THE PARTNERSHIP FOR NATIVE AMERICAN CANCER PREVENTION

Graduate Programs Primer (GPP) 2019

January 25, 2019

The Graduate Programs Primer, hosted by the University of Arizona's Partnership for Native American Cancer Prevention (NACP) Research Education Core gave both NAU and UA NACP students the opportunity to take a tour through the Medical School campus and research labs at the University of Arizona. The morning of the tour, students and NACP staff met and greeted one another. Then, everyone gathered and were blessed with prayer by Miguel Flores (Tohono Oodam) Native American Student Initiatives President before starting the day. The first stop of the tour was a suturing workshop which was taught by a few Native American UA medical students. NACP students learned the basics of suturing and got some hands on experience. The rest of the tour gave students the opportunity to go through the labs and meet current students who are working on current biology projects. This was an eye opening opportunity for students to experience what it is like to work and what to expect when working professionally in a lab. Along with this tour, students were given more insight about the graduate programs that they offer at the UA such as the Public Health, Nursing Masters program, the UA Prep Program, and the Sloan Indigenous Graduate Partnership. To conclude

the tour, five female Native American panelists spoke of their academic journeys in the STEM and Public Health field. A rememberable remark from a panelist was, “you are your ancestors wildest dreams” meaning that we should feel honored and welcomed in any type of academic setting and we can succeed.

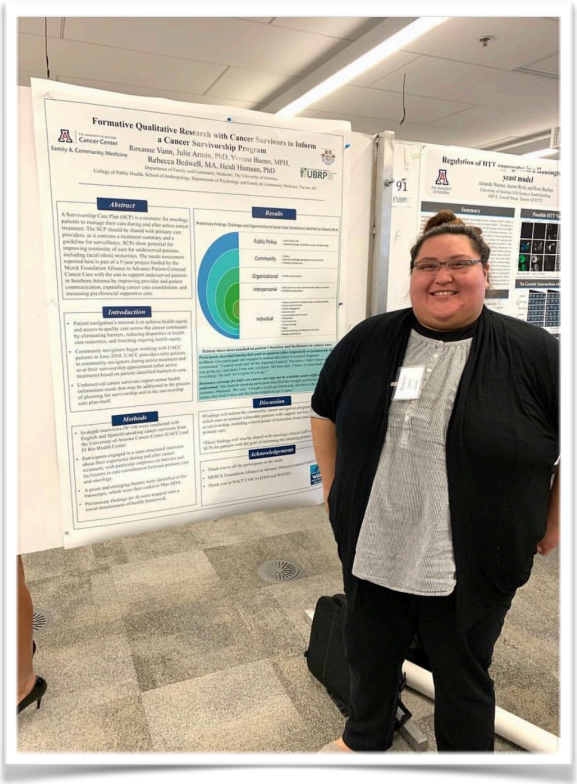
Undergraduate Biology Research Program (UBRP) 2019

The University of Arizona had their 30th Annual Undergraduate Biology Research Program (UBRP) Conference. UBRP is an educational program that focuses on teaching students science by getting them involved in scientific research projects. By conducting these scientific projects, students gained a better understanding of applying scientific methods to their research, while working closely with a mentor. Students had the opportunity to present their research through poster sessions at the conference. A few of the student researchers who presented were NACP students. The UBRP conference allowed attendees to interact with student presenters along with discussing their scientific research projects. The interesting part about this conference was that the students who were presenting were mostly sophomores, juniors and seniors. For some of our NACP students, it was their first time attending a poster session which was really exciting for them!

