

Guide to the Neurosurgical Oncology Fellowship Match 2025–2026

AANS/CNS Joint Section on Tumors





Acknowledgements

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Accredited Neurosurgical Oncology Fellowships

Program Name	Fellowship Program Director	Program Administrator	Program Contact Email
Allegheny General Hospital	Alexander Yu, MD	Kathleen Wendt	Kathleen.Wendt@ahn.org
Barrow Neurological Institute	Nader Sanai, MD	Rima Woo	Rima.Woo@BarrowBrainAndSpine.com
Brown University	Clark Chen, MD	Roselee Rego	rrego@brownhealth.org
Cleveland Clinic	Lilyana Angelov, MD	—	andersp@ccf.org
Duke University	Anoop Patel, MD	Wendy Morman	wendy.morman@duke.edu
Emory University	Kimberly Hoang, MD	Maxine Brown	mdbrow8@emory.edu
Icahn Mount Sinai	Isabelle M. Germano, MD	Angeles Delgado-Skerret	isabelle.germano@mountsinai.org
Indiana University	Angela Richardson, MD	Janna Thornton	jaathorn@iu.edu
Johns Hopkins University	Christopher Jackson, MD	Colleen Hickson	ckristo1@jhmi.edu
Mayo Clinic (Rochester)	Ian Parney, MD, PhD	Daks Marquart	RSTNSEDUC@mayo.edu
Houston Methodist Hospital	David S. Baskin, MD	Karolina Sosa	kasosa@houstonmethodist.org
MD Anderson Cancer Center	Robert North, MD, PhD	Stephanie Hood	sadair@mdanderson.org
Memorial Sloan Kettering Cancer Center	Cameron Brennan, MD	Shahiba Ogilvie	nsgdept@mskcc.org
Moffitt Cancer Center	Nam Tran, MD, PhD	Teena Geiger	nam.tran@moffitt.org
The Ohio State University	J. Bradley Elder, MD	Sarah Hallam	sarah.hallam@osumc.edu
Tulane University / Ochsner	Joseph Keen, DO	Jennifer Joseph	jjoseph11@tulane.edu
University of California, Los Angeles	Richard G. Everson, MD	Abigail McCann	amccann@mednet.ucla.edu
University of Colorado	Kevin O. Lillehei, MD	Krystin Martinez	krystin.martinez@cuanschutz.edu
University of Miami (UMiami)	Ashish Shah, MD	Gladys Cordero	gcordero@med.miami.edu
University of Virginia	Jason P. Sheehan, MD	Karen Saulle	kes4a@uvahealth.org
UPMC Medical Education	Costas Hadjipanayis, MD	Melissa Lukehart	lukeml@upmc.edu
Washington University in St. Louis	Albert H. Kim, MD	Michele Bridges	bmichele@wustl.edu
Yale University	Jennifer Moliterno, MD	Daria Andriolas	jennifer.moliternogunel@yale.edu
Zucker SOM / Northwell	Michael Schulder, MD	Rita A. Raio	rraio@northwell.edu



Neurosurgical Oncology Fellowship Program Directory

This directory includes all SNS/CAST-accredited Neurosurgical Oncology fellowship programs (per CAST list updated Dec 2025). **All the information is from program webpages (when readily available) and program presentations from the CNS Tumor Meet and Greet. If not available, it will be coded NA**

Allegheny General Hospital

Program name	Allegheny General Hospital
Application process	Email for details
Program director	Alexander Yu, MD
GME / program coordinator	Kathleen Wendt
Core and non-core faculty	Alexander Yu and other
Educational resources	Research opportunities, Cadaver Lab access
Facilities resources	LITT, Gamma Knife/SRS, Clinical Trial Driven treatments, Center for Surgical Arts lab
Contact information	Kathleen.Wendt@ahn.org
Program website	https://www.ahn.org/health-care-professionals/education/graduate-medical-education/residencies/neurosurgery/cast-approved-fellowships

Barrow Neurological Institute

Program name	Barrow Neurological Institute
Application process	Apply 1-2 years prior to anticipated start of fellowship. Email program for more details
Program director	Nader Sanai, MD
GME / program coordinator	Rima Woo
Core and non-core faculty	Nader Sanai, MD; Charuta Furey, MD; Kris Smith, MD; Andrew Little, MD; Kaith Al-Mefty, MD; Randall Porter, MD; Zaman Mirzadeh, MD; John Wanebo, MD; Steve Chang, MD
Educational resources	Research opportunities at the Ivy brain tumor center (appointed as an associate investigator; access to publication office On clinical service, take attending call 1-2 days/month
Facilities resources	Phase 0 trials, SRS training, LITT
Contact information	Rima.Woo@BarrowBrainAndSpine.com
Program website	https://www.barrowneuro.org/for-physicians-researchers/education/neuroscience-fellowship-programs/neurosurgery-fellowship-programs/neurosurgical-oncology-fellowship/

Brown University

Program name	Brown University
Application process	Email program director and coordinator for details
Program director	Clark Chen, MD
GME / program coordinator	Krystyna Maxwell
Core and non-core faculty	Clark Chen, MD and others
Educational resources	Fellow serves as a junior attending full spectrum of surgical and clinical privileges in the neurosurgery department. Spine Oncology rotation.
Facilities resources	SRS/Gamma Knife/Cyber Knife, LITT
Contact information	Krystyna.Maxwell@brownhealth.org
Program website	https://neurosurgery.med.brown.edu/education/fellowship-programs/neurosurgical-oncology-fellowship

Duke University

Program name	Duke University
Application process	Email program for details
Program director	Anoop Patel, MD
GME / program coordinator	Wendy Morman
Core and non-core faculty	NA
Educational resources	NA
Facilities resources	NA
Contact information	wendy.morman@duke.edu
Program website	https://neurosurgery.duke.edu

Emory University

Program Name	Emory University
Application Process	Online Form; see website below
Program Director	Kimberly Hoang, MD
GME/Program Coordinator	Maxine Brown
Core and non-core faculty	Kimberly Hoang, MD; Tomas Garzon-Muvdi, MD; Edjah Nduom, MD; Gustavo Pradilla, MD
Educational Resources	Hired with attending privileges at Emory; Clinical and basic science research opportunities; Access to clinical outcome registries
Facility Resources	SRS/LINAC, LITT
Contact Information	mdbrow8@emory.edu
Program Website	https://tinyurl.com/exf3j7rt

