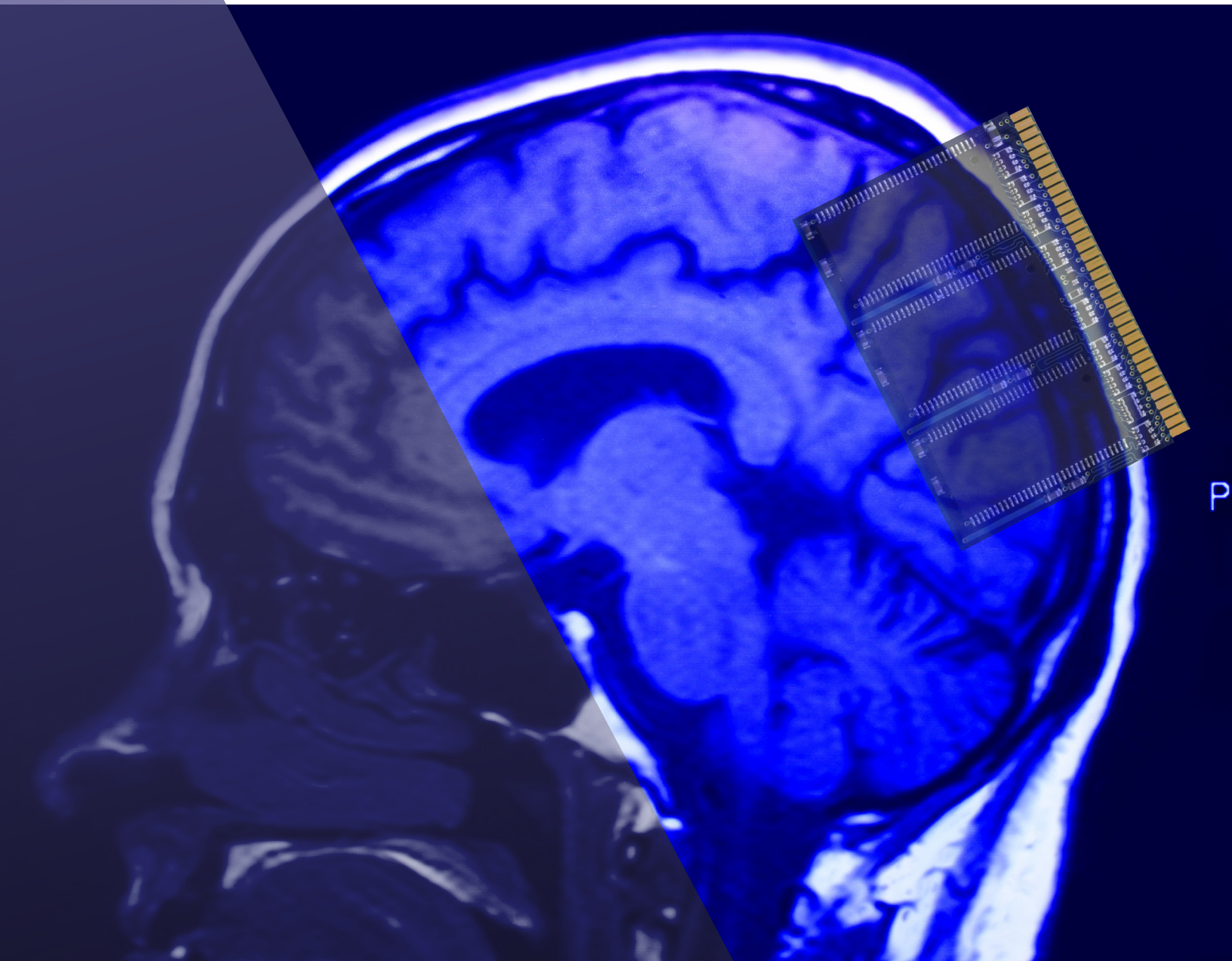


Innovations and Insights

2024 Updates From Lou and Jean Malnati Brain Tumor Institute
of Robert H. Lurie Comprehensive Cancer Center of
Northwestern University at Northwestern Memorial Hospital



Growing our team

Malnati Brain Tumor Institute is delighted to welcome two new neuro-oncology faculty members in 2024: Ditte Primdahl, MD, and Shawn Kothari, MD.



Ditte Primdahl, MD



Shawn Kothari, MD

Their recruitment will enable us to offer care to more patients faster and to expand expert brain and spine tumor care closer to where patients live and work.

