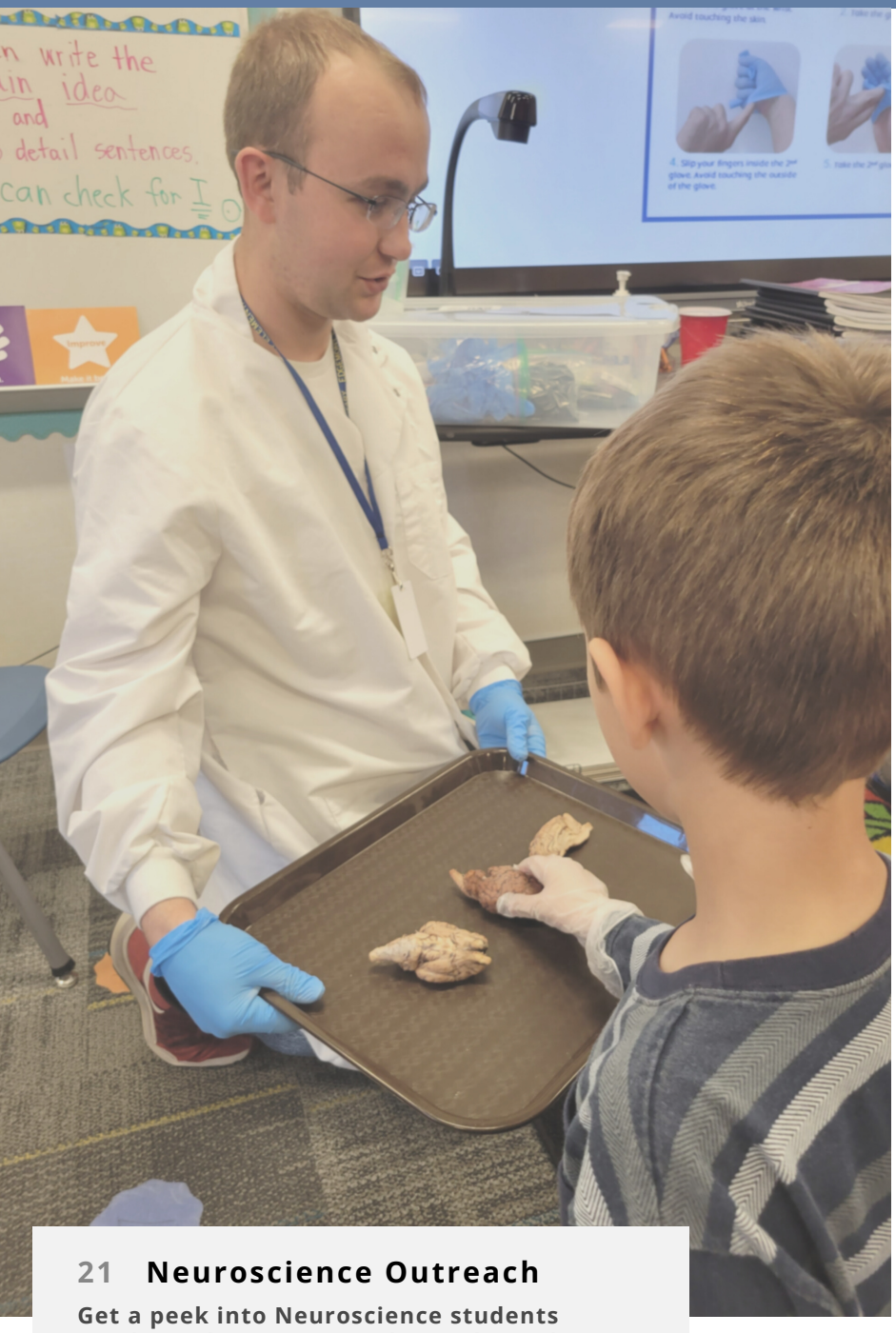
Synapse

BYU Neuroscience Magazine

Winter 2022

SYNAPSE

CONTENTS



Ways to connect with us:

neuroscience.byu.edu

@BYUNeuroscienceCenter

@byu_neuroscience

BYU Neuroscience

Cover artwork by Amulek Brenes, BYU neuroscience undergraduate

MICHAEL VON GUNTEN

3MT THESIS COMPETITION WINNER

The Three Minute (3MT) Thesis Competition is a program that has spread worldwide. Students participating have three minutes to give a presentation based on their thesis. Of course three minutes is not enough to present an entire thesis, so there is only time for essentials.

Michael won first place for the Neuroscience Center and College of Life Science. He represented each at the University Competition in March, where he won third place.

From Michael's research we learn that LSD is a party drug with a bad reputation, but recent research shows that it is actually a very effective treatment for people who have addiction-related disorders. Many studies have shown that this drug can be used to effectively treat addictions to smoking, alcohol and other drugs, but we don't know how LSD is altering the brain to treat these addictions. His research focuses on opioid addiction, and will show how LSD is altering neural pathways to reverse addiction. This will guide development of better treatments for drug addiction, blessing the lives of families and individuals who are affected by addiction.

ANNA EVERETT

2022 NEUROSCIENCE VALEDICTORIAN

Growing up, I watched my mom struggle with an autoimmune disease. Observing her healthcare, I learned that there are many advantages and disadvantages to medical treatments. Although I didn't know exactly what I wanted to do, I knew I wanted to do something in the biomedical field. I always wanted to go to BYU. I thought getting into BYU was the hard part but deciding what to major in was much harder.

When I entered BYU as a freshman, I explored majors in the life sciences and engineering. After two semesters, I left on my mission to Tahiti, still confused about what I should do with my life. From experiences on my mission and shortly afterwards, I had clarity that if I wanted to make the broadest impact in the biomedical field, I needed to pursue research.

