



Gates Center for Regenerative Medicine
UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**



GATES SUMMER INTERNSHIP PROGRAM

CLASS OF 2019

ABOUT GSIP



RESEARCH

The Gates Summer Internship Program aims to encourage outstanding undergraduates to consider careers in biomedical research by providing state of the art training opportunities at the Gates Center laboratories. Undergraduates selected on a competitive basis are trained on benchwork for 11 weeks at the Anschutz Medical Campus.



MENTORSHIP

GSIP Directors, Drs. Enrique Torchia, Tamara Terzian and Neil Box (left to right) have shepherded the program and its students alongside Gates Center member mentors since GSIP's creation in 2014.



CAREER GUIDANCE

Wag Schorr, M.D. sits to the left of former Governor of Colorado John Hickenlooper having received the 2017 Florence Rena Sabin Award for his exceptional contributions to the Anschutz Medical Campus and the health of the citizens of Colorado. Wag joins GSIP students each summer to share his thoughts on pursuing a medical education.

Those at the Gates Summer Internship Program believed that I would be able to thrive in your scientific community, and I can only hope that I can substantiate these beliefs throughout the rest of my career. I will always be thankful for the opportunity and believe that this program has the capability to invigorate the passion of science, medicine, and technology in the future professionals in their chosen field.

What a pleasure it was to welcome another exceptional group of college undergraduates to the 2019 Gates Summer Internship Program (GSIP). Equally rewarding was to receive notes of thanks after the program's completion such as the one above from Kelley Coakley. How proud we are to be able to provide such a unique opportunity for Kelley and others, whose thoughts are compiled in this brochure.

Thoughtfully conceived by Drs. Tamara Terzian, Neil Box and Enrique Torchia, the GSIP program launched in 2014 thanks to the heartfelt and generous support of Gates Center friends Rhondda and Peter Grant—with a collective belief that inspiring outstanding young people to pursue careers in stem cell biology and regenerative medicine is part and parcel of the Gates Center for Regenerative Medicine's mission.

The program has grown substantially in offerings and demand since then and in 2019 attracted over 230 applicants from 42 out of 50 states. 23 interns and affiliates were assigned to Gates Center members' laboratories across the University of Colorado's Anschutz Medical Campus to work on specialized research topics and therapies. They also assembled regularly for seminars on research, clinical subjects, and professional development, and gathered for social and volunteer activities on campus, in Denver and across Colorado.

The Gates Center joins these students in thanking those who made this transformative program possible. We have had Peter and Rhondda Grant and other donors who have reveled in playing a formative role in talented young peoples' lives. We have had dedicated mentors and members of their labs who have taken these students under their professional wings for the summer—and often beyond as they pursue their studies and apply to graduate and medical schools. And we have had lecturers open our students' eyes to a myriad of possibilities beyond their individual lab experiences and projects.

One of the most popular lecturers has been Wag Schorr, M.D., who shares his thoughts each year on pursuing a medical education. Wag is a member of the Gates Center's board and more importantly an alumnus of the University of Colorado's School of Medicine where he studied under Thomas Starzl, M.D., Ph.D., who performed the world's first successful solid organ transplant in 1963. Wag went on to be a transplant pioneer, himself, introducing kidney transplant within the United Kingdom prior to a long and successful professional career. Wag's pride in the fast-growing CU Anschutz Medical Campus, of which the Gates Center is a part, and his belief in the potential of regenerative medicine know no bounds. Below he shares our conviction that this unique program is fueling the Center's vital mission "to bring together and support brilliant researchers and clinicians in stem cell biology and regenerative medicine in order to accelerate discoveries from the lab through clinical trials to therapies and cures."

"The opportunity to explore the World of Regenerative Medicine, experiencing the entire spectrum of activity from basic research to patient care, is a wonderful way to explore possible future careers as physicians, research scientists, or the combination of both. Regenerative medicine is the future of medicine!"

Sincerely,



Dennis R. Roop, PhD
Director, Gates Center for Regenerative Medicine

230

In 2019, GSIP received over 230 applications from 42 out of 50 states.

3.9

The average GPA for the class of 2019 was 3.9.

52%

52 percent of 2019 applicants were Colorado residents.

Sukriti Bhattarai | Iryna Chelepis | Kelley Cookley | Kavya Ganuthula | Elizabeth Golding | Griffin Hampton | Andrew Harrahill
Aiden Jacobs | Maggie Jewett | Madison Kraus | Stefan Marasligiller | Anna Martch | Isabella Martus | Khoa Nguyen
Micaela Roy | Christopher Schaff | Marina Schlaepfer | Austin Schoppe | Emily Thomas
Kaleb Todd | Ryan Tseng | Anit Tyagi | Kevin Winkler



The 2019 GSIP interns pose on their first day of the program after a tour of the historical Fitzsimons building from campus host Neil Krauss.

Known as the first hospital to break ground on the Anschutz Medical Campus as Army Hospital 21, The Fitzsimons building was built to treat casualties and tuberculosis patients from World War I.

Interns also viewed the Eisenhower Suite that commemorates the site of President Dwight D. Eisenhower's seven-week stay as he recovered from a heart attack in 1955.

GSIP 2019 MENTORS

Kristin Artinger, Ph.D.	Associate Professor	Department of Craniofacial Biology
Stanca Birlea, Ph.D.	Associate Professor	Department of Dermatology
Neil Box, Ph.D.	Associate Professor	Department of Dermatology
Joseph Brzezinski, Ph.D.	Assistant Professor	Department of Ophthalmology
Angelo D'Alessandro, Ph.D.	Assistant Professor	Department of Biochemistry and Molecular Genetics
Curt Freed, M.D.	Division Head and Professor	Department of Clinical Pharmacology and Toxicology
Mayumi Fujita, M.D., Ph.D.	Professor	Department of Dermatology
Jeffrey Jacot, Ph.D.	Associate Professor	Department of Bioengineering
Antonio Jimeno, M.D., Ph.D.	Professor	Department of Medical Oncology
Shi-long Lu, M.D., Ph.D.	Assistant Professor	Department of Otolaryngology
Chelsea Magin, Ph.D.	Assistant Professor	Department of Pulmonary Sciences and Critical Care Medicine
Karin Payne, Ph.D.	Assistant Professor	Department of Orthopedics
Mark Petrash, Ph.D.	Professor	Department of Ophthalmology
Nidia Quillinan, Ph.D.	Assistant Professor	Department of Anesthesiology
Tania Reis, Ph.D.	Associate Professor	Department of Molecular Biology
Holger Russ, Ph.D.	Assistant Professor	Barbara Davis Center for Childhood Diabetes
Yiqun Shellman, Ph.D.	Associate Professor	Department of Dermatology
Beth Tamburini, Ph.D.	Assistant Professor	Department of Medicine and Immunology
Tamara Terzian, Ph.D.	Assistant Professor	Department of Dermatology
Enrique Torchia, Ph.D.	Assistant Professor	Department of Dermatology
Michael Verneris, M.D.	Director and Professor	Department of Pediatrics
Lori Walker, Ph.D.	Associate Professor	Department of Cardiology
Xiao-jing Wang, M.D., Ph.D.	Director and Professor	Department of Pathology



SUKRITI BHATTARAI
UNIVERSITY OF SOUTHERN MISSISSIPPI
MENTOR, SHI-LONG LU, M.D., PH.D.

Dear Mr. and Mrs. Grant and GSIP Donors,

Thank you so much for your continued support to the Gates Center Summer Internship Program that has had a monumental impact on the careers of so many undergraduates, including myself. Your generous donation has led me to have one of the most fruitful and valuable experiences of my life.

GSIP was really an all-rounder in every sense of the word. There were many cellular and molecular biology techniques that I was only somewhat familiar with and had longed to learn and master. I was able to acquire many of these skills in such a short period of time, skills that will come in handy in my future roles as a graduate student and as a researcher afterwards. Similarly, the scientific lecture series, which supplemented our laboratory trainings, allowed me to really grasp the diversity and the scope of research in biomedical sciences. They also opened my eyes to career opportunities that I would have never considered otherwise. Our program coordinators also showed us, through example, how to be a leader in a community and take philanthropic initiatives.

For all the career competency skills that I have acquired through GSIP which are vital for a strong graduate application, a thank you will never be enough. I am now more certain than ever about pursuing a career in biomedical research. Therefore, I applaud you for your generosity and commitment to nurture the next generation of scientists and health care professionals.

With utmost gratitude,

Sukriti Bhattarai



IRYNA CHELEPIS
UTAH VALLEY UNIVERSITY
MENTOR, NEIL BOX, PH.D.

Dear Donors,

Thank you for an amazing and unforgettable experience with the Gates Summer Internship Program this summer. As an undergraduate student, I learned a lot from my mentors and lab members with whom I worked. I am grateful for this opportunity to absorb new knowledge, acquire necessary skills, and contribute to the scientific community. Although, none of us changed the world in 11 weeks, we all made incredible progress and are ready for future breakthroughs and discoveries. During this internship, we created lifelong friendships, made remarkable connections, and set a baseline for our future scientific work.

Thank you again for making GSIP possible and inspiring undergraduate students.

Sincerely,

Iryna



KELLEY COAKLEY
REGIS UNIVERSITY
MENTOR, NIDIA QUILLINAN, PH.D.

To all whom made my internship possible,

I cannot begin to express how much gratitude I have for the Gates Summer Internship Program and those who have made it possible. This opportunity has allowed me to further develop my skills within the biomedical field and has led to my greater appreciation for all those who work tirelessly in the science and medical fields. The friendships and relationships that I have made with those within the program and the Neuronal Injury Lab are quickly proving to be lifelong.

