



**THE PRESTON WELLS CENTER  
FOR BRAIN TUMOR THERAPY  
AT THE UNIVERSITY OF FLORIDA**

**UF&Shands**  
The University Of Florida Health System



## Introduction: The Problem and Mission

"You have a brain tumor" – that's a devastating statement for many patients and their families. Malignant brain tumors are one of the most virulent forms of cancer. They can result in profound physical and cognitive impairments. Since the brain is the center of thought, personality and emotion, brain tumors are often described as cancer of the soul – one that affects both the mind and body.

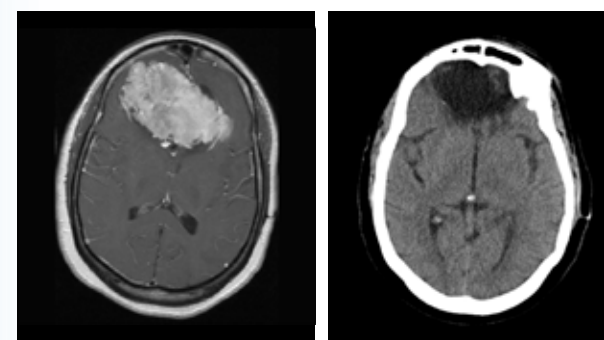
Approximately 20,000 new "primary" brain tumors are diagnosed each year in the United States – these are tumors that start within the cranium. More than 200,000 metastatic tumors are diagnosed each year – these are tumors that begin as a tumor elsewhere in the body (i.e. lung cancer, breast cancer, colon cancer, melanoma, etc.) and spread to the brain. Children are not spared. Brain tumors are the leading cause of solid tumor cancer death in children under the age of 20. They are the second leading cause of cancer death in male adults ages 20-29 and the fifth leading cause of cancer death in female adults ages 20-39.

Brain tumors are also extremely difficult to treat. Tumors may be embedded in regions of the brain that are critical to orchestrating the body's vital functions, while they shed cells to invade other parts of the brain, forming more tumors too small to detect using conventional imaging techniques. Brain cancer's location and ability to spread

quickly makes treatment with surgery or radiation like fighting an enemy hiding out among minefields and caves, and explains why the term "brain cancer" is all too often associated with the word "inoperable."

Making treatment even more challenging, there is a system of blood vessels and protective cells in the brain – the blood-brain barrier – that admits only essential nutrients and oxygen, and keeps out everything else, including about 95 percent of all drugs. This natural barrier puts serious limits on how much a patient can benefit from traditional chemotherapy and new cancer drugs.

Established as the result of a \$10 million gift, the Preston Wells Center for Brain Tumor Therapy at the University of Florida has one goal in mind: CURE BRAIN TUMORS! The Center is fortunate to include outstanding clinicians from the UF Departments of neurosurgery, radiation oncology and medical oncology who have dedicated their careers to this goal. Superb neuropathologists, neuroradiologists and neuro-anesthesiologists are an indispensable part of the team. And a group of caring and skilled nurse practitioners, nurses, social workers, nutritionists and psychologists provide comprehensive care for our brain tumor patients. In addition, UF has many outstanding brain tumor scientists who are using the latest molecular biological techniques to understand the basic causes of brain tumors and develop entirely new treatment methods.



Preop Meningioma

Postop Meningioma

(Opposite page) William Friedman, MD, Chairman of the UF Neurosurgery Department

## Neurosurgery

The University of Florida Department of Neurosurgery currently employs 12 faculty, 18 residents and more than 100 dedicated staff. We perform nearly 5,000 neurosurgical operations each year and see more than 10,000 patients in our outpatient office, making us one of the largest academic neurosurgical departments in the country. More than 600 operations are performed annually for brain tumors. The Department's surgical oncology strengths include:

- A dedicated, 30 bed neuro-intensive care unit
- World renown for expertise in neuroanatomy, microsurgery and skull base surgery
- Expertise in endoscopic and other minimally invasive surgical techniques
- UF patented technology for computer assisted brain tumor surgery and radiosurgery
- Pediatric tumor expertise
- Complex spine tumor expertise

The lead adult brain tumor surgeon is William Friedman, MD, professor and chairman of the department. Dr. Friedman attended Ohio State Medical School, from which he graduated in 1976. He trained in neurosurgery at UF and joined the faculty in 1982. He became chairman of the department in 1999. He has served as President of the Congress of Neurological Surgeons, the International Stereotactic Radiosurgery Society and the Florida Neurosurgical Society. He is the author of more than 250 scientific publications, most concerned with the treatment of brain tumors. Dr. Friedman is co-director of the Preston Wells Center.

