

The Official Newsletter of the
Keck Medicine of USC

USC Brain Tumor Center

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USC Norris Comprehensive
Cancer Center
Keck Medicine of USC

USC BRAIN TUMOR CENTER

Report

Volume 6 ■ Issue 3

SUMMER 2026

From the USC BTC Directors



This summer, the USC Brain Tumor Center is building tremendous momentum. Across patient care, research, education, advocacy, and community engagement, our team and supporters continue to move our mission forward with purpose, compassion, and hope.

In this issue, we are proud to spotlight **Paola Mork, Manager of the USC Brain Tumor Center**, whose leadership has been instrumental in the Center's growth. Her work has strengthened our clinical, research, fundraising, communications, and outreach efforts, helping bring people together around a shared vision for better brain tumor care and outcomes.

We also highlight what makes an **academic brain tumor center** so vital. At USC, specialists across multiple disciplines collaborate to develop individualized treatment plans for even the most complex tumors. At the same time, advances in chemotherapy, molecular testing, precision medicine, immunotherapy, targeted therapies, and clinical trials are opening new doors and creating meaningful reasons for optimism.

That commitment to progress includes preparing the next generation. Through our **Summer High School Internship Program**, students gained firsthand exposure to research, clinical care, collaboration, and service. Their curiosity and enthusiasm were inspiring reminders that the future of medicine and science is bright.

Supporting patients and families remains at the heart of everything we do. Our **patient** and **caregiver support**

groups offer a place to share experiences, build connections, and find reassurance throughout the brain tumor journey. No one should have to face a diagnosis alone.

Our community spirit was on full display at the **National Brain Tumor Society's Southern California Brain Tumor Walk & Race at Griffith Park**, where we walked for loved ones, for hope, and for the research and resources patients and families urgently need. We are also proud to serve as Diamond Sponsors of the **American Brain Tumor Association National Conference**, taking place September 18–20, 2026, in Chicago and online. We look forward to continuing this momentum at the **ABTA Los Angeles BT5K** on Saturday, November 7, 2026, at Crescent Bay Park in Santa Monica, and we hope you will join us as we come together to advance awareness, research, and support for the brain tumor community.



Keck Medical Center of USC #1
in Neurology & Neurosurgery
in Los Angeles

We are also deeply grateful to our **Brain Tumor Awareness Month champions: Dr. Dave Aroesty, Willa Chandler, Paola Mork, Carolina Valls and Richard De La Torre, the Self family and the eighth-grade class of Mayfield Junior School, and the Gallagher family**. We also thank everyone who supported individual fundraising efforts and the **Smith Brothers Restaurants' Dinner with a Purpose** events. Your generosity fuels innovative research, strengthens

patient care, expands community support, and brings us closer to the breakthroughs we are all working toward.

Thank you for being an essential part of the USC Brain Tumor Center community. Together, we are advancing discovery, training future leaders, supporting families, and creating new hope for everyone affected by a brain tumor.

Heal on!

Gabriel Zada, MD, MS, FAANS, FACS

Co-Director, USC Brain Tumor Center

David D. Tran, MD, PhD

Co-Director, USC Brain Tumor Center

Josh Neman, PhD

Scientific Director, USC Brain Tumor Center



Treating Brain Tumors: How Chemotherapy, Precision Medicine and Clinical Trials Are Changing Care

By David D. Tran, MD, PhD

Dr. Tran is Co-Director, USC Brain Tumor Center, Division Chief, Neuro-Oncology, and Associate Professor of Neurological Surgery & Neurology at the Keck School of Medicine of USC Department of Neurological Surgery

A brain tumor diagnosis can feel overwhelming. However, treatment is becoming increasingly personalized, based not only on the tumor's location and appearance but also on its molecular characteristics and each patient's overall health, needs and goals.

At the USC Brain Tumor Center, specialists from neurosurgery, neuro-oncology, radiation oncology, neuropathology and other disciplines work together to develop individualized treatment plans. Depending on the **type of tumor**, treatment may include **surgery, radiation therapy, medication, Tumor Treating Fields, Laser Interstitial Thermal Therapy (LITT), immunotherapy**, or participation in a **clinical trial**.

Understanding Chemotherapy

Chemotherapy uses medications to destroy cancer cells or interfere with their ability to grow

Continues on page 2

“Treating Brain Tumors” *continued*

and divide. These medications may be taken by mouth, given intravenously or, in select situations, placed directly into the area where a tumor has been removed.

Unlike surgery, which removes tumor tissue that can be safely reached, systemic chemotherapy can treat cancer cells beyond the visible tumor. However, the ability of each medication to enter the brain varies, and not every type of brain tumor responds to chemotherapy in the same way.

For many adults with glioblastoma—the most common malignant primary brain tumor in adults—treatment typically includes the safest possible surgical removal of the tumor, followed by radiation therapy and the chemotherapy drug temozolomide. Temozolomide is usually taken daily during radiation and then in monthly cycles afterward. This combined approach remains a foundation of treatment for newly diagnosed glioblastoma. Because temozolomide is taken as a pill, treatment can often be administered at home. Most common side effects include fatigue, nausea, vomiting, constipation, and reduced blood cell counts. Supportive medications and regular laboratory monitoring can help the care team manage these effects and adjust treatment when necessary.