Icahn Mount Sinai

Program name	Icahn Mount Sinai
Application process	Application materials include a letter of intent, a letter of recommendation from the current Program Director, and an updated CV emailed to the program coordinator by October 15.
Program director	Isabelle M. Germano, MD
GME / program coordinator	Angeles V. Delgado-Skerret
Core and non-core faculty	Isabelle Germano, MD; Raymund Yong, MD; Raj Shrivastava, MD; Joshua Bederson, MD; Benjamin Rapoport, MD PhD
Educational resources	Clinical research opportunities
Facilities resources	Exoscope, AR, VR and SRS
Contact information	isabelle.germano@mountsinai.org
Program website	https://icahn.mssm.edu/education/residencies-fellowships/list/msh-neurosurgical-oncology-fellowship

Indiana University

Program name	Indiana University
Application process	Interested candidates should submit a CV and letter of interest to Janna Thornton
Program director	Angela Richardson, MD
GME / program coordinator	Janna Thornton
Core and non-core faculty	Angela Richardson, MD; Joao Paulo Almeida, MD PhD; Bradley Bohnstedt, MD; James Miller, MD; Kenneth Moore, MD; Devi Patra, MD; Matthew Pease, MD; Mitesh Shah, MD
Educational resources	Skull base rotation, potential for open vascular cases as well
Facilities resources	Novalis, Cyberknife, Gamma knife, IMRIS, LITT
Contact information	jaathorn@iu.edu
Program website	https://medicine.iu.edu/neurological-surgery/education/fellowship/neurosurgical-oncology

University of Miami

Program name	Jackson Memorial Hospital/Univ of Miami
Application process	Request application form from program coordinator and submit with required documents via email
Program director	Ashish Shah, MD
GME / program coordinator	Gladys Cordero
Core and non-core faculty	Ricardo Komotar, MD; Ashish Shah, MD; Michael Ivan, MD; Carolina Benjamin, MD
Educational resources	Clinical, basic science research opportunities; ability to be involved in clinical trials; International Neuro-oncology Scholars Program (INOSP)
Facilities resources	LITT, Connectomics, SRS/Gamma Knife
Contact information	gcordero@med.miami.edu
Program website	https://med.miami.edu/departments/neurosurgery/education/clinical-fellowship-programs

Johns Hopkins University

Program name	Johns Hopkins University
Application process	NA
Program director	Christopher Jackson, MD
GME / program coordinator	Colleen Hickson
Core and non-core faculty	NA
Educational resources	NA
Facilities resources	NA
Contact information	ckristo1@jhmi.edu
Program website	https://www.hopkinsmedicine.org

Mayo Clinic (Rochester)

Program name	Mayo Clinic (Rochester)
Application process	Online application: https://mccms.elluciancrmrecruit.com/Apply/Account/Login
Program director	Ian Parney, MD
GME / program coordinator	Daks Marquart
Core and non-core faculty	Gelareh Zadeh, MD; Ian F. Parney, MD; Terrence C. Burns, MD
Educational resources	Clinical Research opportunities; teaching opportunities; access to Center for Clinical and Translational Science (CCaTS) for mentorship
Facilities resources	IMRIS, LITT, SRS/Gamma Knife
Contact information	RSTNSEDUC@mayo.edu
Program website	https://college.mayo.edu/academics/residencies-and-fellowships/neurosurgical-oncology-fellowship-minnesota/

Houston Methodist Hospital

Program name	Houston Methodist Hospital
Application process	To apply, please submit your most updated CV to Karolina Sosa by January 31 st of intended fellowship year
Program director	David S. Baskin, MD
GME / program coordinator	Karolina Sosa
Core and non-core faculty	David S. Baskin, MD
Educational resources	Research opportunities with option for 12 additional months of research
Facilities resources	Gamma Knife, radiosurgery, IMRI, robotic surgery, LITT, True Beam
Contact information	kasosa@houstonmethodist.org
Program website	https://www.houstonmethodist.org/academic-institute/gme/neurosurgical-oncology-fellowship/

MD Anderson Cancer Center

Program name	MD Anderson Cancer Center
Application process	Online PDF application available at: https://www.mdanderson.org/documents/Departments-and-Divisions/Neurosurgery/GME%20Application%202028-2029.pdf
Program director	Robert North, MD PhD
GME / program coordinator	Stephanie Hood
Core and non-core faculty	Fred Lang, MD; Jeffrey Weinberg, MD, Franco DeMonte, MD, Ian McCutcheon, MD; Shaan Raza, MD; Sujit Prabhu, MD; Betty Kim, MD PhD; Laurence Rines, MD; Claudio Tatsui, MD; Sherise Ferguson, MD; Robert North MD, PhD; Christopher Alvarez-Breckenridge, MD PhD; Chiba Ene, MD PhD; Christopher Young, MD PhD; Gil Kimchi, MD
Educational resources	Clinical and basic science research opportunities; can do a second year for dedicated research; Clinical Trials course embedded into fellowship; Spine Oncology and Skull Base rotations
Facilities resources	LITT, ioCT, IMRI, FUS, AR/VR, TMC, SRS/IMRT/Proton Beam
Contact information	sadair@mdanderson.org
Program website	https://www.mdanderson.org/education-training/clinical-training/graduate-medical-education/residencies-fellowships/neurosurgical-oncology.html

Moffitt Cancer Center

Program name	Moffitt Cancer Center
Application process	Contact coordinator for application and submit CV, Personal statement, USMLE scores, three LOR with application
Program director	Nam D Tran, MD
GME / program coordinator	Teena Geiger
Core and non-core faculty	Nam Tran, MD PhD, Andre Beer Furlan, MD; Michael Vogelbaum, MD PhD; Arnold Etame, MD PhD; James Liu, MD
Educational resources	Research and clinic trial opportunities; Investigator initiated trials; Spine Oncology and Skull base rotations
Facilities resources	HIFU/LIFU, LITT, Gamma Knife/SRS
Contact information	nam.tran@moffitt.org
Program website	https://www.moffitt.org/education/medical-education/our-training-programs/graduate-medical-education-residency-and-fellowship/neurosurgical-oncology/