I chose the neuroscience major for the same reason that I chose research: to make a difference in the world! Neuroscience is considered the last frontier of the biological sciences. It is the "cutting edge" of biological research because the brain and nervous system were understudied and mis-understood for years. My goal is to expand our understanding of the nervous system in normal and abnormal states, so we can better treat those suffering from neurological diseases.

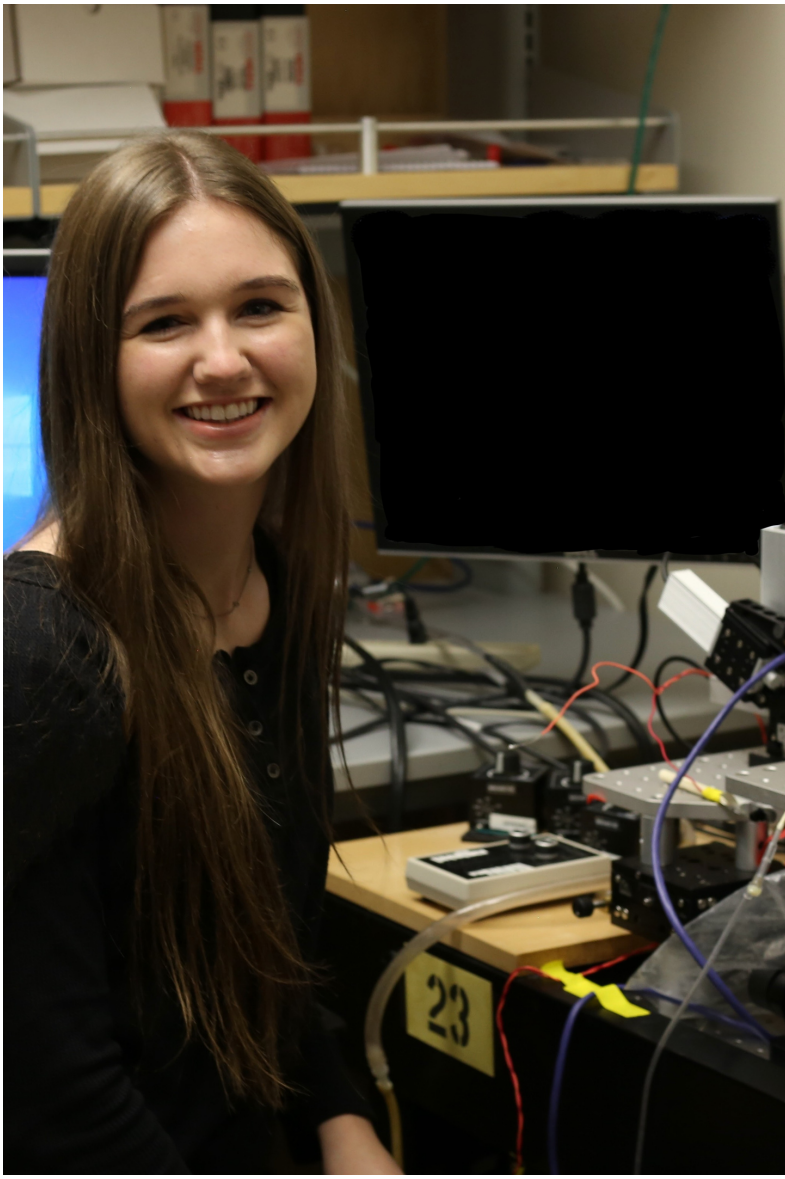
BYU provided me with several opportunities to enhance my college experience and work towards my career goals. First, the BYU neuroscience professors are incredible. They want you to succeed. I remember struggling in NEURO 205 (Neurobiology), and Dr. Matheson met with me several times throughout the semester to give me one-on-one help.

Second, BYU offers amazing opportunities for undergraduate research. I was able to invest my time in two neuroscience labs, under the mentorship of Dr. Jeffrey Edwards and Dr. Jordan Yorgason. With their support, I was able to apply and receive CURA grants, present at conferences, and publish my research!

Third, BYU has countless ways to get involved and serve others. As a student, I joined leadership for Women in Science and the National Alliance on Mental Illness (NAMI). I also worked as a chemistry teaching assistant for a couple of years and discovered that I love teaching and helping students. Whatever your passion is, there is a club you can join or job you can apply for! (If not, you can always start a new club!)

Fourth, BYU facilitates lasting friendships. I am so grateful for the friends I made while at BYU. We suffered through O-Chem; we learned how to pipette correctly; we made it through research presentations; we crammed for finals together. Remember that it's okay to work hard, but please talk to the people around you and make friends. It will enrich your college years more than anything else!

In the coming weeks, I will start working full-time at the University of Utah as a laboratory technician to study a rare pediatric epilepsy syndrome. This will last for one year while I apply to PhD programs. I look forward to applying what I learned at BYU to this job and my future career in research. To conclude, I want to thank my professors, advisors, classmates, friends, and CHEM 105/351 students for an incredible four years! I would not be where I am today without you.



CURA

COLLEGE UNDERGRADUATE RESEARCH AWARDS

CURA (College Undergraduate Research Awards) are undergraduate mentor-based, student-focused awards. CURAs provide funding to students who work with faculty members in the College of Life Sciences an opportunity to participate either in mentored scholarly activities that add knowledge to the scientific community or in a project that adds meaningful value for an appropriate organization.

Funding is awarded by scholarship or in the form of hourly wages in the lab based on the students' preference. Faculty Mentors of the winners also receive funding, $1500, for their respective labs to benefit research and the education of their students.