UA NACP Student Presenters

"Formative Qualitative Research to Inform a Community Navigation Program that Supports Cancer Survivorship"

Roxanne Vann



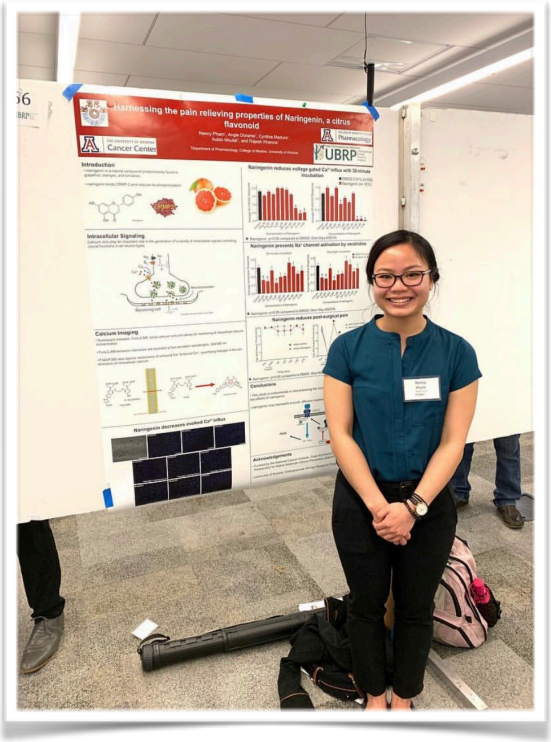
The goal of this project is to understand the experience of cancer treatment and survivorship, particularly among underserved patients, in order to better coordinate survivorship care. Patient navigation and survivorship care plans (SCP) may offer support during and after active cancer treatment. SCPs and patient navigation show potential for improving continuity of care for underserved patients, including racial/ethnic minorities. The SCP is also an essential tool for primary care providers, as it contains a treatment summary and a guideline for surveillance. The needs assessment reported here is part of a 5-year project funded by the Merck Foundation Alliance to Advance Patient-Centered Cancer Care with the aim to support underserved patients in Southern Arizona by improving provider and patient communication, expanding cancer care coordination, and increasing psychosocial supportive care.

Roxanne Vann, Julie Armin, PhD, Yvonne Bueno, MPH, Rebecca Bedwell, MA, Nancy Johnson, RN, PhD, Heidi Hamann, PhD

Department of Family and Community Medicine, The University of Arizona, College of Public Health, School of Anthropology, Departments of Psychology and Family & Community Medicine, Tucson, AZ

"Harnessing the Pain Relieving Properties of Naringenin, a Citrus Flavonoid"

Nancy Pham



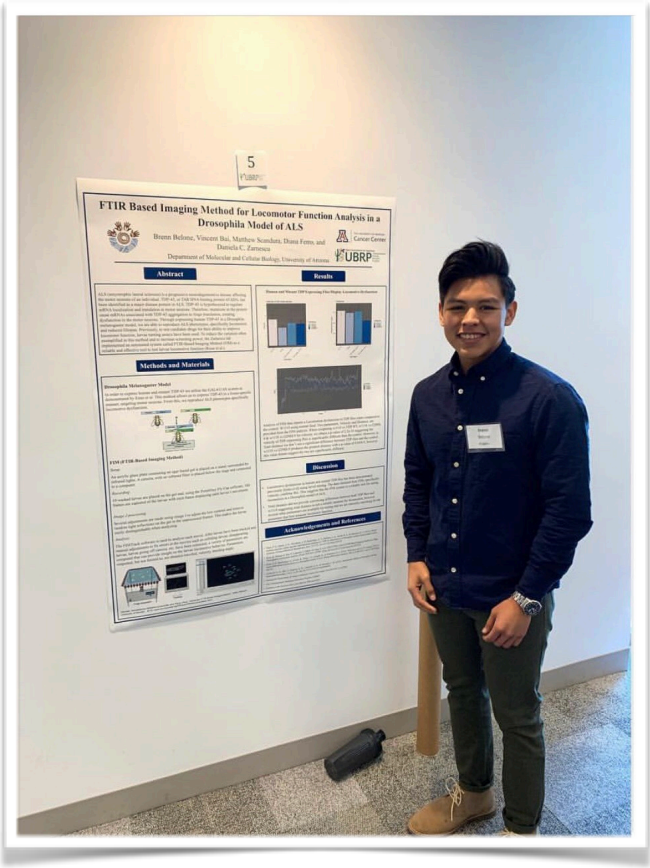
Chronic pain affects billions of people worldwide and comes at a high cost to society. The misuse of and addiction to opioids has become a national crisis motivating researchers to develop novel, non-addictive, and effective pain therapies. Using calcium imaging, a technique that images live cells to monitor the changes in intracellular calcium concentration, we investigated the pain-relieving properties of naringenin. Calcium ions play an important role in the generation of a variety of intracellular signals controlling crucial functions in all neuron types such as the transmission of nociceptive signals. Upon applying pharmacological triggers, we observed a decrease in the response of sensory neurons from Sprague Dawley female rats. Naringenin demonstrates much potential to be administered as a pain-relieving therapy due to the inhibited potassium chloride evoked calcium influx. Our findings support the pain-relieving properties of naringenin and offer a potential novel, non-addictive solution to treat chronic pain.

