

INTERNSHIP SHOWCASE

Friday, April 28 from 3:00 p.m.—5:00 p.m.

WELCOME TO THE 2023 INTERNSHIP SHOWCASE

We are excited to celebrate our students' accomplishments with you. Internships and work experiences are academically recognized, experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional setting. Reflecting, sharing, and presenting what they have learned plays an important role in student career development process.

INTERNSHIPS AND WORK EXPERIENCES PROVIDES OPPORTUNITIES:

For students to gain valuable experience and demonstrate learning as they make professional connections and validate their choice of career field and work environment.

For employers to guide, assess, and develop workforce talent.

For educators to demonstrate the social relevance and practical application of their disciplines and learning outcomes.

For IUPUI to forge sustainable, mutually beneficial relationships with the community.

3.7%

of students (with known career outcomes) completed at least one student employment experience during their time at IUPUI

64.6%

of students (with known career outcomes) completed at least one internship, practicum, co-op, student teaching, or clinical placement

93.8%

of students agreed that their internship(s) complemented their degree and helped prepare them for their future careers

IUPUI First Destination 2021-2022 Data

LIFE-HEALTH SCIENCES INTERNSHIP PROGRAM (PAGE 5)

The Life-Health Sciences Internship Program is designed to provide students with an opportunity to apply their academic coursework in a paid internship experience on or near the IUPUI campus. Students are connected to professional internships with faculty and staff in health and science fields. This program is open to sophomores and juniors of all majors and provides supportive services through the application process and the internship experience.

SOPHOMORE INTERNSHIP PROGRAM (PAGE 31)

The Sophomore Internship Program is designed to provide students with an opportunity to apply their academic coursework in a paid internship experience. Students are placed in professional internships with local industry partners. This program targets sophomores of all majors and provides supportive services through the application process and the

ON-CAMPUS INTERNSHIP PROGRAM (PAGE 36)

The On-Campus Internship Program is a campus-wide initiative to aid departments in developing opportunities for students to gain valuable internship experience in areas directly related to their academic programs. This program aims to connect IUPUI undergraduate freshman, sophomores, and juniors with internships on-campus with faculty and staff in a variety of campus areas/programs.

Life-Health Sciences Internship Program

CHRISTINE ABEYSEKERA

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Archita Desai

DEPARTMENT

School of Medicine,
Department of Medicine

Patient Reported Outcomes in Liver Disease

Through this internship, I have participated in three research projects assessing patient reported outcomes in liver disease under the supervision of Dr. Archita Desai. I helped design and gain approval for a research project which aims to measure the health related social needs in patients with liver disease and how they affect the healthcare they receive. Second, to become comfortable with enrolling patients for clinical research, I helped enroll patients in a study assessing quality of life, anxiety, depression and post-traumatic stress in individuals who received a liver transplant. Here, I strengthened my skills in patient communication while also helping them complete surveys and perform physical tasks for the study. Finally, I am completing a secondary analysis of another ongoing study of individuals hospitalized with end-stage liver disease. I am examining the accuracy of patient-reported medications and its impact on hospital outcomes. For this study, I am reviewing patients' medical records to see which medications they were prescribed and comparing them to survey results where patients reported which medications they believe they are taking. Taken together, I have learned a great deal about liver disease and measuring patient reported outcomes during my internship and am excited to continue clinical research.

RANSOME ADEYEYE

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Kristen Metzler-Wilson

DEPARTMENT

School of Health and Human
Sciences, Department of
Physical Therapy

Analysis of variability of blood flow to participants' skin during "fight or flight" stress event and muscle relaxation therapy

Our group previously tested whether sub-occipital release (SOR), a muscle relaxation technique used to relieve skeletomuscular problems, affects "fight or flight" body processes like blood flow to the skin. We identified that cold stress decreased skin blood flow and increased a measure of variability associated with the "fight or flight" response, but there was no difference between SOR and a control technique. We previously concluded that SOR is not able to modulate skin blood flow in either normal or cold stress conditions. Our previous analysis used Fast Fourier Transform and spectral power analysis to change the domain (x-axis) of the blood flow data from time to frequency. We binned the frequency data into standard ranges (high, low, and very low frequency) associated with different factors that explain the cause of the variability. However, a second binning system with slightly different ranges is also used for this type of analysis. In the current study, we tested the hypothesis that the two systems would have similar results. Both systems identified increases in low frequency spectral power during cold stress, indicating increased "fight or flight" activity. Neither system identified differences between SOR and control techniques. Thus, both systems are appropriate for this research.

KARLA AELLO LIZARRAGA

INTERN MAJOR

Health Services Management

SUPERVISOR NAME

Homer L Twigg III MD

DEPARTMENT

Department of Medicine/
Pulmonary Division

Viral Burden and Aging

Subjects over 65 years are at increased risk of developing chronic diseases such as hypertension, diabetes, cancer, stroke, and arthritis. These are often found to be related to chronic inflammation. In this work we hypothesize that persistent viruses can repeatedly stimulate the T cell immune system for prolonged periods of time, leading to a phenomenon called immunosenescence, a highly pro-inflammatory condition. This results in chronic inflammation that leads to chronic diseases of aging. If true, by quantifying viral burden, it is possible to create a biomarker that predicts chronic disease. In order to assess this proposed relationship, viral load, inflammatory cytokines, and assessment of immunosenescent T cells was measured across two populations: adults ages 65 and older, and adults ages 21-40. For both populations, each participant also answered a chronic disease questionnaire. The younger population was used as a control to establish that the older population has an increased number of cytokines, and latent viruses. Through making a cross comparison between viral load and reported chronic disease, it is plausible to tentatively find a correlation between an increased likelihood of chronic disease in adults over 65+ with a high viral burden and whether it pertains to a specific virus.

SAFIA AHMED

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Sarah Honaker and
Maureen McQuillan

DEPARTMENT

Indiana University and Riley
Hospital for Children

The SLUMBER Study

As part of my role in the Healthy Sleep for Kids Research Laboratory, I have primarily worked on the SLUMBER Study. SLUMBER stands for Sleep Guidance in Black Families with Infant Children, this acronym outlining the premise of the study and its seeking to evaluate and develop safe sleep practices for Black infants and their families because most of the infant sleep practices that have been established have not incorporated feedback from Black families and have not tested the efficacy of these interventions with these families. I have helped refine the interview protocol and have helped transcribe interviews that have been conducted thus far. The progression of the study has equipped me with invaluable learning experiences such as developing my ability to use different research programs, including Redcap surveys and Otter-Artificial Intelligence transcription software, along with providing insight into professional research and what it can involve.

OMAR ALHAFFAR

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Hummer

DEPARTMENT

IU School of Medicine
Department of Psychiatry

Association between screen time and academic performance in U.S. children

I have been working with Dr. Tom Hummer in the IU School of Medicine Department of Psychiatry. Our lab utilizes a variety of neuropsychological, behavioral, and neuroimaging tools to study how digital media use is related to brain structure and function in children. Children's access to and usage of electronic devices at younger ages has increased in recent years. While this media use can have positive benefits, such as allowing for greater communication with friends and family, concern about potential negative impacts of screentime has grown. For example, an increase in screen time may decrease time available for other activities, such as studying. If this is true, it is likely that screen time is associated with grades and academic performance. I used data from the largest long-term study of brain development and child health in the United States, the Adolescent Brain Cognitive Development (ABCD) Study, to analyze the relationship between non-educational screen time and academic performance. We conducted regression analyses, controlling for scores on attention-based tasks and behavioral reports. This information can help us provide parental guidance on the potential merits in monitoring and/or restricting screen time for children with the purpose of improving academic performance.

ANNA AREAL

INTERN MAJOR

Health Science

SUPERVISOR NAME

Doctor Deanna Reinoso

DEPARTMENT

Eskenazi Health

Culturally Tailoring Crooked Creek Food Pantry

The Social Determinants of Health Team at Eskenazi Health aims to decrease health inhibiting factors such as food insecurity, diaper need, and transportation by making resources more accessible. The Crooked Creek Food Pantry is available for use to every patient at Eskenazi Pecar Clinic and the surrounding area. Over the course of my internship, I have surveyed the very culturally diverse patients at Pecar Clinic about their food preferences. Over 300 surveys have been collected and recorded. This data will be used to procure additional food options that suit the interest of those who use Cooked Creek Food Pantry. As of now, the food preference survey is available in both English and Spanish, but three additional languages are being approved to make the process of surveying different demographics easier. We are also now in the process of trying to find an international grocery store to partner with in order to fulfill the wants of our patients.

HIBA ASAD

INTERN MAJOR

Nursing

SUPERVISOR NAME

Harshpreet Dhama and Tina Nitsos

DEPARTMENT

IU Health University Hospital

Overview of Diabetes Studies at the CTSI CRC

The Indiana Clinical and Translational Sciences Institute (CTSI) is one of 60 National Institute for Health (NIH) funded centers that works to aid in enhancing the field of medicine. One of their locations includes the Clinical Research Center at IU Health University Hospital. The CRC supplies high-quality clinical research services and utilities to Indiana's top research talent. Our facilities include a skilled nursing team, lab processing, and a clinical space and equipment for researchers to use. My role at the CRC includes being a Student Nurse in which I help the nurses with any tasks they need including sending labs, drawing blood, taking vitals, etc. Additionally, I work with administration to do audits of monthly reports, study correspondence, and learn about how billing works in our unit. My project summarizes the various diabetes studies that are conducted here with a special focus on a study that I worked on. The purpose of this study, titled, "Diabetes Related to Acute Pancreatitis and its Mechanisms (DREAM)," is to find out how many people with acute pancreatitis develop diabetes. I plan to utilize this experience and the knowledge I gained for years to come.

MAYOWA AWOSIKA

INTERN MAJOR

Biomedical Informatics

SUPERVISOR NAME

Dr. Brian Dixon

DEPARTMENT

Regenstrief Institute

Analyzing Sexually Transmitted Infections in Indiana

Chlamydia and Gonorrhea are some of the most prevalent sexually transmitted infections in Indiana. While treatments are readily available for curing these infections, disparities in how and where they are administered exist. This project aims to analyze the disparities in treatment to determine if patients are receiving the C.D.C. recommended treatments and which setting (public or private) patients are more likely to receive the correct treatment. Data was collected from both private and public hospitals such as Eskenazi and IU Health that reported infection cases between 2018- 2021 as well as other factors such as age, gender, and location of the affected individuals. Further analysis was conducted on the data to determine the treatment rates stratified by year, age group, sex, and race. The ultimate goal of this project is to provide insight and recommendations that can help public health officials and medical professionals in Indiana develop more effective strategies for treating and preventing these STIs, reducing their impact on individuals and communities in the state.

ARSHIA BHARDWAJ

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Amol Yadav

DEPARTMENT

Neurological Surgery at Stark
Neuroscience Research
Center

Neural-based Engineering Technologies for Spinal Cord Injuries

The spinal cord is a critical part of the central nervous system that facilitates communication between the brain and the body. The Yadav lab is researching the use of spinal cord stimulation to enhance sensory perception. This involves stimulating rodent models in different patterns to produce different sensations that can be easily interpreted by the nervous system. The rats are trained to distinguish these patterns through operant conditioning. Through this research, the Yadav lab hopes to develop stimulation-based therapies that can be used to explore sensory pathways for brain machine interfaces and neuroprosthetics. By advancing our understanding of how spinal cord stimulation can improve nervous system function, this research may lead to new treatments for people with neurological conditions.

SARAH BOUDAIA

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Marc Mendonca

DEPARTMENT

VanNuys Medical Science
Building (IUPUI)

Want to Understand Radiation Response: Knock Out and See!

Interested in genetics? What about cancer research? Stop by our table to learn about Dr. Mendonca's Radiation Oncology research. We work with cells that have been altered genetically to test if any particular knockout affects radiation sensitivity. We work with Murine Embryonic Cells (MEF) that have P53^{-/-}, P53^{-/-} & MDM2^{-/-}, and P53^{-/-} & MDM2^{-/-} & MDMX^{-/-} knocked out. Come by to learn more and see our results!