We now offer comprehensive brain and spine tumor care at **six** locations throughout Chicago and the surrounding suburbs.



Dr. Kothari practices at Northwestern Medicine Cancer Center Warrenville. Dr. Primdahl practices at Northwestern Memorial Hospital, and her recruitment has allowed us to add brain and spine tumor care in Evanston, alongside Neurosurgeon Matthew Tate, MD, PhD, and Epileptologist Jessica Templer, MD.

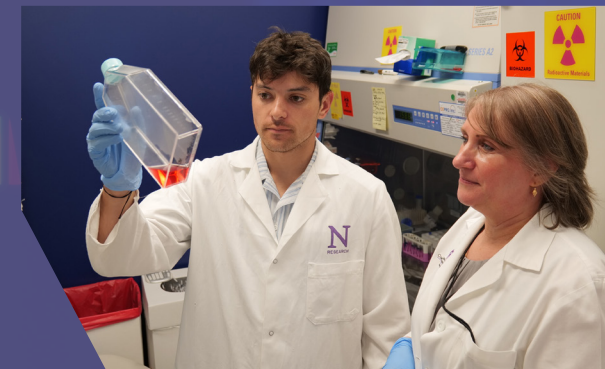
Research updates

Malnati Brain Tumor Institute is dedicated to advancing the standard of care for patients with central nervous system cancers. Our investigators are at the forefront of innovation and research.

Grant funding drives brain cancer research

Irina Balyasnikova, PhD, a researcher at Malnati Brain Tumor Institute, received support from the Charlie Teo Foundation to develop a revolutionary noninvasive imaging technique to monitor if immune therapy is effectively killing cancer cells.

Dr. Balyasnikova's innovative imaging strategy combines standard magnetic resonance imaging (MRI), typical as a part of the care journey, with a technique that uses a tracer to detect cell death. This imaging approach may allow more reliable and earlier insight into immune therapeutic effectiveness.

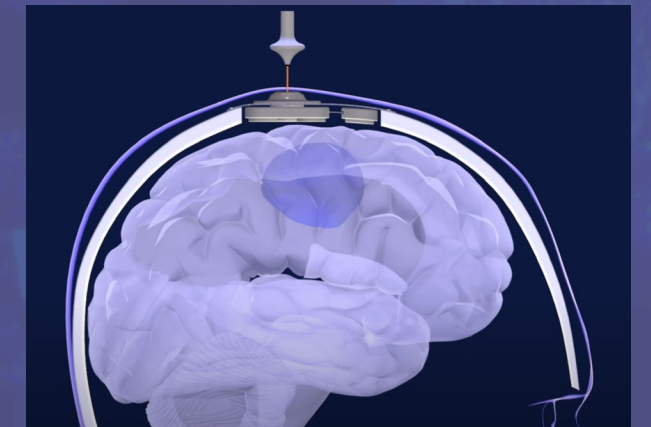


Dr. Balyasnikova will work with fellow experts in molecular and MR imaging to achieve this goal. Her collaborators include Ming Zhao, PhD, associate professor of Cardiology; Daniele Procissi, PhD, research professor of Radiology; and the Center for Advanced Molecular Imaging of Northwestern University.

Novel clinical trial could lead to new glioblastoma treatment approach

Most drugs are ineffective against gliomas because they do not penetrate the brain and are blocked by the blood-brain barrier (BBB). In a major advance that will expand the types of drugs that can now be used for brain cancer, Malnati Brain Tumor Institute investigators have developed a unique strategy that opens the BBB. This allows the entry of anti-cancer immune cells and therapeutics to target glioblastoma, a deadly type of brain cancer.

The study, published in *Nature Communications*, showed that an implantable skull device, which is used to briefly open the BBB, could be used to increase the concentration of chemotherapy doxorubicin reaching the cancer cells. These dying cancer cells can trigger immune responses, but the responses are typically blocked by the cancer. In a one-two punch strategy, a second drug was used to reverse this block on the anti-cancer immune responses.



Skull implantable ultrasound device illustrated.

“This is the first report in humans where an ultrasound device has been used to deliver drugs and antibodies to glioblastoma to change the immune system, so it can recognize and attack the brain cancer,” says co-corresponding author Adam Sonabend, MD. “This could be a major advance for the treatment of glioblastoma, which has been a frustratingly difficult cancer to treat, in part due to poor penetration of circulating drugs and antibodies into the brain.”

