Northwestern Medicine®

Robert H. Lurie Comprehensive Cancer Center of Northwestern University

2023 Annual Updates

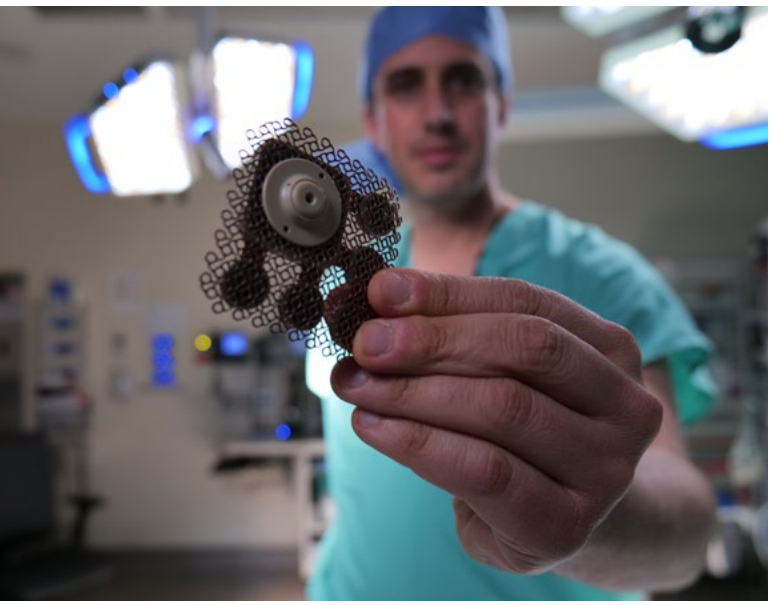
From Northwestern Medicine Lou and Jean Malnati Brain Tumor Institute of Robert H. Lurie Comprehensive Cancer Center of Northwestern University at Northwestern Memorial Hospital

Simpson Querrey Biomedical Research Building

Powerful chemotherapy drug reaches brain tumors in humans using new ultrasound technology

A major impediment to treating glioblastoma has been that the most potent chemotherapy can't permeate the blood-brain barrier to reach the aggressive brain tumor.

Now, a team of investigators led by Adam Sonabend, MD, and Roger Stupp, MD, have reported results of the first in-human clinical trial, published this year in *The Lancet Oncology*. This publication reported that they used a novel skull-implantable ultrasound device to open the blood-brain barrier and repeatedly permeate large, critical regions of the human brain to deliver chemotherapy that was injected intravenously.



The four-minute procedure to open the blood-brain barrier is performed with the patient awake, and patients go home after a few hours. The results show the treatment is safe and well tolerated, with some patients getting up to six cycles of treatment.

This is the first study to successfully quantify the effect of ultrasound-based blood-brain barrier opening on the concentrations of chemotherapy in the human brain. The results showed that opening the blood-brain barrier led to an approximately four- to six-fold increase in drug concentrations in the human brain.

"This opens a lot of possibilities for treating brain diseases with drugs that are already available. These findings have a broad impact, and I hope that this can be leveraged by multiple investigators and physicians exploring novel ways of treating diseases in the brain."

— Adam Sonabend, MD

Brain tumor SPORE receives $10.8-million NCI award renewal

We are excited that Lurie Cancer Center has received a renewed Specialized Programs of Research Excellence (SPORE) grant from the National Cancer Institute (NCI). The Lurie Cancer Center Brain Tumor SPORE is led by Maciej Lesniak, MD, professor and chair of Neurosurgery, with projects led by members of the Departments of Neurosurgery and Neurology. The SPORE is one of just six brain tumor programs in the U.S. to receive the designation and recognizes Northwestern Medicine as a premier institution for innovative translational research.

"We are fortunate to have world-class scientists in the field of neuro-oncology and an impeccable team of clinicians advancing clinical trials in the field. Without the support of the NCI and the neuro-oncology community at large, our work would not be possible, and

it is our most sincere hope and aspiration to make a difference for patients affected with malignant brain cancer," says Dr. Lesniak.