Because of the Gates Program, I was exposed to a wide variety of scientific studies and medical professions that have fueled my desire to become a MD/PhD. This program has not only allowed me to become a more highly qualified candidate for medical science training programs, but has also introduced me to the Neuronal Injury Lab here at Anschutz. They have graciously asked me to continue working with them throughout the upcoming school year, and I have accepted a part-time position as a student assistant. Without the Gates Program, none of this would be possible, and for that I am extremely grateful.

Those at the Gates Summer Internship Program believed that I would be able to thrive in your scientific community, and I can only hope that I can substantiate these beliefs throughout the rest of my career. I will always be thankful for the opportunity and believe that this program has the capability to invigorate the passion of science, medicine, and technology in the future professionals in their chosen fields.

Again, thank you so much for the ability to work with such a talented group of mentors, interns, and all others that have taught me valuable lab and life lessons.

Best,

Kelley Ann Coakley

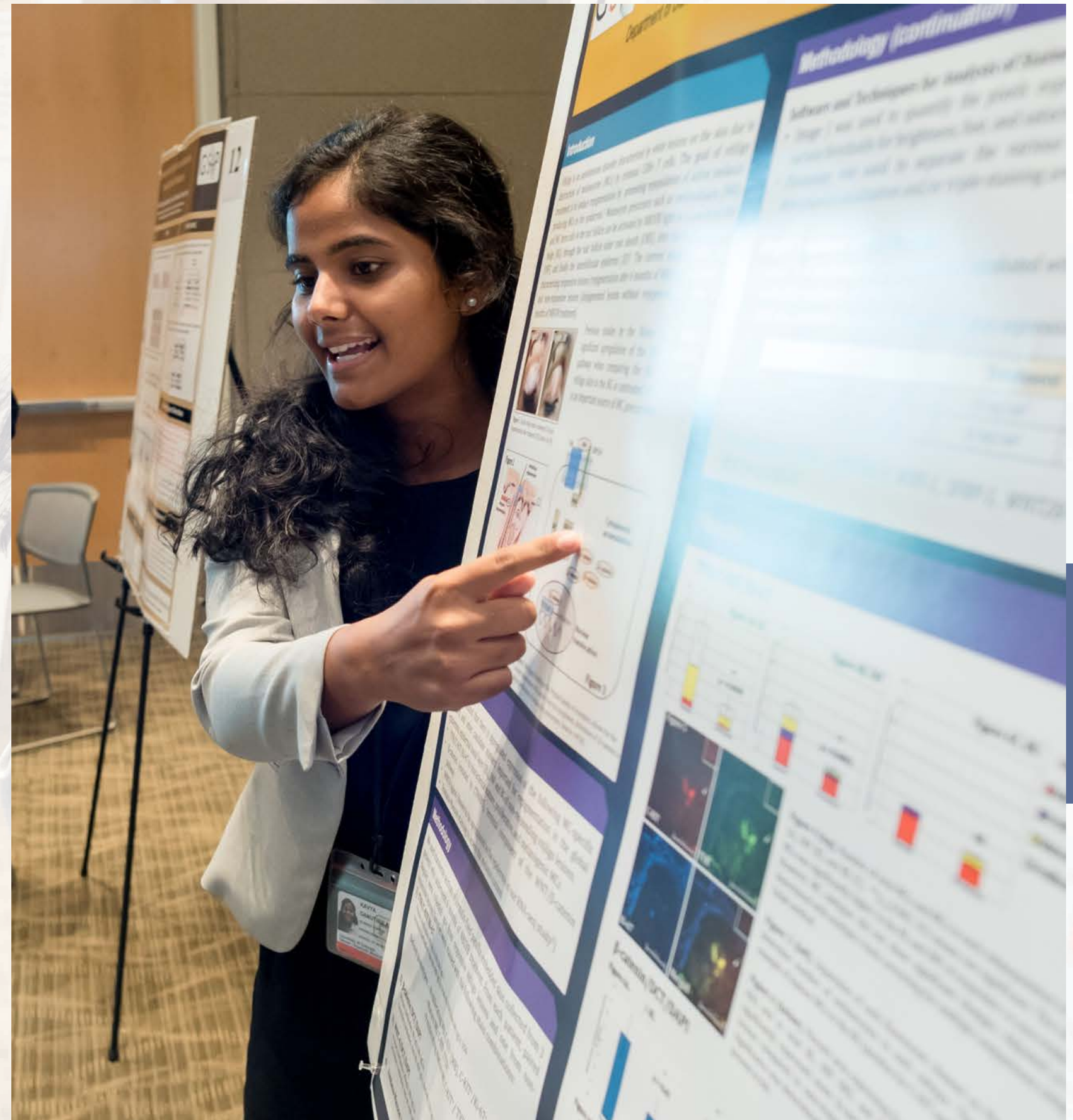
KAVYA GANUTHULA

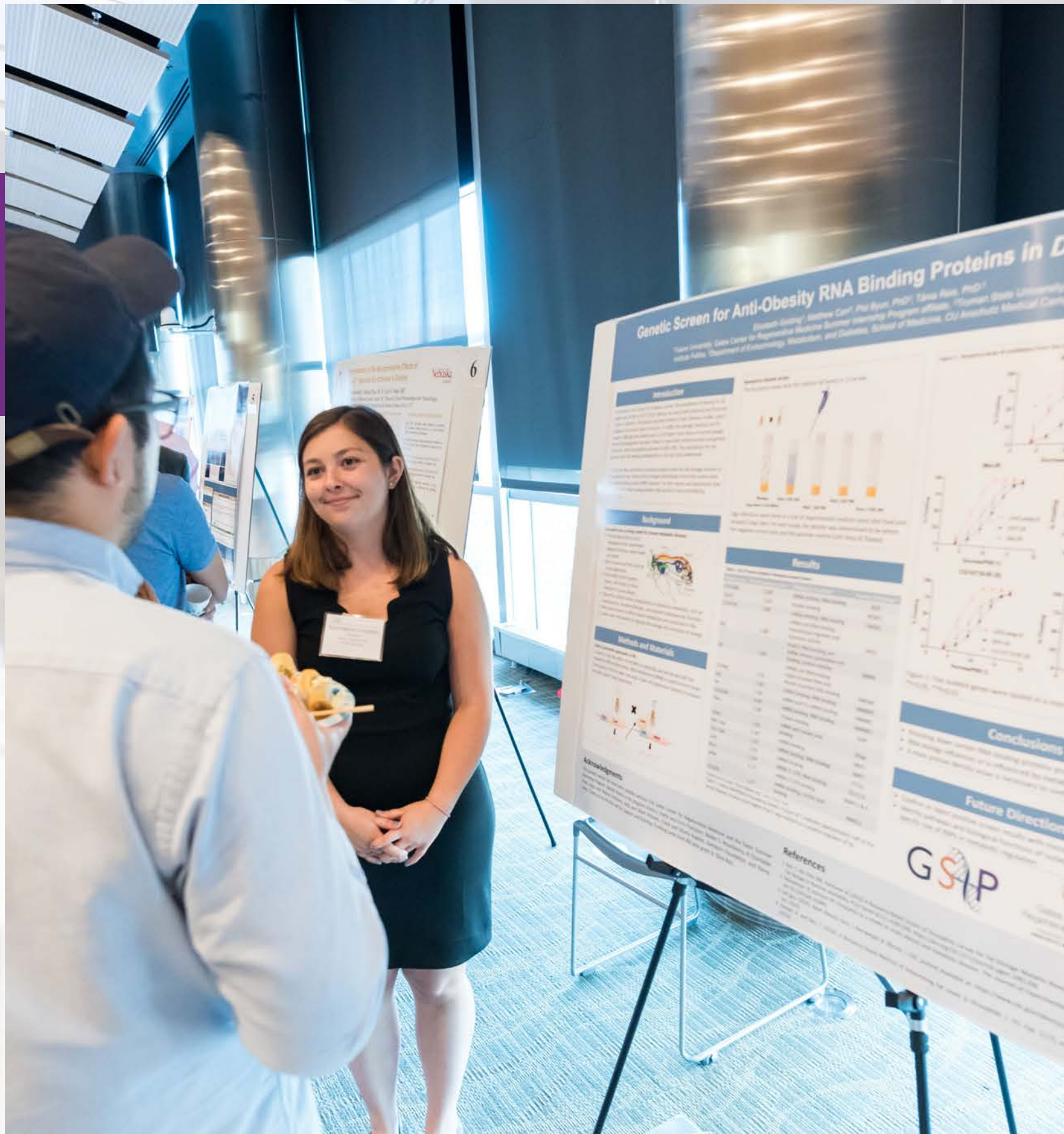
UNIVERSITY OF COLORADO DENVER

MENTOR, STANCA BIRLEA, M.D., PH.D.

Dear Grants and gracious donors who made this program possible,

This summer that I spent with the Gates Summer Internship program was challenging scientifically, methodically, and professionally, but also extremely rewarding in that each of these challenges pushed me to grow to be a better member of the scientific community. I developed technical skills learning laboratory protocols that were handcrafted by my colleagues themselves and learned how to ensure the data collected and analyzed was always fair, sound, and ethical. We networked and got to witness the groundbreaking research projects from synthesis of lung capillaries to uncoding the genetic basis of obesity. I'm thankful for the opportunity to be exposed to so many applications of science through the workshops and lectures, but I'm also thankful for the peers I got to grow with and witness their journey as we connected our summer projects with our future goals. We pondered the immense amount of experiments that go into that one graph that can change everything. Or about the creativity manifested in our mentors and colleagues that we hope to achieve one day. This summer was filled with science, miracles, and inspiration, and I am so fortunate to carry the things I learned from this internship as I pursue medicine and hope to become a physician. Working with an MD/PhD this summer who worked in the lab and saw patients, I saw the invaluable connection that helped bring patients' needs into the lab and innovation into delivering quality care. Thank you for the endless support of this program and for motivating a generation of scientists with a never-ending drive.





