dear Guests:

Welcome to the 34th Annual Undergraduate Biology Research Program (UBRP) Conference! This is a special day where we celebrate the accomplishments of our students, recognize our amazing mentors and volunteers, and enjoy a day of community in connecting with one another and our visitors in the spirit of learning.

This year, there are 89 student presenters representing the myriad of programs and biological fields encompassed by UBRP. We define biology very broadly, and there is something for everyone to be interested in learning more about today! Our students are working on projects related to protein interactions related to Alzheimer's disease, aerodynamics of flying insects, working memory in children, novel treatments for chronic pain, ecosystem of fungal symbionts and native grasses, a cancer-on-a-chip model, improving delivery systems for vaccines, how bats sense the environment, interventions for jet lag... and much more!

We are also excited to announce the relaunch of the Biology Research Abroad: Vistas Open! (BRAVO!) program, which supports undergraduates in international research experiences beginning in Summer 2023.

I hope you enjoy meeting and talking with our students about their research today, and that you come away refreshed with a deep appreciation of the world of biology, as well as for the students and mentors which make up our wonderful UBRP community.

Enjoy the Conference!



Jennifer Cubeta, M.Ed.
UBRP Director



TODAY'S ACTIVITIES

8:30 – 9:30am ♦ WELCOME AND KEYNOTE ADDRESS

UBRP thanks the following for their generous support:

At the University of Arizona:

*Office of the Provost
Office of Research, Innovation, and Impact
BIO5 Institute
College of Science
College of Medicine
College of Agriculture & Life Sciences
R. Ken Coit College of Pharmacy
Arizona Institute for Resilient Environments & Societies (AIRES)*

Granting Agencies:

*American Society for Pharmacology & Experimental Therapeutics (ASPET)
for the ASPET Summer Research Fellowship Program*

Arnold and Mabel Beckman Foundation for the Beckman Scholars Program

*National Institute of Environmental Health Sciences for the
Environmental Health Sciences Transformative Research Undergraduate Experience (EHS-TRUE)
Program*

National Cancer Institute for the Partnership for Native American Cancer Prevention

Western Alliance to Expand Student Opportunities (WAESO)

UBRP Advisory Board Members:

*John Szivek (Chair)
Nathan Ellis*

*Teri Suzuki
Samantha Szuter
Doug Wellington*

*Kenneth Wertman
Carol Bender (Emerita)*

[THANK YOU TO OUR DONORS!](#)

KEYNOTE ADDRESS

“Immune Checkpoint Inhibition: A Balancing Act in Cancer Treatment”

by Dr. Aanika Balaji, MD, MPH

UBRP and BRAVO! Alumna

Resident Physician at Johns Hopkins Medicine

Introduction of Keynote Speaker by

Dr. Joyce Schroeder, Professor and Head, Department of Molecular & Cellular Biology



Dr. Aanika Balaji is a proud graduate of UBRP, BRAVO!, and the University of Arizona. Aanika grew up in Mesa, Arizona and moved to Tucson in 2012, excited to learn how to become a scientist. During her first year, she met Dr. Joyce Schroeder, whose lab studies cell transformation and metastasis in breast cancer. Aanika was able to work in the lab full time during the summer of 2014 when she joined UBRP. Her work in the Schroeder lab focused on secondary targets to a novel peptide anti-cancer drug. Through UBRP, Aanika then applied for BRAVO! and spent the next summer in Gothenburg, Sweden in the lab of Dr. Gunnar Hansson. That summer was spent learning about mucin protein biology in cystic fibrosis and improving her technique in confocal imaging (in addition to exploring Sweden!). Shortly after, Aanika graduated from UArizona and moved to Baltimore, Maryland to start the next chapter: medical school at the Johns Hopkins School of Medicine.

In medical school, Aanika continued research in oncology. She joined the research group of Dr. Jarushka Naidoo, learning about immune-checkpoint inhibitors and their side effects, termed immune-related adverse events, in cancer patients. Stepping away from medicine for a year, Aanika earned an MPH from the Johns Hopkins Bloomberg School of Public Health, focused on epidemiology and biostatistics. After medical school, she was delighted to match at the Johns Hopkins Osler Internal Medicine Program. Now, Aanika is learning to be a holistic doctor, continuing research in immune checkpoint inhibitors, and excited to become a future oncologist.

When she isn't in the hospital, Aanika enjoys spending time along the Baltimore harbor, hiking Western Maryland, or having a quiet evening home with her cat, Blue, and fiancé, Sam.