The department has many excellent neurosurgeons, including:

- Stephen Lewis, MD—skull base surgery
- Brian Hoh, MD—endovascular treatment
- Gregory Murad, MD—investigational surgical treatments
- David Pincus, MD—all pediatric tumors
- James Lister, MD—general adult neurosurgery
- Kelly Foote, MD—adult brain tumors
- Steven Roper, MD—pituitary tumors
- Patrick Jacob, MD—spinal neurosurgery



Members of the pediatric neurosurgical team David Pincus, MD, PhD, UF Department of Neurosurgery associate professor of pediatric neurosurgery, LeighAnn Perkins, ARNP, MSN, patient and Amy Smith, MD, UF Department of Pediatrics assistant professor and director of pediatric neuro-oncology.

(Opposite page) Greg Murad, MD, UF Department of Neurosurgery assistant professor, with Pamela Ritter, ARNP, at a patient observation window of the Neuro Intensive Care unit offering 30 private rooms each with full ICU monitoring capabilities.

For more information on the Department of Neurosurgery and the surgical treatment of brain tumors at the University of Florida, visit [www.neurosurgery.ufl.edu](http://www.neurosurgery.ufl.edu)



## Radiation Oncology

The University of Florida Department of Radiation Oncology has long been known as one of the best academic radiation therapy departments in the country. They have particular expertise in the treatment of head and neck cancers. In addition, the Department of Radiation Oncology helped to pioneer the patented UF Radiosurgery System. The Department currently employs 14 faculty radiation oncologists, 16 medical physicists, 2 outstanding cancer biologists, 9 residents and many dedicated staff.

The Department enjoys the very latest radiation oncology equipment, and provides state-of-the-art technological approaches to the treatment of cancer: brachytherapy, intensity modulated radiotherapy, fractionated stereotactic radiotherapy and hyperfractionated treatment protocols. The UF Proton Therapy Institute in Jacksonville, Florida offers an entirely different approach to the radiation treatment of cancer. It is one of the few proton beam units in the United States.

The lead adult brain tumor radiation oncologist is Robert J. Amdur, MD. Dr. Amdur received his MD degree from UF, where he also trained in radiation oncology. He spent time on faculty at the Dartmouth-Hitchcock Medical Center, before returning to join the faculty at UF. Professor and interim chairman of the Department of Radiation Oncology at UF, Dr. Amdur is the author of more than 130 peer reviewed publications, as well as several books, and many book chapters.

Dr. Amdur is joined by another distinguished professor of Radiation Oncology, William M. Mendenhall, MD, in the treatment of brain tumors at UF.

For more information about the Department of Radiation Oncology at UF or about radiation options for brain tumor treatments, visit [www.med.ufl.edu/radonc](http://www.med.ufl.edu/radonc).

## Medical Neuro-Oncology

The University of Florida Neuro-oncology faculty provide a full complement of comprehensive adult and pediatric services throughout the patient's and caregiver's journey. They develop novel UF clinical research, as well as participate in consortium and industry-sponsored research in order to provide patients access to experimental and palliative therapies. Phase I-III trials are available through UF, Radiation Therapy Oncology Group, North Central Cancer Treatment Group, Eastern Cooperative Oncology Group, Cancer Trials Support Unit, Children's Oncology Group and Pediatric Oncology Experimental Therapeutics Investigators Consortium. Cohesive and productive alliances with basic and translational researchers throughout UF, along with robust tissue repositories and clinical databases, provide the opportunity for optimizing the future of care and research at UF. The UF neuro-oncology team includes neuro-oncologists, neuropsychologists, genetic counselors, nutritionists and rehabilitation therapists. Additionally, the team includes palliative care, grief counseling, social work and spiritual services.