ELIZABETH GOLDING
 AFFILIATE, TULANE UNIVERSITY
 MENTOR, TANIA REIS, PH.D.

Dear Grant family and other donors,

Thank you so much for making the Gates Summer Internship Program possible. This summer taught me not only many things about genetics and drosophila research, but about the biomedical research field, career opportunities, and most importantly, about myself and my goals going forward. I am very excited to see where my path in science and medicine takes me, and I hope now to attend CU Anschutz Medical School.

Thank you again,

Ellie Golding

GRIFFIN HAMPTON

COLORADO SCHOOL OF MINES

MENTOR, KRISTIN ARTINGER, PH.D.

Dear Peter and Rhondda Grant as well as other GISP donors,

I am incredibly thankful to have been a part of the Gates Summer Internship Program this past summer. Because of your generous donation to the Gates internship, I feel empowered and prepared as I pursue a future in biomedical research. I have a better handle on how to tackle research as well as more awareness on how to maneuver through my academic career. Under my mentor and the program leaders, I have developed useful skills I will forever value in my journey as an academic. Most importantly, I had a great time this summer and loved growing on the Anschutz medical campus as a member of the Gates Summer Internship Program. Thank you for bringing all these incredible interns together and exposing them to the cutting edge of biomedical research.

Griffin Hampton





ANDREW HARRAHILL
UNIVERSITY OF NEBRASKA
MENTOR, CURT FREED, M.D.

Dear Mr. and Mrs. Grant and other donors,

I was a GSIP intern this summer, and I want to express my extreme gratitude for your contributions to this wonderful program. I can say with confidence that my summer at CU Anschutz was fulfilling both academically and personally. I am a student from the University of Nebraska. The environment of Denver and the level of professional excellence at Anschutz were beyond anything I could have experienced at home. It was thanks to your generous contributions that allowed these defining experiences to happen, and for that, I will be eternally grateful.

Yours truly,

Drew Harrahill



AIDEN JACOBS
UNIVERSITY OF WISCONSIN, MADISON
MENTOR, HOLGER RUSS, PH.D.

To all the incredibly generous GSIP donors,

For a humbling and phenomenal summer research experience, thank you so much!

I have had the opportunity on my home college campus to participate in research. And while I have learned a lot, nothing compares to the number of techniques and opportunities I have been offered this summer as an intern in GSIP. My mentor, at almost every opportunity, offered me the ability to learn brand new skills and lab methods. Instead of feeling like a burden, every single researcher I worked with was enthusiastic and eager to help me learn. Talking with the other interns, I was not alone in this experience.

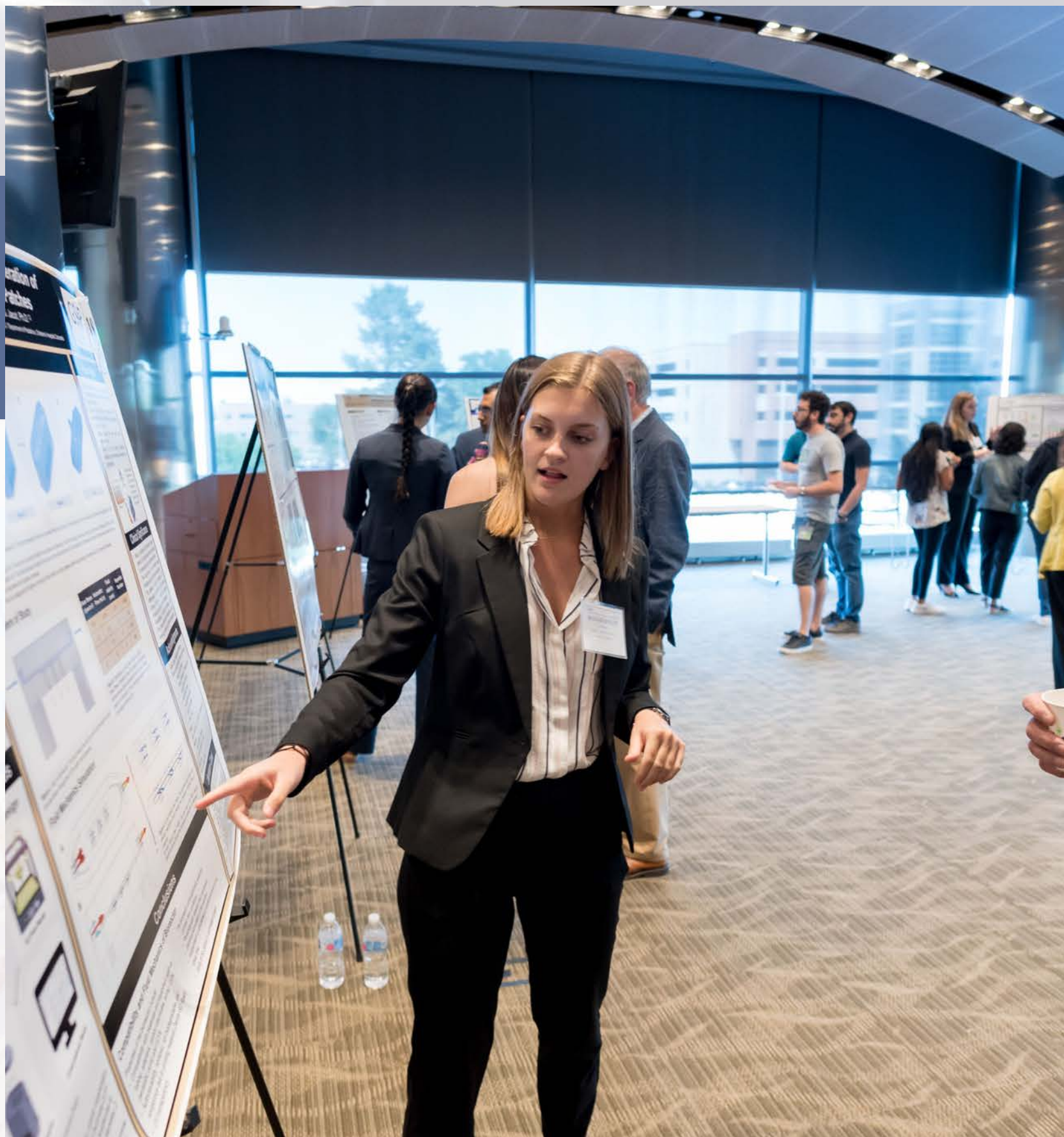
There are few other programs which truly offer such a diverse lab experience--especially those which help support students with a scholarship. To be able to pursue our passions, as students, researchers and future medical professionals, with the support of generous donors like yourselves, is a complete privilege.

We were all very lucky to find a program that not only focuses on lab, but also on professional development and intern bonding. I am confident that within our GSIP class, I had the opportunity to meet and get to know some of the future scientists who will discover great things - and without a doubt work hard to do it.

Thank you for helping to support science and especially us. We all really appreciate it.

Best,

Aiden Jacobs



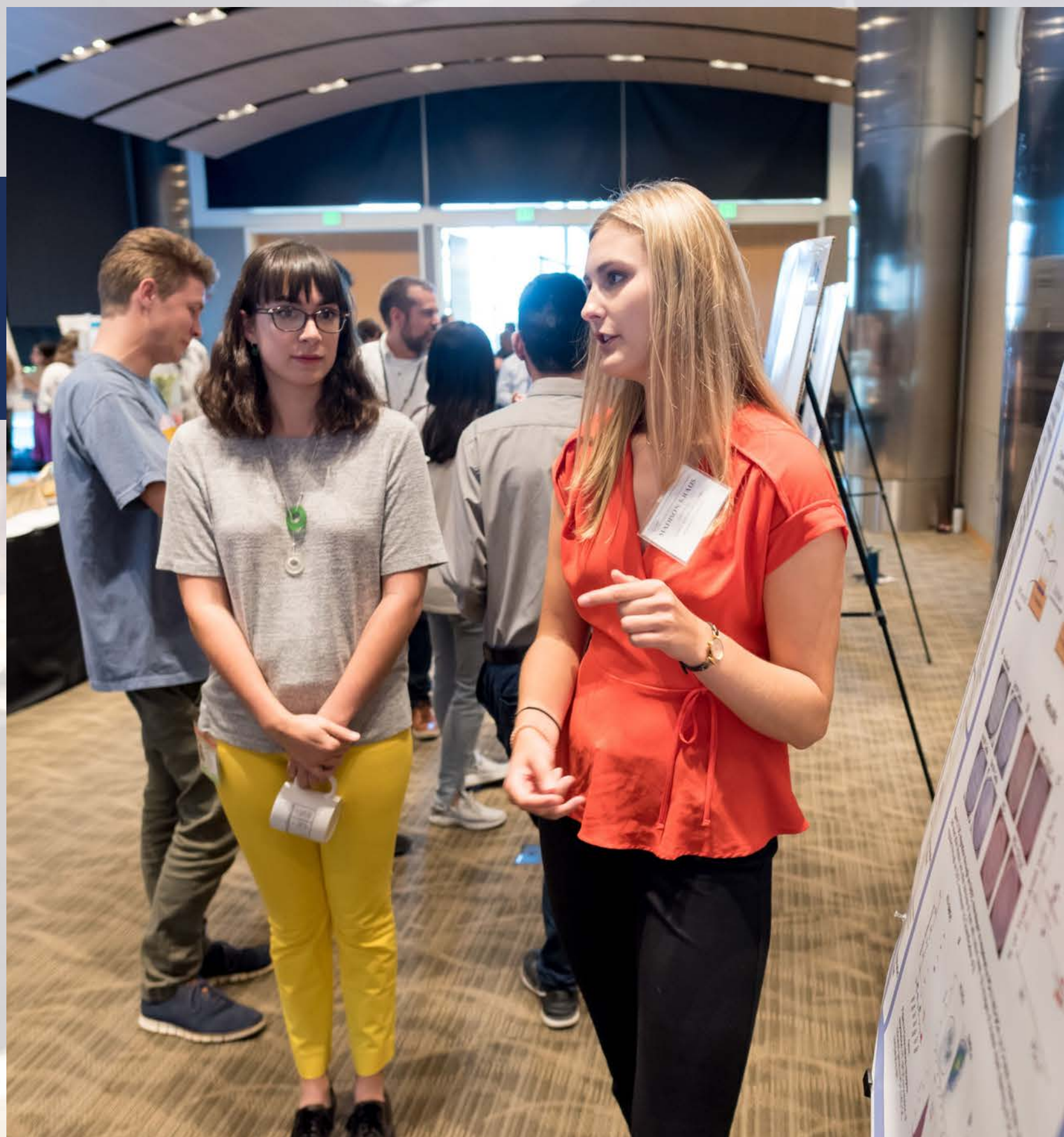
MAGGIE JEWETT
UNIVERSITY OF DAYTON
MENTOR, JEFFREY JACOT, PH.D.