Memorial Sloan Kettering Cancer Center

Program name	Memorial Sloan Kettering Cancer Center
Application process	Online application form: https://mskcc.embark.com/apply/neurosurgery
Program director	Cameron Brennan, MD
GME / program coordinator	Shahiba Ogilvie
Core and non-core faculty	Viviane Tabar, MD; Cameron Brennan, MD; Nelson Moss, MD; Kenny Yu, MBBS, PhD; Rabih Bou Nassif, MD; Mark Bilsky, MD, Chris Newman, MD, MPH
Educational resources	Clinical research opportunities; opportunity to do additional 12-24 months of dedicated lab research; annual courses at MSK; Weekly Brain Tumor Center Seminars series; Clinical trial exposure
Facilities resources	LITT; IMRI; SRS/Gamma knife, Phase 1 and Phase 2 clinical trials
Contact information	nsgdept@mskcc.org
Program website	https://www.mskcc.org/departments/neurosurgery/neurosurgical-oncology

New York Presbyterian (Cornell Campus)

Program name	New York Presbyterian (Cornell Campus)
Application process	Application form: https://airtable.com/appfZd0bm97YuB0Cg/shr8Ub97iJKYm0ray
Program director	Rohan Ramakrishna, MD
GME / program coordinator	Angelica Cespedes
Core and non-core faculty	Rohan Ramakrishna, MD ; Philip Steig, MD; Mark Souweidane, MD
Educational resources	Clinical Research, Running educational conferences; skull base case rotation
Facilities resources	LINAC/Gamma Knife/SRS
Contact information	ror9068@med.cornell.edu
Program website	https://neurosurgery.weill.cornell.edu/education/neurosurgical-fellowships/surgical-neuro-oncology-fellowship

The Ohio State University

Program name	The Ohio State University
Application process	Email a personal statement, current CV and 3 letter or recommendations to program coordinator
Program director	J. Bradley Elder, MD
GME / program coordinator	Sarah Hallam
Core and non-core faculty	J. Bradley Elder, MD; Kyle Wu, MD; John McGregor, MD; Daniel Prevedello, MD; Russell Lonser, MD
Educational resources	Access to clinical research and on going clinical trials
Facilities resources	LITT, SRS/Gamma Knife, MIS port based tumor resection, gene therapy, IMRI
Contact information	sarah.hallam@osumc.edu
Program website	https://tinyurl.com/yt6v7vvt

Tulane University/Ochsner Clinic Foundation

Program name	Tulane University/Ochsner Clinic Foundation
Application process	Email program coordinator for details
Program director	Joseph Keen, DO
GME / program coordinator	Jennifer Joseph
Core and non-core faculty	NA
Educational resources	NA
Facilities resources	NA
Contact information	jjoseph11@tulane.edu
Program website	https://medicine.tulane.edu

UCLA David Geffen/UCLA Medical Center

Program name	UCLA David Geffen/UCLA Medical Center
Application process	Submit the follow documents to program coordinator: CV, personal statement, USMLE scores, 3 LOR
Program director	Richard G. Everson, MD
GME / program coordinator	Abigail McCann
Core and non-core faculty	Richard G. Everson, MD; Linda M. Liao, MD, PhD; Isaac Yang, MD; Marvin Bergsneider, MD; Won Kim, MD
Educational resources	Research opportunities (SPORE grant), Dedicated research time during the week, lead anatomy lab for residents, lead multiple tumor boards, present and lead journal clubs
Facilities resources	LITT, SRS/Gamma Knife
Contact information	amccann@mednet.ucla.edu
Program website	https://tinyurl.com/nxkc33n8

University of Colorado

Program name	University of Colorado
Application process	Email CV, Letter of interest and 3x LOR to program coordinator
Program director	Kevin O. Lillehei, MD and D.Ryan Ormond, MD PhD
GME / program coordinator	Krystin Martinez
Core and non-core faculty	Kevin Lillehei, MD; D. Ryan Ormond, MD PhD, A. Samy Youssef, MD
Educational resources	Access to cadaver lab; research opportunities; weekly academic half-day
Facilities resources	SRS, Clinical trials
Contact information	krystin.martinez@cuanschutz.edu
Program website	https://medschool.cuanschutz.edu/neurosurgery/education-and-training/fellowship-programs/neurosurgical-oncology-fellowship

University of Virginia

Program name	University of Virginia
Application process	Email fellowship coordinator CV, Three LORs, Personal Statement, USMLE step 3 score, ECFMG certification (if applicable)
Program director	Jason P. Sheehan, MD, PhD
GME / program coordinator	Karen Saulle
Core and non-core faculty	Jason P. Sheehan, MD, PhD
Educational resources	Research opportunities including a dedicated second fellowship year for research
Facilities resources	Gamma Knife/SRS, LITT
Contact information	kes4a@uvahealth.org
Program website	https://med.virginia.edu/neurosurgery/resident-training/neurooncologyfellowship/

UPMC Medical Education

Program name	UPMC Medical Education
Application process	Only open for UPMC Neurosurgery Residents
Program director	Costas Hadjipanayis, MD
GME / program coordinator	Melissa Lukehart
Core and non-core faculty	Costas Hadjipanayis, MD PhD; Pascal Zinn, MD PhD,
Educational resources	Research opportunities
Facilities resources	LITT, FGS, Photodynamic therapy, SRS/Gamma Knife., FUS
Contact information	lukeml@upmc.edu
Program website	https://www.neurosurgery.pitt.edu/training/fellowships/neurosurgical-oncology-fellowship

