



Tulane Brain Institute

Building on Over 30 Years of Success

The University-wide Brain Institute was created as a transdisciplinary entity to coordinate and oversee neuroscience-related endeavors at Tulane and brings together faculty from across the University including from the Main Campus, the Health Sciences Campus, and the Tulane National Primate Research Center.

Research at the Tulane Brain Institute is centered on the creation of neuroscience research groups developed around four key research themes that are based on current and emerging research strengths of our faculty. Research groups are comprised of faculty, postdocs, and students from the undergraduate to PhD levels, and supported by the Brain Institute through investment in programmatic initiatives and physical infrastructure. Facilities for the Brain Institute exist at the state-of-the-art Donna and Paul Flower Hall for Research and Innovation on the Tulane Main Campus and at the newly renovated J. Bennett Johnston Building on the Health Sciences Campus.

Total Research Integration: Education & Outreach

Education and training at the Tulane Brain Institute is coordinated by the interdisciplinary Tulane Neuroscience Program, which consists of a nationally recognized undergraduate major in Neuroscience as well as large and successful Neuroscience graduate programs at the Master's and PhD levels. Faculty from across all campuses of the University are actively engaged in training students, and undergraduates have the opportunity to participate in cutting edge research alongside Master's and PhD students in faculty labs at the School of Medicine, on the Main Campus and at the Tulane National Primate Center.

Community outreach and engagement includes large and active programs involving Brain Institute faculty, postdocs, and Neuroscience Program students. Activities include Brain Awareness Week outreach programs in the community, participation in GIST (Girls in STEM at Tulane, and the Tulane Science Scholars Program). The student-run Tulane University Neuroscience Association (TUNA) engages the community in a variety of outreach activities throughout the academic year. The Brain Institute also engages with the Tulane Stroke Survivors Support Group.



The Four Research Themes

Memory & Cognition

A key focus is exploring brain mechanisms that support memory and cognition, examining how memories are made and stored in the brain and how these processes change during normal and pathological aging. Ongoing research into neural processes underlying typical and atypical cognitive development and function has implications for understanding autism, attention deficit hyperactivity disorder, and schizophrenia.

Neurodegenerative Disease, Neural Injury and Repair

Another targeted area includes conducting research on neurodegenerative disease and neural injury resulting from trauma or stroke. Research pathways include an examination of the mechanisms underlying age-related dementias, including Alzheimer's disease. Other avenues include testing the use of adult stem cells as potential avenues for treatment of neurodegenerative diseases such as multiple sclerosis, and new discoveries regarding risk factors and treatments of stroke.

Hormone Brain Interactions

An additional area of expertise is deciphering the impact of hormones on the brain. The research investigating stress and the effects of stress hormones on the brain has implications for understanding depression, anxiety disorders, and posttraumatic stress. The deeper study of how hormones, such as estrogens and androgens, impact the brain across the lifespan may lead to the understanding of mechanisms by which males and females have different biological vulnerabilities to brain disorders.

Brain Body Health

A final major theme is understanding the role of the brain in health and disease. The nervous system is involved in the regulation of the body's glucose levels and related implications for treating diabetes, and unlocking additional secrets will provide a valuable trove of basic and clinical knowledge. These research lines include the role for the brain in the development and treatment of hypertension and obesity, and have resulted in the development of a new drug to treat pain that may be a safer, non-addictive alternative to current pain medications.

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