The lead adult medical neuro-oncologist at UF is Erin M. Dunbar, MD. Dr. Dunbar graduated cum laude with a Bachelors of Science in Biology at Florida State University in Tallahassee. She completed medical school, an internal medicine residency and medical oncology fellowship at UF. She completed a dedicated neuro-oncology fellowship at Johns Hopkins University in Baltimore. In 2007, she joined the faculty in the UF Department of Neurosurgery as assistant professor, and serves as co-director of the Preston Wells Center for Brain Tumor Therapy at UF. Dr. Dunbar is involved in numerous translational and clinical research initiatives at both UF and in collaboration with other institutions

Erin Dunbar, MD, UF Department of Neurosurgery assistant professor and lead adult medical neuro-oncologist with the UF comprehensive neuro-oncology team.





including Johns Hopkins. Through both the Preston Wells Center for Brain Tumor Therapy and the Department of Neurosurgery, Dr. Dunbar is committed to providing patients with the highest level of comprehensive and compassionate care.

Dr. Amy A. Smith, assistant professor of Pediatrics, received her medical degree from the Medical College of Georgia. She completed her residency and a fellowship at the University of Colorado. Dr. Smith provides comprehensive neuro-oncological care for pediatric brain tumor patients. She is the principal investigator of a phase I/II new therapeutic agents program. Dr. Smith is a pediatric oncologist with advanced training and experience in neuro-oncology, board certified in pediatrics and in pediatric hematology/oncology/bone marrow transplantation,

For information about the latest medical protocols for the treatment of brain tumors, visit [www.neurosurgery.ufl.edu](http://www.neurosurgery.ufl.edu).

## Radiosurgery

In 1985, the Departments of Neurosurgery and Radiation Oncology decided to implement a radiosurgery program at UF. Initially, there was interest in purchasing what would have been the second gamma knife in the United States. Instead, Drs. William Friedman and Frank Bova embarked on a two-year period of research and development that led to the creation of the patented UF Radiosurgery System. The first patient was treated in 1988 and more than 3,000 patients have been treated since. The radiosurgery team, which includes UF neurosurgeons, radiation oncologists, medical physicists, PhD researchers and graduate students, has generated more than 130 publications, hundreds of talks at national and international meetings and substantial grant funding. The UF Radiosurgery System is in use at more than 150 medical centers throughout the world.

Patients interested in radiosurgery are seen in a multi-disciplinary clinic on Monday afternoons (neurosurgery, radiation oncology and medical oncology combined). If deemed appropriate, the radiosurgical treatment begins on Tuesday morning with head ring application. After radiographic scanning, the radiosurgery team uses advanced computer technology developed at UF to design the best possible treatment. After computer planning is complete, the patient is connected to the radiosurgery machine. The treatment itself is entirely painless and generally takes about an hour. Patients return home after this outpatient treatment and can return to full, normal activity the next day.

Radiosurgery is a superb alternative to open surgery for many benign brain tumors, including meningioma, vestibular schwannoma, and pituitary tumor, as well as many metastatic tumors.

For more information on radiosurgery at the University of Florida, visit [www.neurosurgery.ufl.edu](http://www.neurosurgery.ufl.edu)



William Friedman, MD, Chairman of the UF Neurosurgery Department and medical physicist Frank Bova, PhD, co-inventors of the UF Radiosurgery System.

## Brain Tumor Research

The Preston Wells Center at UF has one goal: CURE BRAIN TUMORS. That goal will require much more research into the basic causes of brain tumors. We are fortunate to have one of the world's foremost stem cell biologists on our faculty: Brent A. Reynolds. Dr Reynolds received his PhD in 1994 from the University of Calgary during which time he and Sam Weiss discovered the existence of stem cells in the adult central nervous system, challenging a century old dogma that the adult brain was unable to produce new neurons. He co-founded NeuroSpheres Ltd. where he was vice president of Research, and in 1999 published the first report on the trans-differentiation of cells derived from one germ layer into functional cells of another germ layer. Professor Reynolds holds 16 US patents related to neural stem cells and his lab is currently focused on the development of stem cell specific assays, in situ manipulation of neural stem cells and understanding the role that solid tissue cancer stem cells play in tumor initiation and metastasis.