Investigators discover new therapeutic target for pediatric brain cancers

Northwestern Medicine investigators have discovered that targeting a protein called TIM3 may increase survival compared to current immunotherapy treatments for pediatric brain cancers, specifically low-grade astrocytoma. This highlights a new option for children with these tumors who have exhausted all other treatments.

“This study lays the translational groundwork for a clinical trial of anti-TIM3 therapy in pediatric patients with pilocytic astrocytoma who are in dire need of therapeutic strategies,” says Malnati Brain Tumor Institute investigator and Pediatric Neurosurgeon Michael DeCuyper, MD, PhD, co-senior author of the study.

New medication shows promise for treating rare brain tumors

An experimental drug may provide a new treatment option for some patients with rare incurable brain tumors, according to an analysis published in the *Journal of Clinical Oncology*.



Adam Sonabend, MD



Catalina Lee-Chang, PhD



Michael DeCuyper, MD, PhD



Karan Dixit, MD

“The results represent a new potential treatment option for patients who previously had none,” says Neuro-oncologist Karan Dixit, MD, who co-authored the study.

A subset of particularly aggressive diffuse midline gliomas is caused by a genetic mutation (H3 K27M). Because the location of the tumor in the brain makes surgery difficult, the only effective treatment is radiation. Relapse is virtually inevitable even with the appropriate treatment.

In the study, investigators analyzed the results of five previous clinical trials testing the effectiveness of dordaviprone, an experimental drug that blocks a certain protein in tumors with the mutation.

“Dordaviprone was shown to be effective in these recurrent histone-mutated gliomas for which we had no management options,” says Dr. Dixit. “Even in situations where the patient has received prior treatment, the cancers tend to come back more aggressive and less responsive to treatment. So, to have a treatment that was not only well-tolerated but had a meaningful response in about 20% to 30% of patients is a major step forward. That may not seem like a lot, but these are patients that we had nothing for before.”

Brain Tumor SPORE grant updates

Last year, Lurie Cancer Center received a renewed Specialized Programs of Research Excellence (SPORE) grant from the National Cancer Institute (NCI) to advance translational research and improve outcomes for patients with brain cancer.

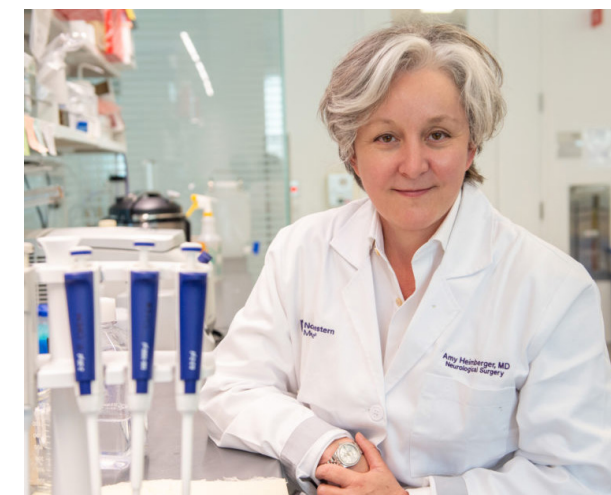
The Lurie Cancer Center Brain Tumor SPORE is one of just six in the country and is led by Maciej Lesniak, MD, professor and chair of Neurosurgery, with projects led by members of the Departments of Neurosurgery and Neurology.

We’re proud to report on two SPORE-funded studies that saw advances this year.

Drug reprograms immune responses to target glioblastoma

Our investigators, in collaboration with a team of investigators at University of Texas MD Anderson Cancer Center, have discovered that using a novel drug to target the STING pathway in glioblastoma reprogrammed previously suppressed immune responses. The recent findings were published in the *Journal of Clinical Investigation*.

The study was co-led by Amy Heimberger, MD, PhD, Jean Malnati Miller Professor of Neurological Surgery and scientific director of Malnati Brain Tumor Institute. The findings show the potential of a novel therapeutic strategy for patients with glioblastoma who do not typically respond to current FDA-approved immunotherapies.



Amy Heimberger, MD, PhD

Preventing glioblastoma growth

Harnessing the body’s B cells to fight tumors may be a promising treatment for glioblastoma, according to a Northwestern Medicine study published in the *Journal of Clinical Investigation*.

