

THE TRIANGLE TRANSMITTER

2024-2025

Vision and Goals

The purpose of the North Carolina Triangle Chapter of the Society for Neuroscience ([Triangle Chapter SfN](#)) is to boost the [Society for Neuroscience's](#) (SfN) mission locally by bringing together neuroscientists from around the Triangle (Raleigh, Durham, Chapel Hill and surrounding areas) to 1) promote training and outreach programs, 2) provide networking events, 3) facilitate the sharing of information across institutions (academic, government and industry), and 4) engage and educate our community about neuroscience research & industry and its impact on society.

Our revived Triangle Chapter Society for Neuroscience has grown tremendously since its rebirth in 2014. Our chapter routinely provides successful networking, training, and educational opportunities, including our growing annual conference, neuroscience trivia nights, and other educational outreach and social/networking opportunities. *An important vision for the chapter is to maintain and grow these achievements* over the next several years. In addition to the core missions outlined above we hope in the upcoming years to:

1. Build on our Chapter's solid membership network through the engagement of new scientists, industry professionals, and trainees from all of the universities and industry within the triangle, with a particular focus on recruiting the industry and undergraduate neuroscience community.
2. Generate opportunities to support our members' professional development and success.
3. Create new chapter specific diversity initiatives to support the success of all our membership.
4. Develop more opportunities for educational outreach to the public and our local and national governments.

Please refer to the PDF attachments to view the complete 2024 and 2025 Triangle Transmitter

TSfN 2024-2025 Council Members

The Triangle SfN Chapter is proud to recognize its 2024-2025 council members! Council members attend monthly chapter meetings, help to organize regional chapter events, and participate on chapter committee boards. These annually-elected positions are essential to our chapter's success!

Dr. Kati Healey (Durham-VAMC)
Chapter President

Dr. Santosh Mishra (NCSU)
President-Elect/Chapter Representative

Havilah Ravula (UNC-CH)
Sponsorship Committee

Dr. Shannah Witchey (Inotiv)
Program Chair

Yasin Aksu (NCCU)
Treasurer

Dhruthi Yajaman (UNC-CH)
Communication Chair

Varun Indugula (Duke)
Secretary

Dr. Shveta Parekh (UNC-CH/Boston College), **Dr. Janay Hunt** (UNC-CH)
Outreach Committee Chair

Lydia Adams (Wake Forest)
Science Policy Chair

Dr. Eden Harder (UNC-CH)
Membership Chair

Dr. Amir Rezvani (Duke)
Emeritus President and Chapter Co-founder

Council Members: **Dr. Leslie Aksu** (NIEHS), **Dr. Leon Grigorian** (Retired), **Dr. Eric Harris** (Retired Biotech Industry Professional), **Dr. Jesse Cushman** (NIEHS), **Dr. Sophie Bendrath**, **Dr. Becky Klein**

Triangle SfN Membership and Leadership Opportunity

Interested in joining our leadership team? Our Triangle SfN Council meets monthly at the NC Biotechnology Center. Any member is welcome to attend council meetings. We are also specifically recruiting members who would like to become official Council Members and/or join our Chapter Representative and Sponsorship committee teams. If you are interested, please contact our President (Kati Healey kati.healey@duke.edu) or President Elect (Santosh Mishra skmishra@ncsu.edu).

| Triangle SfN Membership | |
|-------------------------|-------------|
| Membership Type | Yearly Cost |
| Regular | \$30.00 |
| Student | \$10.00 |
| Partner | \$25.00 |

Join our membership by visiting our website - <https://www.trianglesfnchapter.org/>

Get in Touch



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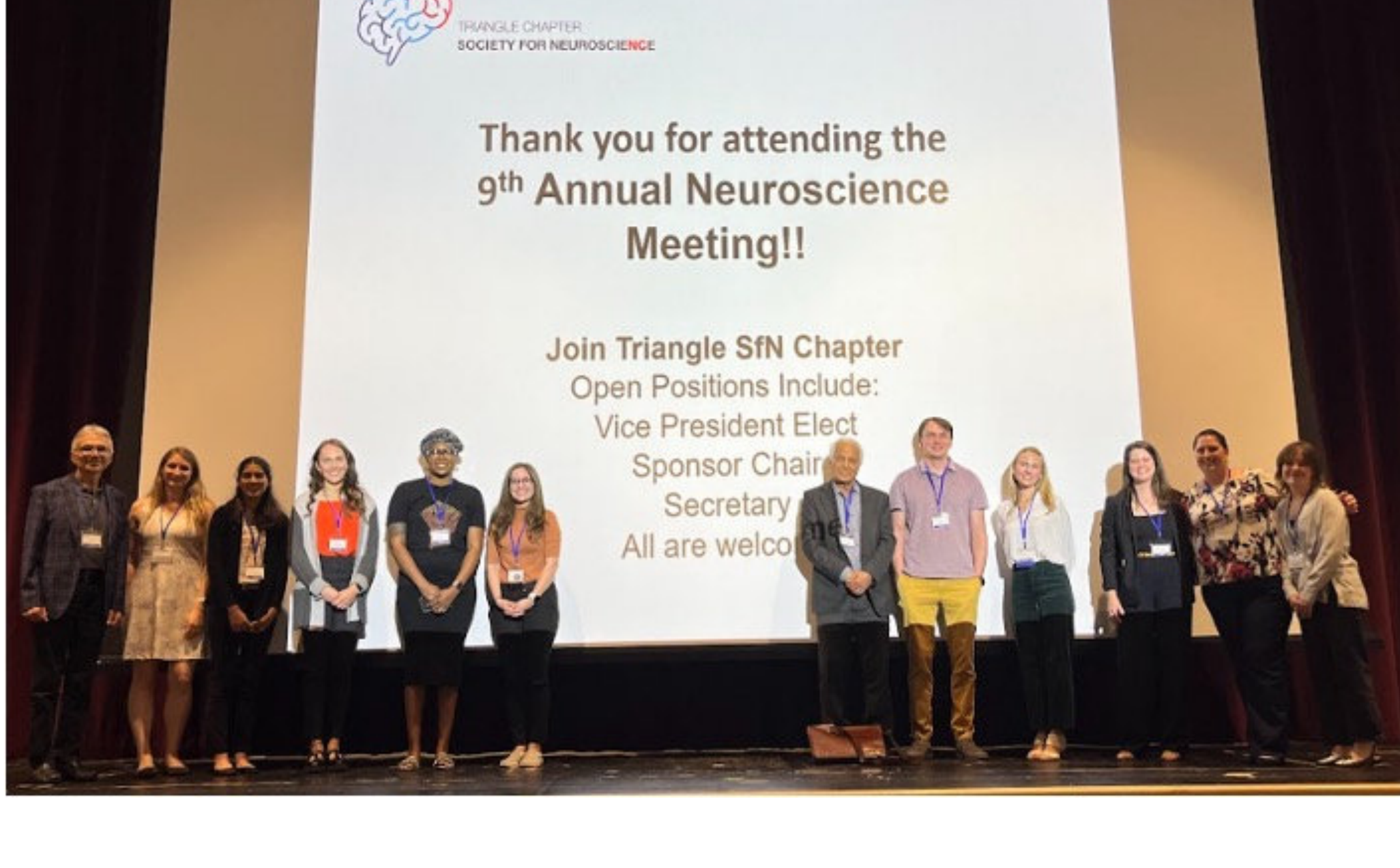