Nancy Pham, Angie Dorame, Cynthia Madura, Aubin Moutal, and Rajesh Khanna

Partnership for Native American Cancer Prevention (NACP) through the National Cancer Institute Grant #2U54CA143924.

"FTIR Based Imaging Method for Locomotor Function Analysis in a Drosophila Model of ALS"

Brenn Belone



ALS (amyotrophic lateral sclerosis) is a progressive neurodegenerative disease affecting the motor neurons of an individual. TDP-43, or TAR DNA binding protein 43 kDA, has been identified as a major disease protein within ALS. TDP-43 is hypothesized to regulate mRNA localization and translation in motor neurons. Therefore, mutations in the protein cause mRNAs associated with TDP-43 aggregation to forgo translation, creating dysfunction in the motor neurons. Through expressing human TDP-43 in a *Drosophila melanogaster* model, we are able to reproduce ALS phenotypes, specifically locomotion. Previously, to test locomotion, larvae turning assays have been the novel method. However, in attempt to reduce the variation often exemplified in this method, the goal of this project is to develop an automated system called FIM as a reliable and effective tool to test larvae locomotive function. Our recent data has replicated results from larvae turning and transitioning to the FIM system has been promising.

Brenn Belone, Vincent Bai, Matthew Scandura, Diana Ferro, Daniela C. Zarnescu

National Institutes of Health, the Muscular Dystrophy Association, the Partnership for Native American Cancer Prevention (NACP) through the National Cancer Institute Grant #2U54CA143924, and the Western Alliance to Expand Student Opportunities (WAESO) Louis Stokes Alliance for Minority Participation (LSAMP) National Science Foundation (NSF) Cooperative Agreement No. HRD-1101728.

GPP/UBRP Highlights

Crystal Morales is a junior at Northern Arizona University, majoring in Biomedical Science with a minor in Chemistry. Crystal is a current NACP student researcher under Dr. Naomi Lee. Crystal is working with Dr. Lee on her HPV project which includes using self assembling peptides for vaccine candidates.

What was your favorite part about this tour or conference?

My favorite part of the GPP/UBRP trip was when getting to work with suture kits that actual medical students use for their practice. It was a glimpse of what my future education could be like. Another amazing part of the trip was attending the UBRP conference and being able to see the research posters that were being presented and learning about all the new studies and innovative ideas being done. Some posters were very impressing!

How will you apply the knowledge you gained for future endeavors?

Seeing other people present their posters gave me an idea on how I should present my own poster at the end of the year at the undergrad symposium. Additionally, learning about all the graduate programs for biomedical science has really expanded my horizon with all of my career possibilities. It was very exciting learning about educational and career paths that I could venture onto in my own state, not too far from home.

Did this inspire you to further your education? If so, how?

This trip definitely inspired me to further my education and to want to obtain a Master's degree or even a Ph.D. The graduate programs at UA were very exciting because seeing other peoples' research at UBRP and noticing how their ideas would contribute to society impacted me. Having a graduate degree and the necessary knowledge to positively contribute to society is what I strive for. Even though I am currently in research, I would hope to one day conduct my own research with my own ideas.

Kaelyn Acothley is a junior at Northern Arizona University, majoring in Biomedical science with a minor in chemistry. Kaelyn is a current NACP student researcher under Dr. Naomi Lee's HPV vaccination project. Kaelyn's tasks are to produce and purify viruses like particles using MS2.

What impacted you the most during this trip?