Washington University at St. Louis

Program name	Washington University at St. Louis
Application process	Email cover letter, CV and two LORs to program coordinators
Program director	Albert H. Kim, MD PhD and Eric Leuthardt, MD
GME / program coordinator	Michele Bridges and Sophie Church
Core and non-core faculty	Albert H. Kim, MD PhD; Eric Leuthardt, MD; Josh Dowling, MD; Dimitrios Mathios, MD; Bhuvic Patel, MD; Gregory Zipfel, MD
Educational resources	Access to clinical and basic science research opportunities; attending privileges for general call cases; leading skull base courses
Facilities resources	LITT, SRS, FUS
Contact information	bmichele@wustl.edu ; sophie.church@wustl.edu
Program website	https://neurosurgery.wustl.edu/education/fellowships/advanced-surgical-neuro-oncology-fellowship/

Yale-New Haven Medical Center

Program name	Yale-New Haven Medical Center
Application process	To apply, please email Jennifer Moliterno 2 years prior to the start of the fellowship.
Program director	Jennifer Moliterno, MD
GME / program coordinator	Daria Andriolas
Core and non-core faculty	Jennifer Moliterno, MD
Educational resources	Research opportunities; possible involvement in clinical trial design or participation in existing clinical trials;
Facilities resources	IMRI, SRS/Gamma Knife, LITT, FUS
Contact information	jennifer.moliternogunel@yale.edu
Program website	https://tinyurl.com/yjxafun8

Zucker SOM at Hofstra/Northwell

Program name	Zucker SOM at Hofstra/Northwell
Application process	Please submit a letter of interest, your curriculum vitae and letter of recommendation from your residency training program director to Rita Raio
Program director	Michael Schulder, MD
GME / program coordinator	Rita A. Raio
Core and non-core faculty	Michael Schulder, MD; Daniel Eichberg, MD; Jung Park, MD, PhD
Educational resources	Access to clinical trials; research opportunities; spine oncology
Facilities resources	SRS/Gamma Knife; LITT
Contact information	rraio@northwell.edu
Program website	https://physicians.northwell.edu/education/graduate-medical-education/independent-clinical-fellowship-neurosurgical-oncology-nsuh



Neurosurgical Oncology Fellowship Match Timeline

Milestone	Date
Match Registration Opens	February 11, 2026
Rank List Opens	March 25, 2026
Rank List Certification Deadline	April 29, 2026
Match Day	May 13, 2026
Fellowship Start Date	July 1, 2027



The AANS/CNS Tumor Section is working toward initiating a Fellowship Match process for training in Neurosurgical Oncology. The Match will be administered by the National Resident Matching Program® (NRMP®).

For more than 70 years, the NRMP has been the premier matching service in the U.S. In addition to the Main Residency Match® for more than 50,000 applicants and 40,000 positions in core specialties, Neurosurgical Oncology fellows would join more than 12,000 fellows matching into 6,300 subspecialty programs each year in the Specialties Matching Service®.

Why implement a Match?

The Match aims to increase fairness in the recruitment and selection process. NRMP Matches create an even playing field because all participants follow the same rules and adhere to the same deadlines.

Applicants and training programs can consider all options, and there is no pressure on programs to extend early offers to get the best candidates. The Match also eliminates problems such as applicants holding onto or renegeing on offers in search of better options.

NRMP Matches yield the best outcome because a [powerful mathematical algorithm](#) is used to place applicants in their most preferred training program that also prefers them. Research on the algorithm used by NRMP was the basis for awarding The *Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel* in 2012.

The NRMP maintains [Match policies](#) for applicants, programs, and institutions. Match policies are designed to ensure a fair and transparent matching process by outlining the rights and responsibilities of Match participants and the guidelines for participation they must follow.

How many programs must participate for there to be a Match?

Because Matches are more successful when most programs participate, NRMP has developed criteria that encourage greater success. It is recommended that each program director's group commits to:

- at least 75% of the programs with available positions for the appointment year will be registered for the Match,
- those programs will actively participate by submitting rank order lists, and
- at least 75% of the available positions within the specialty will be registered with the NRMP.

The NRMP, at its discretion, may elect to manage a Match for a program director's group that does not meet the recommended participation level.

Once the specialty has confirmed they can meet the recommended levels of participation, the sponsoring organization will complete a sponsor agreement with the NRMP and provide a specialty description and program contact information for all the participating programs.

How will the first Neurosurgical Oncology Fellowship Match work?

The AANS/CNS Tumor Section will serve as the sponsoring organization for the Match with the NRMP. Neurosurgical Oncology will participate with Neurointerventional Surgery in a multi-specialty Neurological Surgery Fellowship Match beginning in February 2026 for the 2027 appointment year.

The proposed dates for the **Neurological Surgery Fellowship Match** are as follows:

Match Opens for Registration	February 11, 2026
Rank Order List Entry Begins	March 25, 2026
Quota Change Deadline (deadline to finalize the number of positions a program intends to fill in the Match)	April 15, 2026
Rank Order List Certification Deadline	April 29, 2026
Match Day	May 13, 2026
Training Begins	~ July 1, 2027

NRMP's Registration, Ranking, and Results® (R3®) system is used by all Match participants to register for the Match, submit rank order lists of preferred programs and trainees, and obtain Match results and statistics.

Applicants do not apply to programs through the NRMP. Applicants will apply to programs using each program's preferred application process. The NRMP also does not manage the interview process. Programs determine the criteria for applicant eligibility, interview selection, and timing of the interview process. Interviews should be completed in advance of the ranking period or deadline for both applicants and programs to enter and certify their rank order lists for the Match.

To ensure the Match's success, it is paramount that as many programs as possible commit to the Match and refrain from offering out-of-match training positions. Participating fellowship programs should commit all their available training positions once they agree to join the Match.

What are the eligibility requirements for my program to participate in the Match?

Per NRMP requirements, programs must be accredited by the ACGME; or be affiliated (e.g. shared resources, shared faculty for fellow training/supervision, program letter of agreement) with an ACGME-accredited program in the primary discipline or ACGME-accredited institution; and have secured funding sufficient to train each matched fellow for the duration of the training program.

All programs participating in the Match must have an NRMP Institutional Official (usually the ACGME Designated Institutional Official) providing oversight of program participation in and compliance with the rules of the Match.

Programs should contact their GME office to let them know they intend to participate in the Match and confirm any institution policies or procedures for participation before committing to the Match.