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THE TRIANGLE TRANSMITTER

2024

Triangle Society for Neuroscience Annual Meeting 2024 Recap



The annual Triangle Society for Neuroscience 2024 meeting was held April 7, 2024, at the North Carolina Central University in Durham, NC. Approximately 250 people attended the conference, and over 90 posters were presented! This year's keynote speaker was Dr. Yarimar Carrasquillo, a National Center for Complementary and Integrative Health (NCCIH) senior investigator. Dr. Carrasquillo graciously presented her research which aims to identify brain mechanisms underlying bidirectional modulation of pain, and investigate sex differences in these processes. Her lab utilizes numerous techniques, including cellular physiology, modern molecular genetics, neuroanatomy, and rodent behavioral assays to understand the molecular, cellular, and circuit levels associated with pain-related behaviors.

Based on member nominations, the society invited three distinguished local speakers to give presentations – Dr. Morika Williams (UNC), Dr. Leon Coleman (UNC), and Dr. Guohong Cui (NIEHS). These local neuroscientists presented their innovative research representative of the exceptional and broad neuroscience research being conducted in the Triangle. Dr. Morika Williams investigates the behavioral and neurobiological mechanisms of pain processing, focusing on newborn pain. Dr. Leon Coleman works to identify novel treatments for immune-related conditions in Alzheimer's, addiction, cancer, and trauma, and studies in addiction focus on alcohol use disorder and cocaine use disorder. Dr. Guohong Cui studies voluntary movements in healthy animals and animal models in neurological diseases and makes task-specific neural activity maps through molecular and cellular techniques.

The poster sessions highlighted the research being conducted throughout the Triangle, with more than 90 posters being presented. This was also a wonderful opportunity for graduate students and post-docs from all over the Triangle to network. The poster session also provides a perfect chance to interact with numerous research equipment companies and vendors who graciously sponsor the event.

Brief Summary of 2024 Keynote Lecture



Dr. Yarimar Carrasquillo, NCCIH
Dialing Pain Up and Down in Amygdala

The Keynote Presentation topic was pain processing and regulation by the Amygdala, with particular focus on the role of Central Amygdala (CeA). The experience of pain is not limited to just physical pain. Rather, it is a reciprocal interaction between somatosensory signals and affective states. The presentation reviewed multidisciplinary approaches to study cellular and circuit mechanisms of pain. The CeA comprises two main types of neurons with distinct electrophysiological and morphological characteristics. Of these, CeA-PKCδ cells are GABAergic (i.e., inhibitory type) and pro-nociceptive (that is, they amplify pain), while CeA-som cells are more excitable and anti-nociceptive (that is, they are analgesic and tend to decrease pain). The various CeA cells contribute differently to pain-related aversion, as well as short-term (defined as one week after injury) and chronic (four weeks after injury) types of pain. Modulation of pain-related behaviors by CeA was found to be specific to both cell and circuit types.

Distinguished Local Speakers 2024



Dr. Morika Williams,
UNC



Dr. Leon Coleman,
UNC



Dr. Guohong Cui,
NIEHS

SfN Data Blitz Winners 2024

Data blitz winners are selected by Triangle SfN Council following review of submitted abstracts. The winners present their research at the spring meeting and receive an award.

Graduate

Kalynn Turner (NCSU)
Real-time, voltammetric co-detection of serotonin and glucose at carbon-fiber microbiosensors

Post Doctoral

Yael Grossman (Duke)
Brain-wide network dynamics to selectively target aggressive behavior in real-time

Best Poster Awards 2024

Best Poster awards are based on poster presentations scores provided by volunteer judges. Awardees are given travel awards.