“While glioblastoma is notoriously hard to treat, previous research has shown the promise of a new type of therapy that utilizes the immune system’s own B cells to target tumors,” says Catalina Lee-Chang, PhD, assistant professor of Neurological Surgery and senior author of the study.

The most significant finding is the confirmation that our B cell therapies not only can activate tumor-killing CD8 T cells, but a subset of them can infiltrate the tumor and produce therapeutic antibodies. We now have scientific proof that these novel B cell therapies produce therapeutic antibodies that can inhibit glioblastoma growth.

Training the next generation

Supported by the generous philanthropy of Josh VanSwol and Joe Stefani, two Malnati Brain Tumor Institute junior investigators have been selected for pilot funding this year.

Impacting care options and informing future ones

Yufan Yang, mentored by Roger Stupp, MD, co-director of Malnati Brain Tumor Institute, will focus on G34-mutant diffuse hemispheric gliomas. This is a rare, highly aggressive type of brain tumor that affects teenagers and young adults. It currently has few treatment options.

This research project aims to:

- Identify the appropriate patients for treatment for an already developed drug.
- Demonstrate a method to capture more data from previous patients to create better present-day treatment.

Beyond how this project's findings may affect treatment, they may also inform the design of future studies involving rare brain tumors, speeding up the conceptualization of clinical trials and treatment guidelines.

Uncovering insights on epilepsy

Shashwat Tripathi received Malnati Brain Tumor Institute funding for his epilepsy-related work in patients with glioma. Between 40% and 90% of people with glioma have glioma-related epilepsy, depending on the grade.

Even with the latest anti-seizure medications, one-third of affected patients have drug-refractory epilepsy and do not respond to medical treatment. Multiple studies have indicated that the immune system, specifically microglia, may contribute to seizure activity, revealing an exciting therapeutic target.

Shashwat, mentored by Amy Heimberger, MD, PhD, Jean Malnati Miller Professor of Neurological Surgery and scientific director of Malnati Brain Tumor Institute, found that a diazepam binding inhibitor may be a therapeutic target to prevent seizures. In addition, it can help predict survival in people with glioma, suggesting that it may play a role in glioma progression.

This project's long-term goals are to uncover how immune cells facilitate epileptogenesis and use this information to develop therapeutic strategies for treating drug-refractory epilepsy in people with and without glioma.



Yufan Yang, left, and Shashwat Tripathi, right.

More philanthropic opportunities






If you are interested in getting more involved with Malnati Brain Tumor Institute, please consider one of the following options.

Save the date for our signature gala, Minds Matter, making its return on May 9, 2025, at the Ritz-Carlton, Chicago. Held annually in May to recognize Brain Tumor Awareness Month, this is our biggest benefit event of the year. It raises critical funds and awareness that will help us improve care for patients with brain tumors while advancing research.



Our annual rooftop celebration was held on September 11 at Gibsons Italia, and we raised more than \$46,000 benefiting the Malnati Brain Tumor Institute Patient and Family Assistance Fund. This fund helps ease the financial burden of cancer treatment and support services so patients can focus on healing and spending quality time with their loved ones. Contributions at every level directly affect the lives of our patients. Save the date for our next annual rooftop celebration on September 18, 2025, at Gibsons Italia.

Examples of the impact of contributing to the Patient and Family Assistance Fund:

- \$1,500**
40 hours of assistance from a private-duty caregiver 
- \$1,000**
One COBRA insurance payment 
- \$500**
One assistive mobility device, such as a wheelchair 
- \$100**
One night of housing near the hospital for a patient's family 
- \$50**
One co-pay for prescription medication 

To learn more about these opportunities, please email mbti@nm.org.

Catalysts for change

Grace Lee

We are honored to have received a donation from Grace Lee in July. Grace raised funds in memory of Michael Sheeran, a dear family friend who received 17 years of brain tumor care at Malnati Brain Tumor Institute. She made personalized bracelets that spell Michael's name in Morse code and raised \$5,000 in honor of Michael.



Grace Lee, presenting a \$5,000 check.

Grace plans to continue this incredible work, with all money received going toward the fight against brain cancer. Generous acts like these fuel our dedication to better brain and spine tumor care.



Friends and family of Michael Sheeran wearing handmade bracelets with his name spelled in Morse code.