Dear Mr. and Mrs. Grant and other donors,

I cannot fully express my gratitude for the opportunity to participate in the GSIP program this summer. I learned so much about the future of the regenerative medicine field and the specific field of cardiac tissue engineering, which I plan to pursue in the future. This experience has further instilled my passion for this industry and has prepared me well to begin my graduate studies. I hope to return to the University of Colorado Anschutz to pursue my doctorate in Bioengineering next fall. I'm looking forward to this possibility and would like to personally thank you for funding this program and making this learning experience a possibility for me.

With sincere appreciation,

Maggie Jewett



MADISON KRAUS
UNIVERSITY OF NEBRASKA
MENTOR, BETH TAMBURINI, PH.D.

Dear Peter and Rhondda Grant and other donors,

I would like to extend my gratitude for your support and contribution to the Gates Summer Internship Program. This summer opened my future in ways that I did not expect by connecting me to passionate and successful mentors, advanced research technology, public outreach events, and career development opportunities. I feel as though I am more integrated into the scientific community and am equipped with the confidence and skills to pursue my goals. In addition, I was able to connect with peers from diverse backgrounds and enjoyed spending time with them as co-scientists and friends. The experience I had went well beyond anything I could have hoped for, and I truly appreciate all you have done to make it possible!

With gratitude,

Madison Kraus



STEFAN MARASLIGILLER
VANDERBILT UNIVERSITY
MENTOR, TAMARA TERZIAN, PH.D.

Gates Center donors,

I wanted to thank you all for your generosity in supporting my research and extracurricular activities for this summer. I initially applied to GSIP in order to increase my knowledge of biochemical research methods as well as general skills of scientific inquiry as I prepared to start medical school at the University of Cincinnati College of Medicine this fall. In addition to gaining the skills I hoped for through day-to-day lab work, writing assignments, and seminars, I also had the chance to meet a spectacular cohort of students whom I enjoyed getting to know throughout the summer. I plan to maintain these friendships throughout medical school and beyond and hope that these connections will benefit later as a network of academic colleagues across the country. While many of my peers in the medical school class chose to travel or relax this summer in preparation for classes, I feel I have a "leg up" based on the considerable amount of academic stimulation that I received throughout the GSIP program--both inside and outside of the lab. Without your support this would not have been possible, and I greatly appreciate your continued promotion of this experience for other students.

Best,

Stefan Marasligiller

ANNA MARTCH

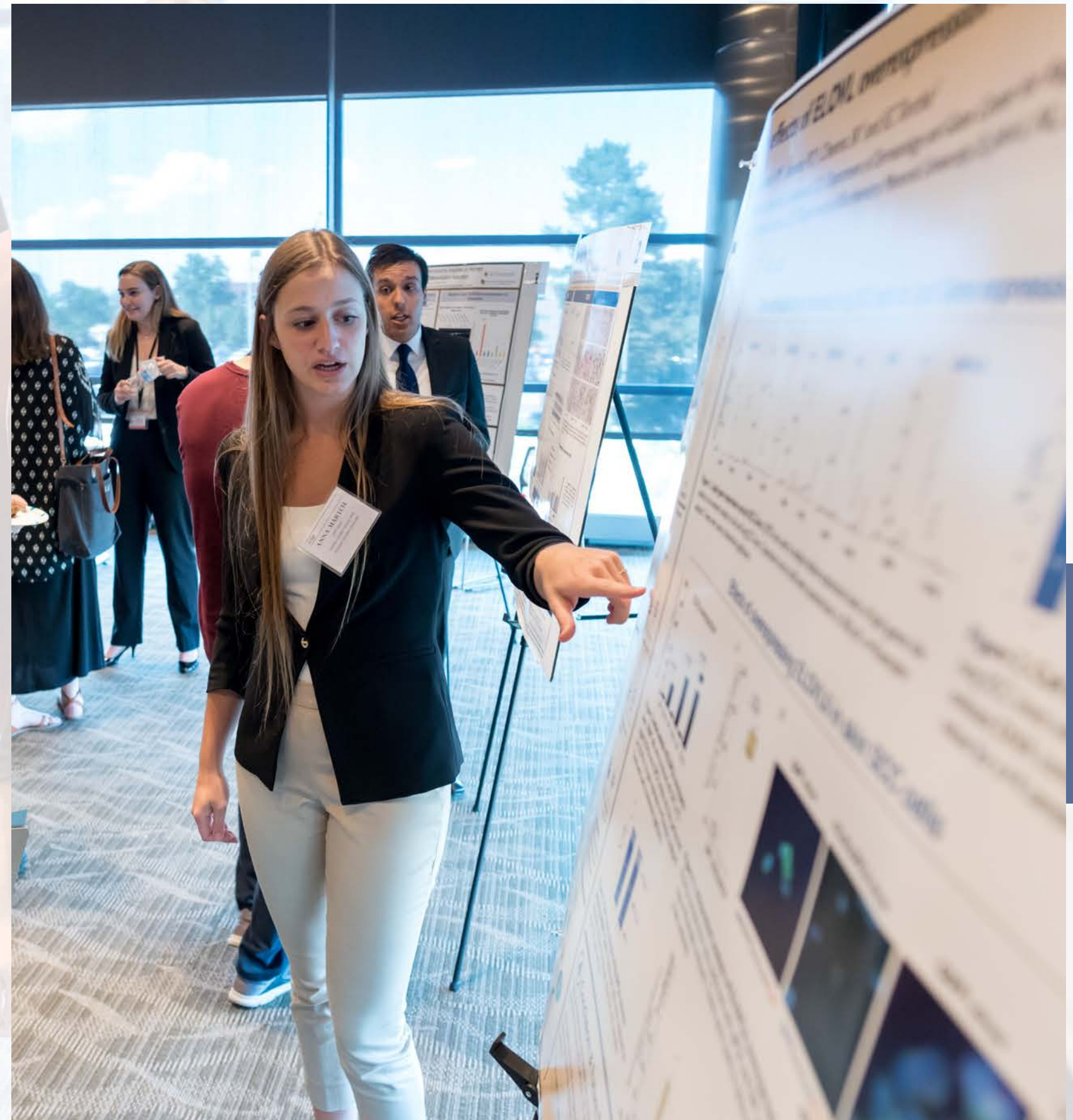
COLORADO CHRISTIAN UNIVERSITY
MENTOR, ENRIQUE TORCHIA, PH.D.