Attending the GPP/UBRP conference in Tucson was very beneficial for me in the sense that I can continue to grow and search for new and rising opportunities similar to this. Women and minorities are often underrepresented in science which is very disheartening to young and aspiring female scientists wanting to enter the field. This trip was very empowering for me as a woman and as a minority because I was with a group of like-minded, female scientists who are equally, if not more, passionate about breaking the stereotypes that cease to limit us. Personally, I felt it very comforting in knowing that I'm not alone in being a pioneer for encouraging other minorities to step out of the social norms and challenge the boundaries of a system that we didn't design. The GPP/UBRP conference inspired me to become a better me for myself and for those wanting to follow in my steps.

What is something that has changed your point of view regarding your future career?

My point of view regarding my future career has been altered because of the trip. The panel of graduate and doctoral students opened my eyes to the struggles and triumphs of what my future has in hold for me. The way some of the students on the panel explained their personal experiences of homesickness, adapting to new environments, culture shocks, and more made me realize that I didn't consider some of these situations until they were brought to my attention. I definitely have more aspects to consider and ponder on now than I previously thought.

Did this experience help you determine what exactly you want to do? If so, what?

I really wish that this experience helped me narrow down what I want to study, and what I want my future career to be, but instead it did the opposite. I was exposed to different areas of study within the field that I'm interested in and many career paths along with those areas of study which only opened my eyes to the broad horizon of possibilities.

My Journey Seminar - UA

The "My Journey" seminar and networking series is an internship project created by our University of Arizona graduate student assistant Alura Benally. The project aims to connect Native American students to other Native American professionals in the health sciences to encourage degree completion, promote research, and foster mentorship.

Dr. Francine Gachupin: "A Path to Research in Indian Country"

Francine C. Gachupin, PhD, MPH, Jemez Pueblo tribal member, is an epidemiologist. She received her doctorate from the University of New Mexico and Master's degree in Public Health in epidemiology from the University of Washington.

She started working at the University of Arizona in October 2012 and has been transitioning her career towards translating data into effective health promotion programs. Specifically, she is interested in conducting interventional research aimed at reducing American Indian health disparities. Dr. Gachupin is an Associate Professor, Department of Family and Community Medicine, College of Medicine.

Dr. Monica Yellowhair: "The Lone Ranger and Tonto Fist Fight in the Gut"

Dr. Yellowhair is of the Towering House people (Kinyaa'áanii), born for the Red House people (Kinłichii'nii). Her maternal grandfather is represented by the Manygoats clan (Tł'izílání), and lastly, her paternal grandfather is the Reed people clan (Lók'aa' Díne'é).

Monica's current research project will be investigating the microbiome profiles in stool specimens from a group of healthy Native American volunteers living on the Reservation and those living in an urban setting. From these studies, we will learn crucial facts about what constitutes a "healthy" fecal colorectal environment and how it might be possible in future to sustain a healthy fecal environment in order to prevent colorectal cancer in Native communities.

Monica credits the driving force in education and research has always been her family and people. She is very motivated about working on her research and having the opportunity to see the effects of this research on a personal level, knowing it will contribute in providing answers for the Diné people and other families affected by cancer.

Dr. Karletta Chief: "From Reservation to Academia"

Dr. Karletta Chief (Diné) is an Associate Professor and Specialist in Soil, Water, and Environmental Sciences at the University of Arizona (UA). Her research focuses on understanding, tools, and predictions of watershed hydrology, unsaturated flow in arid environments, and how natural and human disturbances impact water resources. As an extension specialist, she works to bring relevant science to Native American communities in a culturally sensitive manner by providing hydrology expertise, transferring knowledge, assessing information needs, and developing applied science projects.