The potential benefit of chemotherapy depends on the tumor’s type and molecular profile. For example, a marker known as MGMT promoter methylation may help physicians estimate how likely a glioblastoma is to respond to temozolomide. Other markers, including IDH mutations and 1p/19q codeletion in other types of brain tumors, can help define the tumor type more precisely and guide treatment planning.

Why Are Brain Tumors So Difficult to Treat?

One major challenge is the blood-brain barrier, a network of tightly connected cells and blood vessels that protects the brain from potentially harmful substances. Although this barrier is essential for normal brain function, it also prevents many medications from reaching a brain tumor in effective concentrations.

Some brain tumors also grow into nearby healthy tissue rather than forming a clearly defined mass. Microscopic tumor cells may extend beyond what can be seen on imaging or safely removed during surgery. In addition, brain tumors can be biologically diverse. Even within a single tumor, groups of cancer cells may have different genetic features and respond differently to treatment. A therapy that destroys one group of cells may have little effect on another, allowing resistant cells to survive.

These challenges are driving the development of treatments that target tumors more precisely, improve drug delivery and attack cancer through several mechanisms at once.

Emerging Approaches to Treatment

Targeted Therapies and Precision Medicine

Targeted therapies are designed to interfere with specific mutations, proteins or signaling pathways that contribute to tumor growth. Molecular test-

ing can help determine whether a patient’s tumor contains a feature that may be treated with a particular medication. Some targeted treatments are already available for selected patients. For example, the FDA has approved vorasidenib for certain grade 2 astrocytomas and oligodendrogliomas with an IDH1 or IDH2 mutation following surgery. This illustrates how identifying a tumor’s molecular characteristics can directly affect treatment options.

Not every tumor has a currently treatable genetic alteration, but molecular testing may also help patients qualify for clinical trials studying therapies directed at specific tumor features.

Immunotherapy

Immunotherapy is intended to help the immune system recognize and attack cancer cells. Brain tumors have been particularly difficult to treat with immunotherapy because they can suppress immune responses and contain different populations of cancer cells.

Researchers are evaluating several strategies, including immune checkpoint inhibitors, personalized cancer vaccines and genetically engineered immune cells such as CAR T cells. Most of these approaches remain investigational for primary brain tumors, but they are an active area of clinical research.

Tumor Treating Fields

Tumor Treating Fields, or TTFields, use low-intensity alternating electrical fields to interfere with cancer-cell division. The treatment is delivered through adhesive arrays placed on the scalp and connected to a portable device.

For adult patients with newly diagnosed glioblastoma, TTFields may be used with maintenance temozolomide after surgery, radiation and concurrent chemotherapy. Clinical evidence has shown that adding TTFields to temozolomide can extend survival compared with temozolomide alone. The treatment is also approved in certain cases of recurrent glioblastoma. Because the device generally needs to be worn for much of the day, patients should discuss its potential benefits, side effects and practical considerations with their treatment team.

Improved Treatment Delivery

Researchers are also studying ways to help medications reach brain tumors more effectively. Investigational approaches include temporarily disrupting the blood-brain barrier using LITT, delivering drugs directly into the tumor or surrounding tissue, and using specialized particles or delivery systems to transport treatment to cancer cells. These techniques may make it possible to expose the tumor to higher concentrations of therapy while limiting effects on healthy tissue elsewhere in the body.

Combination Therapies

The future of brain tumor care is unlikely to depend on a single “magic bullet.” Instead, researchers are studying combinations of surgery, radiation, chemotherapy, targeted therapy, immunotherapy, TTFields, LITT and new drug-delivery methods.

The goal is to attack the tumor in several ways at the same time or in a carefully planned sequence. Combination strategies may also help prevent or delay the development of treatment resistance.

Why Clinical Trials Matter

Every treatment that is considered standard today was first evaluated through clinical research. Clinical trials are carefully designed studies that evaluate new treatments, new combinations of treatments or new ways of delivering existing therapies. Depending on the phase and purpose of the trial, researchers may study safety, dosing, side effects or whether an approach works better than the current standard of care. Clinical trials may provide access to investigational medications, immunotherapies, devices or treatment combinations that are not otherwise available. However, an investigational treatment is not guaranteed to be effective, and it may have risks or side effects that are not yet fully understood.

Some patients worry that joining a clinical trial means they may receive a placebo instead of treatment. Placebos are rarely used alone in cancer treatment trials when an effective standard treatment exists. When a placebo is used, a study may compare standard treatment plus the investigational therapy with standard treatment plus a placebo. The study team must explain the design before a patient agrees to participate.

Participation is always voluntary. Before enrolling, patients receive information about the trial’s purpose, procedures, possible benefits, potential risks and available alternatives. They may ask questions and can choose to leave the study at any time.