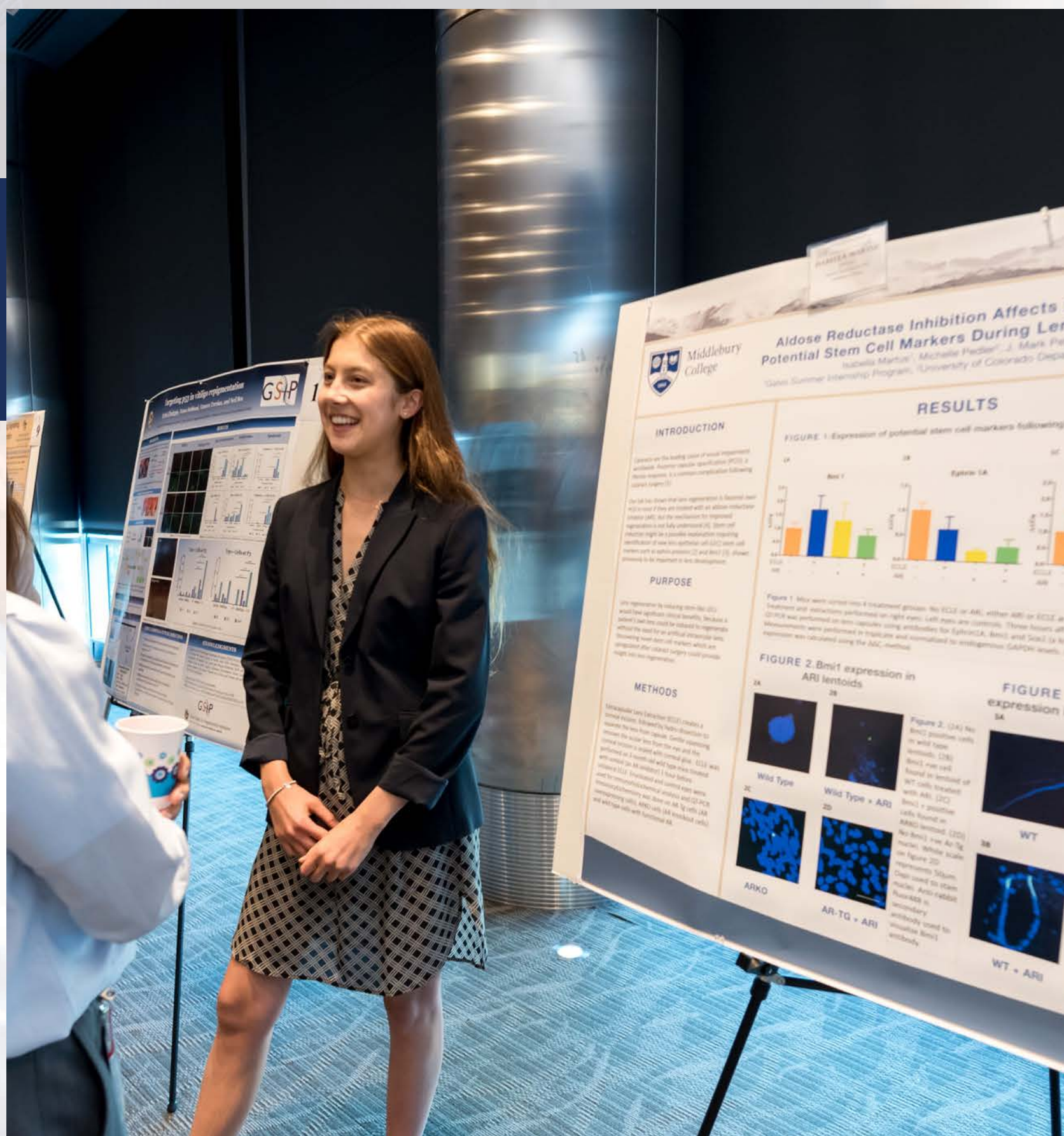
To the GSIP donors,

I cannot thank you enough for your contributions to the Gates Center. Your support enabled me to learn about and love new areas of science and medicine. The GSIP program was a huge blessing in my life--one that will propel me forward as I continue to pursue academic excellence that has equipped me for more challenging tasks to come. The experience, lectures, and training were invaluable, not to mention the dear memories I made with my fellow interns. It was truly a great privilege to be a part of the Gates Center this summer, and I am incredibly grateful for your support that made this opportunity possible for me.

Best regards,

Anna Martch





ISABELLA MARTUS
MIDDLEBURY COLLEGE
MENTOR, MARK PETRASH, PH.D.

Dear GSIP Donors,

My name is Isabella Martus, a student at Middlebury College majoring in Molecular Biology and Biochemistry. I would like to thank you for your incredible generosity for funding my summer internship at the Gates Center this summer, and I cannot express enough how grateful I am for your support.

In the Petrash lab, my specific project focused on investigating stem cell expression in a regenerative murine lens treated with an aldose reductase inhibitor. The research was fascinating, and the mentorship offered throughout the internship was invaluable with the chance to seek out and reflect on advice from experienced researchers and students. Hands-on experience with an array of new lab techniques and collaboration with other interns added to the amazing learning opportunities.

Furthermore, during the internship I relished the opportunity to attend biweekly seminars on diverse topics within regenerative medicine and to see how stem cell biology is and will continue to revolutionize patient care. The Gates Internship helped me solidify my goal of applying to medical school with the aspiration to combine clinical care with research in the future.

Thank you very much again for supporting my summer internship and giving me this opportunity to experience the fascinating field of stem cell biology in regenerative medicine. I would like to spread the learning and insight I developed this summer with fellow science students at my college, so your generosity will perpetuate beyond me to the wider community.

Sincerely,

Isabella Martus



Dear Generous Donors,

This summer, I learned how to transform bacteria, culture stem cell spheroids, analyze multispectral images of fluorescent staining, and much, much more. It's crazy to think that a couple months prior, I had only a vague understanding of what all these techniques were, yet I was able to independently perform these tasks while working on my very own project this summer. Beyond the excitement of learning any technique, however, was the furthering of my deep appreciation for the world of science and research. This internship has played an integral part—more than any other single experience—in solidifying my future career plans to be a physician-scientist. As such, I would like to thank you all for your generous support. Without you, none of this would have been possible.

With gratitude,

Khoa Nguyen

KHOA NGUYEN
UNIVERSITY OF COLORADO BOULDER
MENTOR, XJ WANG, M.D., PH.D.



MICAELA ROY
AFFILIATE, MIDDLEBURY COLLEGE
MENTOR, ANGELO D'ALESSANDRO, PH.D.

Dear Donors,

My name is Micaela Roy, and I am a rising senior at Middlebury College, intending to graduate in May 2020. I major in Molecular Biology and Biochemistry and am a Social Entrepreneurship Fellow on campus. I wanted to take the time to sincerely thank you for giving me the opportunity to participate in the Gates Center for Regenerative Medicine Summer Internship program this past summer. It was the most positive internship experience that I have had thus far, and I feel that it will contribute greatly to my current interests and future plans.

My specific research this summer was conducted in the D'Alessandro lab, which performs metabolomic analyses on biological matrices using ultra-high precision liquid chromatography coupled with mass spectrometry. Embarking on this internship, I hoped to improve my research skills and build out my network to set me in a direction for finding a job after school. I find research fascinating, and I saw this as a great opportunity to learn about something new and get excited about the current biomedical advances that we are making as a country and society. My days were pretty consistent—I would wake up early and go to the climbing gym before work, slog through Denver traffic, and find myself at the office anywhere between 8-9. Most of my days were spent extracting samples for analysis with the mass spectrometers or analyzing the data that the mass specs produce. It doesn't sound too exciting in practice, but I can assure you that the research occurring in the D'Alessandro lab is far from boring. From looking at the metabolism of hibernating squirrels, to determining how hormone disorders affect glycolysis, the D'Alessandro lab is involved in everything under the sun.

Thankfully, this was not my first lab experience, nor my first experience with biochemistry. Because I went in with some level of background, I really thrived in the lab environment this summer. I made a lot of meaningful friendships and professional relationships and was offered a job in the lab after I graduate (which I am very excited about!).

I just wanted to thank you again for the opportunity to have this experience. Because I am pre-med, taking a job in biomedical research where I will likely have a lot of my work published is pretty much the best-case scenario when it comes to substantiating my resume for med school. I truly believe that this experience will significantly increase my chance of becoming a physician in the future. Beyond that, I had a wonderful time enjoying beautiful Colorado and learning about research that I find so personally fascinating. So, with all my sincerity, thank you.

Warmly,

Micaela



CHRISTOPHER SCHAFF
COLORADO MESA UNIVERSITY
MENTOR, JOSEPH BRZEZINSKI, PH.D.

To all of the gracious donors for the Gates Summer Internship Program,

My name is Chris Schaaf, and I had the luck and pleasure of being one of the interns for the 2019 Gates Summer Internship Program. While I've been attending university, I have assisted with research as much as I can at my home school, Colorado Mesa University. Performing laboratory work is a large part of working in the biomedical sciences, and I'm grateful for every hour that I'm able to spend in the lab. But all of the hours that I've spent in the lab at CMU do not remotely compare to the summer that I spent working for the GSIP.

At CU Anschutz, I was exposed to and participated in research that was at the forefront of its respective fields. I gained an insight into what it takes to make science work at that level, and what goes into it both personally and communally. The people that I worked with, both my mentor, Dr. Joseph Brzezinski, and his graduate students, were incredibly supportive and guiding throughout my stay. The program directors and their supporting staff did an incredible amount of work to make sure that our experience was not only positive, but able to benefit us in ways that far exceed a typical summer research position. This was an opportunity that will not be forgotten and played a large role in solidifying my decision to attend graduate school.

I wish to extend my immense gratitude to all of you who made this possible: Mr. and Mrs. Grant, for providing the initial gift to the Gates Center which founded the program, all of the supporters who have maintained the program since then, Dr. Enrique Torchia, Dr. Neil Box, and Dr. Tamara Terzian for co-directing the program, Dr. Joseph Brzezinski for mentoring me and providing for me a place in his lab, the Gates Center for Regenerative Medicine for hosting the program, and to all of the supporting faculty and staff that worked behind the scenes to make the summer experience as incredible as it was. I will not forget any of you, and words alone cannot express how thankful I am.

Sincerely,

Chris Schaaf



MARINA SCHLAEPFER
CALDWELL UNIVERSITY
MENTOR, LORI WALKER, PH.D.

Dear Generous Donors of GSIP,

Thank you so much for your continued support to this marvelous program, as I am so fortunate to have had the opportunity to participate. Being in the program, I learned a tremendous amount of skills and aspects of science I will never forget in my career journey and life. Being able to provide a full research project opportunity at a reputable research facility is more than I can dream of, especially coming from a small university where the resources for intricate research is unavailable. The selected participants in the program, the mentors, and the GSIP directors made the program an unbelievable experience, as this truly is a program in which I would fully encourage any aspiring scientist to partake. It was not just about the research; I learned valuable information regarding career development, had opportunities to volunteer, and made connections with some amazing researchers, physicians and advisors. I looked forward to going into the lab every day, and I enjoyed my time so much that I could not believe 11 weeks just flew by. As donors, you should feel very proud of a program like this, as it was the most amazing and fulfilling experience I have ever had as an aspiring scientist. My summer would not have been possible without your contributions, and I am so appreciative for the opportunity in this outstanding program.