SOPHIA BROOKS

INTERN MAJOR

Psychology Major, Forensic
Minor

SUPERVISOR NAME

Lisa Kutschera and Drs.
Deanna Reinoso, Jill
Helphinstine, Maria
Herrera

Kids Healthcast (Podcast)

Kids Healthcast covers child-focused health topics that parents, teachers, caregivers, and anyone else who works with children might be interested in through a monthly 20 to 30 minute podcast. And what does it include? It is recorded by pediatricians at the Indiana University School of Medicine, so you'll be getting up-to-date and accurate information from people who see firsthand what needs to be talked about. Each month includes Health News, Medical Trivia, Parenting tips, and two key segments on children's health. As the interns, what do we do? We record and edit for the podcast, as well as manage all of its social medias.

DEPARTMENT

Community Pediatrics

GAVIN BURTCH

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Dr. Melissa Kacena

DEPARTMENT

Indiana University School of
Medicine, Department of
Orthopaedic Surgery

Validation Study

The purpose of the Validation Study is to ensure that mice in which we are knocking out or in genes in specific tissues, in fact have the reductions or increases in the genes in the proper tissues. When I genotype, or determine the DNA sequence of the mice, and get a result of Cre⁺ (the specific gene we are looking for) to show, it usually means that the desired mutation is present in the mouse genome for the tissue of interest. If I get a positive result for the gene of interest as well as the Cre⁺ then we should have deletion or increase of expression of that gene in that specific tissue. To verify what we see in the genotyping, we are conducting the validation study to go more in depth by using qPCR (to observe gene expression) and histology or IHC (protein staining) to confirm that the gene mutations desired are actually present in the mice. This can be quantified, and the data will be placed in a graph format to show how each strain of mouse compares to the other.

YASHAL BUTT

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Dr. Kanhaiya Singh and Dr. Manishekhar Kumar

DEPARTMENT

Indiana Center for Regenerative Medicine and Engineering (ICRME), Indiana University School of Medicine

Epigenetic Basis of Perfusion Deficit in Diabetic Ischemic Tissue

The research focus of Dr. Singh's laboratory is to understand mechanisms underlying secondary complications of diabetes. The vascular system provides organs and tissues the necessary nutrients to relay their functions. The skewed geneenvironment interactions (aka epigenetics), predominant in diabetics, lead to deficiency in such vascular functions known as diabetic vasculopathy. My focus of research for this internship was how to detect such abrupt epigenetic changes particularly promoter DNA methylation in diabetic ischemic tissue. I studied how to detect if a methyl group is added to the cytosine residue in the promoter of vascular gene, thereby suppressing its expression. My responsibilities included learning and conducting laboratory techniques such as mammalian cell culture, collagen hydrogel preparation, immunohistochemistry, PCR, gel electrophoresis, western blotting, and bisulfite conversion for gene promoter methylation studies. In this presentation, I will be explaining how diabetes induced pathological DNA hypermethylation can silence vascular genes and can contribute to diabetic vasculopathy. Such information can be translated clinically by targeted demethylation of such epigenetically silenced genes to bring back ischemic tissue perfusion. Acknowledgement: The laboratory of Dr. Kanhaiya Singh is supported by U.S. Department of Defense grant W81XWH-22-1-0146. We express deep appreciation of Dr. Chandan K Sen, Director, ICRME for this opportunity and his support during this internship duration.

ADAM CARTER

INTERN MAJOR

Biology

SUPERVISOR NAME

Stephen Schlecht, Ph.D.

DEPARTMENT

Indiana University School of Medicine

ACL Development, Function and Response to Loading

According to the National Library of Medicine, a staggering 100,000 to 200,000 ACL sprains and tears are reported annually in the United States. Our research is led by principal Investigator Stephen Schlecht, Ph.D. to study the anterior cruciate ligament (ACL), including its development, function, and response to loading. The overarching goals of research in the Schlecht Lab are to develop new clinical diagnostics for ACL injury prevention in adolescent and young adult recreational and competitive athletes and to improve primary ACL reconstruction outcomes. We accomplish this with the use of animal models and their corresponding response to induced fatigue. First, we looked at molecular changes in collagen after fatiguing mice and rats while varying the duration of recovery time. An increase in unraveled collagen in the knee was observed. Moreover, our publication on this study demonstrated an increase in collagen unraveling negatively correlates with ACL strength. Currently, we are in the process of investing genomic expression of damaged knee tissue after induced fatigue. We hope to see the different expressions of genes responsible for strength and recovery that could serve as a marker for potential injury.

VALLIEI CHANDRAKUMAR

INTERN MAJOR

Nursing

SUPERVISOR NAME

Dr. Zeynep Salih

DEPARTMENT

IUSM Pediatrics/ Neonatology

Babies, Bumps, and Books: Seeking to Understand Parent Experiences about Reading to their Children Before They are Born

The Reach Out and Read (ROR) program encourages parents to read aloud to their children to promote literacy development. We found that there is no research around parents reading to babies before they are born. There is a ROR program at Riley Fetal Center where each parent who receives prenatal counseling at the Fetal Center is given a book to read to their baby before birth. My team and I developed a survey based on literature review and expert opinion aiming to explore parents' perceptions and experiences after their participation in the prenatal ROR program. I had several meetings with the family support program at Riley NICU, the Fetal Center research coordinator, and my mentor. I learned how to do literature searches, how to use EndNote, and different research methods. I reviewed literature on relevant topics and provided feedback to the team. I was responsible for documenting meeting minutes and sharing them with the team. I fully participated in the creation of the survey. The survey is IRB approved and is being distributed amongst parents in two different languages. I plan to continue my work with UROP support to publish our findings and contribute to efforts promoting literacy for children.

SALMA CHEMMAOUI

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Marc Mendonca

DEPARTMENT

VanNuys Medical Science
Building (IUPUI)

Want to Understand Radiation Response: Knock Out and See!

Interested in genetics? What about cancer research? Stop by our table to learn about Dr. Mendonca's Radiation Oncology research. We work with cells that have been altered genetically to test if any particular knockout affects radiation sensitivity. We work with Murine Embryonic Cells (MEF) that have P53^{-/-}, P53^{-/-} & MDM2^{-/-}, and P53^{-/-} & MDM2^{-/-} & MDMX^{-/-} knocked out. Come by to learn more and see our results!

ASHLEY COMBS

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Megan S. McHenry

DEPARTMENT

Department of Pediatrics at
Indiana University School of
Medicine

Exploring Bidirectionality in Global Health Partnerships for US Pediatric Residency Programs

This project aimed to define the term bidirectionality and determine how it is being incorporated into pediatric residency programs in the United States. This was a cross-sectional, REDCap-based survey with an online setting. Global health faculty or staff at US pediatric residency programs, identified by the American Association of Medical Colleges (AAMC), with global health partnerships within their programs were contacted to participate. Out of the 199 programs that were contacted, 24 were willing to give their feedback. Results concluded that a bidirectional global health partnership is a collaboration between two institutions that utilizes trainees to mutually benefit both programs. Participants also shared that a bidirectional partnership is an equal sharing of resources, knowledge, and decision making for the partnership. The feedback suggested that the main benefits of maintaining bidirectional global health partnerships include building relationships, promoting mutual respect, and gaining knowledge from different perspectives. These partnerships are often hindered by limited resources, cultural differences, and communication challenges. The responses from this study indicated that many organizations' partnerships are already successful and bidirectional. As work continues to improve these partnerships, current challenges need to be addressed in order to create the best global health partnerships possible.

SAMANTHA DERISSE

INTERN MAJOR

Neuroscience/Japanese

SUPERVISOR NAME

Dr. Jill Fodstad

DEPARTMENT

Psychiatry

Development of a Research-Based Brochure for Implementation of Adapted Movement in Populations with Disabilities: Initial Report

The Fodstad Laboratory is an online lab lead by Dr. Fodstad and Jadon Meringer to understand and improve the lives of people with functional and developmental disabilities so that they can receive better care and be more successful.

KADIDIATOU DIALLO

INTERN MAJOR

Health Services Management

SUPERVISOR NAME

Dr. Deanna Reinoso

DEPARTMENT

Social Determinants of
Health(SDOH) at Eskenazi
Health

Culturally-tailored Food Pantry

Our goal is to tackle food insecurity for the diverse patient population at Eskenazi by surveying patients on the types of foods they eat. This data is then aggregated to culturally-tailor the clinic's food pantry. Eskenazi Health Pecar sees many minority and low-income patients. Because of this, addressing health disparities, poor health outcomes based solely on social or economic disadvantages, is a necessary part of Eskenazi's mission and vision. Food insecurity, or not having enough food to meet one's basic needs, is not the only goal of this initiative. There is also a mission to provide nutritious foods to the people that need it. The survey consists of asking preferences of proteins, dairy, fruits, vegetables, and other cooking essentials.

MAYA EL-CHAL

INTERN MAJOR

Biology, psychology, and neuroscience

SUPERVISOR NAME

Dr. Scott L. Coven

DEPARTMENT

Riley Children's Hospital

Feasibility of a Cognitive Intervention in Pediatric Survivors of Acute Lymphoblastic Leukemia

There is a lack of interventions to improve cognitive skills/memory/processing skills in cancer survivor patients, hence the ultimate goal of this project is to begin studying what effects neuro-cognitive intervention may have. The project is based on a method known as the Feuerstein method, which really focuses on how individuals learn and explore their cognitive capabilities. Past research has shown that this method has worked in traumatic brain injury, hence its application here. The intervention began with Leukemia survivors because often, there are postchemotherapy effects on cognition. However the study has now extended to all cancer survivor types. Originally, the end goal was to have 30 recruits with 3 assessments: baseline, after 8 weeks, and after 16 weeks. The project has failed to meet its initial goals, however, the investigation team is in the process of working with focus groups to make the interventions more successful to be able to eventually aid as many survivors in developing their cognitive skills.

LAUREN FANCHER

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Seethal Jacob

DEPARTMENT

Pediatric Sickle Cell Center at Riley Hospital for Children

Analyzing the Psychosocial Impacts of Sickle Cell Disease on the Pediatric Population

Patients with sickle cell disease often face systemic barriers related to their healthcare. Utilizing several psychosocial screeners is one way that care teams can better understand and address these patients' psychosocial and mental health needs. There are currently several psychosocial screening tools utilized by medical providers for pediatric patients living with a variety of acute and chronic illnesses. My work through LHSI involved compiling and analyzing data from multiple screeners utilized in the Pediatric Sickle Cell Center at Riley Hospital for Children: Pediatric Quality of Life Inventories (PedsQL), Patient Health Questionnaires-9 (PHQ-9), and Psychosocial Assessment Tools (PAT). These screeners are respectively designed to identify patient quality of life, symptoms of depression, and barriers to care for children living with sickle cell disease. In addition, I developed an updated REDCap database to record data related to the Sickle Cell Story Club, which provides free books to sickle cell patients of all ages and reading levels that promote positive themes, such as increasing self-confidence, as well as including characters from diverse backgrounds. Assisting with these projects allowed me to understand how caring for individuals with a chronic disease means understanding the disease's impact on the whole patient to improve health outcomes

LULYA FECADU

INTERN MAJOR

Neuroscience, Biology

SUPERVISOR NAME

Dr. Padmanabhan Pattabiraman

DEPARTMENT

IU School of Medicine Ophthalmology

Characterization of Primary Trabecular Meshwork Cells for Downstream Use

Glaucoma is the second leading cause of blindness in the United States, yet the origin remains puzzling to many. To indulge in your curiosity, visit my table to learn more about my pivotal project. In doing so, glaucoma is a progressive eye disease that damages the optic nerve leading to one developing visual loss and blindness. An increase in intraocular pressure is a diagnostic tool and one of the leading risks for glaucoma. The trabecular meshwork is the principal tissue responsible for the regulation of eye pressure. By directing the drainage of fluid out of the eye, its dysfunction is responsible for eye pressure elevation. This irregularity will initiate a resistance of the flow of fluid that will deteriorate the optic nerve. Through the Characterization of Primary Trabecular Meshwork Cells for Downstream Use, one will be able to understand the imperative purpose of trabecular meshwork cells and narrow the knowledge gaps regarding glaucoma today.