Undergraduate Winners

- 1st Place: John Dong (NIEHS)
- 2nd Place: Madison McDowell (UNC)

Graduate Winners

- 1st Place: Jenna Berger (NCSU)
- 2nd Place: Kimberly Scofield (NCSU)

Post-Doctoral Winners

- 1st Place: Danielle Clark (Duke)
- 2nd Place: John VanRyzin (UNC)



Diversity Enhancement in Neuroscience Research Award

The goal of this award is to honor students who are currently conducting research that aims to advance our understanding of issues that disproportionately impacts underrepresented populations.

Congratulations to the winners of this year's award!



2024 Awardees

- Samuel Chidiebere Uzoechi
- Jade Terry
- Kandace Moore

Thank you to the UNC Psychology and Neuroscience Department for sponsoring this award.

10th Annual Anniversary Party

This past July, Triangle SfN members gathered at the North Carolina Biotechnology Center (NCBC) to celebrate the chapter's achievements over the last year. Highlights of the 2023-2024 year included Brain Awareness Week event at North Carolina Museum of Natural Sciences, and the 9th Annual Spring Conference.

Members were able to socialize during a reception featuring food and drinks. The Triangle SfN executive board and committee chairs provided updates on the status of the chapter.

Thank You to Our 2024 Sponsors!



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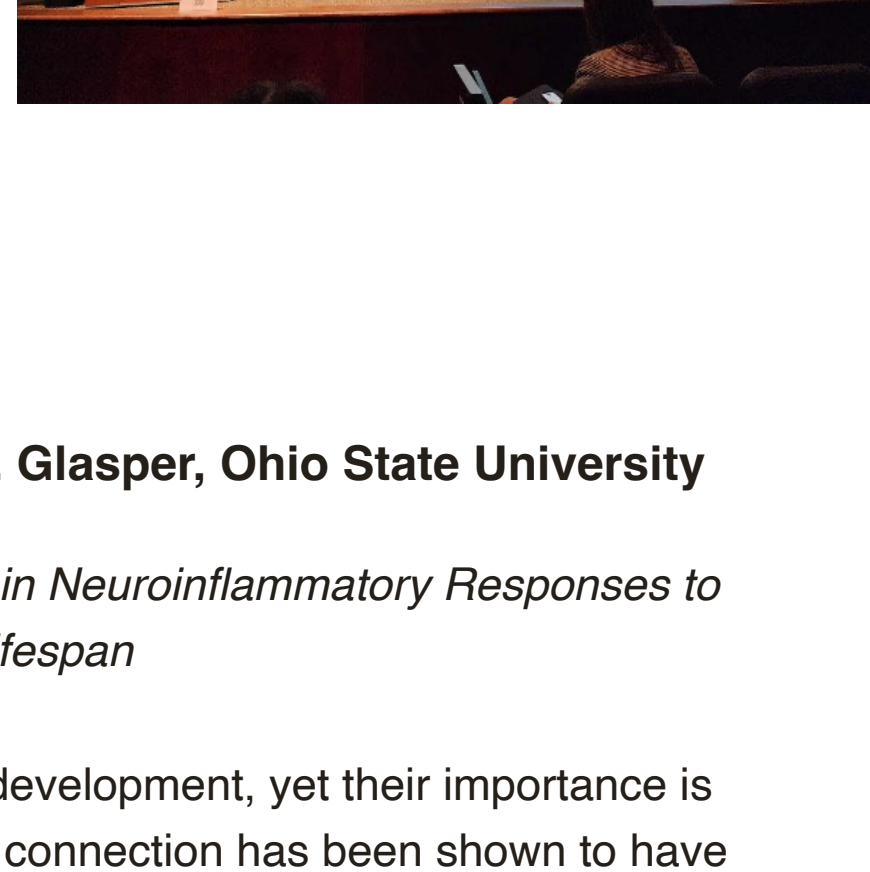


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THE TRIANGLE TRANSMITTER

2025

Triangle Society for Neuroscience Annual Meeting 2025 Recap



Keynote Lecture - Dr. Erica R. Gasper, Ohio State University

Losing It: Unraveling Sex Differences in Neuroinflammatory Responses to Social Bond Disruptions Across the Lifespan

Social interactions play a vital role in development, yet their importance is often underestimated. A lack of social connection has been shown to have serious health consequences, posing greater risks than smoking or high blood pressure. Children raised without both parents face increased risks of child mortality, poverty, behavioral challenges, obesity, and substance abuse. This presentation examines early life adversity using the California mouse (*Peromyscus californicus*)—an ethologically relevant model for studying social attachment and development. California mice are biparental, meaning both parents share caregiving responsibilities. In particular, the father's presence is essential for survival and healthy development; thus, losing the father represents a significant early adverse event. In a laboratory setting, early parental loss was modeled to investigate neurobiological and behavioral dysfunctions resulting from early life adversity. The underlying theoretical approach was based on the neuroimmune network hypothesis. Sex and rearing interact to differentially express neuroimmune- and neuroplasticity-related genes.