Even when an investigational treatment does not become a new standard of care, the results contribute valuable knowledge that can shape future research and treatment.

Looking Ahead with Hope

Brain tumors remain among the most complex cancers to treat, and progress does not occur at the same rate for every tumor type. Still, advances in molecular testing, chemotherapy, targeted therapy, immunotherapy, medical devices and drug-delivery technology are steadily expanding the ways physicians can approach treatment.

Researchers at the USC Brain Tumor Center and institutions around the world continue working to translate laboratory discoveries into therapies that may improve survival, preserve neurological function and support quality of life.

For patients and families, learning about the tumor’s specific diagnosis and molecular profile—and asking whether an appropriate clinical trial is available—can be an important part of making informed decisions. Treatment recommendations should always be developed in consultation with an experienced multidisciplinary brain tumor team.

This information is intended for general educational purposes and does not replace individualized medical advice.

Introducing Paola Mork, Manager of the USC Brain Tumor Center, whose leadership, dedication, and vision have played an essential role in the growth and advancement of the Center



Paola Mork, MHA

Paola's path to USC is a story of connection, timing, and purpose. When Keck Medicine of USC made the decision to establish the **USC Brain Tumor Center**, Dr. **Gabriel Zada** was thoughtfully assembling a team to bring his vision to life. Through a remarkable series of connections,

Paola's path crossed with his. Her close friend, Kelly, now a member of the USC Brain Tumor Center Advisory Board, had undergone successful brain tumor surgery under Dr. Zada's care. While Kelly and her husband, Joe, were hosting a dinner to thank Dr. Zada, Paola had the opportunity to meet him for the first time. Later, as Kelly and Joe spoke with Dr. Zada about Paola's role leading the Brain Tumor Program at City of Hope, they recognized a shared vision for advancing brain tumor care. Not long afterward, Dr. Zada reached out to recruit Paola to help build and lead the USC Brain Tumor Center alongside the exceptional team he had assembled.

Paola brings more than 15 years of healthcare leadership experience across academic medicine, research administration, strategic operations, program development, philanthropy, marketing, communications, and community engagement. Since joining Keck Medicine of USC in 2020, she has served as a key operational and strategic leader for the USC Brain Tumor Center, helping guide the Center's clinical, research, fundraising, and outreach priorities with professionalism, precision, and purpose.

In her role, Paola leads and supports complex initiatives across a highly matrixed academic medical environment. Her work includes oversight of Center operations, budget planning and reporting, research administration, executive communications, donor stewardship, community outreach, marketing strategy, and major programmatic events. She supports a multidisciplinary team and broader stakeholder network, helping translate the Center's priorities into measurable outcomes that advance patient care, research, education, and community impact.

Paola's leadership has been instrumental in strengthening the visibility and reputation of the USC Brain Tumor Center both within the institution and throughout the broader community. She has helped lead the Center's communications and outreach strategy, including newsletters, awareness campaigns, public-facing messaging, patient education efforts, and community partnerships. Through her work, the Center has continued to grow as a trusted hub for multidisciplinary brain tumor care, research innovation, clinical trials, and patient and family support.



One of Paola's most significant contributions has been her leadership of the **Southern California Brain Tumor Conference**, the **Center's flagship annual meeting**. Under her coordination, the conference has brought together physicians, researchers, trainees, advocates, patients, and community partners from leading institutions across Southern California, creating an important forum for collaboration and innovation in brain tumor care and research.

Paola's commitment to the brain tumor community extends far beyond the walls of USC. She has worked closely with advocacy organizations, community partners, schools, students, donors, restaurants, and civic leaders to raise awareness and support for patients and families affected by brain tumors. Her efforts have helped connect the USC Brain Tumor Center with organizations such as the **American Brain Tumor Association**, the **National Brain Tumor Society**, **Smith Brothers Restaurants**, and local community advocates. These partnerships have supported brain tumor walks, awareness campaigns, patient-centered programming, fundraising efforts, and community education.



Her advocacy has also helped elevate public recognition of **Brain Tumor Awareness Month**. Through coordinated efforts on behalf of the Center, Paola helped secure acknowledgments from the **State of California**, the **County of Los Angeles**, and the **City of Los Angeles**, expanding awareness and visibility for brain tumor patients, families, caregivers, clinicians, and researchers.

Before joining USC, Paola served in leadership roles at City of Hope, where she supported the Neurosurgery and Brain Tumor Program and the Office of Scientific Affairs. Her experience there

included research administration, grant strategy, budget development, extramural submission management, and coordination across clinical, administrative, nursing, and research teams. This background has given her a deep understanding of the unique needs of brain tumor programs and the importance of connecting clinical care, research discovery, institutional strategy, and patient support.

What truly distinguishes Paola is her initiative, her ability to manage complex priorities, and her deep understanding of the Brain Tumor Center's broader mission. She brings meticulous attention to detail, tremendous follow-through, and the ability to collaborate across multiple teams while keeping the patient and family experience at the center of the work. She is respected by faculty, staff, trainees, administrators, donors, community partners, patients, and families for her professionalism, compassion, and dedication.