2022 CURA AWARD WINNERS

STUDENT	MENTOR
Aubrey Moedl	Dr. Steffensen
Austin Schmidt	Dr. Kirwan
Benjamin Stubblefield	Dr. Suli
Daniel-Luke Isemonger	Dr. Woodbury
Emma Nilsson	Dr. Yorgason
Jacob Saunders	Dr. Steffensen
Jared King	Dr. Woodbury
Logan Garr	Dr. Edwards
Morgan Chase	Dr. Kirwan
Nathan Steed	Dr. Steffensen
Nicholas Bever	Dr. Edwards
Shane Lilya	Dr. Suli
Sydney Willden	Dr. Kirwan

Shin Scholarship 2022

The Samuel Injae Shin fellowship was established to honor the memory of Samuel Shin. It helps fellow Neuroscience undergraduates financially so they can pursue their dreams and ambitions.

Winners:

Pierce Bassett
Melissa Blotter
Anne Dallon
Sierra Dixon
Jocob Dodge
Logan Garr
Daniel Isemonger
Ana Paulina Medellin Alvarez
Miguel Angel Numa Ospino
Abigail Penner
Amanda Rowe
Jacob Warner
Brandyn Young

Shawn Gale

Faculty Spotlight
Associate Director of the Neuroscience Center

Dr. Shawn Gale (pictured in the middle) first became interested in how the brain works as an undergraduate when he took a course in biopsychology (that was the name used at the time; now it is called behavioral neuroscience). Shortly thereafter, he volunteered to work in a lab that was studying learning and other behaviors in rats including measuring brain structures. He strongly suggests that students get experience working in a lab and BYU has opportunities for these types of learning experiences.

After finishing a master's degree in experimental psychology, he transitioned to human-focused research as well as clinical training as a clinical neuropsychologist. Clinical Neuropsychology is a specialty in the field of clinical psychology dedicated to the understanding of brain-behavior relationships. Neuropsychology can involve clinical work (i.e., providing diagnostic evaluations to patients with brain injury or illness) as well as research ranging from clinically focused or translational research to more lab-based experimental work.

Initially, his research focused on the effects of traumatic brain injury (TBI) as measured behaviorally and correlated with neuroimaging (i.e., magnetic resonance imaging) based measurements. After working in a private practice in Salt Lake City for three years Dr. Gale took a job at the University of Virginia (UVa) in the department of physical medicine and rehabilitation. While at UVa for 3.5 years and then Barrow Neurological Institute in Phoenix for almost 10 years, Dr. Gale had the opportunity to evaluate patients diagnosed dementia, epilepsy, TBI, stroke, brain tumor, multiple sclerosis, sleep disorders, concussion, anoxia, and various neuropsychiatric disorders.

Thus, his research expanded to reflect those clinical groups and sought to better understand the interactions between neuropsychological or neurocognitive outcomes (e.g., mental function such as memory related to medical conditions or nervous systems injury or disease) and potential predictors that could lead to intervention or prevention of some neurocognitive disorders. In addition, he sought to identify novel risk factors related to neuropsychiatric impairment (e.g., mental disorders like depression related to nervous system injury or disease).

Since coming to BYU in 2011 Dr. Gale has studied the effect of infectious disease on neurocognitive and neuropsychiatric outcomes. He has found that various infectious diseases (such as toxoplasma gondii) are associated with both neurocognitive and neuropsychiatric outcomes. He has investigated multiple viral, bacterial, and parasitic pathogens and found overall infectious disease burden is associated with neurocognitive function. Additionally, one study found that herpes simplex virus type 2 and possibly cytomegalovirus were both associated with depression. Currently, he is involved in ongoing investigations involving the potential long-term effects of exposure to infectious diseases and how they may result in accelerated cognitive decline and dementia.

Eddie Haws

Alumni Spotlight

I grew up in the California Bay area as the 9th of 15 children. We grew up with music constantly in our home. Before I was in middle school our family sang regularly in church settings as our own choir and even sang a few times on the Oakland Temple grounds and at BYU for a workshop my mom was involved in. I played trumpet through high school and really enjoyed playing in the pit for the downtown children's musical theater.

Biology classes were always fun for me along with music. I graduated in 1998, but it wasn't until the latter part of my mission (2000-2002) that I started to think medicine, and perhaps research, could be a career. I got married in December 2002 after a very short courtship and engagement and started at BYU the next week.

My newlywed years at BYU seem like a blur. We had no children, a part time job, attended school full time, and I would spend most afternoons in a lab using rat models of alcohol addiction to learn about reward circuitry in the brain.

By the end of the first semester of school I chose neuroscience after I had looked at all the biology majors and compared them to medical school prerequisites.

The first neuroscience class I took with Dr. Michael Brown would be the beginning of a passion. There was something about how brain biology interacted with human nature that fascinated me. Our consciousness, dreams, intellect, attraction, emotions, memory, and ability to learn and adapt all had some level of dependence on brain function. And when something changed or was injured in the brain, it could lead to a change in some aspect of our nature outside our control. Just as strokes could lead to physical weakness, some traumatic brain injuries, disease, or extreme emotional trauma could alter the way our minds interacted with the world. I also learned that individuals learning to cope with these changes may be misunderstood by others.

I applied to MD/PhD programs, and we moved to Dallas to attend the University of

Texas Southwestern where we lived for the next eight years. By the time we left for residency at Cincinnati Children's Hospital for a five-year program, we had three kids and were headed for another city. Medical learning is often done in the open when someone senior asks someone junior what they know about a topic and everyone else listens to your answer. I didn't know I had anxiety until residency. In those moments I would forget what I was sure I knew only moments before. At the end of every rotation, just as I was getting comfortable, I was pushed into a new role feeling others expected I already knew what I was doing. I was fortunate enough to have an excellent program director and coresidents that created a supportive and family-friendly atmosphere making it possible for me to learn and cope with the stress.