AVA FISHER

INTERN MAJOR

Biochemistry and
Neuroscience

SUPERVISOR NAME

Dr. Scott Aoki

DEPARTMENT

Department of Biochemistry
and Molecular Biology at
Indiana University School of
Medicine

Role of the P Granule Scaffold Protein in Condensate Assembly and Function

Germ granules are membraneless organelles that regulate gene expression in the reproductive cells of multicellular animals. Despite their prevalence, we still know little about how germ granules assemble and how assembly affects their function. P granules are the germ granules of the *Caenorhabditis elegans* nematode worm that assemble just outside the nucleus. P granule assembly is driven by PGL-1, a structural protein that pairs up to form dimers. The mechanism of how PGL-1 dimers interact with each other to form higher ordered granule structures is unknown. I am analyzing what regions of the PGL-1 protein are required for P granule assembly and function. Using CRISPR/Cas9 gene editing, I am creating mutant *C. elegans* worms with deleted PGL-1 protein regions. This will allow me to determine which regions of the PGL-1 protein are necessary to form P granules through various experimental methods. Performing research in simpler model organisms will give broader insight into the assembly and function of germ granules in other, more complicated, multicellular animals, like humans.

GABRIELLE FLEMING

INTERN MAJOR

Epidemiology

SUPERVISOR NAME

Dr. Scott Coven

DEPARTMENT

Riley Hospital for Children

Public Health Impacts on the Patient Experience at Riley Hospital

As a part of Dr. Coven's research, I took a look into how public health factors could impact the patient experience as children go through treatments at Riley hospital within their oncology unit. Some of the public health factors being looked at include household material hardships (HMH) and childhood literacy. The purpose of the household material hardship (HMH) study is to gain more knowledge in the stresses and challenges that may impact the homelife of the caregiver to a child who has been recently diagnosed or is undergoing treatment for a brain or spinal cord tumor. The purpose of the childhood literacy project is to gain more knowledge in the family's access to books and literacy to develop a program to promote engagement in learning to read. These topics were studied through surveys by using professional interviewing methods both in person and over the phone. By the end of the study, we hope to have a better understanding of how public health factors can impact the patient experience so future support can be offered to the families at Riley.

YOSSELIN FONSECA

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Alison Hughes

DEPARTMENT

IU Simon Comprehensive
Cancer Center

Participation in the Breast Tissue Collection Event

"An end to breast cancer through thinking, sharing, and understanding normal." The Komen Tissue Bank (KTB) is the only repository in the world that collects normal breast tissue, matched serum, and plasma for researchers to use as their control variable in their research. This year the KTB will hold four breast tissue collection events. Events occur at the IU Simon Comprehensive Cancer Center in Indianapolis and in another U.S. city with high concentrations of a diverse population. I had the opportunity to help and attend two collection events with different roles each time. I volunteered as a surgical assistant my first time and I worked in the lab the second time. As a surgical assistant, I set up the room between each patient and aided the surgeon during the biopsy. As a laboratory assistant, I worked on aliquoting. Upon delivery of the blood, after centrifuge, I worked on collecting the plasma. In addition to my main two jobs, I also worked on escorting donors to the height and weight station, giving me an opportunity to speak with them and hear their inspiring reasons for donating.

GURBANI GHUMAN

INTERN MAJOR

Psychology

SUPERVISOR NAME

Dr. Fodstad

DEPARTMENT

Department of Psychiatry,
School of Medicine

Developing a Research-Based Brochure for Implementation of Adapted Movement in Populations with Disabilities

Adapted Physical Activity (APA) is meant for all populations with impairments. With a rising need for physical activity for all populations with disabilities, APA focuses on providing individualized exercise for all. With little information being available to the public about APA, our study focuses on developing a research-based brochure to inform the public about adapted movement. In addition to this, parents and other family members of individuals with disabilities can be better informed about the various ways their loved ones can get active. The brochure will include recourses for parents, the contacts of professionals, along with APA guided suggestions.

TYRA GILLISPIE

INTERN MAJOR

(B.S) Neuroscience

SUPERVISOR NAME

Emily Nelson

DEPARTMENT

IU Simon Comprehensive
Cancer Center Komen Tissue
Bank

Biospecimen Collection and Banking Core Internship

The Biospecimen Collection and Banking Core collects healthy and cancerous biospecimen and stores them for researchers to use today, or in the near future. The Biospecimen Collection and Banking Core is embedded within IU Simon Comprehensive Cancer Center and focuses on bringing together patients diagnosed with cancer and healthy individuals with scientists looking for a cure. My day-to-day tasks include observing the process of specimen collection as well as scanning consents into the database.

JEANETTE GLENN

INTERN MAJOR

Psychology

SUPERVISOR NAME

Dr. Kathleen Crum

DEPARTMENT

Indiana University School of
Medicine

Lifespan Resiliency After Family Trauma (LifeRAFT)

The Lifespan Resiliency After Family Trauma (LifeRAFT) research program studies how stressful life events affect how parents and their children think, feel, and act by using questionnaires, DNA samples, and functional Magnetic Resonance Imaging scans. The purpose of our research is to examine how the difficult things that parents and their children have been through in their lives affect them so that we can help make better treatments for those who have gone through traumatic experiences. One of the LifeRAFT research studies focuses on parents' stress and substance use and how those two problems relate to their children's brain development. Understanding how parents' mental health and children's development are related is important because it might help us understand why some children are at greater risk for substance use and other problems than others. In turn, we could reduce negative outcomes for children at the greatest risk.

ROUFA HANNA

INTERN MAJOR

Kinesiology

SUPERVISOR NAME

Dr. Stephen Schlecht

DEPARTMENT

IU School of Medicine
Department of Orthopedic
Surgery

Unraveled Collagen in Murine anterior cruciate ligament following in vivo fatigue loading

Dr. Stephen Schlecht, our principal investigator, conducted research on the effect of in vivo fatigue loading on unraveled collagen in the murine anterior cruciate ligament (ACL). The study aimed to understand how the ACL responds to repetitive loading and how it affects its structure. The research involved subjecting mice to a series of controlled loading cycles and then analyzing the ACL issues to examine the changes in collagen structure. The results showed that the repetitive loading caused unraveled collagen fibers within the ACL, which may increase the risk of ACL injury. The study is significant because ACL injuries are a common problem, especially among athletes. By understanding the mechanisms of ACL injury, researchers can develop better preventions and treatment strategies. The findings suggest that preventing repetitive loading may help reduce the risk of ACL injuries. Overall, Dr. Schlecht's research provides valuable insights into the effects of repetitive loading on the ACL and highlights the importance of preventative measures to protect against ACL injury.

SARA HARTLEY

INTERN MAJOR

Forensics and Investigative Sciences

SUPERVISOR NAME

Courtney Schroeder, MS, LCGC- Genetic Counselor

DEPARTMENT

Medical and Molecular Genetic Department at IU Health

Hereditary Renal and Prostate Clinic Internship

My internship's focus was involvement in IU Health Simon Cancer Center's Hereditary Renal and Prostate Cancer Clinic. This multidisciplinary clinic focuses on kidney and prostate cancer patients and possible genetic conditions that could have caused their cancer. In this role, I scheduled patients, collected family histories, uploaded information into the research database, mailed patient letters, and helped with sample collection. During the clinic, family history was reviewed, possible risk factors for hereditary cancer syndromes were discussed, and genetic testing was offered. If the patient chose to test, they would get their blood drawn and sent to a lab. When the results were finalized, the patient was contacted to review them. If a patient tested positive, cancer risks and health screening recommendations were discussed. Family members would be recommended to undergo testing to determine if they also carry the gene variant which increases one's risk of cancer. During clinic days, I observed the cases as the healthcare team spoke with patients. This project mainly goes over the importance of that work such as how it affects the patients and their families, the process behind it, and some important conditions tested for which can impact patients and their family's future medical care.

ARIANA HENDRICKS

INTERN MAJOR

Psychology, pre-med track

SUPERVISOR NAME

Dr. Mary Ott, Carolyn Meagher

DEPARTMENT

IU School of Medicine, Division of Adolescent Medicine

Exploring Teen Sexual Health Education Needs through Community Stakeholder Interviews

Although adolescent pregnancy rates have decreased, the US continues to have one of the highest adolescent birth rates among high income countries. In rural Indiana, teen pregnancy prevention programs are not widely implemented in health education. Little is known about what types of teen pregnancy prevention programs exist, what are the needs for programming, and what are the community challenges with implementation. I plan to explore community needs around reproductive health education and what are the challenges and facilitators to implementation by interviewing stakeholders in rural counties. My questions will include information around reproductive health education. I will record and transcribe the interviews and then conduct thematic analysis. And I will share the summary of findings with our community partner, Health Care Education and Training.

ASHLEY HIGGINS

INTERN MAJOR

Health Sciences/Pre-med

SUPERVISOR NAME

Lilli Power and Katelyn Payne

DEPARTMENT

Riley Hospital for Children

Neurogenetic Counseling Patient Care Resources

Neurogenetic testing is a widespread used method in medical practice to diagnose patients with neurogenetic disorders. Testing allows for physicians to better treat patients, understand the causes of a disorder, and see what can be expected in the future for a patient in terms of progression and symptoms. Different types of genetic testing are conducted based upon a patient's family history and symptoms present. I have collaborated with genetic counselors to create patient care handouts so patients can gain a better understanding on why they are receiving genetic testing, the different types of genetic testing, and what their results mean.

BELLA HINTON

INTERN MAJOR

Psychology

SUPERVISOR NAME

Dr. Amy Williams Ph.D. ABPP

DEPARTMENT

Department of Psychiatry, Riley Children's Hospital

Injustice and Resilience in Youth with Sickle Cell Disease

Sickle Cell disease is a condition that affects approximately 100,000 individuals in the United States. Of the individuals, many of them are Black and come from low-income neighborhoods where healthcare isn't easily accessible. This internship site is researching how we can help further the education system for healthcare and mental healthcare. At our site, we are determining associations of painrelated injustice, sickle cell stigma, and perceptions of racism in Black youth with sickle cell disease.

NAWBEE HLA

INTERN MAJOR

Medical Sociology IU School of Liberal Arts

SUPERVISOR NAME

Dr. Matthew Aalsma

DEPARTMENT

Professor of Pediatrics, IU School of Medicine, Director of the Adolescent Behavioral Health Research Program

RADx-UP C3 Phase II: Community network-driven COVID-19 testing of vulnerable populations in the Central US (C3)

The COVID-19 pandemic has affected everyone but has impacted some communities more than others. The study aims to understand and reduce the disparities in COVID-19 morbidity and mortality for those disproportionately affected by the pandemic. As COVID-19 prevention efforts have become more complex, it is important to identify strategies to best improve COVID-19 awareness and reduce its impact in the community. IU is one of the four study sites participating in this nationwide project and is the only site working with adolescents. This project aims to inform participants of the basics of COVID-19 and situation-appropriate prevention. The study focuses on teaching participants to identify misinformation and sharpen their media literacy skills. It also focuses on empowering participants to be change agents in their social circle. I have learned how to use REDCap to help collect data, conduct surveys, and generate randomization in REDCap. I have practiced going over an informed consent form. I have also practiced the process of enrolling participants in the study. In short, the overarching goals of the C3 study project are to increase COVID-19 vaccination and situation-appropriate testing and to promote accurate information regarding COVID-19.