Outside of her work, Paola takes great pride in her most meaningful role: being a mother to her two sons, Connor and James. Connor will attend the University of Southern California in the fall, and James will begin his next chapter at Loyola High School. Paola recently celebrated her 20th wedding anniversary with her husband, Rustin, whom she met at USC. Together, they are proud alumni of the University of Southern California, and their deep connection to the Trojan Family continues to be an important part of their personal and professional lives.

Paola's passion for motherhood and her dedication to her career are deeply connected. The same care, strength, commitment, and purpose she brings to her family are reflected in the way she leads, advocates, and supports the mission of the USC Brain Tumor Center. Her work is guided not only by professional excellence, but also by compassion, resilience, and a deep understanding of the importance of family, hope, and community.

In every aspect of her work, Paola reflects the heart of the USC Brain Tumor Center's mission: to advance discovery, provide hope, support families, and improve the lives of those affected by brain tumors. We are grateful for her leadership and proud to recognize the meaningful impact she continues to make at USC and throughout the brain tumor community.

Academic Medical Centers and Community Hospitals: Partners in Your Care

By Rebekah Ghazaryan, MSN, APRN, NP-BC; RN Clinical Coordinator - USC Brain Tumor Center | USC Pituitary Center

When you or a loved one receives a brain tumor diagnosis, deciding where to receive care can feel overwhelming. Patients may wonder whether they should be treated at a community hospital, an academic medical center, or both.



Rebekah Ghazaryan, MSN, APRN, NP-BC

The important thing to understand is that community hospitals and academic medical centers are not necessarily competing choices. They often play different—but equally valuable—roles in a patient's care.

The Role of a Community Hospital

Community hospitals are an essential part of the healthcare system. They provide convenient, high-quality care close to home and are often where patients first receive medical attention, undergo imaging, or receive a diagnosis.

Community hospitals may offer several advantages, including:

- Familiar physicians and care teams
- Convenient access to appointments and services
- Care closer to home, family, and support systems
- Emergency services and treatment for immediate medical needs
- Ongoing management of general health conditions

For many patients, remaining connected to their local physicians is an important part of feeling supported throughout treatment and recovery.

What Does an Academic Medical Center Offer?

Academic medical centers, such as Keck Medicine of USC, combine patient care, medical education, research, and access to specialists who focus on complex conditions.

Within the USC Brain Tumor Center, patients benefit from a multidisciplinary team that may include neurosurgeons, neuro-oncologists, radiation oncologists, neuropathologists, neuroradiologists, advanced practice providers, nurses, rehabilitation specialists, and social workers.

Academic centers may also provide access to:

- Specialists who regularly treat rare or complex brain tumors
- Advanced diagnostic imaging and molecular tumor testing
- Multidisciplinary tumor board review
- Specialized surgical techniques and radiation treatments
- Clinical trials and emerging therapies
- Second opinions for diagnosis or treatment planning

A multidisciplinary tumor board allows specialists from several areas to review a patient's imaging, pathology, medical history, and treatment options together. This collaborative review can be especially helpful when a tumor is rare, located in a complex area, or requires multiple types of treatment.

Working Together for the Patient

Receiving an opinion or treatment at an academic medical center does not always mean leaving your community healthcare team behind. In many cases, the best approach is shared care.

For example, a patient may undergo surgery or receive a specialized treatment at USC while completing certain laboratory tests, imaging studies, rehabilitation services, or routine follow-up appointments closer to home. USC specialists can communicate with community physicians to help coordinate care and provide treatment recommendations.

This partnership allows patients to receive specialized expertise when needed while continuing to benefit from the accessibility, familiarity, and support of their local healthcare team.

When Might an Academic Consultation Be Helpful?

Patients may consider requesting an academic medical center consultation when:

- The diagnosis is uncertain
- The tumor is rare or complex
- Surgery involves a sensitive or difficult-to-reach area
- Several treatment options are available
- A second opinion would provide reassurance
- The tumor has returned or changed
- Standard treatments have not been effective
- The patient is interested in clinical trials or emerging therapies

Seeking another opinion does not mean that a patient distrusts their current physician. Brain tumor care can be complicated, and obtaining additional expertise is a common and appropriate part of making an informed decision.

One Team, One Goal

Whether care begins at a community hospital, an academic medical center, or a physician's office, everyone shares the same goal: providing the patient with safe, thoughtful, and personalized care.

At the USC Brain Tumor Center, we value our relationships with community physicians and hospitals. By sharing expertise, communicating clearly, and placing the patient at the center of every decision, we can work together to provide comprehensive care throughout diagnosis, treatment, recovery, and long-term follow-up.

Patients should feel empowered to ask questions, request additional opinions, and choose the care plan that best meets their medical and personal needs.

Fight On and Heal On!

Honoring Our Brain Tumor Awareness Month Champions

The USC Brain Tumor Center community is made up of an extraordinary group of passionate advocates, patients, families, and supporters who are united by a shared vision: a future with better treatments, improved outcomes, and ultimately a cure for brain tumors.