Applause for a Cause

Applause for a Cause is a philanthropic, student-run film production company at Northwestern University. Members write, produce, direct and edit a feature-length film to premiere in May. Each year, they donate proceeds from the premiere to charitable organizations. This year, we were proud to be an Applause for a Cause beneficiary.

"I had the privilege of representing Malnati Brain Tumor Institute at this year's Applause for a Cause, a fantastic student-run fundraising event. The event featured the film *Necromancy 101*, and I was inspired by the creativity and dedication of the students who worked tirelessly to make this happen. The funds raised will contribute to our efforts at Malnati Brain Tumor Institute, helping us move closer to groundbreaking discoveries.



"I am deeply grateful to everyone involved in Applause for a Cause for their generosity and commitment to making a difference in the fight against brain tumors," says Atique Ahmed, PhD, Associate Professor of Neurological Surgery.

Expanding the Malnati Brain Tumor Institute Advisory Council expands our impact

Launched in early 2024, the Patient and Caregiver Advisory Council is a key initiative of Malnati Brain Tumor Institute. The council brings together patients, caregivers, advocates, clinicians and staff to shape the future of patient and family support. The council is committed to addressing the evolving needs of patients and caregivers, ensuring their input is a part of every step of the patient journey.

In its first year, the council launched a Lunch and Learn series, hosted a family day event, and introduced a clinic flower initiative that brings comfort to patients and families. The council continues to grow, offering emotional, social and practical support to patients and their caregivers.

As we continue to grow and learn from the experiences of our community, we welcome your involvement. Your support—whether by joining the council, volunteering, attending events or making a donation—helps us continue to provide compassionate, patient-centered care that makes a lasting impact.

"We can touch lives in innumerable ways. My gratitude for the care my late husband received at Northwestern Medicine inspired my passion to help ease the road for others facing a similar diagnosis. Having been a caregiver for 23 years, I know firsthand the challenges when facing such a difficult diagnosis."



— Terry Tondelli, Chair Patient and Caregiver Advisory Council

To learn more about volunteer opportunities like this, please email mbti@nm.org.



Leading the way

The world-class scientific and clinical expertise within Lurie Cancer Center’s Malnati Brain Tumor Institute enables us to develop and deliver advanced treatments and clinical trials with a compassionate approach.

We are committed to providing the best possible outcomes and quality of life for our patients with brain cancer.

With thanks,

Leonidas Platanius, MD, PhD
Director, Robert H. Lurie Comprehensive Cancer Center of
Northwestern University

Dear friends,

Thank you for your continued support of Northwestern Medicine Lou and Jean Malnati Brain Tumor Institute of Lurie Cancer Center. As we reflect on the past year, we are inspired by the impact we’ve made together and excited about what we can accomplish in the future.

This report highlights just a few of the many accomplishments made possible through your generous support. Your donations empower us to continue our mission to deliver compassionate, high-quality care while driving scientific breakthroughs.

Thanks to your generosity, we’ve made significant strides in advancing our mission. Our team has expanded, allowing us to offer comprehensive brain and spine tumor care at six locations across Chicago and the surrounding suburbs. We have trained future medical professionals who will help lead the way toward better brain tumor care. Our researchers made significant strides with groundbreaking approaches to brain tumor treatment, developing more effective options that could revolutionize patient care. And we brought together patients, caregivers, advocates, clinicians and staff as members of the Patient and Caregiver Advisory Council to shape the future of care.

Malnati Brain Tumor Institute remains a national leader in brain and spine tumor care, research and education, thanks in large part to your ongoing support. As part of Lurie Cancer Center, a Comprehensive Cancer Center as designated by the National Cancer Institute, we offer patients access to leading-edge treatments and clinical trials that may not be available elsewhere. Northwestern Medicine is proud to have five hospitals



ranked among “America’s Best” by *U.S. News & World Report*, 2024 - 2025. Northwestern Memorial Hospital, our anchor hospital, is the only Illinois hospital on the national Honor Roll for 13 straight years and nationally ranked No. 11 for Neurology and Neurosurgery.

You are a vital part of our journey to better brain and spine tumor care. Your continued support makes all of this possible, and we are proud to share these accomplishments with you.

Thank you,

James P. Chandler, MD
Amy Heimberger, MD, PhD
Roger Stupp, MD
Co-Directors, Malnati Brain Tumor Institute



Interested in more than an annual update?
Sign up for our newsletter to get weekly updates on research breakthroughs, patient stories, community events and more.



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