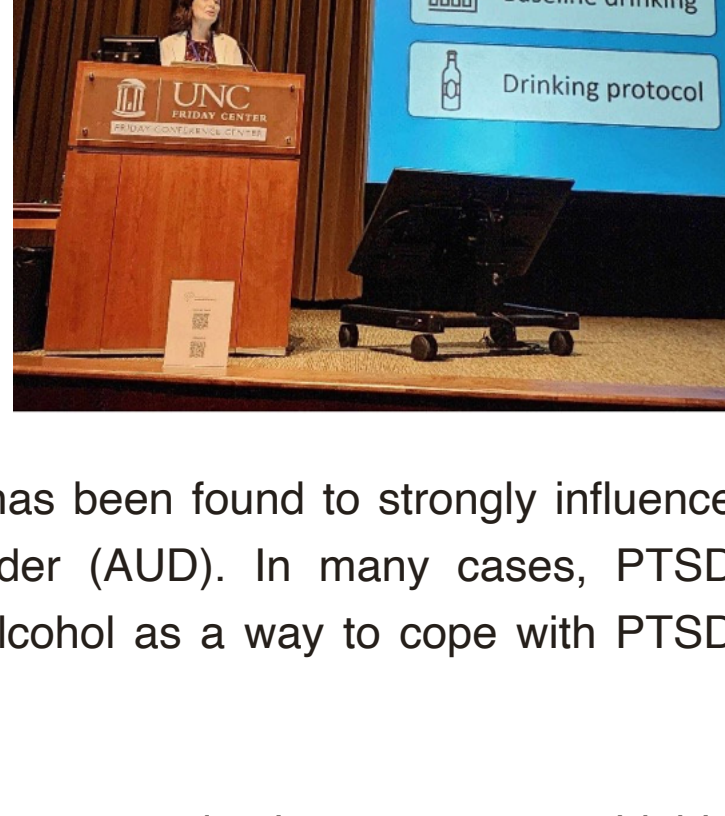
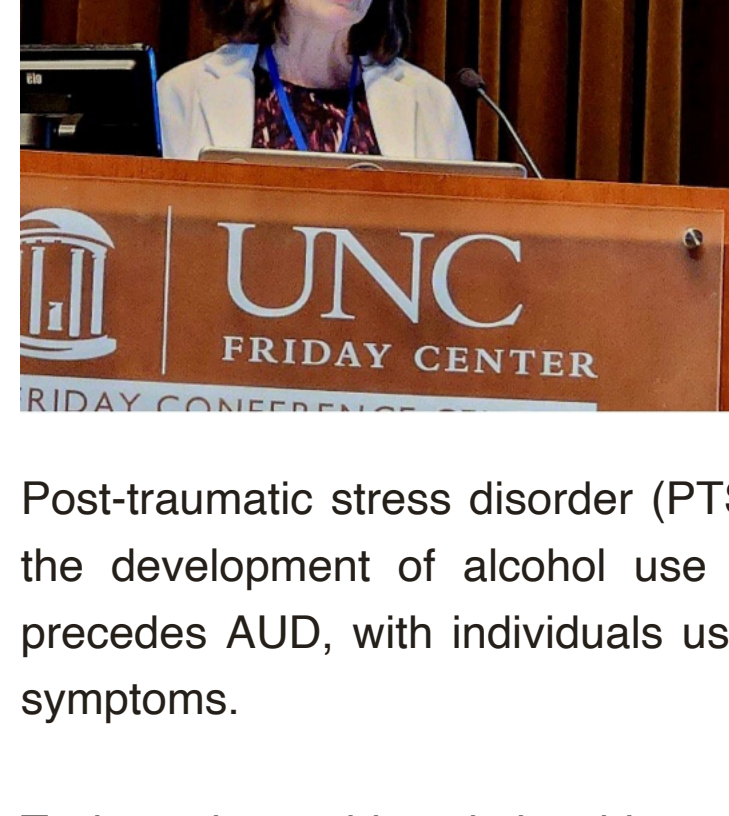
Findings indicate that early parental loss in a biparental species is a distinct form of adversity that profoundly impacts neural plasticity, social behaviors, and inflammatory responses. Understanding the mechanisms underlying these maladaptive changes is crucial for identifying susceptibility to later-life challenges such as injury or disease.

Experimental manipulation of social bonds in a controlled laboratory setting allows for the study of how bonding and bond dissolution affect behavior and physiology. The hypothesis suggests that disruptions in social bonds may trigger a neural-glial response, leading to increased neuroinflammation and impaired neural mitochondrial function through alterations in oxytocin signaling.

2025 Distinguished Local Speakers

Dr. Joyce Besheer, UNC Chapel Hill

Stress and Alcohol: a Potent Mix for Behavioral Change



Post-traumatic stress disorder (PTSD) has been found to strongly influence the development of alcohol use disorder (AUD). In many cases, PTSD precedes AUD, with individuals using alcohol as a way to cope with PTSD symptoms.