Dr. Reynolds is joined by many other outstanding UF scientists, who are focused on brain tumors:

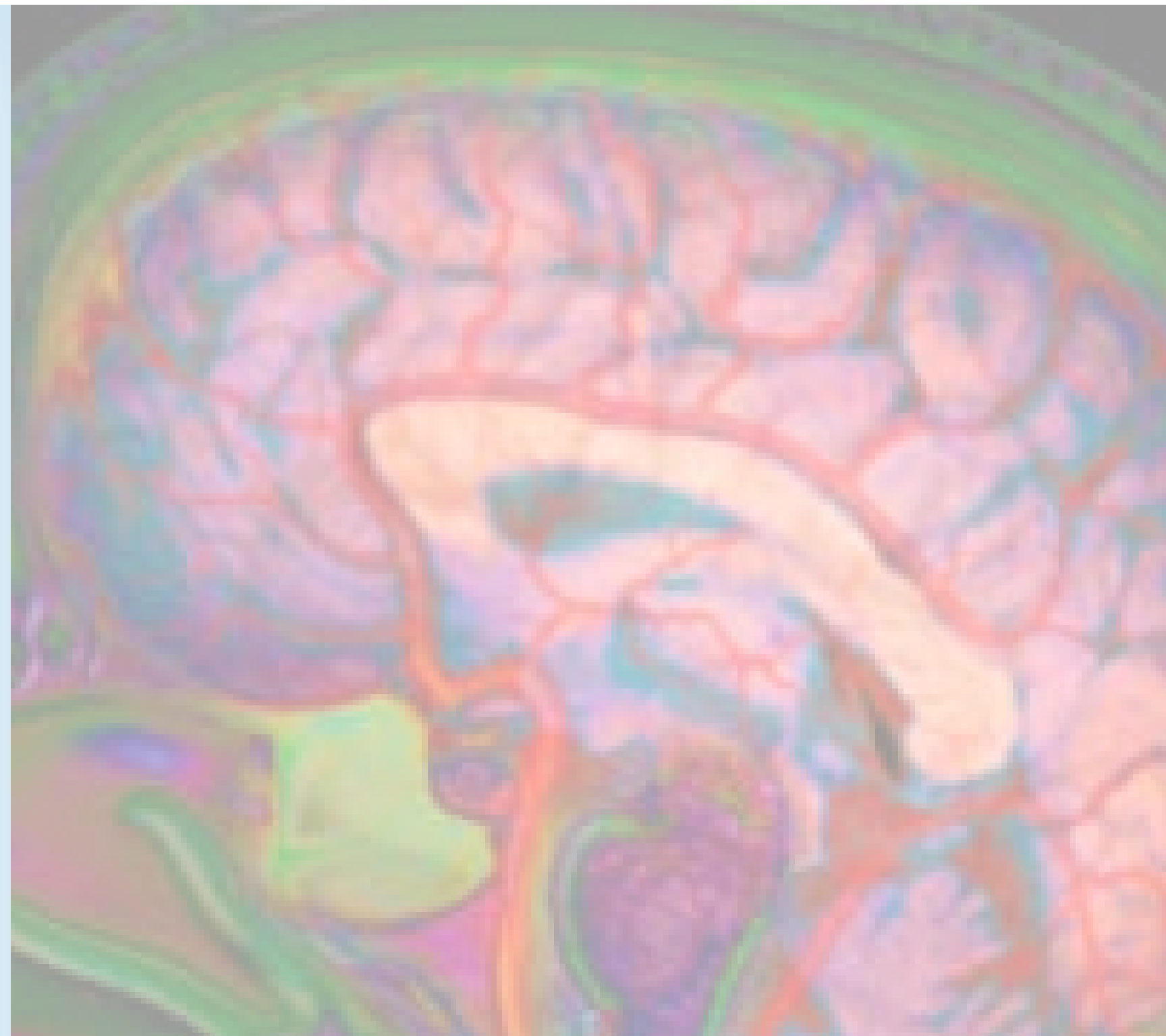
Henry Baker, PhD  
Christopher Batich, PhD  
Lung-Ji Chang, PhD  
Jeff Harrison, PhD  
Eric Laywell, PhD  
Jing Qiu, MD, PhD  
Keith Robertson, PhD  
Dennis Steindler, PhD  
Jake Streit, PhD  
Peggy Wallace, PhD

For more information about brain tumor research at the University of Florida, visit [www.mbi.ufl.edu](http://www.mbi.ufl.edu)

**Please visit [www.neurosurgery.ufl.edu](http://www.neurosurgery.ufl.edu) to learn about the University of Florida Department of Neurosurgery. To speak with a member of the Department call 352.273.9000.**



Brent Reynolds, PhD, UF Department of Neurosurgery associate professor, in his neural stem cell lab.





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