HAYDEN HURST

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Andrew Deane

DEPARTMENT

Anatomy, Cell Biology, & Physiology / Indiana University School of Medicine

Educational Material in a Post-Covid World

As the world came to a stop due to the Covid-19 pandemic, educational institutions grappled with teaching students via remote learning programs. This created hardships for students who could no longer get first-hand experience with models and other learning materials. That is why our site began developing models that can be downloaded as 3D PDFs. These models consist of animal skulls and human anatomy depicting muscles, internal organs, and various other structures. The first is geared toward k-12 education and the latter is focused on medical/professional students along with graduate education. These 3D PDFs will serve as a resource to study for many students and allow them to better comprehend in-class models while being at home, in the library, or on the go!

NICHOLAS JOHNSTON

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Lili Mantcheva

DEPARTMENT

Medical and Molecular Genetics

Understanding URDC: A Research Clinic

The Undiagnosed Rare Disease Clinic (URDC) is a clinic that takes in patients with undiagnosed rare diseases. The typical story for our patients is the patient sees a doctor and genetics tests will be run. The genetic testing will be inconclusive or blank. The patient then comes to us, and we run more extensive sequencing and analyze the data from a research perspective. It is a much more extensive look than the classic clinical genetics. It is common for the mutations found to be only recently discovered to be associated with disease, or maybe not even fully published. My part in the clinic is to help out where needed. I have done things from scanning in consent documents to retrieving media for biopsies. Most of my first year has been spent learning from small team at the URDC.

JENNAH JONES

INTERN MAJOR

Biology and Neuroscience

SUPERVISOR NAME

April D. Newton, PT, DPT,
PhD, FNAP

DEPARTMENT

IU Interprofessional Practice
and Education Center

Well Child & Oral Health Clinic

The Well Child & Oral Health Clinic is held at IU Health Primary Care Central Indianapolis as an interprofessional environment where a team works to provide comprehensive wellness and oral health examinations for pediatric patients. The team is comprised of Family Medicine Residents, Dental and Dental Hygiene learners, and clinic staff. The age of patients ranges from 1-18 years old. Parents or caregivers of children attend the patient visit with the child. As a pediatric clinic, the residents and learners work in pairs to see each patient. The pairs allow each profession to learn more about others' roles and responsibilities, how to communicate with patients, and how to collaborate to create a "comprehensive" care plan. Oral health examinations are imperative to health and wellbeing of all individuals. Additionally, poor oral health has consequences that interact with chronic conditions. It is reported that patients with untreated oral health conditions tend to receive health care in emergency rooms where their dental concerns are often not treated. Innovations in Oral Health and Primary Care Integration (2021) reported that models of primary care and oral health integration provide an opportunity to meet patients' oral health needs across the socioeconomic spectrum.

CARMEN DEEP KAUR

INTERN MAJOR

Health Sciences

SUPERVISOR NAME

Brett McKinney, Dr. Tamara
Hannon

DEPARTMENT

IU School of Medicine and
Department of Pediatrics

Comparison of the Prevalence of Depression in Type 1 vs Type 2 Diabetes

Depression occurs more commonly in adolescents with diabetes, and during the COVID-19 pandemic even more adolescents struggled with depressive symptoms. The objective of my project is to evaluate the difference in depressive symptoms in adolescents with type 1- or type 2 diabetes mellitus. The outcomes measures include depressive symptoms, as measured with the standardized Patient Health Questionnaire (PHQ-9) that is completed during diabetes clinic visits. Results of the PHQ-9 will be measured as a numerical value. Descriptive statistics (age, race, sex) will be performed for youth aged 14-17 years with either type 1- or type 2 diabetes. Comparisons for depression scores, body mass index (BMI), and hemoglobin A1C (HbA1c) will be performed using T-tests. I hypothesize that youth with type 1 diabetes are more inclined to report depression symptoms in comparison to those with type 2 diabetes due to its onset and treatment at an early age.

HARSIMRAN KAUR

INTERN MAJOR

Biology; Minor(s): Chemistry
and Honors Minors in
Leadership

SUPERVISOR NAME

Dr. Kanhaiya Singh and Dr.
Sumit Verma

DEPARTMENT

Department of Surgery at
Indiana University

Epigenetic Basis of Perfusion Deficit in Diabetic Ischemic Tissue

As part of the Indiana Center for Regenerative Medicine and Engineering (ICRME) laboratory, our team is focused on developing novel strategies to improve perfusion in diabetic ischemic tissue. This project specifically aims to enhance wound recovery in diabetic patients by examining the genetic and epigenetic factors that contribute to poor circulation and delayed healing. As an LHSI intern, my responsibilities include learning and conducting laboratory techniques such as DNA isolation, DNA quality assessment, gene promoter methylation studies and immunohistochemistry to better understand the underlying genetics. Specifically, I have received extensive training in completing DNA methylation assays using murine DNA samples, including DNA Bisulfite Conversion, PCR, gel electrophoresis, and sending samples for Sanger sequencing. The DNA sequences obtained are then aligned to the target genome to quantify the extent of methylation. The findings from this project could have significant implications for diabetic patients, particularly those with critical ischemic limb and non healing diabetic ulcers. By understanding the genetic and epigenetic factors that contribute to diabetic wound healing impairment, our research may lead to the development of new therapies and interventions that can improve the quality of life for those living with this condition. Acknowledgement: The laboratory of Dr. Kanhaiya Singh is supported by U.S. Department of Defense grant W81XWH-22-1-0146. We would like to thank Dr. Chandan K Sen, Director, ICRME for his kind support during this internship duration.

SHAGUNPREET KAUR

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Dr. Anna Neyman, Brett M. McKinney

DEPARTMENT

: Department of Pediatrics and IU School of Medicine

Retrospective chart review of pediatric patients with established T1D or T2D who have had DKA or HHS in 2022

My project showcases trends that were seen in diabetic ketoacidosis (DKA) relating to diabetes. When the body doesn't produce enough insulin to let blood sugar enter the cells for use as energy, DKA begins to develop. Instead, the liver converts fat into ketone-producing chemicals called ketones when it breaks down fat for energy. A medical emergency called DKA might include early warning signs like high ketones. My project encompasses patients who were admitted due to DKA in the past year. I analyzed different parameters in the patient population. This included gender, age at DKA presentation, years of T1D dx, the primary reason for DKA, an technology use, among others. By extracting these values and analyzing this data, we can better understand any common factors, that can help guide improved prevention strategies. Our overall goal is to reduce the number of patients who present with DKA.

MARGO KELLER

INTERN MAJOR

Health Services Management

SUPERVISOR NAME

Dr. Andrea Shin

DEPARTMENT

IU School of Medicine, Division of Gastroenterology and Hepatology

The Effect of Race on Irritable Bowel Syndrome (IBS) Prevalence, IBS-Associated Health Outcomes, and IBS-Associated Healthcare Access

For this project we conducted an online survey through a non-referral based website, accepting applicants that were 18 and older. Then we utilized various demographics and models to analyze the data including socio-demographics, medical history, and healthcare access. In order to complete our desired survey respondent count, these surveys were created in small batches where we could continually create and assign qualification codes to respondents to ensure that they didn't complete the survey numerous times. After conducting the survey, we found that it was completed by a majority of White adults with a 4:1 ratio to non-white adults. The survey results showed that IBS is prevalent in both White and non-white adults however there may still be disparities that exist related to healthcare access and satisfaction in IBS.

NICOLE KENDA

INTERN MAJOR

Medical Humanities and Health Studies

SUPERVISOR NAME

Dr. Uma Sankar, Dr. Xinchun Ding

DEPARTMENT

IU School of Medicine

Microscopy Imaging of Cartilage

In this project, microscopy imaging of mice knee joints is used to measure cartilage density and determine efficiency of potential treatments that may be used to slow or halt the progression of osteoarthritis. Each slide sample is examined under a microscope, photographed, and then measured using a computer program. After this, the data collected from the measurements is tabulated and then compared in order to visualize results more clearly.

MARIAM KHAN

INTERN MAJOR

Health Information Management and Data Science

SUPERVISOR NAME

Dr. Komal Kochhar

DEPARTMENT

IU School of Medicine, Director of Research in Medical Education and Education Affairs Data Analytics

Research In Medical Education

This research consists of a survey conducted that looks at the residency and fellowship graduates from the IU School of Medicine who plan to practice in Indiana. It identifies factors that affect a graduate's choice in determining where they would like to practice. This electronic survey is sent out to all the residents and fellows and looks at demographic characteristics as well as opinions on residency training. My role in this project consisted of looking at each of the 16 department specific reports (DSRs) from 2021 and verifying the data and formulas to ensure an accurate data entry process for the incoming data for 2022. After completing this, I was given the data analysis outputs, so I could enter the information into Excel for each DSR. Once the data was inputted, I verified, that all the information on the reports - including tables, text description, and numerical values - was correct. The findings from this research are used by IUSM leadership to recruit and retain their residents and fellows in the state.

EMERSON KILGORE

INTERN MAJOR

Chemistry and Forensic Science

SUPERVISOR NAME

Padma Portonovo

DEPARTMENT

Research Services Core, Navigator Drug Think Tank, ICBI,

CTSI Preclinical Innovation Intern

This internship site offered many valuable experiences into different aspects of medical innovations. The core sites and start-up companies within the IU School of Medicine covers both scientific research and business development. This year I shadowed supervisors in the Chemical Genomics Core and the Behavioral Core to learn their day to day processes and how they collaborate with other cores to accomplish their research goals. This experience taught me the importance of teamwork and how it is used daily in research jobs. The main part of my internship was hands-on work in a startup company called Anagin. This company is a part of the CTSI preclinical innovation program. Anagin receives and manages funding from outside programs to develop new medicinal drugs to treat problems with chronic pain. The start up company has given me understanding on what is needed to run a research business and secure necessary equipment. I have also taken on independent projects that have given me the chance to develop new laboratory techniques and gain confidence in my own work.

SARAH LANGDON

INTERN MAJOR

Psychology Bachelor in Science (Pre- Occupational Therapy)

SUPERVISOR NAME

Rebecca McNally Keehn, Angela Paxton

DEPARTMENT

Department of Pediatrics, Indiana University School of Medicine

Service Enrollment and Access Barriers Following Diagnosis of Autism for Young Children

Children with autism spectrum disorder (ASD) can be diagnosed before two years of age, but the average age of diagnosis is typically later (over four years old). When children are diagnosed later in life, they can miss early interventions that can improve developmental outcomes. These interventions include applied behavioral analysis, developmental therapy, speech therapy, occupational therapy, and developmental preschool. Along with delays in receiving a diagnosis there comes other difficulties: wait lists, insurance barriers, cost, geographic location and lack of therapists hinder the ability to access intervention services. Community based models of early diagnosis can lead to earlier diagnosis and streamlined access to early interventions and community support. The younger a child can receive their diagnosis, the sooner they can be introduced to pivotal intervention services. The research I participated in studied rates of service enrollment and access barriers for children ages 14-47 months of age at six months after first ASD diagnosis, as well as whether community-based models of diagnosis lead to improved enrollment in intervention that can improve outcomes.

ALEC LAPLANT

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Matt Allen-PhD

DEPARTMENT

Cell Biology & Physiology

The Effects of Opioids on Bone In Conjunction with Chronic Kidney Disease

Patients with chronic kidney disease (CKD) have high rates of pain and limited options for pain management, leaving chronic opioids as a primary pain treatment; however, opioids lead to higher fracture rates. The majority of patients with CKD have chronic pain which significantly reduces the quality of life. Due to poor kidney function, most pain management pain treatments are not possible for this population. CKD alone leads to ample amounts of bone loss and high fracture rates. Combining the adverse effects of CKD on bone with any treatment, like opioids, which further increases bone loss could eventually lead to devastating consequences. The mechanisms that cause opioids to impair bone are not fully understood, especially in CKD. Our goal was to study the effects of opioids on bone in CKD.