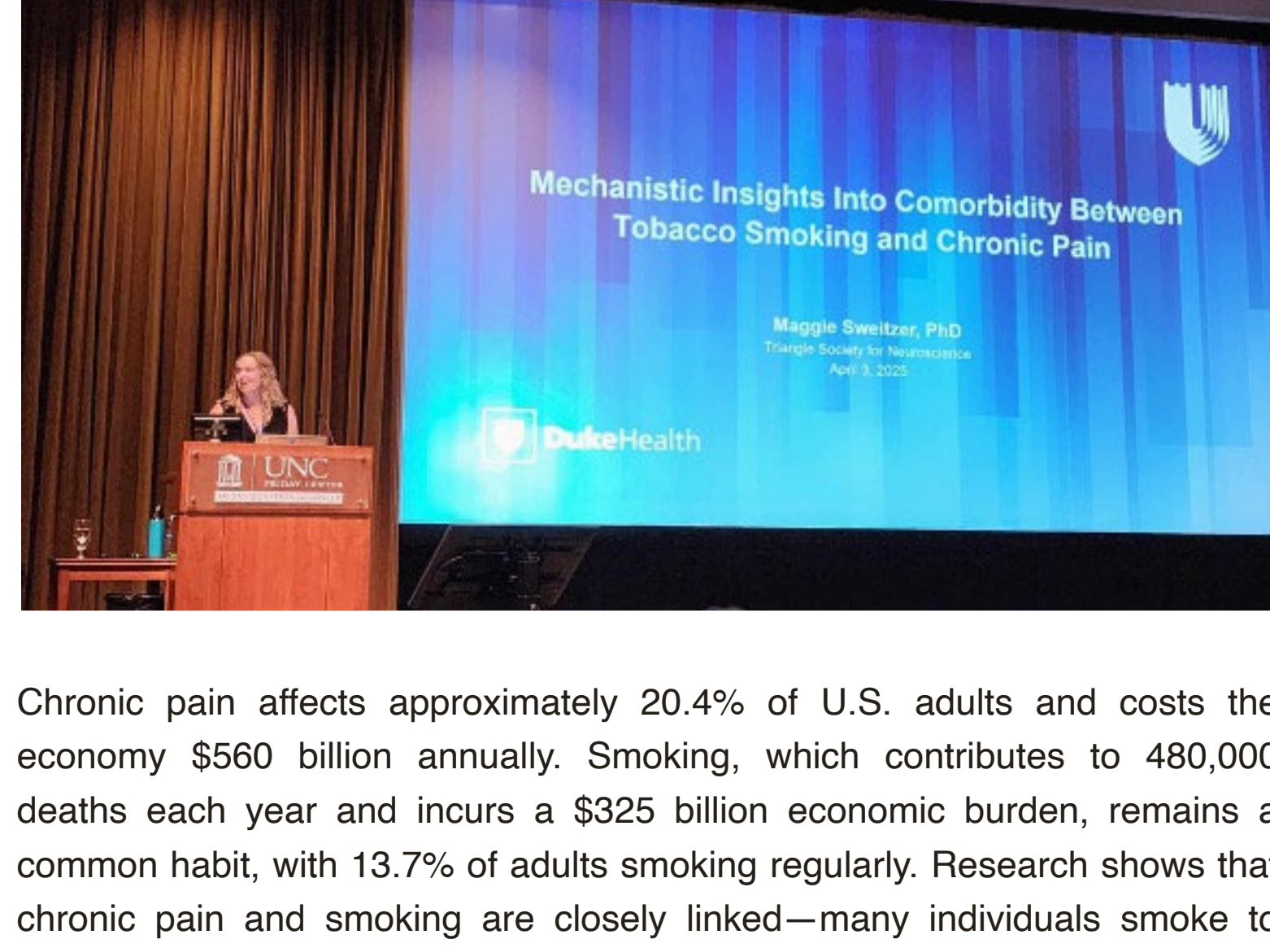
To investigate this relationship, a study exposed mice to an unavoidable stressor: a synthetic component of fox feces known as TMT (2,5-dihydro-2,4,5-trimethylthiazoline). This predator odor triggered prolonged arousal and anxiety responses, elevated plasma corticosterone levels, and lasting behavioral and molecular changes.

The second part of the research explored whether exposure to TMT alters the interoceptive effects of alcohol. Findings revealed that male rats exposed to the stressor showed increased sensitivity to alcohol, while female rats did not. Due to individual differences, most people who experience trauma do not develop PTSD, which is linked to dysregulation of inhibitory GABA and excitatory glutamate processes.

The neurobiological basis of drinking behavior differs between sexes: men tend to drink for stimulation and reward (positive reinforcement), whereas women primarily drink to alleviate stress (negative reinforcement). These findings suggest that male drinking behavior may be more closely associated with alcohol's interoceptive effects, whereas female drinking is driven by stress-related mechanisms.

Dr. Maggie Sweitzer, Duke University

Mechanistic Insights into Comorbidity Between Tobacco Smoking and Chronic Pain

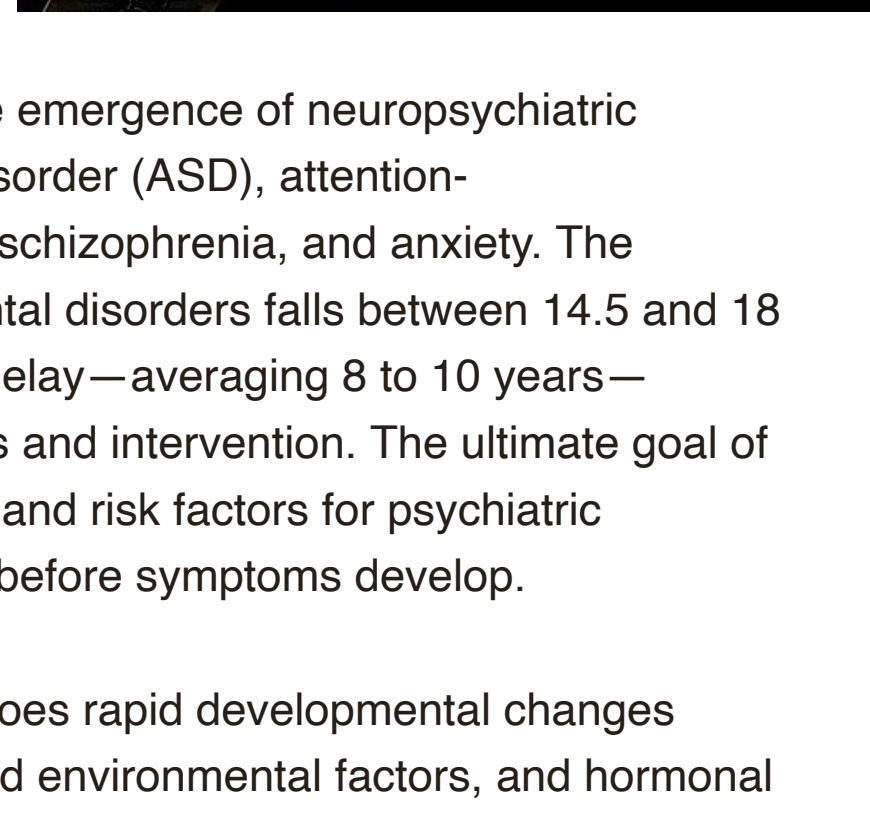
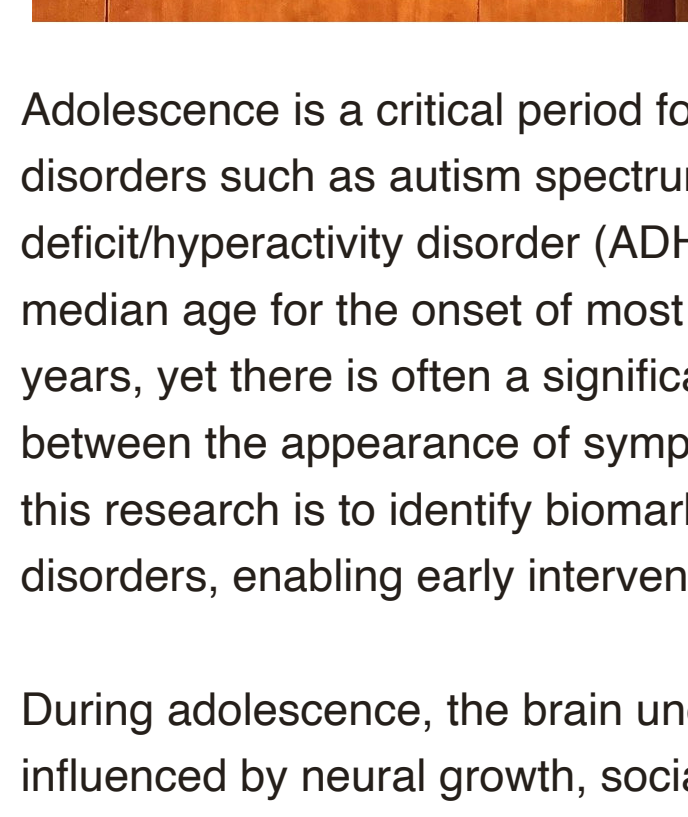