Best,

Marina Schlaepfer

AUSTIN SCHOPPE

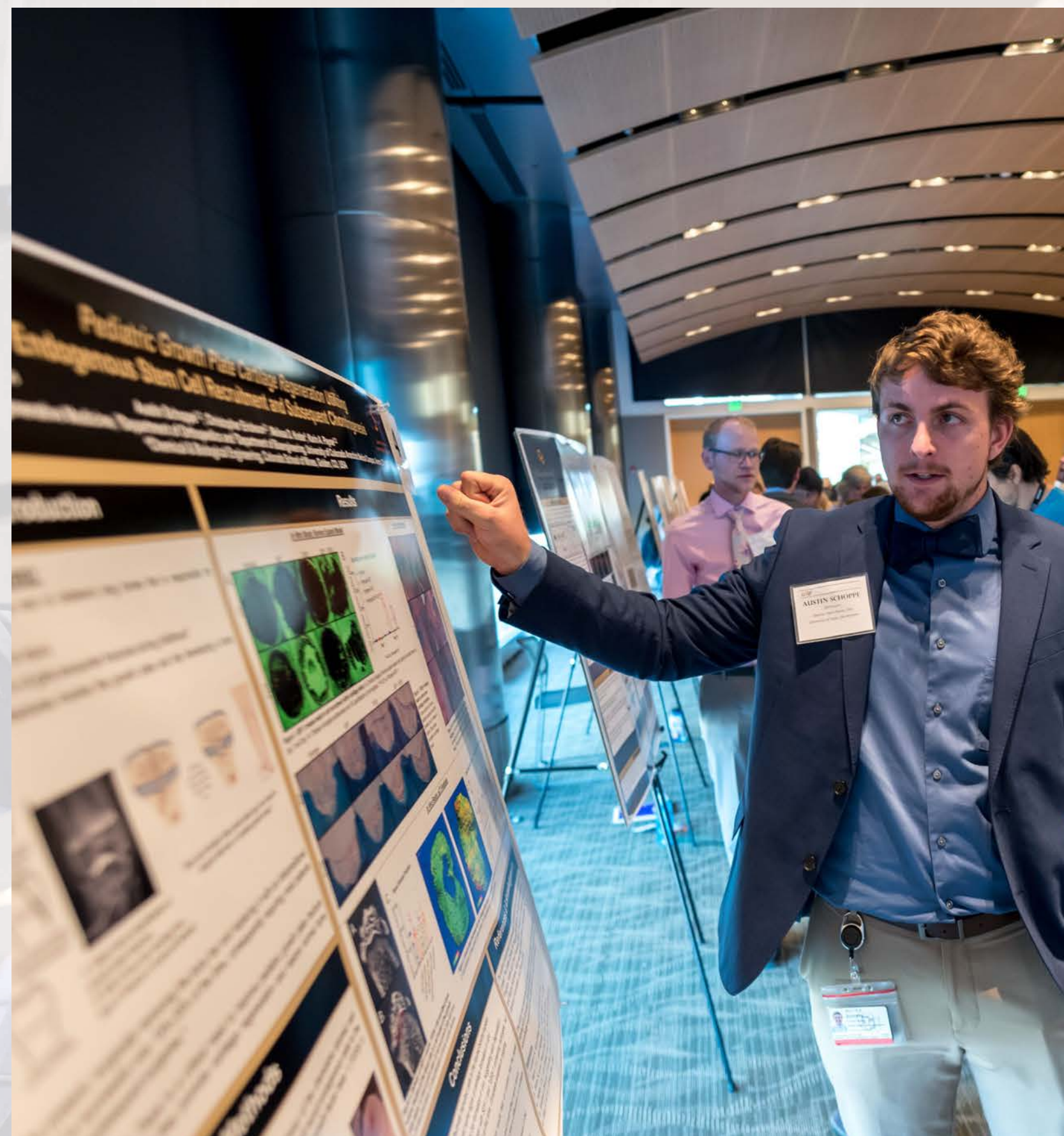
UNIVERSITY OF TEXAS, SAN ANTONIO
MENTOR, KARIN PAYNE, PH.D.

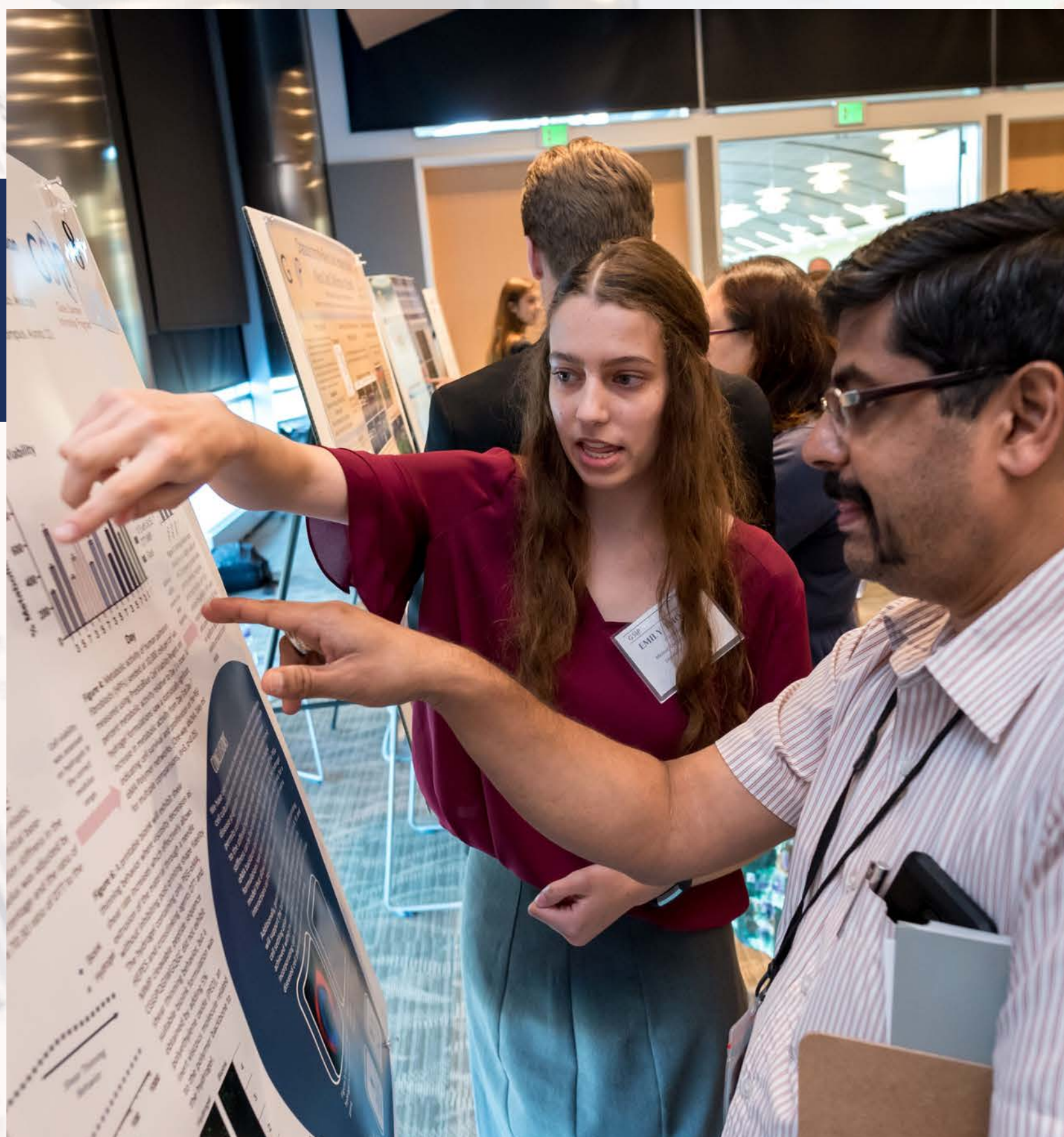
Dear Mr. and Mrs. Grant and other donors,

As a returning GSIP participant, I would like to take this opportunity to reiterate the impact this program has had on my academic career and express my gratitude for your willingness to contribute to this experience. Having been able to return has helped me to further delve into the field of research by strengthening skills I previously learned, while helping me to acquire new ones. It has also provided me with the opportunity to learn more about graduate school and the graduate programs offered on the Anschutz campus. I look forward to the possibility of attending CU Anschutz for my graduate education. Once again, I'd like to reiterate my gratitude along with the entire GSIP 2019 cohort. Thank you so much for supporting our academic and professional careers.

Sincerely,

Austin Schoppe





EMILY THOMAS
UNIVERSITY OF OKLAHOMA
MENTOR, CHELSEA MAGIN, PH.D.

Dear generous Gates Summer Internship Program donors,

Thank you for your support of the GSIP program. Your wonderful contributions have helped make a truly amazing program possible. The seminars and lab experience really helped me discover what I want to do in the future. I now hope to pursue a graduate degree in biomedical engineering, and this summer experience was great preparation. It was awesome to get to work on a world-class medical research campus with the guidance of outstanding researchers. I both developed laboratory research skills and gained a better understanding of the field of regenerative medicine. I know that what I learned this summer will benefit me for years to come. I woke up every day looking forward to going to CU Anschutz, and I can say with sincerity that this was one of the best summers of my life. Thank you once again for your support of future researchers and medical professionals!

Kindest regards,

Emily Thomas



KALEB TODD
FORT LEWIS COLLEGE
MENTOR, YIQUN SHELLMAN, PH.D.