Nicole Measles

During Brain Tumor Awareness Month in May, members of our community came together in remarkable ways to raise critical funds in support

of the USC Brain Tumor Center. We are deeply grateful to everyone who contributed their time, energy, and generosity to advance our mission.

From inspiring individual fundraising campaigns benefiting the USC Brain Tumor Center to participation in the **Smith Brothers Restaurants' Annual Dinner with a Purpose** events at **Parkway Grill**, **Arroyo Chop House**, and **Smitty's Grill**, our supporters helped generate vital resources that will fuel innovative research, enhance patient care, and accelerate progress toward the breakthroughs we all hope to see.

We would like to extend a special thank you to our **Brain Tumor Awareness Month champions: Dr. Dave Aroesty, Willa Chandler, Paola Mork, Carolina Valls and Richard De La Torre, the Self family and the 8th-grade class of Mayfield Junior School, and the Gallagher family.**

Your dedication, leadership, and commitment are making a meaningful difference in the lives of patients and families facing a brain tumor diagnosis.

Together, we are creating hope and driving change for the brain tumor community.

Supporting Our Brain Tumor Community



USC Brain Tumor Center Participates in the National Brain Tumor Society Los Angeles 5K Walk/Run

The USC Brain Tumor Center is a proud sponsor of the National Brain Tumor Society (NBTS). This spring, on a beautiful sunny California day, our brain tumor community came together in full force for the Southern California Brain Tumor Walk & Race at Griffith Park.

Members of our team raised funds and participated in the Los Angeles 5K Walk/Run to increase awareness and support for brain tumor patients and their families. Dr. Gabriel Zada, Director of the USC Brain Tumor Center, and Dr. Chow were invited to speak at the event. They discussed the importance of community events like this one in raising awareness, advancing brain tumor research, and generating critical support for patients and families. They also highlighted the USC Brain Tumor Center's advocacy efforts and invited attendees to join us in the continued fight against brain tumors. Thank you to everyone who joined us. Your presence, energy, and stories made this year's event unforgettable. We walked for loved ones. We walked

for hope. We walked to fuel the research, care, and resources that patients and families urgently need.

We are deeply grateful to the National Brain Tumor Society for leading the charge and bringing our community together. Their work is changing lives, and we are proud to stand beside them.

To our patients, survivors, caregivers, advocates, researchers, and clinicians: this walk was for you. The momentum does not stop here.

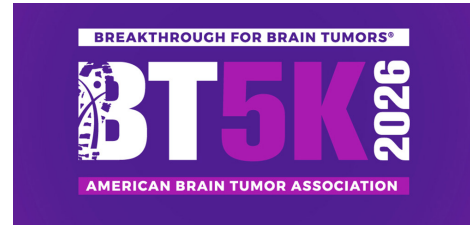


Join us at the ABTA National Conference

We are also proud to serve as Diamond Sponsors of the American Brain Tumor Association National Conference, taking place September 18-20, 2026, in Chicago and online.

This important event brings together patients, caregivers, healthcare professionals, researchers, and advocates to share knowledge, build connections, and advance support for everyone affected by a brain tumor.

We look forward to joining this inspiring community and supporting the American Brain Tumor Association's vital work.



Join Us at the ABTA 2026 Los Angeles BT5K

The USC Brain Tumor Center is proud to announce that we will participate in the ABTA 2026 Los Angeles BT5K on Saturday, November 7, 2026, at 8:00 a.m. at Crescent Bay Park in Santa Monica.

This annual event brings together patients, survivors, caregivers, clinicians, researchers, advocates, and supporters to raise awareness and critical funds for the brain tumor community. We look forward to walking alongside our community in support of those affected by brain tumors and in honor of the loved ones who inspire our work every day.

We are also proud to share that two members of the USC Brain Tumor Center team, **Paola Mork** and **Dr. Aram Modrek**, are serving on the BT5K Host Committee. In addition, two of our directors, **Dr. Gabriel Zada** and **Dr. Josh Neman**, are serving as Honorary Host Committee members. We invite our patients, families, colleagues, and friends to join us for this meaningful morning of community, hope, and action. Together, we can help advance awareness, research, and support for everyone impacted by a brain tumor.

Save the date and join the USC Brain Tumor Center team as we take steps toward a brighter future.

Heal On!

Training the Next Generation - Summer High School Internships at the USC Brain Tumor Center

Each summer, the USC Brain Tumor Center welcomes a talented group of high school students to participate in our Summer Internship Program, an initiative designed to inspire the next generation of physicians, scientists, healthcare professionals, and healthcare leaders dedicated to improving the lives of patients with brain tumors.

Throughout the program, interns gain meaningful exposure to the many facets of academic medicine through hands-on learning experiences, mentorship, and interdisciplinary collaboration. Working alongside faculty, researchers, clinicians, and staff, students explore the fields of neurosurgery, neuro-oncology, clinical research, laboratory science, and patient-centered care while developing a

deeper understanding of the challenges and opportunities in brain tumor treatment and research.