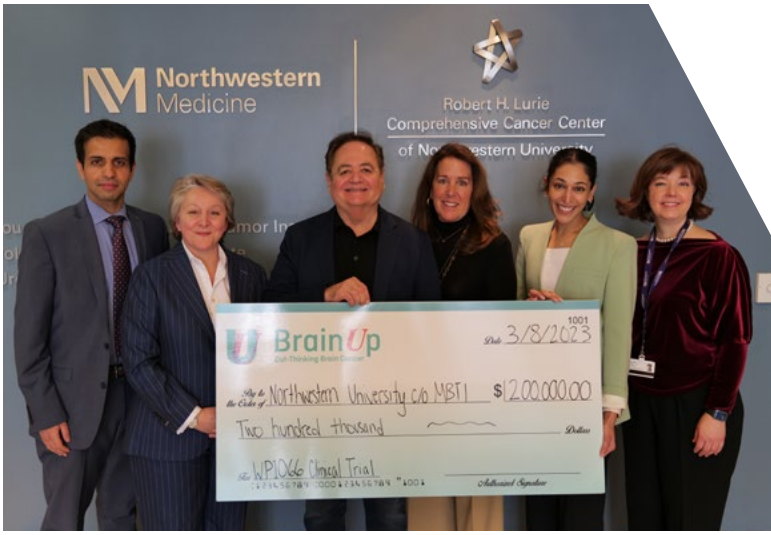
"The SPORE focuses on improving treatment strategies for highly malignant brain tumors and supports key research projects co-led by Malnati Brain Tumor Institute clinical investigators and basic scientists to develop novel approaches. Leveraging the unique strengths of our cancer center, our interdisciplinary teams are advancing better outcomes for people with brain cancer," says Leonidas Platanias, MD, PhD, director of Lurie Cancer Center. "We're excited about the renewal of our NCI Brain Tumor SPORE under the visionary leadership of Dr. Lesniak, and the opportunity to build on our progress."

Brain tumor community partnership

BrainUp is an organization dedicated to the brain cancer community in Chicago. Over the years, BrainUp founders Meg and Dan Kresach (pictured to the right) have found many ways to support Northwestern Medicine efforts toward making strides in brain tumor research and care.

Most recently, they granted $200,000 to Malnati Brain Tumor Institute investigators to support a phase II clinical trial in patients newly diagnosed with glioblastoma who were treated with an immunomodulatory agent (WP1066) and radiation.

This phase II trial is also supported by the NCI. The generous support of BrainUp has allowed for immediate patient accrual and may be used to conduct further correlative biomarker analysis.



From left to right: Sean Sachdev, MD; Amy Heimberger, MD; Dan Kresach; Meg Kresach; Priya Kumthekar, MD; and Virginia Hill, MD

Research updates

Venous thromboembolism

Venous thromboembolism (VTE) is a life-threating blood clotting condition that is common in patients with adult-type diffuse gliomas. Mitigating this risk is more complex in brain tumors than in other types of cancer. As such, VTE prediction models exist for other cancers, but, historically, there has not been anything available to neuro-oncologists.

Now, for the first time, a team of investigators led by Craig Horbinski, MD, PhD, developed an evidence-based risk prediction tool to address this need. This tool is a web-based calculator which is fed basic information about the patient and tumor. Then, the calculator uses that information to calculate a percent of risk at one, three, six and 12 months. This tool is now being used in clinical practice to improve glioma care plans.

Meningioma research

Meningioma research and care advances are a top priority at Malnati Brain Tumor Institute as they are the most common primary central nervous system tumor, accounting for more than 30% of all brain tumors. There are no proven medical treatments for this tumor type—currently, surgery is the mainstay of meningioma treatment. Because it is poorly understood, indications for other treatments, like postoperative radiotherapy, are controversial.

However, this year, a multi-institutional study co-authored by Stephen Magill, MD, PhD, sought to change that. The team of investigators used data from 12 institutions spanning across three continents. They identified a biomarker that predicts meningioma outcomes and radiotherapy responses. This study, published in *Nature Medicine*, has immediate clinical impact as physicians can now make more informed decisions on which patients may respond favorably to radiation-therapy.

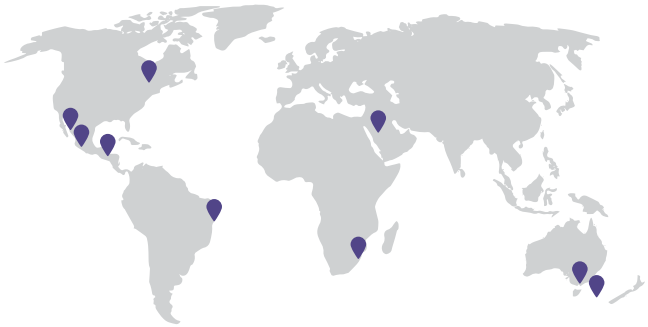
Training the next generation

Since 2019, the Skull Base Lab at Northwestern Medicine has strengthened the training of residents, fellows and practicing surgeons. The lab offers a space for our highly trained faculty to teach using state-of-the-art technologies and hands-on dissection. This creates a more comprehensive and translational approach, better equipping trainees with the skills they need in the operating room, all in a simulated, risk-free environment.