SPECIAL OPPORTUNITY TO SUPPORT *BRAVO!*

The Biology Research Abroad: Vistas Open! (BRAVO!) Program, administered through UBRP, provides University of Arizona undergraduate students who have at least six months of prior research experience the opportunity to gain a global perspective through a 10- to 12-week summer international research experience. BRAVO! is designed to enhance participants' scientific and professional skills, and to develop international collaborative relationships. Unlike traditional study abroad experiences where students take academic courses, BRAVO! participants have an independent and immersive experience, living as a visiting researcher and working in the host country.

Preference is given to students with limited travel experience and/or limited ability to travel internationally without support (e.g. students who are financially challenged, first-generation, have never been outside the U.S., etc.)

Our goal is to raise a total of \$8,000 for BRAVO! to support an additional student to conduct research abroad in Summer 2024. Learn more at crowdfund.arizona.edu/BRAVO! and make your gift of any size before January 31, 2023 to help us reach our goal!



If you have any questions about supporting BRAVO! or UBRP, please contact Jennifer Cubeta, UBRP Director, at (520) 621-9348 or cubeta@arizona.edu.

9:30 – 11:30am ♦ STUDENT POSTER SESSIONS

Our students are excited to share their research with you! We invite our visitors to be curious and to ask questions such as “*Can you walk me through your poster? How did you get involved in research? What excites you about doing research? What is the ‘take home’ message from your project?*”

Student presenters are listed in the **Topical Guide to UBRP Conference Posters**, in alphabetical order by last name within each topic. Full abstracts are available on the UBRP Conference webpage.

To give our students a chance to see each other’s work:

- Odd-numbered posters will be presented from 9:30 – 10:30am.
- Even-numbered posters will be presented from 10:30 – 11:30am.

11:35am – 12:00pm ♦ RECOGNITION, AWARDS, AND CLOSING REMARKS

CONGRATUATIONS TO OUR GRADUATING SENIORS!

Congratulations to UBRP seniors who will be graduating in 2023! To celebrate all they have accomplished through our program, seniors will be recognized with a teal UBRP graduation cord. Seniors, we wish you all the best for the future and look forward to receiving updates about your post-graduation positions and accomplishments. Make sure to update your profile on LinkedIn and join our UBRP group at <https://www.linkedin.com/groups/3762234/>

UBRP AMBASSADORS

UBRP Ambassadors are charged with the responsibility of helping to create community among undergraduate researchers by organizing social activities, providing feedback to program staff, and representing UBRP in speaking to on- and off-campus groups. We thank our 2022-2023 UBRP Ambassador officers for their service.

Nicholas Mortimore
President

Elizabeth Le
Vice President

Yashwini Ravinthirin
Secretary

Talia Sugden
Volunteer Chair

Sage Crosby
Social Media Coordinator

Sun Woo Kim
Pen Pals Coordinator

SUMMER 2022 SMALL GROUP LEADERS

UBRP students meet in small groups every other week during the summer to discuss their research with their peers. Faculty, postdocs, graduate students, and advanced undergraduates volunteer their time to facilitate these groups and to mentor undergraduate researchers.

We are incredibly fortunate that these individuals volunteered their time and talents to serving as small group leaders in Summer 2022. We deeply appreciate their contributions to enriching UBRP students' experiences.

Katelyn Carothers

Postdoctoral Research Associate II,
Animal & Comparative Biomedical Sciences

Shelby Herrick

EHS-TRUE Participant

Advait Jeevanandam

Graduate Student,
Molecular & Cellular Biology

Adrienne Kinney

Graduate Student, Mathematics

Matthew Lemke

Graduate Student,
Molecular & Cellular Biology

Julia Morris

MD/PhD Student, Molecular Medicine

Nicholas Mortimore

Beckman Scholar

Sami Muslmani

UBRP Participant

Jedzia Rodriguez

Partnership for Native American Cancer
Prevention

Siena Schoelen

Graduate Student,
Speech, Language & Hearing Sciences

Abigail Schwarz

Graduate Student, Neuroscience

Christopher Sterzinar

UBRP Participant

Lila Wollman

Assistant Research Professor, Physiology

UBRP PEN PALS

During the 2008-2009 academic year, UBRP participant Misha Pangasa, in conjunction with sixth grade teacher Patricia Robles-Medina at Mansfeld Middle School, initiated the UBRP Pen Pals Project. UBRPers volunteer to correspond with sixth grade students at a selected school throughout the course of the year. Each semester, UBRP students host their sixth-grade Pen Pals in a morning of science activities. We thank everyone who participated in the program this year.