I finished residency in 2019 and we moved with our four kids to Spokane, WA where I work as a General Child Neurologist at Sacred Heart Medical Center. This brought us closer to our roots and to a city we fell in love with immediately. I spend most workdays in clinic and mostly enjoy working with patients and their families. I take about 1 week of call per month which includes seeing inpatient consults and taking phone calls from surrounding Emergency Rooms and primary care physicians. I have a lot of hard conversations with patients and parents regarding the neurological diseases that will often change the course of their lives forever.

Balancing patient quality of life and treatment of chronic and sometimes progressive diseases is a frequent, difficult, and crucial part of medical decision making. Overall, it is a rewarding job and I pray to do it well.

As I look back on this major transition period of our lives, I feel so much gratitude for my wife who was willing to move away from all our family with a newborn at her side. If I could give advice to someone embarking on a career in medicine (or any field that takes you away from your family for extended periods of time), it would be to make your spouse an equal partner in this decision. They may not be reading the same books or working, but they will sacrifice more than you know to keep you and your family afloat.

I have no regrets about my career choice. Not only do I believe the Lord had a guiding hand all along, I also get to work in a field I am passionate about. I get to spend time with kids and families and try to make a positive impact in their lives. With four kids, I have time to enjoy them, their accomplishments, and still date my wife. If medicine or neurology is something you are interested in, go into it with your eyes wide open, include your spouse in your decision, and let the Lord guide your path.

ALUMNI SPOTLIGHT

Matt Peterson

Hello Cougar Neuroscience Nation! I was born in Ogden, Utah where I spent my child-hood chasing any ball I could find. I played sports like soccer, basketball, football, baseball, and golf. When I was 16 we moved to Wilsonville, Oregon where I went to high school. I went on my mission to Taipei Taiwan and when I re-turned I came to BYU. I grad-uated from BYU in 2007 majoring in Neuroscience with minors in Chinese and Chem-istry. I met my wife while at BYU and we now have five children. When I have free time now I like to play games with my family, hike, golf, and run.

My love for neuroscience started when I was 10 years old when my grandfather was diagnosed with Alzheimer's disease. I was so intrigued about how the disease process worked that I decided I wanted to study and learn more about the brain. I took as many health classes as I could in high school to learn more about the human body.

When I finally got to BYU, majoring in Neuroscience was a no-brainer. The Neuroscience classes I took excited me for a career in medicine as I felt it was the best way I could go about helping other people.

As I learned more, I wanted to do more research. I first joined Dr. Sterling Sudweeks' lab at BYU where we studied hippocampal neuronal receptors. The research we obtained gave us the opportunity to present at several conferences across the US. Based on the knowledge I had gained, I then wrote, applied for, and successfully obtained a research grant to do my own research in his lab. Other research options became available, including a summer internship following a neurosurgeon where we put together research about the effectiveness of proton beam therapy on skull-based tumors.

After graduating BYU, I was awarded a research award at the National Institutes of Health to work in the National Institutes of Neurological Disorders and Stroke. While there I worked with and did research for a neurosurgeon studying Syringomyelia. After completion of this grant, I went to medical school at Tulane University School of Medicine in New Orleans, LA and then residency at Texas A&M/Baylor Scott & White Hospital in Temple, TX specializing in anesthesiology which I completed in 2016. Since then I have worked in Sacramento, CA and am now in Utah County practicing as an anesthesiologist.

While in medical school I returned to Loma Linda to work in a lab where we studied the effects of hemorrhages in neonatal rats where the goal was to hopefully provide therapeutic benefits for premature infants who had similar problems after birth. I decided on the field of anesthesiology for many reasons, one of which was how it affected the brain. It fascinated me that I could give a certain medication and for all intents and purposes, turn off the cognitive aspects of the brain for a certain period of time so a normally stimulating event such as surgery could be performed without pain or recall. From being able to inhibit GABA neurons through medications to performing nerve blocks on peripheral nerves thus preventing those nerves from feeling pain for a period of time. I loved the ability to directly and quickly affect the human body, and in particular the nervous system.

Studying neuroscience at BYU has profoundly affected my life. The study habits I developed while at BYU were instrumental in helping me to succeed in my research, and to be successful in medical school and residency. My classes were tough, but I learned how to study hard, so when I got to medical school I already had the tools I needed to succeed. While at BYU I remember Dr. Michael Brown would give some amazing lectures to help us learn neural pathways and other aspects of the field. He also helped me to truly learn by giving us tools like study guides from the chapters in the book that we could use to have mastery for the topic being studied.

I remember walking up and down the aisles in the library with those study questions after I had completed them, memorizing every detail. These skills were so valuable to help me pass such tests as the MCAT and USMLE tests in medical school, and board certification in anesthesiology after residency. So my advice to you is to use the time you have there to develop the study habits that will help you succeed in your future.

Enjoy the time you have at BYU. It is such a wonderfully-unique place and the further out I have gotten from my time there, the more I value it. It is a time full of a lot of questions that deal with one's career, family, life, and much more. But with each decision made and the further you get into life, you realize how impactful the education and environment at BYU is!

ANNUAL NEUROSCIENCE ART CONTEST 2022

The BYU Neuroscience center hosts an art contest every year to celebrate the beauty of the brain, and to support our students in their studies.

Winners:

1st: Amulek Brenes

Duality of Twins

2nd: Ethan Jones

Spectrum

3rd: Celine Timpson

Many Hands

Duality of Twins

Amulek Brenes, *first place*

digital

This artwork represents that everyone's brains are different at birth, and continue to change throughout life. I expressed that by highlighting various brain regions and giving each twin their distinct neurochemistry through colors. The duality and idea of Yin and Yang also influenced me. I imitated the shape of the Taoist symbol by making the twins swirl around each other. Neurodiversity explains that everyone's brain functions differently, but we can find complements in that difference.