NORA LAROCHE

INTERN MAJOR

Psychology

SUPERVISOR NAME

Dr. Jenifer Vohs and Ms. Megan Gaunnac

DEPARTMENT

IU Psychotic Disorders Program at Eskenazi

The Effects of Animal-Assisted Therapy on Psychotic Disorders

My internship site is the IU Psychotic Disorders Program. This program focuses on helping people in the early stages of psychosis and psychotic disorders, such as schizophrenia by conducting research to better understand and treat psychotic disorders. My tasks involve writing transcriptions of therapy sessions and entering data for current and past studies. My work related to individuals with psychotic disorders has made me interested in treatments for psychosis. There are currently many available treatments, such as antipsychotic drugs and metacognitive therapy. Animal-assisted therapy is a type of therapy that includes the use of animals and has proven to be successful for many types of mental illnesses. Some studies have shown that the use of animals in therapy may be beneficial for those with psychotic disorders. My project looks at different studies on animal-assisted therapy and compares the use of different animals, such as dogs, cats, horses, and even birds. The goal is to evaluate which animal is most effective in treating those with psychotic disorders.

MADISON LISENKO

INTERN MAJOR

Biology BS and Chemistry BA

SUPERVISOR NAME

Dr. Amelia Linnemann

DEPARTMENT

Center for Diabetes and Metabolic Disorders, IU School of Medicine

NRF2 antioxidant role in the development of Type 1 Diabetes

Type 1 diabetes (T1D) is an autoimmune disease that affects millions of people around the world. Individuals with T1D must monitor their glucose levels constantly and are dependent on daily synthetic insulin injections to maintain blood glucose within a narrow window. We study the relationship between the development of this disease and biochemical stressors that may be involved in early disease triggering events, specifically those that are associated with the accumulation of reactive oxygen species. We are particularly interested in early damage to the beta-cells because they naturally secrete insulin. Therefore, in my project I worked to analyze factors related to oxidative stress and the antioxidant response to determine the role they may play in initiation and progression of this devastating disease.

KELCI MALLOY

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Dr. Michael Schulte

DEPARTMENT

Department of Radiology and
Imaging Sciences, Indiana
University School of Medicine

Automated Radiochemistry Synthesizer: The Design and Implementation of a Low-Cost and Open-Source Radiochemistry Module

Positron emission tomography (PET) is a clinical imaging technique that uses radioactive molecules to illuminate body tissues and processes to aid in the diagnosis and treatment of human diseases. Due to the radioactivity associated with PET tracers, they are usually prepared using automated radiochemistry modules that shield workers from radioactivity. Commercially available modules are usually very expensive and difficult to repair. The goal of this project is to design, build, and test a low-cost, open-source alternative to commercial radiochemistry modules that is easier to customize and maintain. We set out to design a system from scratch that could 1) distribute the radioactive solution across multiple reaction vials; 2) rapidly heat and cool reaction vials individually or simultaneously; 3) add multiple reagents to reaction vials in variable amounts. A schematic was constructed to select the most efficient combination of valves, pumps, and manifolds allowing for flexibility and remote operation while maintaining a modular cost-effective design. Several parts have been designed and produced in-house via 3D-printing, and a Raspberry Pi is being used to control hardware via the open-source programming application Node-Red. This project is ongoing and future work will focus on programming of other components, followed by assembly and testing.

LINDSAY MARTINEZ

INTERN MAJOR

Nursing

SUPERVISOR NAME

Amber Comer, Ph.D., J.D

DEPARTMENT

School of Health & Human
Sciences

Qualitative Content Analysis of Documented Artificial Nutrition Goal of Care Conversations

This project is about collecting the artificial nutrition goals of care conversations. PEGs are provided after a severe stroke to help with nutrition, hydration, and getting medicine down to the stomach. We documented how many patients that received a PEG tube had a goals of care conversation prior to placement.

IMAN MASOOD

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Angela Bruzzaniti

DEPARTMENT

IU School of Dentistry

Effects of Pyk2 Deficiency and Estrogen Signaling on Osteoclast Activity

Osteoclasts are the primary cells involved in the process of bone breakdown. Many bone diseases, including osteoporosis and periodontitis, involve increased osteoclast activity. Estrogen also plays a significant role in bone metabolism, and the absence of estrogen leads to increased osteoclast activity. The Pyk2 tyrosine kinase is a key protein involved in the regulation of osteoclast breakdown activity. Absence of Pyk2 decreases osteoclast activity. The objective of this study is to establish a potential relationship between Pyk2 and the estrogen receptor (ER) alpha (ERa) and/or beta (ERb) in osteoclasts. In addition, we examined Nedd4 protein, which targets proteins, including the estrogen receptors, for degradation. The overall hypothesis is that absence of Pyk2 may activate Nedd4 to degrade ERa, decreasing osteoclast activity. Bone marrow preparation was performed using both male and female wild type (WT) mice, as well as from mice that were missing the Pyk2 gene (Pyk2 KO). Bone marrow cells were then cultured with media to induce osteoclast formation. Mature osteoclasts were used for qPCR analysis to measure gene expression of the genes mentioned. The results suggest that in the absence of Pyk2, Nedd4 expression is upregulated, with no differences in ERa/ERb levels.

HANNAH MCKENNA

INTERN MAJOR

Psychology and a minor in American Sign Language Studies

SUPERVISOR NAME

Dr. Eric Meininger, MPH

DEPARTMENT

Riley Hospital for Children, office of Adolescent Medicine

Interning in Adolescent Gender Affirming Care

This past year I have had the opportunity to intern in the Office of Adolescent Medicine at IU Health. This experience has entailed a wide variety of workshops, meetings, projects, and research. Through the past 7 months, I have attended LGBTQ ECHO Meetings through the School of Public Health, the Indiana ACLU monthly Policy Meetings, and workshops held by the medical library at IU School of Medicine. During my time, I worked on creating a content guide for first time patients at Riley's Gender Health clinic, what to expect for their first in person and online appointments to help alleviate any anxiety new patients experience. I am also working with Dr. Richard Brandon-Friedman and his research team on their research regarding the mental well-being of gender expansive youth who are receiving gender affirming care. We are currently still conducting this research study and will conclude before the end of 2023.

MOHAMED MUBARAK

INTERN MAJOR

Biology, Chemistry

SUPERVISOR NAME

Dr. Nicole Fowler, Sneha Manoharan, Christina Baucoco

DEPARTMENT

IU Center for Aging Research at the Regenstrief Institute/ IU School of Medicine

Caregiver Outcomes of Alzheimer's Disease Screening (COADS) STUDY

Family caregivers of people living with Alzheimer's disease and related dementias (ADRD) are often unprepared for the emotional, physical and financial strain that can result from caregiving. These consequences of caregiving may be worse when people are identified late with ADRD. The COADS study is a randomized controlled trial that will examine the impact of early detection of ADRD on family members of older adults. 1,809 dyads of primary care patients in greater Indianapolis aged 65 and older with no diagnosis of ADRD and one of their family members were recruited and randomly assigned to one of three groups. Two of the groups were screened for ADRD and received their screening results and are encouraged to get follow-up diagnostic care, and one group did not receive screening. Dyads are followed every six months to measure patient and family member depression, anxiety, and health related quality of life. Caregiver preparedness and caregiving self-efficacy are measured for the family members. We hypothesize that family members in the two screening groups will have a better quality of life, lower rates of anxiety, depression, and be more prepared for caregiving at 24-months after screening.

MOHAMAD OBEID

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Kanhaiya Singh, Dr. Sumit Verma

DEPARTMENT

Indiana Center for Regenerative Medicine and Engineering, IUSM

Epigenetic Basis of Perfusion Deficit in Diabetic Ischemic Tissue

Diabetes Mellitus is an increasingly concerning issue within the field of medicine. Though the disease is manageable, the associated secondary complications become progressively debilitating as the patient lives on. One complication is the inability to create functional blood vessels to ischemic tissue. This increases the risk of life-threatening bacterial infections which without treatment could require amputation of the afflicted extremity or even death. At our lab, we explore the molecular basis of vasculopathy in affected ischemic tissue from diabetics as compared to healthy skin. This includes examination of gene expression changes and promoter methylation status of vasculogenic genes. Our lab has recently shown that decreased blood flow in diabetics is linked to increased vascular gene suppression. During my time at this internship, I learned to examine gene promoter methylation status using bisulfite sequencing. This procedure utilizes treating DNA with chemicals that can differentially react with methylated and unmethylated cytosine residue. The quantification of methylated CG pairs in vascular gene promoter can reveal the amount of silencing in diabetic ischemic tissue. Using methods including bisulfite sequencing, results of such research could have major implications for diabetics with non-healing ulcers and ischemic limb tissue. Acknowledgement: The laboratory of Dr. Kanhaiya Singh is supported by U.S. Department of Defense grant W81XWH-22-1-0146. On behalf of everyone in the lab and myself, I would like to thank the director of the ICRME program, Dr. Chandan K Sen for giving us the opportunity to be a part of this internship at his lab.

SHELBEE OHNECK

INTERN MAJOR

Biology

SUPERVISOR NAME

Doris Muriathiri and Dr. Liana Apostalova

DEPARTMENT

IU Department of Neurology for IU Health

LEADS - Longitudinal Early onset Alzheimer's Disease Study

At LEADS internship we study the development of early onset Alzheimer's disease. This population of individuals has many unknown factors about what causes EOAD in one's lifetime, and LEADS works to solve that. As a nationally known study, LEADS site 037 focuses on enrolling participants into three groups. They recruit a control group of cognitive normal (CN) participants, a comparison group of early onset non-Alzheimer's disease (EOnonAD) participants, and the main study group of early onset Alzheimer's disease (EOAD) participants. With this data through imaging, fluid biomarkers, and neuropsych testing we are working to build a profile of the causes of EOAD. Not only working with other LEADS sites around the United States, we also work with a wide variety of sister research groups to look into comparisons of early onset Alzheimer's disease with many cognitively known impairments.

AHMAD OMAR

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Jenifer Vohs

DEPARTMENT

Eskenazi Hospital

Exploring treatment Methods for Schizophrenia: A Comparative Analysis of Combined Therapy Versus Antipsychotic Medication Alone

Schizophrenia is a complex and challenging mental illness that significantly impacts an individual's social, vocational, and independent functioning. Schizophrenia is a multifactorial psychotic disorder with a wide range of treatment options, the efficacy of which can vary case-by-case. The complexity of schizophrenia and the need for individualized treatment plans have made it a major research focus in the field of psychiatry, with researchers working to identify new treatment approaches and improve existing ones. Research studies on subjects with schizophrenia have investigated the efficacy of a combination of antipsychotic medication and psychotherapy compared to antipsychotic medication alone. The primary goal of this project is to conduct a thorough analysis aimed at determining which treatment option is the most effective based on both positive and negative symptoms.

DAYANE ORTEGA GONZALEZ

INTERN MAJOR

Biology, Neuroscience

SUPERVISOR NAME

Xue Yuan, PhD

DEPARTMENT

Department of Otolaryngology-Head and Neck Surgery

Oral Cancer

Current treatments for oral cancer are highly invasive and negatively impact patients' quality of life. Consequently, the lab aims to provide insights into a novel and less invasive treatment approach. Clinical observations suggest a connection between the development of oral cancer and chronic mechanical irritation, such as improperly fitting dentures, misaligned teeth, or other types of prosthetics. My internship focuses on studying stem cells in wound healing and exploring their transformation in tumor initiation, progression, and metastasis. To observe stem cell behavior and track their activity in wound healing and tumor development, we used transgenic mouse models. We induced oral wounds in these models and then administered a carcinogen in the drinking water to induce oral cancer development. We record tumor incident and size and evaluate tumor development stages using histology methods. Our research is critical as it could provide a better understanding of the risk factors associated with oral cancer. Ultimately, the knowledge gained from our investigations will lead to the development of new, more targeted treatments that could improve the prognosis and quality of life for oral cancer patients.