Sun Woo Kim
Pen Pals Coordinator

Susan Sumner
Teacher, Wakefield Middle School

2022-23 UBRP Pen Pal Participants:

Sage Crosby
Olivia Fernflores
Noah Frazier
Alexis Henderson
Jackie Larson

Ava Lasater
Chloe Mikolajczyk
Nick Mortimore
Esha Rajadhyaksha
Paige Rudy

Elissa Schiff
Ines Studer
Jillian Sweetland
Sun Woo Kim
Suetmui Yu

OUTSTANDING MENTOR AWARDS

Each year, we celebrate UArizona's supportive culture for undergraduate research and the outstanding mentorship UBRP students enjoy by granting the Outstanding UBRP Graduate Student, Postdoctoral Fellow, or Research Specialist Mentor Award and the Outstanding UBRP Faculty Mentor Award. Candidates are nominated by current UBRP students and UBRP alumni. A committee composed of UBRP students and alumni reviews the nominees and selects the finalists.

Nominees for the 2022-23 UBRP Outstanding Mentor Awards:

Raul Castro
Nominated by Niall Thorns

John Streicher
Nominated by Kerry Chou

Megan Nickerson
Nominated by Ariel Cheng

Jana U'Ren
Nominated by Ariel Cheng

Kristen Renner
Nominated by Alexis Henderson

Ninging Zhao
Nominated by Suetmui Yu



2022-2023 UBRP Outstanding Postdoctoral Mentor

Matthew Schmit

Graduate Student, Neuroscience

Nominated by Hannah Vu



2022-2023 UBRP Outstanding Faculty Mentor

Dr. Lisa Nagy

Professor, Molecular & Cellular Biology

Nominated by Summer Blunk

Thank you all for your excellent mentorship of our students!

2022-23 PROGRAMS, PARTICIPANTS, AND FACULTY MENTORS

OVERVIEW

The programs housed within the Undergraduate Biology Research Program (UBRP) are designed to teach students science by involving them in biologically related research. Students are paid for their time doing research where they develop an understanding of the scientific method and receive a realistic view of research. They also participate in professional development workshops, scientific seminars, and supplementary activities to acquire the tools necessary to be successful in post-graduate studies should they choose careers related to biology or biomedical research, and they join the community of scholars.

UNDERGRADUATE BIOLOGY RESEARCH PROGRAM (UBRP)

Funding for UBRP students is provided by private donors, the UArizona Office of the Provost, Office of Research, Innovation, & Impact, BIO5 Institute, the Colleges of Medicine, Science, Agriculture and Life Sciences, and Pharmacy. Individual student support is provided by the Western Alliance to Expand Student Opportunities (WAESO). The UBRP Office is also supported by the Department of Molecular and Cellular Biology. We gratefully acknowledge this support!

Student

Yuchen "Ella" Ai
Amal Anilkumar
Shreya Balasubramanian

Olivia Bertuca
Shaan Bhullar
Ariana Bista
Anayse Blakley
Remington Bliss
Summer Blunk
Ryan Bowser
Nicole Carmiol
Samantha Cassity
Leah Chang
Ariel Cheng
Jacqueline Choi
Kerry Chou
Nicholas Cusick
Sam DiMatteo
Angela Ding
Goran Dzudza
Noah Frazier
Brooke Garland
Parker Geffre

Mentor

Sally Dickinson
Steven Goldman
Edita Navratilova
&Tally Largent-Milnes
Ravi Palanivelu
Samuel Campos
Brett Colson
Linda Restifo
Brian McKay
Lisa Nagy
Carol Gregorio
Andrew Capaldi
Mark Beilstein
George Sutphin
Jana U'Ren
Natalia Ignatenko
John Streicher
Nancy Horton
Philipp Gutruf
Frank Duca
Renee Duckworth
Aneta Kielar
Paul Carini
Laura Meredith

Student

Rahul Gupte
Aunita Hakimi
Rebecca Han
Skylar Hardison
Alexis Henderson
Ciara Himes
Veronica Hode
Shifat Hossain
David Jurkowitz
Jaeman Kim
Ava Lasater
Elizabeth Le
Hyeon Seung "Eric" Lee
Elijah Lefkowitz
Hannah List
Paulina Luna-Ramirez
Natalie Mak
Sophia Marcinowski
Esha Mathur
Jasmine Meredith
Chloe Mikolajczyk
Sophia Moghimi
Amanda Moon
Jesus Mota Jr
Sami Muslmani
Cassandra Myers
Jake Nash
Shinhye "Chloe" Park
Famesh Patel
William Peterson
Esha Rajadhyaksha
Elissa Schiff
Genevieve Schoelen
Hailey Steenhoek
Christopher Sterzinar
Dalton Stormo
Talia Sugden
Jillian Sweetland
Niall Thorns
Emma Thullen
Sayujya Timilsena
Alexia Vance
Udbhav Venkataraman