Programs not accredited by the ACGME will require an NRMP Institutional Official (IO) to attest to their oversight of the program's participation in the Match during the activation/registration process that takes place when the Match opens. See the R3 Attestation Screen for the attestation questions that must be completed by the IO for the program to be activated.

What are the fees to participate in the Match?

Fees related to the program's participation in the fellowship match will be billed to the IO at completion of the Match and are as follows:

Institution Registration Fee (per fellowship Match): \$300

Program Registration Fee (per program track): \$100

Per Certified Position (Quota) fee: \$75

Example: An institution with one program track offering one position in the Neurological Surgery Fellowship Match will pay \$475

What do applicants need to do to participate in the Match?

Applicants will apply to programs using each program's required application process. Applicants must also register for the Match starting February 11, 2026. Only registered applicants can be ranked by programs. There is a cost of \$70 to participate in the Match which allows applicants to rank up to 20 programs. Additional fees for extra ranks or couples matching can be found at <https://www.nrmp.org/intro-to-the-match/match-fees/>.

What happens if a candidate is unmatched or a position is unfilled?

On Match Day when results are released, NRMP will provide lists of unmatched applicants and unfilled positions to facilitate contact between unmatched candidates and unfilled programs to try and fill any remaining positions.

Additional information on the Match can be found on the [NRMP website](#).



Fellowship Program Presentations

Programs are listed alphabetically and included verbatim.

1. Barrow Neurological Institute
2. Cleveland Clinic
3. Emory University
4. Houston Methodist Hospital
5. Mayo Clinic (Rochester)
6. MD Anderson Cancer Center
7. Memorial Sloan Kettering Cancer Center
8. Moffitt Cancer Center
9. The Ohio State University
10. University of Miami (UMiami)
11. University of Southern California (USC)
12. University of California, Los Angeles (UCLA)
13. Yale University
14. Zucker SOM / Northwell



Barrow Neurological Institute

Program Director: Nader Sanai, MD

BNI Fellowship in Neurosurgical Oncology



1

VITALS

- ✓ 1-year, CAST-accredited
- ✓ US/Canadian residency graduates only

STRUCTURE

- ✓ Employed as a neurosurgeon in our private practice (Barrow Brain & Spine)
- ✓ Appointed as Associate Investigator in the Ivy Brain Tumor Center
- ✓ On clinical service all year, cranial attending call 1-2 days/month
- ✓ RVU-based compensation model
- ✓ Salary guaranteed by an endowment

PARTICIPATION IN FELLOWSHIP MATCH

- ✓ 2026-7 slot **is open**
- ✓ 2027-8 slot **is committed**
- ✓ 2028-9 slot **is committed**



2

STRATEGY: We graduate neurosurgeons into the private practice or academic setting capable of delivering exceptional technical results, attentive oncology care, and innovative clinical trials.

STATISTICS (2024)

1391 brain tumor craniotomies

- 74% intrinsic tumors / 26% skull-base tumors
- 162 stimulation mapping procedures
- 157 surgical trial cases (Phase 0, Window-of-Opportunity)
- 58 outpatient brain tumor operations

167 endoscopic brain tumor procedures

231 stereotactic radiosurgery cases



3

NEUROSURGICAL ONCOLOGY



Nader Sanai



Charuta Furey



Kris Smith



Andrew Little



Kaith Al-Mefty



Randall Porter



Zaman Mirzadeh



John Wanebo



Steve Chang

RADIATION



Igor Barani



William Kennedy



Yoshie Umemura



Kelly Braun



Robert Yoo

NEURO-ONCOLOGY



4

THE IVY BRAIN TUMOR CENTER



Rima Woo
BNI Neurosurgical Oncology Fellowship Program Coordinator
Rima.Woo@BarrowBrainAndSpine.com



Cleveland Clinic

Program Director: Lilyana Angelov, MD

Cleveland Clinic Neurosurgical Oncology and Radiosurgery Fellowship

Department of Neurosurgery, Neurological Institute
Brain Tumor and Neuro-Oncology Center



Lilyana Angelov, M.D., FRCS(C), FAANS
Program Director, Neurosurgical Oncology and Radiosurgery
Director, Cleveland Clinic Gamma Knife Center
The Kerscher Family Chair for Spine Tumor Excellence
Head Section of Spine Tumors

1

Cleveland Clinic Who We Are



2024 YEAR-END ENTERPRISE STATISTICS

2

Cleveland Clinic's Neurological Institute A Multidisciplinary Philosophy



- 1 million square feet
- 12 neurosurgery dedicated operating rooms (2 IMRIS capable)
- 36 NICU beds
- 218 inpatient rooms
- *Scheduled to open end 2026*

- Institute model allows patients to access the care they need through specialized, multidisciplinary, disease-specific centers that integrate the expertise of neurosurgeons, neurologists, psychiatrists, psychologists, neuroradiologists, and others, into the comprehensive care of a single disease
- Both adult and pediatric multidisciplinary care
- **First Center** in this model:
- **Rose Ella Burkhardt Brain Tumor & Neuro-Oncology Center**

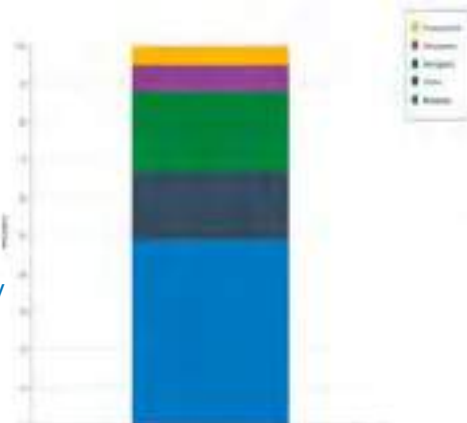
3

Rose Ella Burkhardt Brain Tumor & Neuro-Oncology Center

Service Lines
Gliomas
Metastases
Cranial Radiosurgery – Gamma Knife
Skull Base
Pediatric BT
Blood-brain barrier disruption
Pituitary
Radiation Necrosis
Primary Central Nervous System Lymphoma
Spinal Radiosurgery
Clinical Research
Translational Research
Laboratory Research
Neurofibromatosis
Neuroblate
Cerebrospinal Fluid Specialty
Genomics
IMRIS

Cases	2024
Surgeries	1,132
Cranial & Spinal Radiosurgeries	1,247
Outpatient Visits	13,685
New Visits	3,683

- **5 intra-axial tumor surgeons** doing surgery & radiosurgery
- skull base is a separate program



The program has seen **growth** of **183%** over the past 23 years



4

Special Things about our Program



- IMRIS suite
- ~ 50 awake craniotomies/year
- ~ 40 LITT cases/year
- Neuromonitoring
- iUS
- **CNS Tumor Boards**
 - Average 2,500 cases reviewed yearly
 - 3/weeks including a dedicated Spine Tumor Board

5

Gamma Knife Experience in Numbers

EXPERTISE

>28

Years Offering Gamma Knife Stereotactic Radiosurgery
Pioneering Program in North America

> 13

Years performing two-stage stereotactic radiosurgery
First Program in the U.S.