MARISSA PARCELL

INTERN MAJOR

Forensic & Investigative
Sciences, Biology

SUPERVISOR NAME

Dr. Imranul Alam

DEPARTMENT

Indiana University School of
Medicine - Division of
Endocrinology

Role of Kinesore, a Kinesin-Family Microtubule Modifier, in Regulation of Bone Cells

Bone formation and resorption are conducted, respectively, by bone cells called osteoblasts and osteoclasts. Failure in the functionality of these cells has the potential of causing two main diseases: osteoporosis and osteopetrosis. These diseases, however, are quite the opposite of each other, with osteoporosis being characterized by weak bone that lacks density, and osteopetrosis being characterized by thick, dense bone. Though some treatment strategies are available in order to combat these diseases (mainly osteoporosis), there is still much more to be learned about their mechanisms and what might affect the cells that control them. The drug 'Kinesore' was chosen to be explored, as studies have shown that it reorganizes the microtubule network of cells, affecting the relative location of different organelles, particularly lysosomes, that play a role in bone resorption. This information provided evidence that the drug would affect the functionality of bone cells. Osteoblasts, from the OB6 cell line, and osteoclasts, from the bone marrow of mice, were treated with three different doses of the drug and a vehicle control, along with conducting a cell proliferation study. After treatment, cell staining and gene expression analysis was performed in order to assess the drug's overall effect.

PRUTHA PATEL

INTERN MAJOR

Biology on the pre-dental
track

SUPERVISOR NAME

Yuliya Dantsu, Ph.D., Wen
Zhang, Ph. D

DEPARTMENT

Biochemistry & Molecular
Biology

How to target only cancer cells in multiple melanomas while treating with chemotherapy

The research focuses on suppressing the gene in multiple myeloma cancer. The research would compare RNA/DNA modifies sequences to the best fit of ability to suppress the gene. The research can proceed by utilizing and synthesizing novel mirror-image nucleic acids and selection/ study of the functional mirror-image RNA/DNA molecules in order to target the RNA-related disease by the process of SELEX (Systematic Evolution of Ligands by Exponential Enrichment). The steps are further continued by researching the development of this mirror-image RNA. DNA structures for the improvement of drug efficiency and biostability before being processed to a candidate for treatment. DNA structures for the improvement of drug efficiency and biostability before being processed to a candidate for treatment. This research is done using RNA aptamers that are incorporated into a selected nanoparticle which will guide the aptamer to cancer cells in the body to deliver gene therapy. We create 3 DNA single strands using the DNA synthesis process and then attach the nanoparticles, aptamers, and siRNAs. My current work involves learning the biochemistry and organic chemistry structures behind these steps while visualizing my supervisor performing these steps with the help of chemicals and the use of laboratory-specific equipment.

MICHAEL PECK

INTERN MAJOR

Psychology BS

SUPERVISOR NAME

Dr. Leslie Hulvershorn

DEPARTMENT

Psychiatry at IU Medicine

Assessing Psychological and Cognitive Response to Risky Decision Making in Adolescents at High Risk for Substance Use and HIV

The Hulvershorn lab investigates impulsivity and risky decision-making in adolescents at risk for substance use and HIV. Some factors including high impulsivity and a family history of substance abuse have been identified as predictors for later engagement in high-risk behaviors such as early substance use, development of substance use disorders, and engagement in high-risk sexual behaviors. By developing an understanding of these risk factors, researchers hope to identify populations vulnerable to these risky behaviors. The lab investigates these topics in a sample of 11-12 year old children using a research method known as longitudinal follow-up to track their endorsement and engagement in substance use and sexual behaviors. The children initially undergo an array of behavioral assessments and an fMRI to get a baseline of characteristics of interest. The adolescents then are contacted every six months to track their engagement in substance use and sexual behaviors. Using this data the Hulvershorn lab hopes to better understand what risk factors are associated with risky behavior. With these findings, further research hopes to better identify at-risk children, understand adolescent development, prevent engagement in high-risk sexual behaviors and substance use, and develop evidence-based treatment and prevention protocols targeting adolescent populations.

GISELA PEREZ

INTERN MAJOR

Health Sciences

SUPERVISOR NAME

Ann Marie Martin PhD,
McKnally Keehn PhD, and
Angela Paxton

DEPARTMENT

Indiana University School of
Medicine - Division of
Developmental Medicine,
Department of Pediatrics

Unpacking Autism Disparities in Latinx Community

The Latinx community experiences disparities accessing autism spectrum disorder (ASD) diagnostic and intervention services. Research suggests language proficiency and limited ASD knowledge contribute substantial amounts of caregiver stress when receiving an ASD diagnosis and navigating post-diagnostic care. This project describes the experiences of Spanish-speaking Latinx caregivers in obtaining an ASD diagnosis for their child and whether demographic factors influenced responses on a caregiver-report survey. Participants were 12 Spanish-speaking Latinx mothers (M= 41 years, SD=4; M=17 years in US, SD=9; 67% limited or no English proficiency) of 13 children with ASD (M=12 years SD=4; 77% male; 33% mild, 58% moderate, 8% severe ASD impairment) who completed a survey on experiences obtaining an ASD diagnostic evaluation (86 items across 8 domains rated on 4-point Likert scale: “definitely disagree” to “definitely agree”) and demographic questionnaire. Results suggest that Spanishspeaking Latinx communities experience challenges in evidence-based information about ASD and access to post-diagnostic services. These findings highlight the need to develop “plain-language” resources on ASD, obtaining a diagnosis, and next steps information. Spanish-speaking families would also benefit from improved care navigation post-diagnosis.

CONTESSA RADABAUGH

INTERN MAJOR

BS. in Cytotechnology

SUPERVISOR NAME

Dr. George E. Sandusky

DEPARTMENT

Indiana University Hospital
Pathology Department

Evaluating Low Estrogen Receptor Expression in Breast Cancer Cases with Quantitative Immunohistochemistry

This project analyzed estrogen receptor (ER) breast cancer samples using digital analysis. Originally, any sample with at least one percent of cells displaying ER characteristics was considered positive. Following the release of new treatment methods there are now two kinds of positive estrogen receptor breast cancer, low-ER and high-ER. In low ER breast cancers, only 1-9% of cells display characteristics. In high ER cases, 10-100% of cells display characteristics. This percentage is quantified using digital analysis that looks for a brown stain pigment seen in ER active cells. Based on how much brown pigment appears in the sample as a percentage, the patient is then diagnosed with either negative, low or high ER. The patient is then be placed on a new hormone medication which gives patients a longer life and a better chance of remission.

MELANIE REYES

INTERN MAJOR

Nursing

SUPERVISOR NAME

Deanna Reinoso, M.D.

DEPARTMENT

Community Pediatrics

IUSM: Kids Healthcast Podcast

The Kids Healthcast Podcast is a podcast dedicated to serving parents, teachers, and caregivers who work with children to educate and advocate for their pediatric health. This podcast is facilitated by pediatric residents from the Indiana University School of Medicine in Indianapolis. In which they construct topics about pediatric health and include resources that can be reached through online resources or public organizations.

ELIZABETH SCOTT

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Dr. Melissa Kacena, PhD

DEPARTMENT

IU School of Medicine
- Orthopedic Surgical
Research

Effects of Alzheimer's Disease on Fracture Healing

Bone fracture risk significantly increases as patients with Alzheimer's Disease continue to age. However, it is unknown to which degree a bone fracture can affect the inflammatory process and cognitive degeneration in patients. In other words, it is unknown how a patient with Alzheimer's Disease physically and mentally reacts as they continue to age with a broken bone. By using an animal model of Alzheimer's Disease, 5xFAD mice, and by subjecting them to a surgically created fracture, we can monitor fracture healing and progression of Alzheimer's to better understand how these 2 diseases/injuries impact one another. I will be assisting with the fracture surgeries and the fracture healing outcomes as well as the cognitive and behavioral testing and brain measurements to monitor fracture healing and Alzheimer's disease progression, respectively.

HAFSA SHAKIL

INTERN MAJOR

Radiation Therapy

SUPERVISOR NAME

Andrea Janota

DEPARTMENT

Fairbanks School of Public
Health

IUPUI ECHO Center

I work with the IUPUI ECHO Center to organize educational events (ECHOS) on vital topics like HIV, cancer, hepatitis C, etc. ECHO is a platform that allows users to communicate with medical experts from various states who give both didactic content and real-world examples. Through this platform, one gets to develop a variety of skills, including the ability to provide constructive criticism and apply that feedback to make corrections. One also has a tremendous opportunity of acquiring some highly beneficial teamwork abilities, such as leadership, collaboration, and critical thinking, by interacting with healthcare professionals. Overall, the IUPUI ECHO center is a location where you may gain a lot of knowledge from experts and learn how to collaborate with others and politely take their advice. Through time, one learns how pleasurable it can be to work with others who have similar perspectives and more experience than you have, since you feel more at ease asking questions and getting the task done correctly. This internship with IUPUI ECHO center has far exceeded the expectations because not only do you learn a lot but also interact with new people on a daily basis, both of which you are eager to do.

ITZEL SOTAMBA

INTERN MAJOR

: Exercise Science

SUPERVISOR NAME

Sarah Honaker, Maureen
McQuillan

DEPARTMENT

IU School of Medicine/Riley
Hospital for Children

Healthy Sleep for Kids Lab

As part of my role in the Healthy Sleep for Kids Laboratory, I have been studying the development, detection, and treatment of a variety of sleep disorders in infants, children, and adolescents from underserved populations. My internship has revolved around two projects: Sleep and Health in the Home (SHH) and Evidencebased Detection of Pediatric Obstructive Sleep Apnea (OSA). SHH aims to understand predictors of the disproportionate rates of high Body Mass Index (BMI) in Black and Latinx children by examining sleep and feeding patterns in infants. There is growing evidence that the risk of high BMI is associated with certain sleep and feeding patterns. In order to prevent unhealthy weight later in childhood, it is essential to identify these patterns. The OSA Project is focused on the impact of health communication in the detection of OSA in children. Through this project, we developed and refined an OSA infographic in English and Spanish with feedback from parents and medical providers. The infographic will be ultimately shown to parents to increase OSA detection and referrals. As many families participating in both studies speak Spanish at home, I have been able to apply my bilingual skills to the research.

ALEXANDRIA STOCKER

INTERN MAJOR

Psychology and English with
a Concentration in Creative
Writing

SUPERVISOR NAME

Dr. Tom Hummer

DEPARTMENT

School of Medicine

Relationships of family dynamic to children's motivations for violence in video games

I am working in Dr. Tom Hummer's Media and Brain Development Lab. As part of this work, we are using virtual reality to understand how children with ADHD understand other people's thoughts and feelings depending on the environment around them. I have been tasked with creating recruitment flyers, checking virtual reality builds weekly, and helping sort through data when needed. In addition, since the start of my internship, I have been working to study the Video Game Motivations and Desires Scale to quantify children's motivations to play video games. This survey contains 30 questions and 10 subscales, such as Customization and Social Interaction. The work on this scale inspired my research question that I wanted to investigate further for my LHSI project. I wanted to see if there was any relationship between how much children were motivated by Violent Reward in video games and their family living situation. To test this idea, I am examining whether responses on the Family Environment Scale (FES), which measures family dysfunction, are related to Violent Reward motivations. This information will help fill a gap in understanding what causes a child to play video games for violent reasons.

MORGAN STREICHER

INTERN MAJOR

Psychology

SUPERVISOR NAME

Amy Williams PhD ABPP

DEPARTMENT

Indiana University School of
Medicine - Riley Hospital -
Department of Psychiatry

Injustice and Resilience in Youth with Sickle Cell Disease

Sickle cell disease is a condition that affects approximately 100,000 individuals in the United States. Of the individuals, the vast majority of them are Black and come from low-income neighborhoods where healthcare isn't easily accessible. This internship site is researching how we can help further the education system for healthcare and mental healthcare. At our site, we are determining associations of painrelated injustice, sickle cell stigma, and perceptions of racism in Black youth with sickle cell disease.