Spectrum

Ethan Jones, *second place*
spray paint and acrylic

Spectrum is a work of art centered on the Neurodiverse community. The rainbow and bright colors (which fall on the color spectrum) serve as a symbol and a reminder that all humans are unique and fall on the neurocognitive spectrum. The chaotic placement of the colors represents the challenge researchers face in creating a single unified model of cognition and the black background contrasting with the vibrant colors suggests that there is nothing as magnificent and beautiful as the human brain.

Many Hands

Celine Timpson, *third place*
paint and glue on glass

We have often heard the saying "many hands make light work". The aim of this piece was to show how together, we can improve and uplift, through various world views, cultures, and ways of thinking. Sometimes we have the tendency to reduce everyone to one (i.e. "at the end of the day we all have a brain") but by doing so, lose out on the richness that comes from diversity - both neurologically (anxiety, depression, autism, etc.) and in the field of neuroscience. This piece features several different hands of color supporting a midsagittal view with the cingulate gyrus highlighted, dorsal view of the brain with PFC highlighted, and coronal section in the circles. We can improve together. Together we are better.

GRADUATE STUDENT SPOTLIGHT

Thomas Wasden

About Me

I was born in Ohio and grew up in several different places. I received by Bachelor's in Linguistics, and am currently pursuing a Master's in Neuroscience with research in neurolinguistics. After graduating from my undergraduate program, I spent time working as a software developer. One of my areas of interest is improving computational models of language using neuroscientific research on language processing. Hopefully, applications of this would include automated translation.

Research:
I work in Dr. Steven Luke's Eye-Tracking Lab.

Where I go to relax:
The mountains behind Y-mountain.

Sports:
I go running.

Musical Instruments:
I play the violin.

I would like to learn...
How to draw well.

In my free time I..
I do web design and have a few programming projects at any given time, usually in C#, Python, or Node.js.

My favorite thing about being a BYU Student:
The library. It is enormous, and has tons of physical and digital resources.

Advice for other students:
Be consistent.

What I learned from a professor:
Take time to do things right. It saves time and energy in the long run.

I traveled to Jordan on a study abroad. While there I was able to see petroglyphs and ruins of an amphitheater.