Dear GSIP Program sponsors,

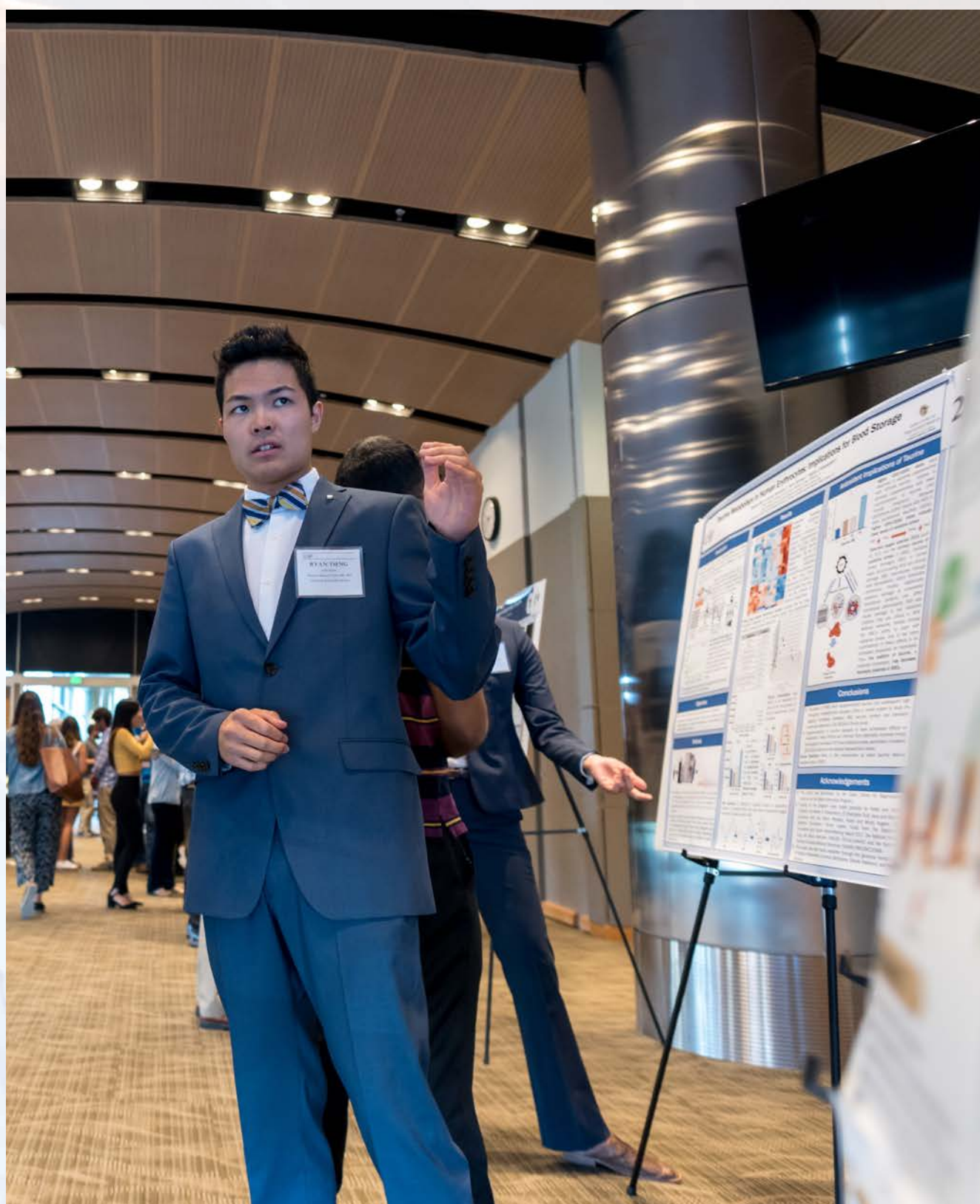
First, I would like to say thank you for everything you have done for the Gates Summer Internship Program. It is through the generosity of folks like you that this internship can offer the life-changing experiences that it does to so many undergraduate students like myself. Throughout the summer internship, we received numerous lectures from researchers who were impressed by the caliber of the young men and women who I was lucky to call my fellow interns. Your contributions to the program make this possible; not only does the program provide such a fantastic opportunity for us interns to gain a great deal of research experience in translational medicine, but it also provides an avenue for pushing the frontiers of medical research forward here in the United States through the networking and career exploration opportunities it possesses.

Next, I would like to thank each of you personally for enabling me to engage in this opportunity. Growing up in a rural, medically underserved area, I had limited access to science and research until I began college. Even then, opportunities to gain experience in biomedical research were rare. This program allowed me to gain an immense deal of laboratory experience and improve my comfort and independence in the laboratory setting. Of course, my experiments did not always turn out the way I had hoped for them to; but even these failures were a great opportunity for me to learn from my mistakes and press on until the goal was accomplished. I will be able to draw on this knowledge and experience throughout my career, beginning this fall when I return to college as a laboratory teaching assistant.

Finally, I would like to share with you a story about how this program impacted my career decisions. During the summer, I had the privilege of working in a research group, which studies alternative treatment options for patients with melanoma and shadowing a cutaneous oncologist here on CU Anschutz. Historically, melanoma diagnosis was a death sentence; even with the tremendous advances in melanoma treatments made in the last decade, there are many patients for whom no treatment options exist. Through the shadowing opportunity, I was able to see the full spectrum of melanoma patients, from new diagnoses to patients who had relapsed from all standard treatments. This experience showed me just how important the research that I was doing in the lab was and gave me an intense motivation to find new cures for these patients who had no hope left. I am now on a trajectory to pursue a career as a physician-scientist, where I can be instrumental with my skills and experience in pushing the frontiers of medicine forward.

Thank you all again for such a fantastic opportunity!!! I hope that our paths may cross again soon.

Kaleb "KJ" Todd



RYAN TSENG
UNIVERSITY OF COLORADO DENVER
MENTOR, MAYUMI FUJITA, M.D., PH.D.

Dear Donors,

As a participant in the GSIP Summer internship program of 2019, I would first like to start off by thanking everybody who has made this program possible. It has been an extraordinary experience of not only academic achievement but of new-found friendships as well. As someone who is just starting out as an undergraduate researcher with future aspirations in the field of medicine, what I have learned over the summer internship will for sure be critical in my future career. The combined aspect of this program, research, service and clinicals gives me a complete and cohesive view of what research is truly like from an institutional perspective.

My experience with my mentor, Dr. Fujita, has been absolutely phenomenal. I have learned many skills seen in literature papers I have read in the past such as western blotting, pcr, and cell culturing etc., which gives me a broad set of skills that I can employ down the line. Furthermore, it has taught me how important and critical thinking is, being that experimentation always has to be able to relate to a broader topic in order to serve clinical importance. The teamwork aspect of working in a multi-disciplinary lab has also had a lasting impact on me. Even after the summer internship has ended, I have continued working in Dr. Fujita's lab as an undergraduate researcher looking to complete multiple projects.

Being able to take part in the Colorado Melanoma Foundation as well as the Sun Bus was a unique part of the experience over the summer. It not only served as a way for me to compare and contrast various different communities around Colorado, but it has allowed me to learn how to translate the technical aspects of research to the general public. By taking the clinical skills I have learned, I am able to make a positive impact around various different locations in Colorado including my hometown of Boulder. On top of everything, as somebody who is also in charge as the vice president of a nonprofit organization, I have learned a lot from the Colorado Melanoma Foundation in terms of how to set up fundraising events and what networking looks like. Using the Colorado Melanoma Foundation as a model of how an organization can be done, it has led to better insight in how I organize my own non profit.

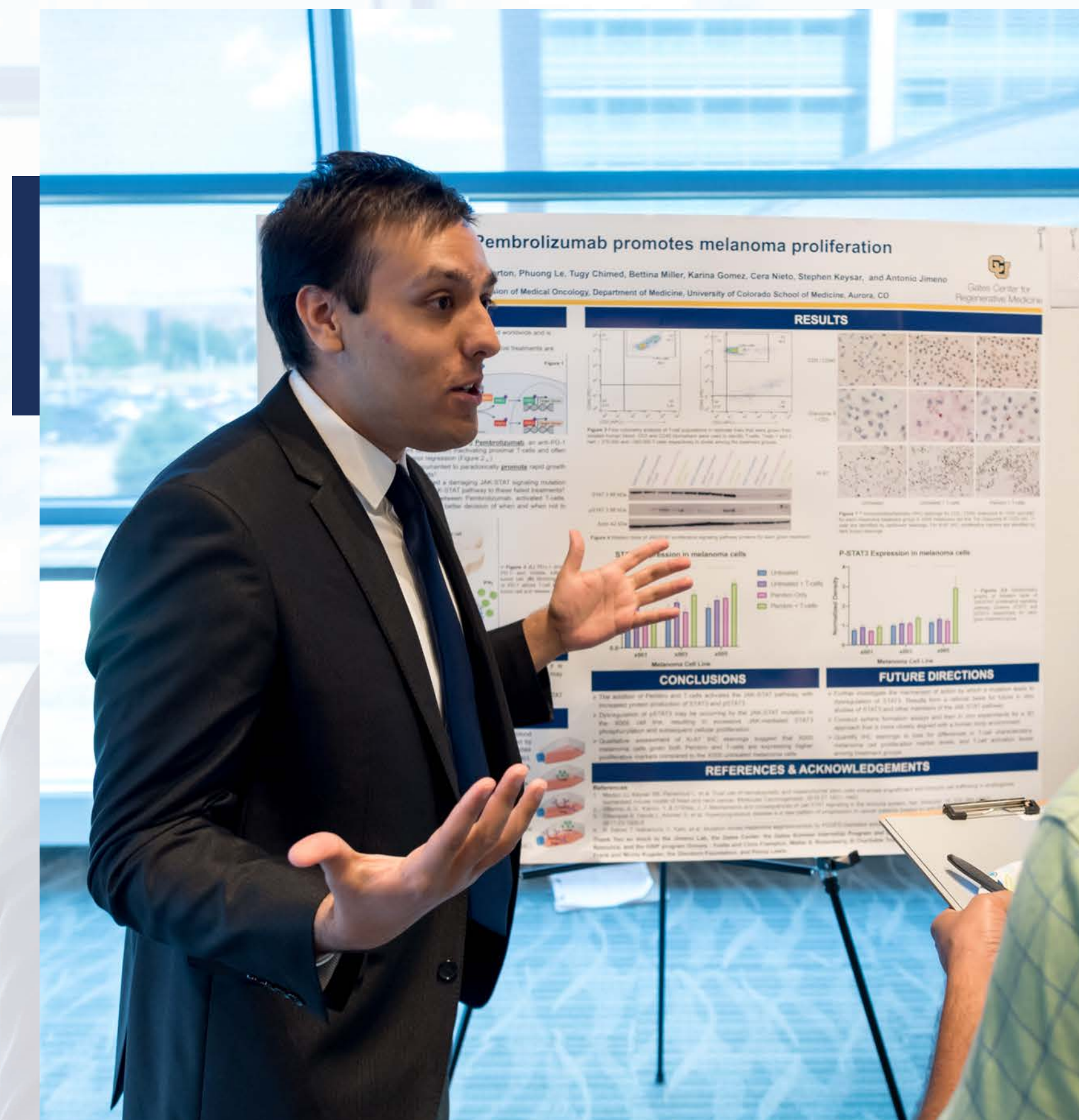
The clinical aspect provided by the internship program is also important to my development as a student. I believe clinical rotations in different fields of medicine are important as they will help me decide what type of medicine I want to partake in in the future as well as rule out interests that do not align with what I want to do as a student. The experience in and of itself will also be instrumental in getting future jobs as well as partaking in other programs where I'll have a unique perspective to connect research to how it is practiced in a hospital setting.