"We initially developed the Skull Base Lab to augment the education of our residents, and it has evolved to now teaching neurosurgeons around the country and around the world how to answer questions that have been in their mind throughout their training. It allows them to refine their techniques by exposing them to new approaches and new technologies that they otherwise wouldn't have access to."

— James Chandler, MD

The lab's biggest educational offering is a three-day course held annually. Physicians from almost every continent have attended the course, indicating its growing international audience, which has tripled since 2021. Shaping the education of surgeons not just at Northwestern Medicine, but around the world, would not be possible without the many stewards of Malnati Brain Tumor Institute.



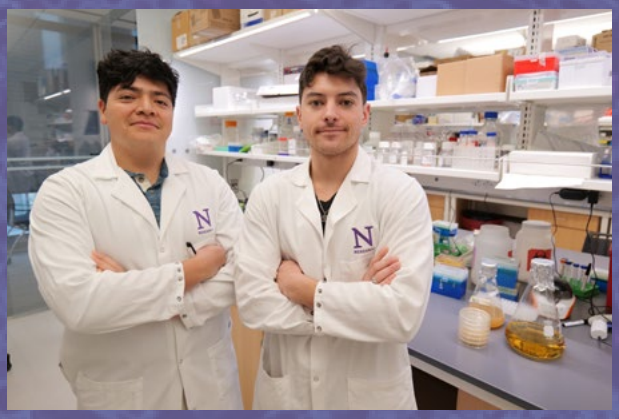
Training the next generation (continued)

Enabled by the generous philanthropic support of Josh VanSwol and Joe Stefani, two Malnati Brain Tumor Institute junior lab members have been selected for pilot funding in 2024.

The recipients whose studies will be supported by these funds are:

Joe Duffy, mentored by Irina Balyasnikova, PhD

Gustavo Cervantes, mentored by Maciej Lesniak, MD



"When it comes to research, I think people like to get from A-to-Z right away... And for us, we see it as a long-term thing. We hope we can provide one more piece of the puzzle."

— Joe Stefani

This support will further the development of their independent research projects under the advisement of their mentors. We are so fortunate to be able to support the next generation of scientists who will shape the future of brain tumor care.

Advisory Council: a volunteer board making a full-time impact

Malnati Brain Tumor Institute volunteers help advance the institute's mission while impacting the lives of patients. The largest coalescence of volunteers is the Malnati Brain Tumor Institute Advisory Council, a passionate group of volunteers dedicated to improving Malnati Brain Tumor Institute.

These volunteers are able to focus on the areas that are most important to them, including a Fundraising Subcommittee and Communications Subcommittee. In addition, they formed a Patient and Caregiver Advisory Council in 2023. The formation of the new council will allow Malnati Brain Tumor Institute faculty and staff to further tailor this program to those at the center of our mission: patients and their loved ones.

Joanie Bayhack and Dianne Rische

The addition of a new subcommitee is not the only change to the Malnati Brain Tumor Institute Advisory Council this year. Since 2021, Joanie Bayhack and Dianne Rische have led the Advisory Council in their roles as co-chairs. In January 2024, Malnati Brain Tumor Institute is excited to welcome Joe Stefani and David Ricci (pictured below) as our new Advisory Council co-chairs.

Joe Stefani

David Ricci

We are so thankful for the years that Joanie and Dianne dedicated to Malnati Brain Tumor Institute. We are grateful they will be staying on to continue advising the council in 2024.

To learn more about the Advisory Council and how you can get involved, please email mbti@nm.org.

More philanthropic opportunities

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

Save the date for our signature gala, Minds Matter, which is making its return on May 10, 2024, at the Hilton, Chicago. This is Malnati Brain Tumor Institute's biggest benefit event of the year. It raises critical funds and awareness that will aid in improving care for patients with brain tumors.

Later in the year, our **annual rooftop celebration** will be held on September 12, 2024. It benefits the Malnati Brain Tumor Institute's 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 make a direct impact on the lives of our patients.

Examples of the impact of contributing to this fund include:

$1,500
40 hours 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.

Leading the way forward

The world-class scientific and clinical expertise within Malnati Brain Tumor Institute enables us to develop and deliver the most effective treatments available.

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

With thanks,
Leonidas Platanias, MD, PhD
Director, Robert H. Lurie Comprehensive Cancer Center of Northwestern University

To all of our supporters—thank you

Malnati Brain Tumor Institute could not continue making strides towards improving brain and spinal tumor treatments without your vital support and community engagement.

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

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

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