ALEXIS TANNER

INTERN MAJOR

Biology B.S. (Pre-Veterinary Medicine)

SUPERVISOR NAME

Beth Skiles and Dr. Nancy Johnston

DEPARTMENT

Laboratory Animal Resource Center at IU School of Medicine

Mouse Training Course Stress Recovery Analysis

Mice are common models in biomedical research. Researchers must be properly trained in technical skills before working with mice for the benefit of both animal welfare and successful research outcomes. Training takes a couple of sessions for each person to be competent in all the basic skills. Currently there is no standard amount of rest required for the rodents between sessions, which leaves room for overuse of the animal. Our goal is to determine an appropriate timeline of recovery from the training courses so institutions can better care for the rodents in the training colony. Our research design recreates the mouse basic and advanced training courses, and the subsequent stress response was analyzed through fecal samples to measure corticosterone (the stress hormone in rodents). When the stress levels return to baseline it was assumed the animal was ready for their next training session. We also sent out a survey to institutions to better understand their training course standards to determine the relevance of our study.

YAMANA UNO

INTERN MAJOR

B.S. Neuroscience, M.S. Biomedical Engineering

SUPERVISOR NAME

Dr. Emilee Delbridge

DEPARTMENT

Indiana University School of Medicine; Family Medicine

Understanding the Challenges of Primary Care

Healthcare worker wellness includes a balance of psychological, social, and physical aspects of an individual's life. The COVID-19 pandemic is one of the relevant challenges highlighted in my literature review. My personal experiences shadowing family medicine residents in the IU Health Physicians Family Medicine clinic downtown allowed me to observe the stresses and challenges healthcare workers face on a day-to-day basis. Physician wellness and well-being are an integral part of high-quality health care, thus needing to prevent burnout, emotional exhaustion, and mental health issues for healthcare workers. High-quality health care aligns with the four pillars of the Quadruple Aim which includes reducing cost, patient satisfaction, improved health, and provider satisfaction. Considering this, a more concrete definition of wellness and wellbeing is needed, which can then inform initiatives and support for those working in medical settings.

JOHN VENEZIA

INTERN MAJOR

Neuroscience

SUPERVISOR NAME

Dr. Andrea Shin

DEPARTMENT

Indiana University School of Medicine Department of Gastroenterology and Hepatology

Investigating Disorders of the Gut-Brain Interaction

Disorders of the gut-brain interaction are heterogeneous gastrointestinal disorders characterized by disturbances in gut motility, food sensitivities, the gut microbiome, and other systematic effects. A common disorder of the gut-brain axis is irritable bowel syndrome, which may induce constipation, diarrhea, pain, anxiety, depression, and numerous other symptoms. Disorders of the gut-brain axis are difficult to investigate due to the complexity, variability, and widescale effects of symptoms across patients. Throughout my internship, I have worked alongside the research team to investigate the physical and psychological effects of IBS, the receptiveness to care in patients with IBS, and research regarding other matters related to gastroenterology. At my internship, I helped to conduct research regarding the prevalence of IBS in individuals with Ehlers-Danlos syndrome, a connective tissue disease. This research aimed to assess the prevalence of IBS, determine treatment modalities for gastrointestinal symptoms, and characterize dietary habits and food sensitivities within this patient population. Furthermore, additional research that I have taken part in has investigated the receptiveness to cognitive behavioral therapy in patients with IBS. Overall, this research has aimed to improve the understanding and treatment of various disorders of the gut-brain interaction.

RACHEL WAS

INTERN MAJOR

Psychology

SUPERVISOR NAME

Dr. Zachary Adams, Amanda Claire Feagans, Brigid Marriott

DEPARTMENT

IU School of Medicine:
Adolescent Behavioral Health Program and Department of Psychiatry

Indiana Fidelity Monitoring Initiative: Ensuring Quality Service of Mental Healthcare and Successful Patient Outcomes

The Indiana Fidelity Monitoring Initiative (IFMI) seeks to improve the quality of mental healthcare services and patient outcomes through ensuring that evidencebased practices (EBPs) are delivered as intended (i.e., fidelity) in community behavioral health settings. Behavioral health professionals are encouraged to deliver EBPs based on research-backed standards to promote positive clinical outcomes. The clinical field lacks a widely accepted and feasible strategy to routinely measure therapist fidelity to best practice standards. This gap prevents the ability to monitor the quality of services provided in community settings, which limits opportunities to intervene with coaching, training, or other remedies. To address this gap, IFMI strives to establish a statewide procedure to monitor EBP fidelity among community-based behavioral health providers. To guide the development of this statewide program, we conducted interviews with directors of existing national EBP implementation centers and behavioral health professionals. We have collected data on various approaches, challenges, and outcomes of implementing different EBPs and monitoring fidelity. Findings will inform standard operating procedures for IFMI programming.

AMANDA WERNER

INTERN MAJOR

Forensic & Investigative Science and Chemistry

SUPERVISOR NAME

G. Sandusky

DEPARTMENT

University Hospital Path

Evaluation of Low Her2 in Breast Cancer Cases with Digital Pathology

Breast cancer is the second most common cancer among women. Approximately 290,000 new cases were diagnosed in 2022 and about 43,000 women will die. The standard of care for determining treatment is evaluating the expression of ER (estrogen receptors), PR (progesterone receptors), and Her2 in the initial biopsy. The majority of breast cancers are hormonally driven and are positive for ER and PR. About 25% of breast cancers are now classified as Her2 positive. The recent approval of new breast cancer drugs in 2022 has led to a reclassification of 0, +1, +2 (low) and 3 positive Her2 expression. Previously 60% of Her2 cases showed a low level of Her2 expression. In this study we evaluated approximately 750 breast cancers with Her2 expression over the last 20 years and divided them into low and positive Her2 expression. In this study, we saw 646 negatives, 58 lows, and 53 positives. There are two new treatments targeting people who have low Her2 expression which have a high risk of cancer returning. In early studies, treatment with either of these two drugs have shown that the chances of breast cancer returning is diminishing.

JADE WESTERHOFF

INTERN MAJOR

Clinical Laboratory Science

SUPERVISOR NAME

Ralitsa Kostadinova

DEPARTMENT

The ALLFTD Study at Indiana Alzheimer's Disease Research Center

Exploring the Dementia Umbrella with Special Focus on Frontotemporal Dementia (FTD)

You've probably heard one of the many terms related to dementia, but the meaning of the term dementia is constantly shifting as more research evolves. That's because dementia is a condition of the brain, or an umbrella term, and not a disease. An umbrella term covers a broad category of similar topics, rather than a specific item. FTD, like Alzheimer's, is a specific brain disease, while dementia is a term to describe this group of symptoms. It is roughly estimated that 50,000 to 60,000 people in the United States are affected by FTD, making up an estimated 10-20% of all dementia cases. For rare diseases like this to become topical, it often requires media input and celebrity showcasing; a case in point is how Bruce Willis was recently diagnosed with FTD. The goal of this project is to peer under the umbrella term of dementia, inform the audience on what exactly FTD is, and discuss the ALLFTD study. I hope you can walk away with a better understanding of FTD and the dementia umbrella.

LEXI WHITINGER

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

M.Terry Loghmani, PT, Ph.D

DEPARTMENT

Indiana University School of Physical Therapy

Instrument Assisted Quantifiable Soft Tissue Manipulation Stroke Pattern Analysis

Instrument assisted soft tissue manipulation(IASTM) is a form of manual therapy used for musculoskeletal recovery treatment. In this research study, male and female clinicians of varying experience tested two devices linked with software that produced real-time results of the amount of force clinicians applied during different strokes of quantifiable soft tissue manipulation. One device (Q1) applied local force and the second device (Q2) applied dispersive force. Two strokes were used for data collection, a linear stroke, and a curved stroke. The devices were tested in three regions of the body. The thoracic lumbar region, thigh, and calf. The Qware software used in the protocol collected force data regarding the x, y, and z fields. For this project, data from the software was analyzed quantitatively and qualitatively to see how linear and curve strokes compare in different regions of the body to determine if from the graphs you can determine what stroke the clinician is using.

SARAH ZETZL

INTERN MAJOR

Biology

SUPERVISOR NAME

Dr. Emily Mueller

DEPARTMENT

Riley Hospital for Children
Department of Oncology

Dexamethasone as an antiemetic for CINV

Dexamethasone is a commonly used drug with a variety of uses such as anti-inflammatory and antinausea. In the field of oncology, it is often used to treat nausea and vomiting in chemotherapy and radiation therapy patients. Chemotherapy is highly emetogenic as it attacks rapidly-dividing cells such as those that line the walls of organs in the digestive system. Chemo-induced nausea and vomiting (CINV) is one of the most common, and damaging side effects of chemotherapy. This project is a literature review on the uses and outcomes of dexamethasone as an antiemetic for CINV. CINV affects a patient's ability to do daily activities, nourishment, and overall outcomes by affecting both the patient's body and treatment plan. Chemo is sometimes given further apart due to CINV, this can greatly affect patient outcomes, especially in cases of aggressive forms of cancer. Direct effects of CINV can be fatigue, malnutrition, and dehydration. Dexamethasone is often used in tandem with other antiemetic drugs for the most effective regimen possible. There was a focus in the project on a continuous pump of antiemetics, which allows for preventative and continual treatment of CINV. This allows for a higher tolerance of treatment and better patient outcomes.

Sophomore Internship Program

ADEMOLA ADESOJI

INTERN MAJOR

Computer Science

SUPERVISOR NAME

Tiffani McCormick

ORGANIZATION

Ascend Indiana

Business Development Internship

Being part of Ascend Indiana has provided me the opportunity to help contribute to the community by helping job seekers, including college students and un- and underemployed individuals, get jobs that require little to no experience. Being an intern has also developed several transferable skills that I find beneficial in my career journey. Some of them I have developed because of my projects include communication, time management, attention to detail, and Microsoft Excel. Having this internship helped me learn how to be disciplined in a professional environment like checking my work emails every morning before starting assigned projects, communicating with my manager and team members about any change in plans, etc. One of my responsibilities at Ascend Indiana is to help employees

THIAN AWI

INTERN MAJOR

Marketing & Communication
Studies

SUPERVISOR NAME

Amy Henry

ORGANIZATION

Amy Henry State Farm
Agency

Marketing Internship

As a Marketing Intern, my main tasks were to reach out to potential clients and to create social media content. During my time at Amy Henry State Farm Agency, I had the chance to develop my skills in social media content creation and customer skills. I'm able to call, text, and send emails to customers confidently. I have realized that marketing and social media content creation are two things I'm thoroughly excited about, and a career I want to pursue. My co-workers were amazing at making me feel comfortable and giving me independence with how I wanted to develop as an intern.

CHINWENDU AYOGU

INTERN MAJOR

Electrical Engineering

SUPERVISOR NAME

Felicia Smith

ORGANIZATION

Hawthorne Community
Center

STEM Youth Coach

As a STEM Youth Coach, I educate school-age students on science, technology, engineering, and mathematics, while keeping them engaged through fun STEM and teambuilding activities. During my internship, I developed my leadership skills by applying my experience as an executive member of a campus organization, researching STEM and teambuilding activities, planning the activities, and leading kindergarten to grade 8 students. I enjoyed listening, supporting, and finding solutions to their concerns and sought help from my supervisor, Felicia, and colleagues when needed. Working with the team at Hawthorne Community Center was a wonderful experience that allowed me to explore new workspaces and improve my socialization and communication skills through building relationships with students and colleagues.

MICHELLE BASHAL

INTERN MAJOR

Finance and Management

SUPERVISOR NAME

Tiffani McCormick

ORGANIZATION

Ascend Indiana

Business Development Intern

Ascend Indiana ensures every person who has the opportunity to work there left with growth and abilities they did not have before. I worked as a Business Development Intern and my main responsibilities were to write and post job roles as well as research and scrape job roles. I posted job positions onto the network that allowed candidates to see what matched well for them. It was so amazing to see the number of people that apply for roles you published. As I do not see myself working here for any long-term position, I am so grateful I was given the opportunity to do the time I did. I was taught so much about the job market as well as how to treat people in a work environment. I saw different leaders and how everyone operated at a professional standpoint. I am so thankful I got to be a part of Ascend and pursue their mission to create economic opportunity for all.