Another side aspect I feel should not be overlooked is the social group building put together by the program. It was a very memorable and pleasant experience to be able to go to different events and different social outings with like-minded people. From a skills perspective, this built my networking skills and social skills which I believe will be important in my future career. From a student's perspective, it gives everyone something to look forward to every day on top of the research we are already doing.

With all that I have said, I would like to thank the donors and everybody else involved one more time for the absolutely phenomenal experience I had through the program. This has no doubt been one of the biggest impacting experiences I have had as an undergraduate student as it has taught me skills required in laboratory research but much more beyond that. To summarize, GSIP Rocks!

Yours truly,

Ryan Tseng



ANIT TYAGI
UNIVERSITY OF DENVER
MENTOR, ANTONIO JIMENO, M.D., PH.D.

Dear Mr. and Mrs. Grant and other GSIP Donors,

I would like to give a heartfelt thank you for giving me the opportunity to learn and grow as a future scientist. It was a wonderful experience to meet all the other interns and faculty of the Gates Center for Regenerative Medicine. Your generosity has allowed me to learn new laboratory and research skills that will carry me forward in my future scientific career. I'm extremely grateful for having had the opportunity to be an intern and for your investment in my future. Thank you again for your support and making this incredible program possible for me.

Best regards,

Anit Tyagi



KEVIN WINKLER
UNIVERSITY OF COLORADO BOULDER
MENTOR, MICHAEL VERNERIS, M.D.

Dear Peter and Rhondda Grant and other donors,

Thank you so much for providing us with the opportunity to conduct research at the University of Colorado Anschutz Medical Campus. I learned so much this summer, and I have even changed my career path. I would now like to pursue a career in research—more specifically, the research I did over the summer (CAR T research).

Whether I was rafting with the group or simply attending a lecture, the collaborative nature was amazing. I have made great friends and plan on keeping in touch. Hopefully, the friends I made will continue to talk and interact, and we can all become researchers together.

Overall, this summer was an amazing experience. I have never had such a rewarding summer and am lucky to have been a part of this program. I just want to reiterate how thankful I am for this opportunity.

Sincerely,

Kevin Winkler

GSIP FINAL DAY TOP FIVE POSTER PRESENTATION

AT THE END OF THE PROGRAM, INTERNS PARTICIPATE IN A POSTER PRESENTATION THAT HIGHLIGHTS THEIR COMPREHENSIVE RESEARCH FROM THE SUMMER. POSTER PRESENTATIONS ARE JUDGED ON THE FOLLOWING AREAS: HYPOTHESIS AND/OR STATEMENT OF PROBLEM METHODS AND CONTROLS/COMPARISON III, RESULTS IV, CONCLUSION AND FUTURE WORK. THE TOP FIVE PRESENTATIONS ARE AWARDED A PRIZE AND SHOWCASED AT THE GATES CENTER.



L TO R: EMILY THOMAS, MICAELA ROY, CHRISTOPHER SCHAFF, RYAN TSENG, AND ELIZABETH GOLDING

POSTER PRESENTATION #1

RYAN TSENG

MENTOR, MAYUMI FUJITA, MD, PHD
DOWN REGULATION OF HUMAN BLOOD CTLA-4 EXPRESSION IS
ASSOCIATED WITH ADVERSE PROGNOSIS IN MALIGNANT MELANOMA

POSTER PRESENTATION #2

CHRISTOPHER SCHAFF

MENTOR, JOSEPH BRZEZINSKI, PHD
DETERMINING THE ROLE OF ECR2 IN THE EXPRESSION OF
OTX2 IN THE RETINA

POSTER PRESENTATION #3

ELIZABETH GOLDING

MENTOR, TANIA REIS, PHD
GENETIC SCREEN FOR ANTI-OBESITY RNA BINDING
PROTEINS IN DROSOPHILA

POSTER PRESENTATION #4

EMILY THOMAS

MENTOR, CHELSEA MAGIN, PHD
DEVELOPING A PEGAMA BIOINK FOR 3D PRINTING BLOOD VESSEL
MIMICS TO MODEL PULMONARY ARTERIAL HYPERTENSION

POSTER PRESENTATION #5

MICAELA ROY

MENTOR, ANGELO D'ALESSANDRO, PHD
TAURINE METABOLISM IN HUMAN ERYTHROCYTES:
IMPLICATIONS FOR BLOOD STORAGE



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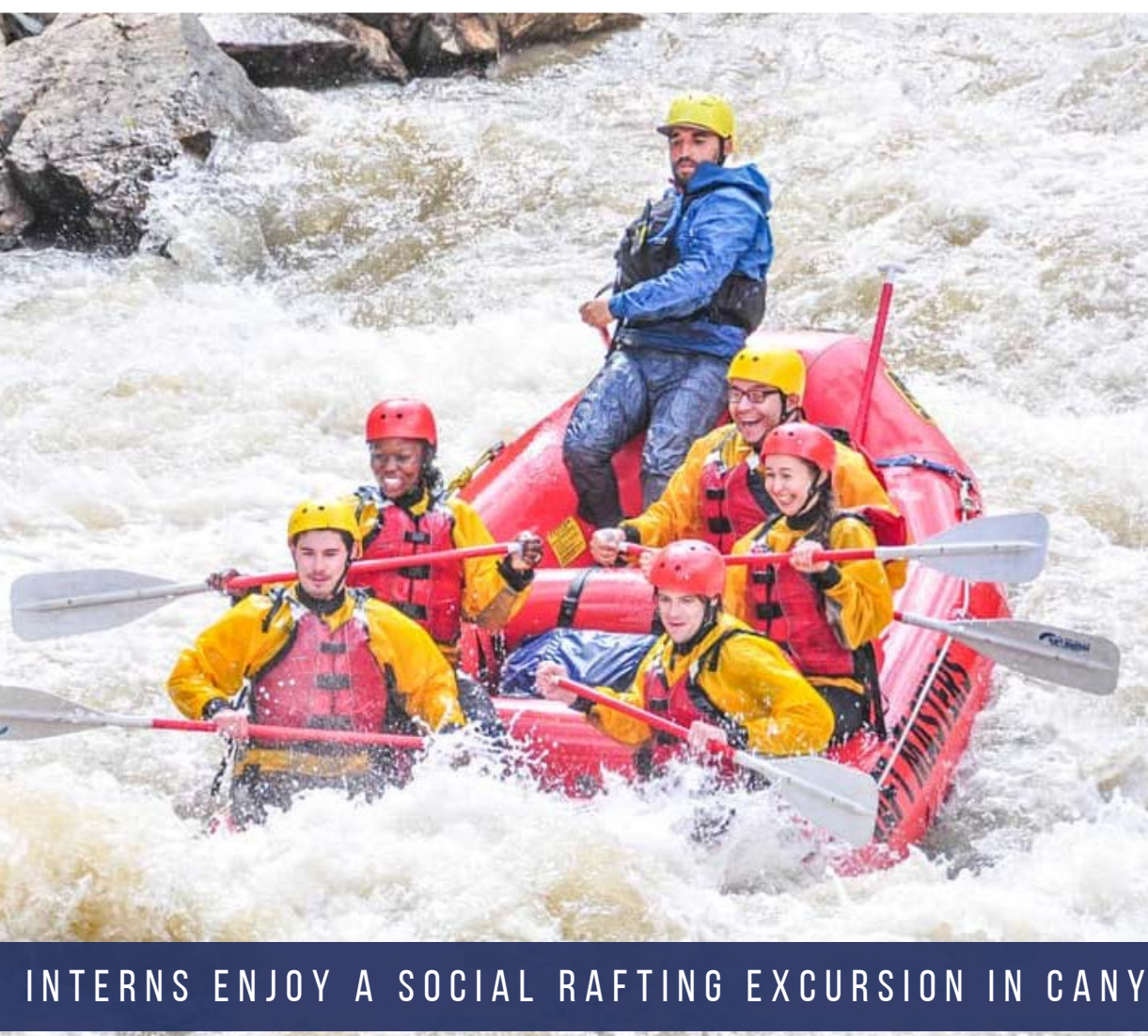
To learn more about the
Gates Summer Internship Program, please contact us.

PETER GRANT, DIANE WALLACH
AND RHONDDA GRANT VISIT
DURING THE GATES SUMMER
INTERNSHIP PROGRAM'S FINAL DAY
POSTER SESSION AND RECEPTION.
RHONDDA AND PETER HAVE BEEN
GENEROUS CHAMPIONS OF THE
GSIP PROGRAM SINCE ITS
INCEPTION IN 2014.



L TO R: PETER GRANT, DIANE WALLACH AND RHONDDA GRANT

SPECIAL THANKS TO OUR COLLEGE AND UNIVERSITY PARTNERS:
UNIVERSITY OF COLORADO DENVER | DAVIDSON COLLEGE | MIDDLEBURY COLLEGE



INTERNS ENJOY A SOCIAL RAFTING EXCURSION IN CANYON CITY, COLORADO.