Team of >40

Surgeons
Radiation Oncologists
Physicists
Radiation Therapists
Gamma Knife Nurses

1 of 4

Centers Nationwide with side-by-side Leksell Gamma Knife systems, busiest center in North America

Innovative Approaches

- Multimodality combination GK radiosurgery & immunotherapy
- Staged radiosurgery
- Neo-adjuvant radiosurgery
- Pediatric radiosurgery

>16,000

Cases performed



29,000+

Targets treated with Gamma Knife (metastases)

>40

Max metastases treated per patient

5.4

Avg number of lesions treated per patient

>3,000

Mask-based cases performed

>8,400

Mask-based treatments performed

• **>38 % increase** in CNS radiosurgical volume(Brain and Spine) over past 5 years



6

Cleveland Clinic NSx Fellowship Program: Across the Globe Began in 1992; 33 years training 56 fellows from 5 continents



- The NI has 24 fellowships
- Brain tumor is 1 of 5 Neurosurgical Fellowships
- 3 Fellows/Year
- 2nd year extension option



7



8



Emory University

Program Director: Kimberly Hoang, MD



EMORY NEUROSURGICAL ONCOLOGY FELLOWSHIP OVERVIEW

10/2025 CNS Fellowship Meeting
Kimberly Hoang, MD FCNS FAANS (Fellowship Director)
kbhoang@emory.edu, 404-778-5770
 @emoryneurosurg @kimberlybhoang

Website:
https://med.emory.edu/departments/neurosurgery/education/fellowships/neurosurgical_oncology.html

Admin: **Maxine Brown, Mdbrow8@emory.edu**

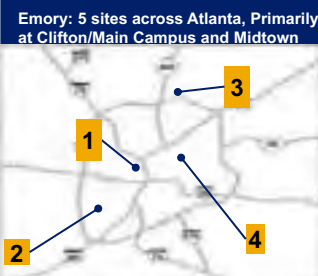


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EMORY NEURO-SURGICAL ONCOLOGY FELLOWSHIP

2009

Cast Accredited
Must complete 6 years of residency



Schedule/Call

50/50

Internal resident applicants/External Applicants

Surgical Volume:

- No issues with case minimums (monthly meeting to review)
- Neuroendoscopy, EEN, Complex Skull Base, SRS / LINAC radiation techniques, Functional mapping, Awake, Spinal Oncology
- Surgical Adjuncts: 5ALA, Brachytherapy, LITT
- Diversity of technique
- **Individually tailored given one fellow**
- Clear expectations/role of the fellow compared to chief and PGY2s as complex surgeon and educator

Multidisciplinary

- Weekly Tumor Board
- Monthly Neuro-Oncology Working Group (Clinical Trials Management)
- Weekly clinic (co-located in one clinic)
- Winship Cancer Institute Resources

1 year long
2-3 OR days
1 clinic day
1 Admin / Research / Job search Day

ATTENDING call 3-4 days/month
General call across 2 hospitals, redistribute subspecialty elective subspecialty cases

ATLANTA: Easy relocation for a year

WINSHIP CANCER INSTITUTE OF EMORY UNIVERSITY
NCI Designated Comprehensive Cancer Center 2

2


THE TEAM



Neurosurgical Oncology




Jeffrey Olson



Edjah Nduom




Kimberly Hoang



Skull Base




Gustavo Pradilla



Tomas Garzon Muvdi



SRS/ St. Joe's




Chris Diebert

WINSHIP CANCER INSTITUTE OF EMORY UNIVERSITY

NCI Designated Comprehensive Cancer Center 3

3

RESEARCH/EDUCATION



Wide Variety of opportunities

Clinical Outcomes	Clinical Trials	Translational /Basic	Organized Neurosurgery
Winship Brain Tumor Registry (WinBTR) and CNS Tumor Outcomes Registry (CTORE) Masters of Science for Clinical Research (MSCR) – Emory or NCI	Patient Enrollment Drafting of Protocols Trial Design	Multidisciplinary opportunities, extension of prior work	Abstract Presentations at meetings, committee work, Guidelines

WINSHIP CANCER INSTITUTE OF EMORY UNIVERSITY

NCI Designated Comprehensive Cancer Center 4

4

PLACING OUR MENTEES AT THEIR DESIRED JOB/FELLOWSHIP!



- Application on website or send via email:**
- **3 Letters of Rec, CV, Basic Info**
 - **Brief Zoom Meeting before Formal Interview Process + Match**