Mentor

Henk Granzier
Ross Buchan
Donata Vercelli
Renee Duckworth
Kristen Renner
David Baltrus
Edita Navratilova
Michael Brown
Travis Wheeler
Michael Kuhns
E. Fiona Bailey
Kristian Doyle
Eugene Chang
Steven Goldman
Tim Bolger
Sean Limesand
Salma Patel
Ross Buchan
Julie Armin
Guang Yao
Deepta Bhattacharya
Bo Sun
Emmanuel Katsanis
Torsten Falk
Marvin Slepian
Tally Largent-Milnes
Paul Langlais
Anita Koshy
Gregory Thatcher
George Sutphin
Koenraad Van Doorslaer
Mary Alt
Sean Limesand
Catherine Smith
Carol Barnes
Melville Wohlgemuth
George Sutphin
Ghassan Mouneimne
George Sutphin
George Sutphin
Haijiang Cai
Kelly Reynolds
Robin Samlan

Student

Hannah Vu
 Meghana Warriar
 Italia Williams
 Meiven Yang
 Suetmui Yu
 Ibrahim Zaky

Mentor

Haijiang Cai
 Carol Barnes
 Mary Alt
 Felicia Goodrum
 Ningning Zhao
 Russell Witte

THE BECKMAN SCHOLARS PROGRAM

The Beckman Scholars Program is designed to help stimulate, encourage and support research activities by exceptionally talented undergraduate students at our nation's universities and colleges. The Beckman Scholarship at the University of Arizona provides funding for students to conduct in-depth research with one of 15 stellar research mentors in UA's College of Science. Funding for this program is provided by the Arnold and Mabel Beckman Foundation.

Student

Nicholas Mortimore
 Bryce Wilson

Mentor

Ross Buchan
 Andrew Paek

DATA SCIENCES ACADEMY

The Data Sciences Academy (DSA) is an initiative to mobilize researchers across disciplinary boundaries who share a passion for data science, to deepen partnerships with both industry and government agencies, and to challenge students at all degree levels to explore new, innovative domains of expertise, to ensure the nexus between research and education is captured. Support for DSA is provided by the Office of the Provost.

Student

Hrithik Aghav
 Catherine Calma
 Alyssa Connolly
 Amy Fan
 Olivia Fernflores
 Sun Woo Kim
 Samantha Mata Robles
 Chau Nguyen
 Paige Rudy
 Alexander Sullivan
 Jessica Zhang

Mentor

Laura Miller
 Laura Miller
 Laura Miller
 Ryan Gutenkunst
 Ryan Gutenkunst
 Katalin Gothard
 Jeong-Yeol Yoon
 A. Elizabeth (Betsy) Arnold
 Nima Toosizadeh
 Nima Toosizadeh
 Roberta Brinton

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS
SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP (ASPET SURF)

The ASPET SURF Program, funded by a grant from the American Society for Pharmacology and Experimental Therapeutics, supports five undergraduate students per year who work under the mentorship of ASPET members. The program's goal is to introduce undergraduate students to pharmacology research using authentic, mentored research experiences to heighten student interest in careers in research and related health care disciplines.

Student

Thai Bui
Sage Crosby
Yashwini Ravinthiran
Caleb Seekins
Ines Studer

Mentor

John Streicher
Art Riegel
Abhijit Date
John Streicher
Xinxin Ding

ENVIRONMENTAL HEALTH SCIENCES
TRANSFORMATIVE RESEARCH UNDERGRADUATE EXPERIENCE (EHS-TRUE)

EHS-TRUE, funded by the National Institute of Environmental Health Sciences grant #1-R25-ES025494 under Dr. Yin Chen, provides two years of paid training and research experience in an environmental health sciences research laboratory. The program targets students from STEM-underrepresented backgrounds. The goal of EHS-TRUE is to enhance the competitiveness of our undergraduates for post-baccalaureate education in the environmental health sciences. Additional individual student support is provided by WAESO.

Student

Shelby Herrick
Jacqueline Larson
Maile McSwain
Kayleigh Paddock
Cristobal Reyes Cuevas
Venesa Romero

Mentor

Yin Chen
Paloma Beamer
Zelieann Craig
Jennifer Teske
Paloma Beamer
Yin Chen

PARTNERSHIP FOR NATIVE AMERICAN CANCER PREVENTION (NACP)

The Partnership for Native American Cancer Prevention (NACP) is a collaboration between Northern Arizona University and the University of Arizona's Cancer Center. The mission of the NACP is to alleviate the unequal burden of cancer among Native Americans of the Southwest through research, training and community outreach programs in collaboration with the communities they serve. The Training Core of NACP at the University of Arizona is led by Dr.

Jennifer Bea, and funding for NACP is provided by the National Cancer Institute grant #2U54CA143924. Additional individual student support is provided by WAESO.

Student

Michael Becenti
Tanjia Clarkson
Leyla Cordova
Allan Paxson
Ferris Saad

Mentor

Ken Batai
Yitshak Zohar
Jianqin Lu
Anne Cress
Jennifer Bea