Chronic pain affects approximately 20.4% of U.S. adults and costs the economy \$560 billion annually. Smoking, which contributes to 480,000 deaths each year and incurs a \$325 billion economic burden, remains a common habit, with 13.7% of adults smoking regularly. Research shows that chronic pain and smoking are closely linked—many individuals smoke to manage pain, as nicotine provides short-term relief. However, in the long run, smoking exacerbates pain symptoms. Additionally, quitting smoking can lead to withdrawal-induced hyperalgesia, intensifying pain sensitivity.

To explore the effects of withdrawal on pain-related brain activity and functional connectivity with the inferior frontal gyrus, an experiment was conducted involving individuals who smoke. The findings require replication in a larger sample for validation. As part of the study, Ecological Momentary Assessment was conducted with 35 individuals experiencing chronic back pain. During a baseline week, participants smoked their usual brand of cigarettes. The results suggest that pain serves as a motivator for smoking. Future research will examine differences in withdrawal effects between individuals with and without chronic pain. Additionally, studies will investigate the significance of these effects for those attempting to quit smoking. Ongoing work is also focused on understanding the relationship between smoking, pain, and opioid use disorder.

Dr. Aysenil Belger, UNC Chapel Hill

The Neuroscience of Mental Health in Adolescents



Adolescence is a critical period for the emergence of neuropsychiatric disorders such as autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), schizophrenia, and anxiety. The median age for the onset of most mental disorders falls between 14.5 and 18 years, yet there is often a significant delay—averaging 8 to 10 years—between the appearance of symptoms and intervention. The ultimate goal of this research is to identify biomarkers and risk factors for psychiatric disorders, enabling early intervention before symptoms develop.

During adolescence, the brain undergoes rapid developmental changes influenced by neural growth, social and environmental factors, and hormonal fluctuations. Some brain regions, such as the amygdala, increase in size, while others, like the striatum, decrease. The frontal regions responsible for decision-making and cognitive control mature later than the limbic regions involved in emotional processing. This uneven development recalibrates cognition-emotion interactions, contributing to heightened sensitivity to stress during adolescence.

This research project employs a multimodal and multisystem approach, integrating electrophysiology, autonomic and hypothalamic-pituitary-adrenal (HPA) axis physiology, functional MRI (fMRI), and diffusion tensor imaging (DTI) MRI to gain a comprehensive understanding of adolescent brain development and its relationship to psychiatric disorders.

SfN Data Blitz Winners 2025

Data blitz winners are selected by Triangle SfN Council following review of submitted abstracts. The winners present their research at the spring meeting and receive \$500 award.

Graduate

Kin Gomez (NCSU)

Computer vision analysis reveals HIF-1 mediated dendrite regenerations after hypoxic insult through F-Actin restructuring

Post Doctoral

Ian McConnell (NCSU)

An atopic dermatitis mouse model reveals utility for comorbid depression circuitry studies

Best Poster Awards 2025

Congratulations to our Best Poster Award 2025 Winners!

Best Undergraduate Poster Award - **Valerie Tan Yi Jie**

Best Graduate Poster Award - **Alex Marchi**

Best Post-Doctoral Poster Award - **Dalisa Kendrick**

Letter to Congress - Triangle SfN's Advocacy to Support Research

The Triangle Society for Neuroscience chapter wrote a letter to Congress advocating for research funding and its direct effects on the Triangle area of North Carolina. This letter was signed by members of our committee, and annual conference attendees to show support towards scientific research. Our organization is committed to advancing neuroscience through sustained federal support, and we believe this advocacy is an important step in ensuring meaningful progress for our field and community.