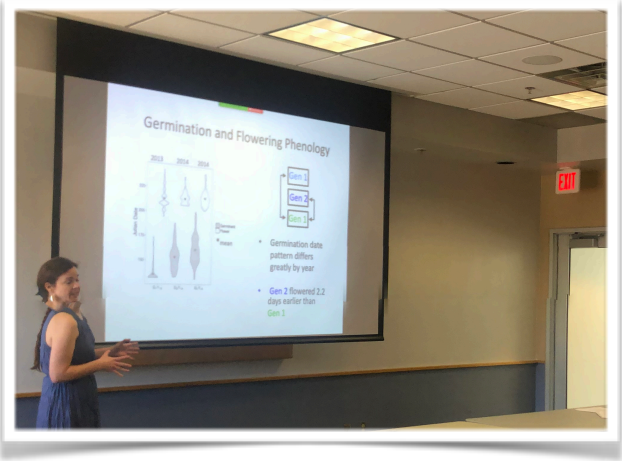
Dr. Chief is Diné from Black Mesa, AZ and was raised without electricity or running water. She is a first-generation college graduate. Dr. Chief received a B.S. and M.S. in Civil and Environmental Engineering from Stanford University in 1998 and 2000 and a Ph.D. in Hydrology and Water Resources from UA in 2007. She completed her post-doctorate at Desert Research Institute in Las Vegas, NV.

Native American Role Model Speaker Series - NAU

This Spring semester, NACP had the honor of having Dr. Amber Nashoba contribute as a guest for our Native American Role Model Speaker Series. Dr. Nashoba is a member of the Choctaw tribe from Alaska, and she is currently a Postdoctoral Researcher at the University of California, Santa Barbara. The primary focus of her research is evolutionary genetics, plant biology, ecology, and natural selection relationships between Indigenous peoples and the environment. Her academic career path was indirect and non-traditional. In the years between completing her undergraduate degree and starting graduate programs, she worked for several federal agencies which included Tribal,

State Department of Natural Resources, and volunteer work.

In the beginning of her presentation, Dr. Nashoba spoke of her upbringing of being the middle child in a family of seven children. Her grandmother was one of her greatest inspirations for her research work, which is fueled by her Choctaw identity and the relationship between Indigenous peoples and the environment. Her research includes collecting samples from the tribal lands. Not only does she take seed samples, but she gives offerings back to the land to give thanks. During her offering, she gives thanks to the people for letting her come and conduct her research, while being on land that belongs to other indigenous tribes. For her Masters of Science, her project was about seed size in wild rice (Manoonim, Zizania palustris). This project was prompted by tribal biologist questions about factors responsible for seed size in lake and river pollutions. Dr. Nashoba's doctoral project used partyridge pea (Chamaecrista fasciculate). This was conducted in the prairie restored by the Shakopee Mdewakanton Sioux community. Her most recent project was using baby blue eyes flowers (Nemophila menziesii). She examined the fitness and natural selection in four California populations of baby blue eyes. Being a non-traditional student, Dr. Nashoba expels great leadership as a Native American role model. She portrays that it is possible to be a non-traditional student, work for federal agencies, and eventually achieve a Ph.D. all while keeping her Choctaw roots close to her and honoring the people and the land she conducts research on.



2019 NACP Student Summer Internships

National Award Scholars and Mentors Reception

NAU NACP Students with the NAU President, Rita Cheng, the NAU Provost, Dr. Diane Stearns, and the NAU NACP Research Education Core PI, Dr. Hendrik de Heer. Students from left to right: Kaylee Tsingine, Jennifer Hudson, and Mishayla Mitchell

Jennifer Hudson

What is this internship and how did you hear about it?

I was accepted into the National Institute of Health's Diversity Summer Research Training Program in Bethesda, Maryland. I heard about this internship through my mentor and research project supervisor, Dr. Dirk de Heer. Dr. de Heer was a big motivator in pursuing this internship and helped me every step of the way.

What areas of research are you interested in?

The areas of research I am interested in are health issues revolving around chronic diseases, such as cancer, diabetes, and heart disease. Most importantly, I am interested in areas of research that involve indigenous communities and the prevalence of these diseases in those communities.

What location did you pick and why?

Upon accepting the internship I had the choice of Bethesda, Maryland or Phoenix, Arizona. Being from the Southwest and hating the Phoenix heat during the summertime, Bethesda was an obvious choice. I also have very little experience on the East Coast, and I thought a new environment would be exciting.

What are you most looking forward to and learning from this internship?