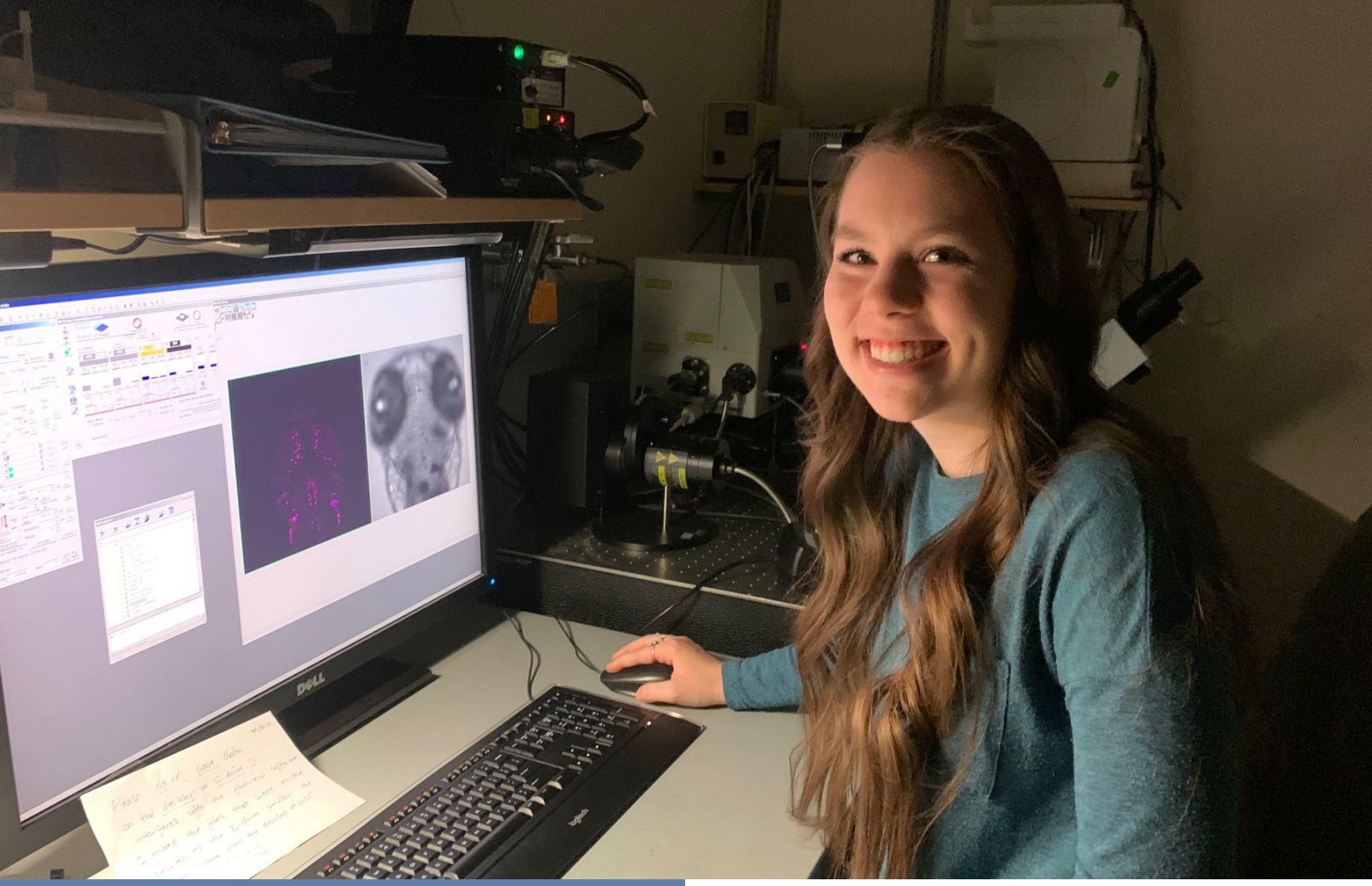
Aubrey Clavines

Research Assistant Spotlight

Dr. Rebecca Lundwall's Cognitive Developmental Lab is researching how stomach bacteria can influence the development of the symptoms of autism spectrum disorder (ASD). When I heard about this research, I thought that it would be a good opportunity to learn more about autism in children and how their families overcome the different challenges that arise.

We recruit 8 to 31-month-old infants and divide them into two groups: The ASD-Sibs group, and the Control group. We then collect fecal samples from each group to observe if there is a common microbiota present in children with ASD. We collect hair samples from parents and children to test and compare cortisol levels between the groups. After processing the samples, we assess their emotional and mental well-being through various questionnaires.

One of the most important things I learned from this research is ways to improve family life in households of children with ASD, especially for parents and caretakers. I was not aware of the number of responsibilities that increase for parents because of their child having ASD, such as finding therapists and overcoming difficulties in learning and forming familial bonds with their children. My research is valuable to me as I am preparing for my future career in pediatric neurology. Dr. Lundwall has taught me how to empathize with not only the children with ASD but also with their parents.



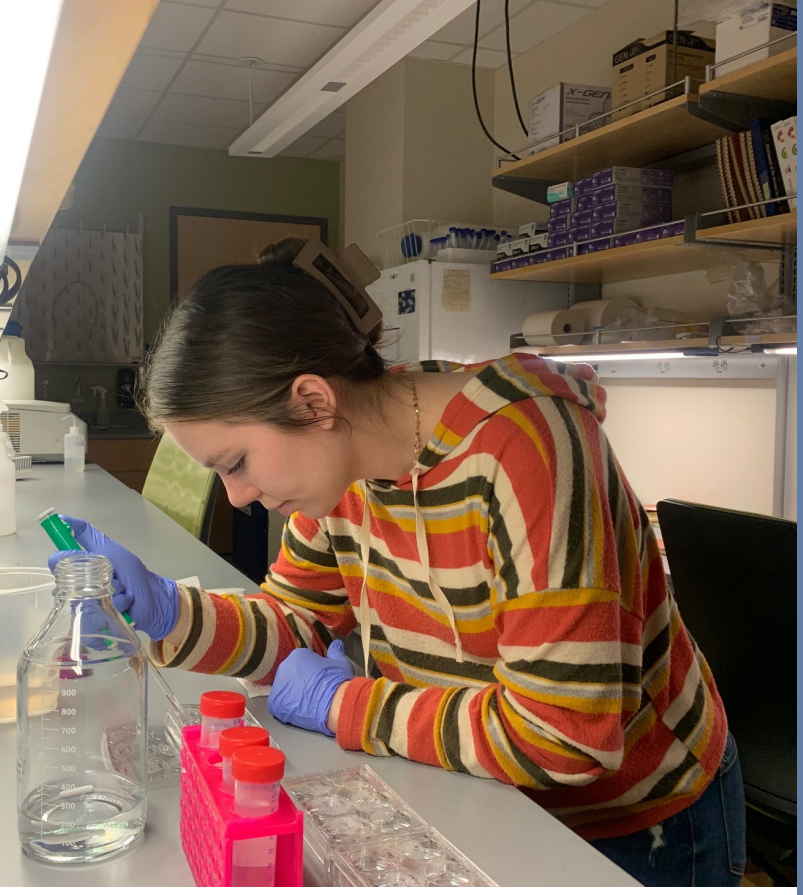
Sierra Dixon

Research Assistant Spotlight

My name is Sierra Dixon, and I am a junior at BYU, studying neuroscience. I love art, classical music, playing sports, and science! I have always enjoyed biology and anatomy classes and my undergraduate experience as a neuroscience student has been incredible, though challenging. My love for neuroscience grows with each semester! I started doing research because I wanted to do something hands-on and important that was related to neuroscience. It has been a very intellectually fulfilling job and I would absolutely recommend research to anyone who is interested. Research requires critical thinking, problem-solving, and a love for science. It has been a perfect fit for me!

Not only am I doing what I love but it also prepares me for future schooling. My current plan is to attend Physician's Assistant (PA) school. My research experience is very valuable in shaping not only my resume but also my future career and character as a PA. Research is incredibly valuable for future graduate and medical students as well.

I would absolutely recommend joining a research lab! I am a research assistant in Dr. Suli's lab, where we study neurodevelopment using zebrafish. I found this lab after searching the neuroscience faculty page for labs that seemed fun, interesting, and also challenging. Dr. Suli's lab immediately caught my eye. I emailed her and we set up a zoom meeting to assess my fit for the lab. The zoom interview went well and I was able to start working in the lab right away. It took some time for me to learn all the laboratory skills because I had very little research experience, but Dr. Suli is a wonderful teacher and I caught on quickly. She was very patient with me but also pushed me to step out of my comfort zone and try new things. She helped me succeed in every way she could. Dr. Suli is a great mentor.