This summer, our interns participated in research meetings, observed clinical activities, contributed to ongoing projects, and learned about the critical role collaboration plays in advancing innovative therapies and improving patient outcomes. Their enthusiasm, curiosity, and thoughtful engagement brought fresh perspectives to our team and reflected the promise of the next generation of healthcare professionals.

Beyond the scientific and clinical knowledge they gained, our interns leave the program with a greater appreciation for the impor-

tance of compassion, advocacy, and service in caring for patients and their families. These experiences help foster not only future careers in medicine and science but also a lifelong commitment to making a meaningful impact.

We extend our sincere gratitude to the faculty, researchers, clinicians, and staff who generously invested their time in mentoring this year's interns.

Their dedication embodies the USC Brain Tumor Center's mission to advance research, deliver exceptional patient care, and cultivate future leaders who will continue the fight against brain tumors for years to come.

Social Work

Your loved one has just been diagnosed with a BRAIN TUMOR. You never thought those two words would be in your vocabulary to describe anyone in your family, and yet here you are. Brain tumor treatment is about to start and though the doctor has answered all of your questions, you feel anxious about the road ahead, how best to support your family member, how to care for yourself amidst it all and what to expect.

Support groups can be incredibly helpful for people in these types of situations. In a support group, you can speak with others who might have the same types of worries as you. Being able to speak openly about your

unique situation and feel a sense of camaraderie, can be a great source of comfort. For some, it can also be a place to learn tips and tricks of how to adjust to life, such as going back to work after a brain tumor diagnosis. There have been solid bonds that have formed with support group attendees, and I have been honored to see these relationships flourish.

To feel like you're not alone can help lighten the weight of any situation, especially when you or a loved one has a brain tumor. If you're interested in joining either our Brain Tumor Patient Support Group or our Brain Tumor Caregiver Support Group, please email Jinsy.Rogers@med.usc.edu.

Keck Medicine of USC
USC Brain Tumor Center



Join Our
Brain Tumor Patient Support Group

This group is open to any patient with a primary brain tumor (not metastatic).

When: Every 3rd Wednesday of the Month Time: 12 PM - 1 PM	Where: Contact Jinsy Rogers for the Zoom Link Facilitator: Jinsy Rogers, LCSW, OSW-C.
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WHY JOIN?
 A safe space for connection and support
 Share experiences with others who understand
 Learn coping strategies and resources.

For more information, please contact:
 ✉ Jinsy.Rogers@med.usc.edu
 ☎ 323-865-6057

Brain Tumor Patient Caregiver Support Group



When: Second Thursday of each month 4-5 p.m.
Location: Remote, via Zoom

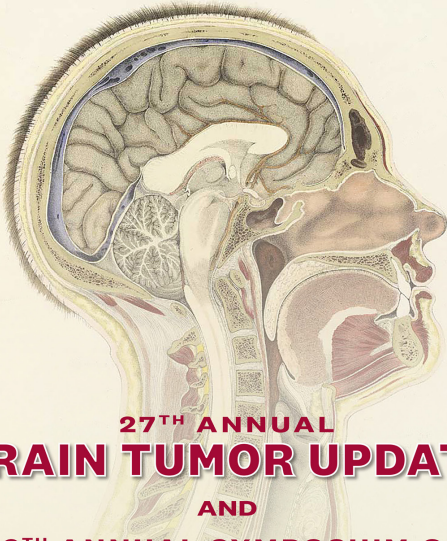
Contact for Zoom link:
 Jinsy Rogers, LCSW
 (323) 865-6057
jinsy.rogers@med.usc.edu

Questions? Contact:
 Jinsy Rogers
 or
 Nancy Hart, Nurse Navigator, RN
 (844) 333-7246
nancy.hart@med.usc.edu

Keck Medicine of USC
USC Brain Tumor Center



Keck School of Medicine of USC



27TH ANNUAL
BRAIN TUMOR UPDATE
AND
16TH ANNUAL SYMPOSIUM ON
BRAIN METASTASES
AND SPINE TUMORS

7-8
 NOVEMBER
 2026

Live Conference
 Saturday - Sunday, November 7-8, 2026
Intercontinental Los Angeles Downtown
Accredited by: USC Office of Continuing Medical Education

TO REGISTER

 SCAN HERE


This symposium is supported by an endowed lectureship known as
The Henry L. Jaffe, MD Annual Oration in Therapeutic Radiology.

The 27th Annual Brain Tumor Update and the 16th Annual Symposium on Brain Metastases and Spine Tumors

The 27th Annual Brain Tumor Update and the 16th Annual Symposium on Brain Metastases and Spine Tumors is co-provided by the Keck School of Medicine of the University of Southern California and Cleveland Clinic.

This advanced multidisciplinary meeting is led by expert faculty from Cleveland Clinic and Keck School of Medicine of USC, with additional internationally recognized guest faculty.