We have attached the letter below for your reference. Thank you for your continued support in promoting policies that strengthen neuroscience research.

Letter to Congress:

Dear Government Representative,

We are contacting you as representatives of the Triangle Chapter of the Society for Neuroscience, a community of neuroscientists, students, and educators from leading institutions across North Carolina. Our chapter is dedicated to advancing neuroscience research, fostering collaboration, and engaging in public outreach to educate the community and policymakers about the critical role of brain research in addressing neurological and psychiatric disorders.

As your constituents who value the importance of scientific research, especially neuroscience research, we urge you to advocate for increased funding for scientific research and initiatives. Science and scientific research drive economic growth and public health. By supporting policies that invest in research, North Carolina can continue to strengthen its economy and improve health outcomes statewide.

The Triangle Area of North Carolina—encompassing Raleigh, Durham, and Chapel Hill—is one of the nation's premier hubs for scientific research, and is home to major research universities and a thriving biotechnology industry. North Carolina's top research universities, including UNC-Chapel Hill and Duke University, are among the **NIH's highest grant recipients**, securing \$531 million and \$580 million respectively in NIH funding last year. These institutions also receive some of the highest Facilities & Administrative (F&A) cost rates, with UNC at 55% and Duke at 61.5%, which help cover essential research infrastructure costs.

However, the proposed F&A cap reductions to 15% could result in **hundreds of millions of dollars in funding losses for universities in the Triangle**, threatening more than **2,600 active NIH-funded projects**. UNC alone employs over 14,000 North Carolinians in research-related jobs and has spun out 310 businesses, contributing \$2 billion in salaries statewide. Other NC institutions, including NC State (52% F&A), Wake Forest (45.5%), and NC A&T (45%), also stand to lose substantial funding, jeopardizing their NIH-supported research programs. UNC System President Peter Hans warned that cuts could disrupt life-saving discoveries, reduce job opportunities, and weaken North Carolina's research-driven economy, urging a broader discussion on the national impact of university research funding.

Further, North Carolina's biotech sector, particularly in the Research Triangle, **heavily relies on federal research funding and academic partnerships**. Additionally, fewer research opportunities in the academic sector mean **fewer biotech startups emerging from universities**, leading to a decline in the number of new companies that have historically contributed to growth in the Research Triangle. In turn, indirect funding cuts could significantly disrupt this region's over **600 life sciences companies**, including industry leaders such as Biogen, Merck, and Pfizer. Statewide, the life sciences industry has experienced rapid expansion, surpassing the 100,000-job milestone in 2023. These positions offer an average annual salary exceeding \$121,000, underscoring the sector's role in providing high-quality employment opportunities.

As scientific advancements in neuroscience continue to shape the future of medicine, ensuring sustained federal investment is paramount. TSfN was founded 12 years ago to promote neuroscience research, education, and collaboration among neuroscientists through annual seminars and lectures. However, proposed funding reductions threaten our state's leadership in neuroscience and biomedical research. Without continued investment, North Carolina's ability to attract and retain top scientific talent, advance scientific progress, and support economic growth will be significantly impacted.

We urge you to support policies that safeguard North Carolina's scientific community by:

- Blocking the proposed **NIH mandate to cap indirect costs at 15%**, which would reduce research funding for NC universities and institutions by \$100 million annually.
- Supporting North Carolina's government research institutions, including the EPA and NIEHS, which collectively employ over 3,000 North Carolinians and conduct critical environmental and health research.
- Advocating for sustained funding for science jobs to ensure both early-career and senior researchers can continue making meaningful contributions to scientific advancements in our state.