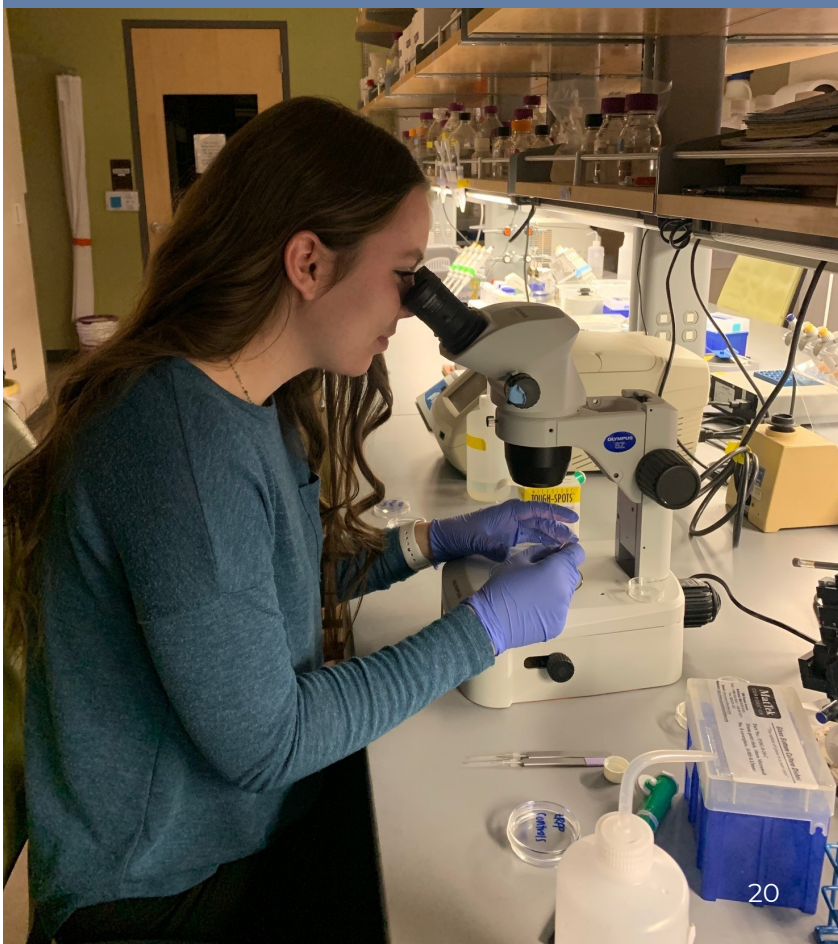


I love working in Dr. Suli's lab because I am very independent and get to run my own experiments, but also be supported. The environment in the lab is fantastic. All the students who work in her lab are all friends and help each other to succeed. As a team, we all work well together even though many of us work on separate projects. My project in particular focuses on the optic tectum in the zebrafish brain. We are researching an epilepsy medication called Valproic Acid (VPA) and its effects on the development of the optic tectum in the brain. Valproic Acid is a medication that prevents epileptic seizures but when taken when a woman is pregnant, it is associated with increased risk of Autism, ADHD, spina bifida, neural tube closure deficits, and even fetal death following prenatal exposure of a baby to its mother's medication. It is important to research how VPA causes these neurodevelopmental defects in order to find a way to prevent them, while still allowing the medication to do its job and treat epilepsy. We have made a lot of progress so far and are working to publish the results of this experiment.

In the experiments I work on, I use a confocal microscope to take images of the optic tectum using lasers . These images allow me to visually and quantitatively track development of the zebrafish embryonic brains.

I also use different genetic lines of fish that allow me to see neuronal morphology, tectal shape, calcium expression and much more! I also run many timelapse videos of the brain. The fish are embedded in a gel that allows them to grow and then I image them on the microscope for up to 16 hours at a time. The videos that result from the images are incredible! We can watch cell division, neuronal growth, and specification in the untreated fish; it is truly a unique experience to watch an animal develop on a cellular level. Unfortunately, when the embryos are treated with VPA; the neurons do not differentiate and often die. Our goal for this project is to rescue these neurons in order to provide an anti-convulsant medication that is not only effective but also safe!

Overall, my time as a research assistant is vital to my education as a neuroscientist. I love my job in research and the challenge and fulfillment it has brought to my life. I have learned hard work, to think creatively, ask questions, and seek answers. I have also learned several skills including teamwork, presentation skills, critical reading skills, and analysis. Most importantly, the people I get to work with are incredible and make the experience just that much better. If you get the opportunity to work in a research lab, I urge you to jump on the chance, it will be life changing.



Neuroscience Outreach with Caylor Hafen

Walking into a classroom with 48 chattering six year olds can be intimidating, but Caylor Hafen ('23) is ready to share in the excitement. Caylor helps run the Neuroscience Outreach program which connects BYU Students with elementary students to teach them about the brain. Caylor starts off by showing these first graders a picture of his brain from an MRI. He explains to the children what an MRI is and reassures them that it does not hurt to have a picture taken of your brain. His presentation is filled with facts and games for the children to practice using different parts of their brains. He even shares stories of when he was in first grade. Many times he found himself filled with anger and ended up in the principal's office because he had a difficult time using his brain to make good decisions.

After having to spend his lunch and recess time in the principal's office, he realized that he could change and use his brain to make good decisions and be happier. Caylor makes the children laugh as he plays "Simon Says" with them to demonstrate using different parts of the brain. At the end of his presentation he gives the children time to ask questions. "Does an MRI hurt?" pops up a few more times. Other questions include "Does your brain tell you if you are hungry?" "Does the brain have blood?" "Does your brain get bigger?" "Are your teeth connected to your brain?" Next the children get a special surprise. They get to touch and feel a real sheep brain. Every child wanted to touch it. Several children described it as "rubbery like a chicken." At the end, children are given pencils and brain erasers and are eager to tell their parents all the new information they learned about brains and boast about touching a sheep brain!