This symposium is designed to improve competency to assess and treat patients with brain tumors and tumors of the spine, especially as it relates to comparing treatments for brain metastases and spine tumors, evaluating new technologies, treating pituitary tumors, meningiomas, and assessing and treating gliomas, with the overall goal of improving outcomes in these patient populations.

There will be a sub-focus session IV dedicated to multimodal management of pituitary tumors.

SELECTED PUBLICATIONS



Efficacy and safety of adjuvant TTFields plus pembrolizumab and temozolomide in newly diagnosed glioblastoma: A phase 2 study. Chen D, Le SB, Ghiaseddin AP, Manektalia H, Li M, O'Dell A, Rahman

M, Tran DD. *Med.* 2025 Sep 12;6(9):100708. doi: 10.1016/j.medj.2025.100708.

■ Immune checkpoint inhibitors (ICIs) have shown limited success in glioblastoma due to the tumor's profoundly immunosuppressive microenvironment. Tumor treating fields (TTFields), a non-invasive electric field therapy, activate the type I interferon (T1FN) pathway via DNA sensor-dependent inflammasomes, promoting in situ immunization against glioblastoma. In this phase 2 study, 31 newly diagnosed glioblastoma patients were enrolled post-chemoradiation to evaluate synergy between TTFields, pembrolizumab, and temozolomide. These findings demonstrate synergy between TTFields and ICIs, particularly in patients with high tumor burden, and support further study in larger trials.



Laser interstitial thermal therapy and adjuvant pembrolizumab in recurrent high-grade astrocytoma: a Phase 1/randomized Phase 2b trial. Campian JL, Le SB, Ghiaseddin A, Butt OH, Manektalia H, Chen D, Xu Y,

Liu J, Rahman M, Thai N, Leidig WA, Johanns T, Anstas G, Zhou AY, Pugazenthi S, Dunn GP, Huang J, Chheda MG, Kim AH, Leuthardt EC, Tran DD. *Nat Commun.* 2026 Feb 26;17(1):1763. doi: 10.1038/s41467-026-69522-w.

■ Immune checkpoint inhibitors (ICIs) show minimal efficacy in recurrent high-grade astrocytoma (rHGA). Laser interstitial thermal therapy (LITT), a minimally invasive cytoreductive approach, may prime rHGA for ICI response. A phase 1/randomized phase 2b trial (ClinicalTrials.gov: NCT02311582) was designed to test pembrolizumab in combination with LITT in patients with rHGA. LITT activated non-classical monocytes, and pembrolizumab unleashed CD8⁺ T cell proliferation, clonal expansion, and coordinated memory T-cell responses. Overall, LITT + PEM is safe and may overcome rHGA immunosuppression to generate antitumor immunity.



Intracranial metastases from solid tumors: Call to action and consensus from the Society for Neuro-Oncology and American Society of Clinical Oncology collaborative. Sharma A, Kennedy LB, Van Swearingen AED, Ahluwalia MS, Bagley SJ, Chiang VL, Chung C, Cittel DM, Daras M, Davies MA, Fecchi PE, Haas-Kogan DA, Hattangadi-Gluth JA, Jerzak KJ, Kim MM, Malani R, Mehta MP, Moss NS, Neman J, Nguyen DX, Priceman SJ,

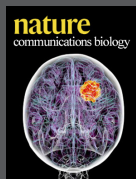
Sahebjam S, Shih HA, Soffietti R, Wang N, Zimmer A, Goldberg S, Khasraw M, Anders CK, Lin NU; SNO/ASCO Brain Metastasis Collaborative Think Tanks. *Neuro Oncol.* 2026 Feb 1;28(2):319-333. doi: 10.1093/neuonc/noaf226.

■ Intracranial metastases (ICM), specifically parenchymal brain metastases, remain a major clinical challenge in solid tumor oncology, despite recent advances in cancer therapies which have led to improvements in survival for these patients. Improving outcomes even further in this patient population will require a multi-disciplinary approach, including pre-clinical and translational studies, clinical trials, and studies of patient reported outcomes and quality of life. Advances in ICM research and improvements in patient outcomes will require close inter-specialty and inter-institutional collaboration between stakeholders, including pre-clinical and translational researchers, clinical investigators, industry, and regulatory bodies.



The evolving landscape of brain metastasis: volume II. Valiente M, Anders C, Boire A, Izar B, Kotecki N, Malladi S, Massagué J, Moss NS, Neman J, Preusser M, Schagen S, Siegel PM, Tawbi H, Venkataramani V, Winkler F, Zadeh G, Joyce JA. *Trends Cancer.* 2026 Feb;12(2):116-146. doi: 10.1016/j.trecan.2025.11.007.

■ Brain metastasis (BrM) represents the most common intracranial malignancy, arising in up to 30% of all adult cancer patients and contributing significantly to cancer-related morbidity and mortality. BrM is now recognized as a biologically distinct condition with unique mechanisms of organotropism, colonization, and therapeutic vulnerability. We highlight recent progress in omic and spatial profiling, which has revealed key drivers of brain tropism. These findings have reshaped therapeutic strategies, leading to clinical trials that specifically address central nervous system (CNS) involvement. Collectively, these advances are transforming the clinical landscape, offering new hope for the prevention and management of BrM through precision medicine and integrated therapeutic strategies.