MICHAEL HARDIN SR.

INTERN MAJOR

Social Work

SUPERVISOR NAME

Syrentha Hair

ORGANIZATION

Lutheran Child & Family
Services - PANDO

Peer Support for Pando

I currently work at the Pando location, in which is a division of Lutheran Child and Family Services. My job on a daily basis is to engage with the tenants and provide them with motivation, as well as, empower them to utilize the resources that are at hand. I'm also tasked with the goal of creating the BTO program [Bridges to Opportunity]. This is a project in which I recruit positive role models from the community to engage in a mentor/mentee relationship with the tenants.

PRECIOUS HARVEY

INTERN MAJOR

Psychology

SUPERVISOR NAME

Felicia Smith

ORGANIZATION

Hawthorne Community
Center

Youth Coach Internship

Going into my sophomore year, I wanted to make sure I explored different career paths through various learning experiences. Working at Hawthorne Community Center has enabled me to do that. At Hawthorne, I work as a Youth Coach to promote children's overall well-being through interactive discussion-based exercises and activities. Each week, we have activities based on 1 of the 8 dimensions of well-being. Some activities include morning yoga, budget planning, waist bead making, and discussions about personal boundaries. Through this internship, I have learned how to create interactive activities suited to children through utilizing sites such as Kahoot and practicing worksheet creation. During discussions, I had to make sure I fully explained my thinking when talking to the children. Some of the topics were hard for them to think about since they never really talked about them before. So, making sure I was being thorough overall increased my communications skills to be able to hold conversations with the children.

Hearing the kids' feedback, about how they enjoy talking about the topics we discuss makes me happy! I hope that after my time there they continue to incorporate things we talked about into their daily lives.

Wafa Hussein

INTERN MAJOR

Biomedical Engineering

SUPERVISOR NAME

Monica Haddock

ORGANIZATION

Carmel Clay Parks &
Recreation

Extended School Enrichment Program Counselor

Having this opportunity to be an ESE Program Counselor has introduced me to the broad range of tasks that counseling elementary school students requires. From being medically certified to having patience, there's many ways to provide the kids the necessity of being cared for and supported. Everyday there's a new challenge of understanding multiple small requests yet spending extra time to ensure that every kid is satisfied and will be looking forward to the next day at ESE. Being at a loving community that looks after each other is a blessing that I will never take for granted.

KHUSHVINDER KAILEY

INTERN MAJOR

Accounting & Finance

SUPERVISOR NAME

Stephanie Bowie & Crystal
Allen

ORGANIZATION

A Total Solution CPA &
Consulting Services Inc.

Accounting Intern

At my internship site working as an Accounting Intern has given me the closest feeling for what to expect for when I begin to work an entry level accounting job after college. Working personally with clients, filing their tax returns, and managing their transactions in QuickBooks has been the perfect direct experience that I was looking for in an internship. Doing these tasks for clients gave me a better insight and understanding of what I will be doing as a CPA in the future and also helped me feel more relieved. I thought working with clients and doing important things such as filing their returns can be scary, filled with lots of responsibility. Working at A Total Solution CPA has definitely given me a huge moment of relief as I found it to be very enjoyable and something I will love to do in my near future!

MONAE MACON

INTERN MAJOR

Management & Real Estate

SUPERVISOR NAME

Melissa Coy

ORGANIZATION

Networks Connect

HR and Recruiting Internship

As a student in the Sophomore Internship Program, I was given the opportunity to join the team at Networks Connect as a Recruiting Intern. As an intern at Networks Connect, I am in charge of recruiting healthcare professionals for long term care facilities and making sure that the healthcare worker has the correct information and up-to-date credentials. Over the course of the spring semester, I have been able to learn a lot at Networks Connect and achieved many of my goals that I had set for myself at the beginning of the semester. I have been able to connect with other professionals and learn different processes while at Networks Connect. I was able to learn the different aspects of onboarding and get a feel for the business world. This opportunity has given me tools to manage self-reflection for growth and improve my skills of communicating in a professional manner. From this experience I appreciate the tremendous support I have received at Networks Connect and know I will be able to apply the knowledge I have gained to my future endeavors.

On-Campus Internship Program

JAMIA DINKINS

MAJOR

English

SUPERVISOR NAME

Sarah Tosick

DEPARTMENT

IUPUI - Office of the President

TITLE

Communciations Intern

Reflecting on my Time as A Communications Intern for the Office of the President

As the 19th president of Indiana University, Pamela Whitten leads all nine campuses with a student-oriented approach. I will be providing insight into how I aided in accomplishing student outreach through presidential correspondence. Since one of her top areas of focus is on the students, I'll also address methods used to maximize recognition of the various accomplishments of Indiana University's core community, including faculty and staff, and showcase the professional skills developed during my time as an intern.

PRISCA GIDI

MAJOR

Global Health

SUPERVISOR NAME

Kristine Schuster

DEPARTMENT

Fairbanks Student Success

TITLE

Commucations & Project Specialist

A Reflection on FSPH Career & Professional Development Internship

This presentation will focus on the leadership, communication, and professional skills I have obtained from working at the FSPH Office of Career and Professional Development. As one of the communications interns, I focused on how efficient information is being distributed to students. In this portfolio, I will be discussing the projects I have worked on and how they have shaped and prepared me for the professional world.

GRACE HICKS

MAJOR

Epidemiology

SUPERVISOR NAME

Kristine Schuster

DEPARTMENT

Fairbanks Student Success

TITLE

Commucations & Project Specialist

A Reflection on My Experience with the Career and Academic Development Director

Big changes are coming at the Fairbanks School of Public Health. With a complete revamp of the curriculum, students have many questions about what will happen with their program, and more importantly, their required internship to graduate. In my role as an intern, I did data grouping and analysis for previous internships for master's and bachelor's students. There is an internship database for Fairbanks students, and I altered and added to it. I also ran a panels series with FSPH Alumni. In my E-Portfolio I will be showcasing both these things, as well as other professional skills I've gained from my time at Fairbanks.

AIDEN KOSEGI

MAJOR

Media Arts

SUPERVISOR NAME

Holly Lindsey

DEPARTMENT

Division of Undergraduate Education - Office of Communications & Digital Strategy

A day in the office

This showcase will show the daily tasks of a web office intern, the responsibilities I have, the tools I use, as well as some the skills I use and have picked up from my time as a web intern. I will talk about how I have grown since I started back in October and talk a little bit about how I got the job and how I use the skills from that job in my daily life.

TITLE

Web Development Intern

CARLI RICHARD

MAJOR

Sustainable Management & Policy

SUPERVISOR NAME

Amanda Keene

DEPARTMENT

IUPUI Office of Sustainability

TITLE

Sustainable Waste Intern

Preparing for a Professional Career in Sustainability

My presentation will focus on the projects, professional skills, and networking opportunities I have had during my employment at the IUPUI Office of Sustainability this year. My e-portfolio will exhibit my projects, skills, and experiences in further detail to encapsulate the positive impact and knowledge I have gained from my employment

XOCHITL RIVERA

MAJOR

Health Services

SUPERVISOR NAME

Katie Hillock

DEPARTMENT

Office of Student Employment

TITLE

Career Services Intern

Xochitl Rivera's Professional Development Portfolio

At the Office of Student Employment, I'm currently the Training & Development Intern. Some of my tasks include managing off-campus part-time job posting through Handshake and providing a student perspective for our on-campus supervisor programming, like JagSeries. I have also helped plan and execute events. These include our Part-Time Job Fair, Supervisor Summit, and National Student Employment Week. I also had great opportunities to be on committees throughout the office! The skills I'm learning will translate into the work field because jobs are constantly hiring and providing programming for employees; skills that I'm currently learning and using.

LAURA RYLE

MAJOR

Communication Studies

SUPERVISOR NAME

Karla McLaughlin

DEPARTMENT

Office of Student Employment

TITLE

Communications Intern

A Communication Interns Journey

Since beginning my position as the Communications Intern for the Office of Student Employment in June 2022, I have been able to learn tangible skills that will better prepare me for a career in communications, marketing, and/or public relations. Some of these skills, such as communication, writing, and editing, have been developed and enhanced upon through various duties assigned to my role, including managing all three of OSE's websites; building and publishing multiple issues of The OSE Column - OSE's monthly e-newsletter for students; developing and executing an email campaign for students; and hosting and publishing episodes for The Learning and Earning Podcast - OSE's official podcast. In this showcase, I will highlight the various skills I have developed through my role at OSE and compare to how the things retained will help me in future endeavors.

SUMMER SEXTON

MAJOR

Media Arts

SUPERVISOR NAME

Holly Lindsey

DEPARTMENT

Division of Undergraduate
Education - Office of
Communicatins & Digital
Strategy

TITLE

Web Development Intern

ePortfolio Showcase: A digital showcase for a digital world

There is no secret that the world we currently live in runs off of technology, and college is no exception. In an era where students are showing their work online, it only makes sense to create a platform for their efforts to be recognized. The ePortfolio Showcase is a collaborative effort between the Department of Undergraduate Education and the ePortfolio Studio to showcase the work that all IUPUI students have put into various ePortfolio creations. It aims to create a searchable database of student ePortfolios that can then be shared by students, faculty, and mentors alike.

ANGELINA VALENTE

MAJOR

Management

SUPERVISOR NAME

Sarah Tosick

DEPARTMENT

IUPUI - Office of the
President

TITLE

Public Relations Intern

My Time as a Public Relations Intern with the IU Office of the President

This showcase provides an overview of the many professional skills I developed while interning with the Office of the President at IUPUI. Primarily, my experience strengthened my skills in researching, professional communications, and managing data using Microsoft Excel. My priority in this internship was to seek out events and opportunities on campus at IUPUI and IU Bloomington for President Whitten to attend or recognize. Additionally, I worked on other projects including creating an internal database of IU research facilities and drafting letters of recognition.

ASHLEY WILSON

MAJOR

Journalism

SUPERVISOR NAME

Allie Wigginton

DEPARTMENT

Division of Undergraduate
Education - Office of
Communicatins & Digital
Strategy

TITLE

Content Intern

Personal Growth as a DUE Intern

As a content intern in the Division of Undergraduate Education, I have had opportunities to grow in so many aspects of my professional and personal life. With this portfolio I will document the work I've done during my time in DUE, my accomplishments, and the ways I've grown. I will also focus on the ways that these accomplishments and skills I've learned will benefit me in the future.

THANK YOU TO OUR 2023 PARTICIPANTS

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DIVISION OF UNDERGRADUATE EDUCATION MISSION

The Division of Undergraduate Education enhances academic success for IUPUI's diverse undergraduate population by coordinating and advancing vital initiatives and resources that amplify personal and collective achievement.

UNIVERSITY COLLEGE MISSION

University College is the academic unit at IUPUI that provides a common gateway to the academic programs available to entering students. University College coordinates existing university resources and develops new initiatives to promote academic excellence and enhance student persistence. It provides a setting where faculty, staff, and students share in the responsibility for making IUPUI a supportive and challenging environment for learning.

FUNDING SOURCES

Duke Energy

Citizens Energy Group

New Skills Ready Network

Indiana Clinical and Translational Sciences Institute (CTSI)

Deans of Purdue School of Engineering and Technology, Indiana University School of Health and Human Sciences, Indiana University School of Informatics and Computing, Indiana University School of Liberal Arts, Indiana University School of Nursing, Indiana University Richard M. Fairbanks School of Public Health, Purdue School of Science, University College

Indiana Center for Musculoskeletal Health (ICMH)

University dollars supported by the office of the Vice Chancellor and Chief Academic Officer

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