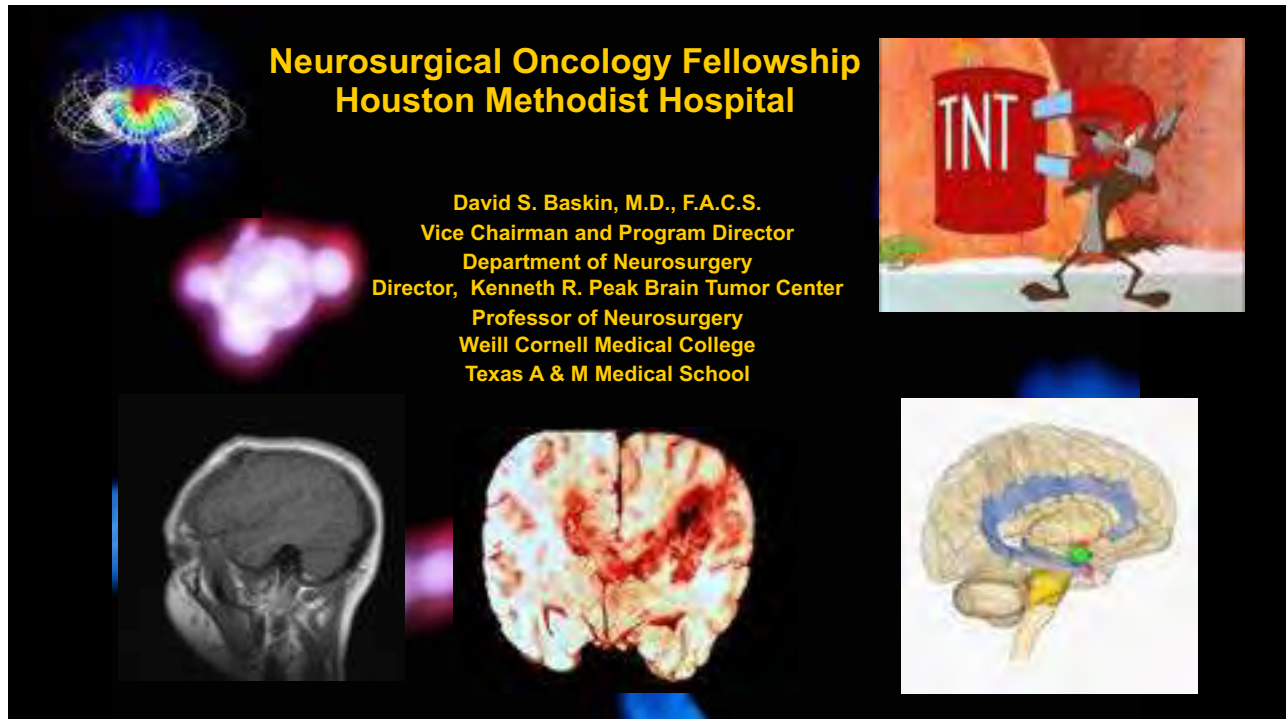


Houston Methodist Hospital

Program Director: David S. Baskin, MD


**Neurosurgical Oncology Fellowship
Houston Methodist Hospital**

David S. Baskin, M.D., F.A.C.S.
 Vice Chairman and Program Director
 Department of Neurosurgery
 Director, Kenneth R. Peak Brain Tumor Center
 Professor of Neurosurgery
 Weill Cornell Medical College
 Texas A & M Medical School



1

HOUSTON



- **4TH LARGEST CITY IN USA-2.4 MILLION IN CITY, 7.8 MILLION MET AREA**
- **ENERGY CAPITAL OF WORLD, NASA HUB**
- **21 FORTUNE 500 COMPANIES**
- **MOST ETHNICALLY DIVERSE**
- **12,800 RESTAURANTS WITH OUTSTANDING QUALITY**
- **INCREDIBLY LOW COST OF LIVING-NO STATE INCOME TAX**
- **MOST LIVE 10-20 MINUTES FROM MEDICAL CENTER**
- **MEDICINE IS SECOND LARGEST INDUSTRY**
- **MED CENTER HAS 10,000 BEDS, 4 MEDICAL SCHOOLS, 3 NS RESIDENCIES**
- **RICE UNIVERSITY ACROSS THE STREET WITH FANTASTIC ENGINEERING**
- **TEXAS A & M ENMED PROGRAM**

2

TECHNOLOGY

HOUSTON
Methodist
NEUROLOGICAL INSTITUTE

- STATE OF ART 2 BRAIN SUITES-9 ORS TO 12 ORS-OVER 6000 CASES PER YEAR
- INTRA OP MRI-3 TESLA
- SYNAPTIVE ROBOT – SUBCORTICAL SURGERY
- MAZOR ROBOT – SPINE SURGERY
- ROSA ROBOT – FUNCTIONAL SURGERY
- NEUROBLATE ROBOT - FUNCTIONAL SURGERY
- ENDOVASCULAR ROBOT IN DEVELOPMENT- CEREBROVASCULAR AND STROKE
- SURGICAL THEATRE FOR AUGMENTED REALITY-OR AND CLINIC
- LASEST KINEVO MICROSCOPES
- NEW STATE OF ART, 36 BED NEURO ICU
- GAMMA KNIFE PERFECTION
 - VARIAN MLC SRS FOR FRACTIONATION AND SBRS
 - 2 NEW TOWERS 779 MILLION AND 1.2 BILLION
 - 2 O-ARMS, 5 STEALTH, AND 3 NEW BRAIN LABS NAVIGATION
 - MITEE-APPLE VISION PRO, MANY 3D AR AND VR UNDER DEVELOPEMENT


3



4

Department of Neurosurgery


Fellowships



- Neurocritical Care Fellowship**
 - Program Director: Dr. Anh Nguyen
 - 12-24 months, 1 fellow per year
 - Accredited by ACGME, CAST, UCNS and TMB
- Neuro-endovascular Fellowship**
 - Program Director: Dr. Gavin Britz
 - 12-24 months, 1 fellow per year
 - Accredited by CAST and TMB
- Neurosurgical Oncology Fellowship**
 - Program Director: Dr. David Baskin
 - 6-24 months, 1 fellow per year
 - Accredited by CAST and TMB
- Neurosurgical Spine Fellowship**
 - Program Director: Dr. Paul Holman
 - 12 months, 1 fellow
 - Accredited by CAST and TMB
- Stereotactic and Functional Fellowship**
 - Program Directors: Dr. Amir Faraji
 - 12 months, 1 fellow
 - Accredited by CAST and TMB