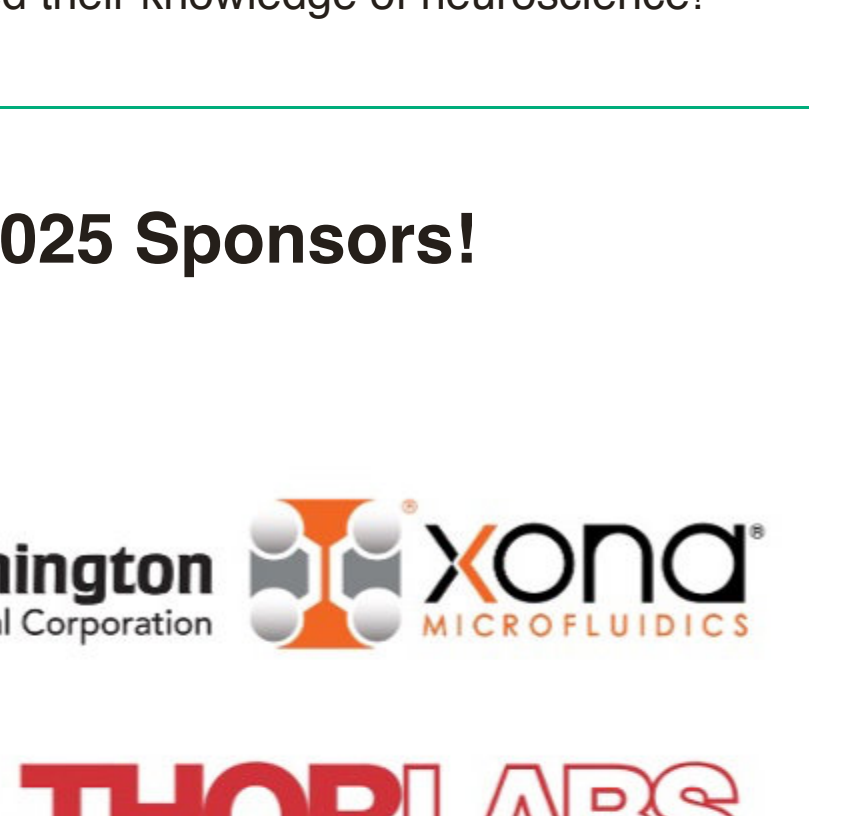
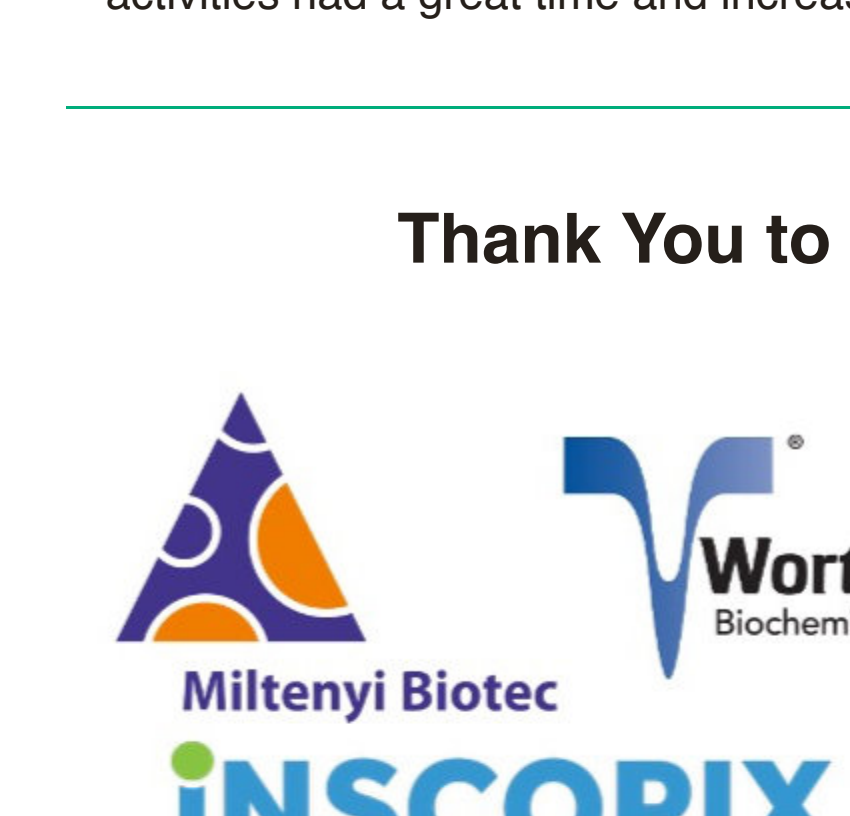
We encourage you to stand with North Carolina's scientific community by advocating for increased funding for neuroscience and biomedical research. Protecting federal investments in science is essential to North Carolina's economic and scientific leadership.

Additionally, we invite you to witness firsthand the groundbreaking research made possible by federal funding at our Triangle SfN Conference on April 3rd from 9:00 AM to 4:30 PM at the Friday Conference Center in Chapel Hill. This event will bring together undergraduate, graduate, and postdoctoral researchers, along with faculty from local universities, to showcase innovative discoveries happening right here in North Carolina. The conference will highlight how federal investment drives scientific advancements that enhance public health, strengthen the economy, and shape the future of medicine. We encourage you to attend to see the profound impact of this funding.

Sincerely,

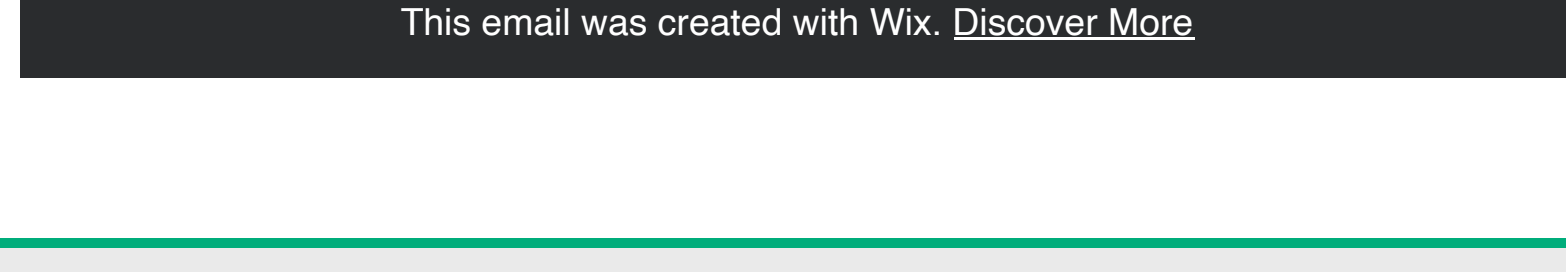
Triangle Chapter of the Society for Neuroscience
Western Carolina Chapter of the Society for Neuroscience

UNC Science Expo and Brain Awareness 2025

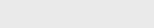


The UNC Science Expo occurred on April 5, 2025, and is an annual science education event that is open to the public. There are over 100 booths that each focus on various science subdisciplines and feature hands-on activities for individuals of all ages. The Triangle Chapter of the Society for Neuroscience participated in this year's expo and included activities such as creating a brain hat, a miraculin experiment, and neuroscience trivia. The brain hat craft required attendees to cut and color two hemispheres and tape them together to create a 3-dimensional hat that displayed the brain regions and related functions. A miraculin experiment was also conducted, where attendees ate a tablet that contains miraculin, which is a protein that modifies taste perception of sour foods and induces a sweet taste instead. Overall, the many attendees of all ages that stopped by the booth and participated in the activities had a great time and increased their knowledge of neuroscience!

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