Through this internship, I will be working with nine other students from across the country and we each get our own mentor that will help guide us through the summer. That being said, I am most looking forward to the relationships I'll have with my fellow peers and the mentor I'll be assigned to. In addition, over the course of my undergraduate career, I have gained a love for research but have not had as much experience as I would like. With that said, I'm interested in learning as much about the research field as I can, especially at a prestigious institute as NIH. Overall, I'm especially interested in how this experience will aid in my pursuit to help indigenous communities.

Mishayla Mitchell

How did you hear about this internship?

As a student researcher working for the Partnership for Native American Cancer Prevention (NACP) program, I learned of several amazing internship opportunities through my NACP mentor Dr. Hendrik de Heer. After applying and being accepted to the Four Directions Summer Research Program (FDSRP) in Boston, Massachusetts, I decided to formally accept my offer as a 2019 summer intern.

What areas of research are you interested in? What location did you pick and why?

I am excited for the opportunity to be able to conduct research at the Harvard Medical School campus, as well as to be able to learn and discuss topics surrounding issues in Native American health.

What are you most looking forward to and learning from this internship?

What I look forward to the most is being surrounded by other indigenous peers from across the country with similar drives to help their communities through health sciences and clinical medicine. Lastly, I hope to expand my knowledge of careers in medicine and health sciences that support my values and intentions of working with Native American populations to minimize barriers in our health system and optimize opportunities for health equity.

Kaylee Tsingine

How did you hear about this internship?

I heard about this internship through NACP. In the Fall 2018 semester, NACP hosted the Native American Role Model Speaker Series, where it highlighted a Native American Role Model and also featured Dr. Angel de la Cruz who represented the NIH Summer Internship Program.

What areas of research are you interested in?

I am interested in health disparities in tribal communities, which fit perfectly for this specific internship.

What location did you pick and why?

I was offered the Bethesda, Maryland location, which I gratefully accepted. It will be a great learning experience living in the East Coast for 8 weeks.

What are you most looking forward to and learning from this internship?

I am most looking forward to stepping out of my comfort zone. Going to a new place, having a mentor who is a neurologist, meeting fellow peers, and learning the basics of research. Also, the internship focuses on Tribal Health disparities.

Jennifer Etcitty

How did you hear about this internship?

I heard about the Diné College Summer Research Enhancement Program (SREP) through a fellow NACP student who previously attended, and they stated how amazing the program was for them. My Applied Indigenous Studies Professor Dr. Alisse Ali-Joseph also passionately mentioned SREP to our class which motivated me to apply. I have always been so interested in health programs that focused around the Indigenous communities; therefore, I am very excited to start in the

summer. It is truly amazing to have this opportunity to do health research with my own Indigenous home community.

What areas of research are you interested in?

I am still seeking the area of research I am truly passionate about, but I hope to address heavy health issues like diabetes or depression that greatly impacts our Indigenous people. I am also interested in mental health and stress management among Indigenous youth as I believe it tends to not be recognized as much as it should be. Addressing the barriers, preventions, and solutions in Indigenous health is something I am very passionate about; therefore, I am very open to various research. I aim to be a reliable advocate and resource in the health field for those individuals that are impacted.

What location did you pick and why?

The location I will be picking to do my SREP research project is at Shiprock, New Mexico. I chose this location due to it being close to my hometown Kirtland, New Mexico. I consider the Four Corners Area, my home and my community, and I believe it would be truly impactful to be able to participate in health research in this area. It has also been a dream of mine to come back to my community and assist in whichever way I can, and SREP is allowing me to do just that.

What are you most looking forward to and learning from this internship?

In this SREP internship, I am most looking forward to be learning how to conduct and formulate health research among an Indigenous community. I believe SREP is an incredible opportunity to expand upon my overall personal, academic and professional development. I am also excited to be building connections and experience, as after graduate school, I aim to have a health professional career in addressing and improving health issue on tribal lands. Being Indigenous and being a scholar has taught me that I will be able to create a great impact. I hope the research I do in the future will positively impact the lives in the community, and SREP is allowing me to take my first step on my own.

Announcements and Upcoming Events

STUDENTS

- NAU Spring Commencement May 10,11, 2019
- UA Spring Commencement May 10, 2019

FACULTY AND STAFF

- NACP Program Steering Committee (PSC) Meeting: May 17, 2019

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