If you know of a local elementary school or class that would like for the BYU Neuro Outreach team to share their presentation with the children you can reach them at byuneurooutreach@gmail.com.

Neuroscience Endowment Fund

Dear colleagues, students, and alumni

Imagine if you could help students achieve their educational goals and learn through experience. The Neuroscience Endowment Fund will provide funding for:

- Scholarships
- Internships
- Experiential learning experiences

All funds go directly to the students. We are asking for your help as we cannot do this without you. Please join us in supporting students in their neuroscience education.

If you wish to donate, please follow the link below:

https://donate.churchofjesuschrist.org/donations/byu/univ-wide-priorities.html?cde2=799-home

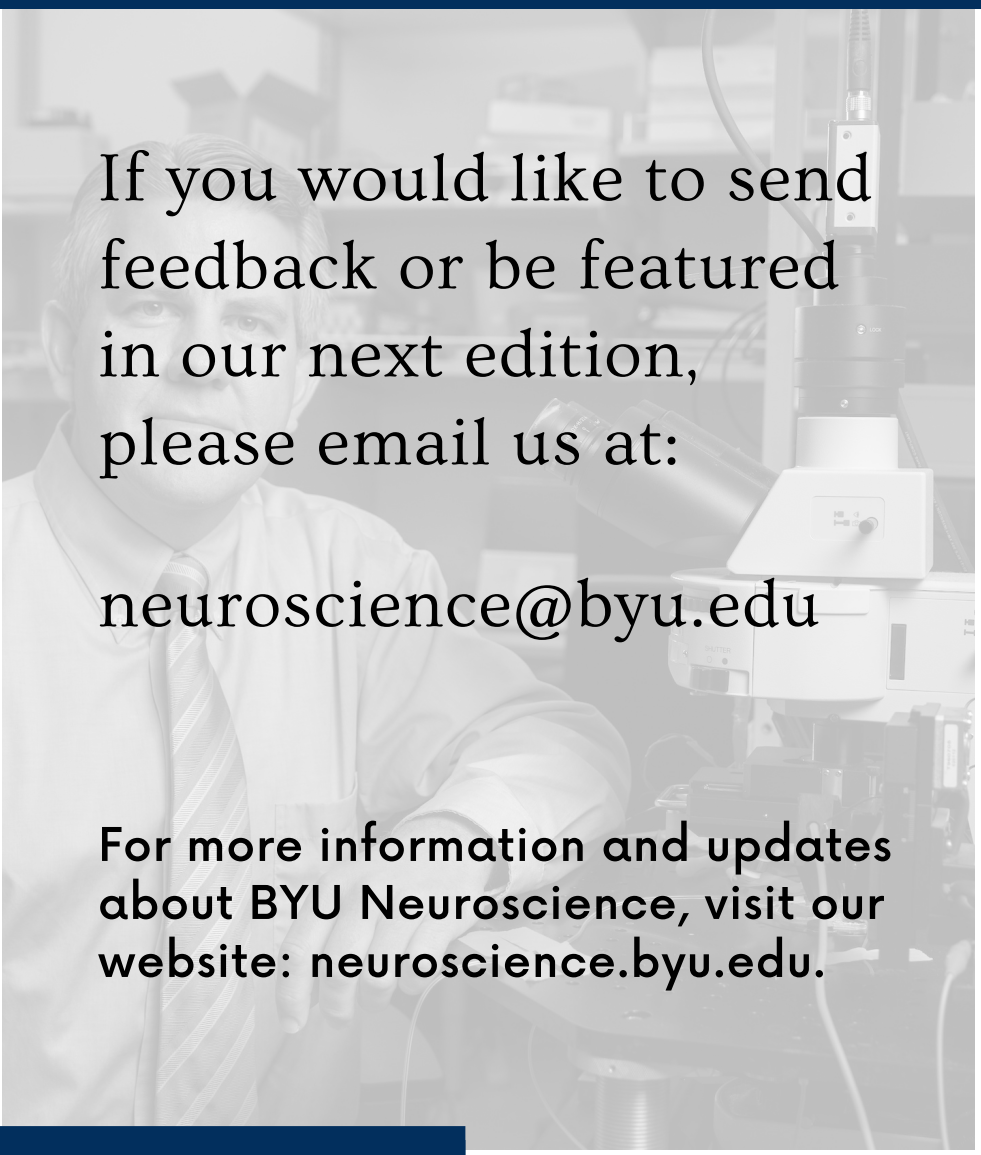
Instructions:

- Search: "Select other funds" box and choose "BYU" under "Other Funds"
- Scroll down to "Neuroscience Annual Fund" and hit "Select" (this will add the Neuroscience Fund Option)
- Enter an amount and then scroll down to the Frequency and Method of Payment sections
- In the section "Add Comment or Memoriam Information," select the "Comments or instructions" box and enter the Neuroscience Endowment Fund to which you would like to donate

We want to thank you for all your generous donations that have changed the lives of so many students and families. We could not do it without you!

BYU Neuroscience

BYU Neuroscience Center
S-192 Eyring Science Center
Brigham Young University
Provo, Utah 84602



If you would like to send feedback or be featured in our next edition, please email us at:

neuroscience@byu.edu

For more information and updates about BYU Neuroscience, visit our website: neuroscience.byu.edu.

All photos and artwork have been used with permission.

BYU Neuroscience Newsletter Issue: Winter 2022

Created by the BYU Neuroscience Center Staff

EXPLORE BYU MAJORS

Please visit https://universityadvisement.byu.edu/major-exploration

BYU NEUROSCIENCE