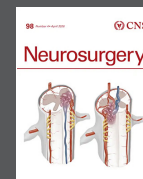


Single cell and spatial sequencing analysis of cancer associated fibroblasts in the brain metastasis tumor microenvironment. Simon T, Buckley DN, Yang Z, Matsuba C, Tew BY, Gooden GC, Hurth K, Toms

SA, Tran DD, Zada G, Salomon MP, Salhia B. *Commun Biol.* 2026 Apr 1;9(1):714. doi: 10.1038/s42003-026-09915-1.

■ Brain metastasis (BM) remains largely incurable. Cancer-associated fibroblasts (CAFs) can either support or inhibit tumor growth in the tumor microenvironment (TME), yet their role in BM is not well described. In this study we define

four transcriptionally distinct CAF subpopulations using single-cell and spatial sequencing of human BM tissues. The four CAF subpopulations we describe are termed extracellular matrix (ECM), immune, contractile, or neural CAFs, and each subpopulation shows distinct spatial distributions within the BM TME. These findings highlight the heterogeneity of CAFs in BM, emphasizing the importance of understanding stromal contributions in the underlying biology of BM.



Associations Between Transsphenoidal Surgery and Neuropsychiatric Disorders for Patients With Cushing's Disease.

Zeng W, Schwartz GM, Prasad A, Jedwood C, John D, Chung R, Hong AT,

Cote DJ, Dallas J, Briggs RG, Carmichael JD, Zada G. *Neurosurgery.* 2026 Apr 7. doi: 10.1227/neu.0000000000004022.

■ Cushing's disease (CD) is a hypercortisolemic state caused by an adrenocorticotrophic hormone-secreting pituitary tumor and is associated with significant neuropsychiatric comorbidities. The prevalence of associated neuropsychiatric disorders (NPD) after surgical resection is not well-characterized. The goal of this study was to report the comparative lifetime risk of NPD in CD patients and evaluate how transsphenoidal tumor resection may be protective against these comorbidities. This study shows that CD patients are at greater risk of mental health and mood disorders compared with the general population and NFPA patients. Our data suggest that surgical resection of PAs causing CD is associated with decreased lifetime risk of NPD.



Incidence and predictors of complications, readmission, and reoperation following endoscopic transsphenoidal surgery for pituitary adenomas.

Pham J, Cote DJ, Kang KM,

Gomez D, Shah I, Daggupati S, Liu KG, Sisti J, Shiroishi M, Briggs RG, Carmichael J, Zada G. *J Neurosurg.* 2026 Jul 24;1-13. doi: 10.3171/2026.2.JNS252393.

■ Endoscopic transsphenoidal surgery (eTSS) is a common neurosurgical procedure used to treat pituitary adenomas (PAs). The authors evaluated the incidence of complications, early readmission, and early reoperation following eTSS for PAs and identified clinical, surgical, and tumor characteristics predictive of these outcomes. Endoscopic TSS for PAs is associated with low morbidity and mortality, although a number of complications are possible. Readmission and reoperation following eTSS occur less frequently when endocrine readmissions can be averted. The results of this study provide information on the risks associated with eTSS and serve as a guide for neurosurgeons to counsel patients undergoing this procedure.

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Trial	Interventions	Phase
Glioblastoma		
1 DB107-RRV, DB107-FC, and Radiation Therapy With or Without Temozolomide (TMZ) for High Grade Glioma	• DB107-RRV + DB107-FC + standard therapy	Phase 1/2A
2 A Phase 1/2 Study of Selinexor and Temozolomide in Recurrent Glioblastoma	• Selinexor + Temozolomide • Temozolomide	Phase 1/2
Coming Soon		
3 RTOG-3523/CAAA601A1US13R: A Multicenter, Randomized, Open-Label, Phase II Study of 177Lu-DOTATATE (Lutathera) in Adults with Progressive Intracranial Grade 1-3 Meningioma	• Lutathera	Phase 2
4 NRG-CC017: A Randomized Phase III Study Comparing Temporally-modulated Pulsed Radiation Therapy (TMPRT) Versus Standard Radiation Therapy with Temozolomide for Adults with Newly Diagnosed MGMT-unmethylated Glioblastoma	• Temporally-modulated pulsed radiation therapy (TMPRT) versus standard radiation therapy with temozolomide	Phase 3
5 Randomized Study of Resection and GammaTile® Followed by Concurrent External Beam Radiation Therapy (EBRT) and Temozolomide (TMZ) and Adjuvant TMZ Versus Standard of Care in Newly Diagnosed Glioblastoma (GBM)	• Resection and GammaTile® followed by concurrent external beam radiation therapy (EBRT) and Temozolomide (TMZ) and adjuvant TMZ versus standard of care	Phase 3

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