5

Neuro-Oncology Institutional Case Log Report



Craniotomy for intra-axial tumor (min. 120)	HMH	
Glioma/Primary brain tumor		146
Metastasis		50
Total		196
Craniotomy for extra-axial tumor (min. 50)	HMH	
Meningioma (Min. 30)		72
Intra-ventricular (Min. 10)		21
Total		93
Radiosurgery (Min. 60)		185
Total		185
Biopsy/Stereotactic (e.g. LITT) (Min. 20)		48
Total		48
Craniotomy for skull base tumor (min. 20)	HMH	
Vestibular schwannoma		30
Other skull base surgery		38
Total		68
EEA/craniotomy sellar/parasellar (Min. 40)		167
Total		167
Spinal Tumors (Minimum 10)	HMH	
Intramedullary (Min. 5)		19
Extramedullary/metastasis (Min. 5)		38
Total		57
Total Procedures - HMH (Min. 320)		814

6

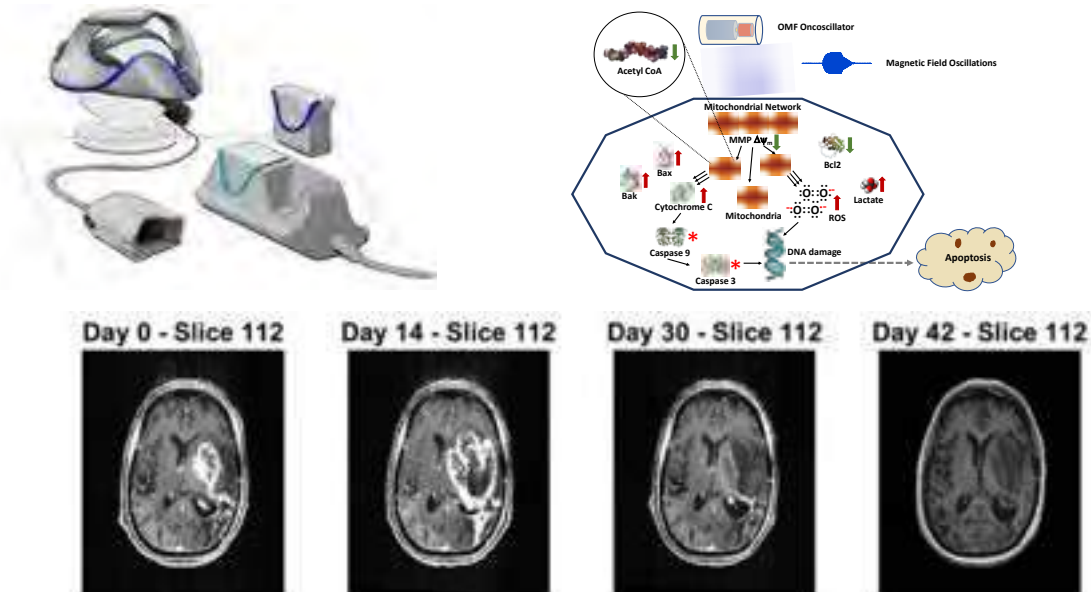
Tumor Research Resources



- 2 major laboratories
- One with 6 Ph.D's with NIH and Philanthropic Funding over 14 Million
- The other with 2 NIH R01's, 1 UO1, 2 CIPRIT Grants and 4 Ph.D's and 1 MD
- MR Spectroscopy
- Oncomagnetics
- Mitochondrial Chemotherapy
- Tumor vaccines
- Viral Gene Therapy
- Immune modulation
- RNA twist
- Tumor micro-environment
- Microfluidic platforms for pre-clinical drug screening in patient derived samples
- Large animal GBM models
- Intra-tumor molecular heterogeneity
- Pre- analytic variables and MGMT promoter methylation
- Brain metastasis biology.

7

Oncomagnetics



8

Cell Phone-713-201-5792
www.houstonmethodist.org/peakcenter
dbaskin@houstonmethodist.org
X: @DavidSBaskin1
Also on LinkedIn and Research Gate





Mayo Clinic (Rochester)

Program Director: Ian Parney, MD, PhD



Neurosurgical Oncology Fellowship

Rochester, MN



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Faculty



Ian F. Parney MD PhD



Terrence C. Burns MD PhD



Gelareh Zadeh MD PhD



<https://college.mayo.edu/academics/residencies-and-fellowships/neurosurgical-oncology-fellowship-minnesota/>

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Highlights

5000 procedures / year in the department

1200 brain tumor procedures / year

Fellowship Focus: Intra-Axial Brain Tumors

- Eloquent region gliomas
- Motor / speech mapping
- Awake craniotomy
- Intra-operative MRI
- Gamma Knife radiosurgery
- Laser interstitial thermal therapy



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Northern Neurosurgery!



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Questions & Discussion



MD Anderson Cancer Center

Program Director: Robert North, MD, PhD

Neurosurgical Oncology Fellowship Overview



Shaan M. Raza, MD
Professor of Neurosurgery and Head and Neck Surgery
Section Chief, Skull Base Surgery
Department of Neurosurgery
Email: smraza@mdanderson.org

1

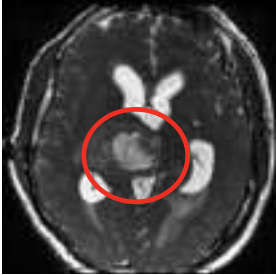
MD Anderson |

Department of Neurosurgery: Clinical Faculty




2


MD Anderson | Clinical Service



Thalamic Glioma



Recurrent Chordoma



C1 Osteoblastoma

Clinical Overview:


- 2197 Cases Annually
- Service Specific Multidisciplinary Clinics and Tumor Boards
- 3 Clinical Service Lines: Cranial, Skull Base, Spine
- Exposure to Complex Operative Techniques and Multidisciplinary Treatment Planning

3

MD Anderson | Clinical Service:
Clinical Technology

Operative Suites:

- iOCT
- Minimally Invasive Endoscopic Suites
- Hybrid Endovascular Suite
- Intraoperative MRI Suite



Intraoperative Adjuncts:

- 5-ALA
- LITT (Cranial and Spine)
- Mapping
- Focused Ultrasound
- Endo- and Exoscope
- Gamma Tile

Perioperative Adjuncts:

- Augmented/Virtual Reality Planning
- Transcranial Magnetic Stimulation
- Advanced Brain Tumor Imaging
- SRS/IMRT/Proton

4

Research Overview

Research Mission Overview:

- Total Research Funding: \$32 M.
- Clinical Trials: 22
- Additional Research Protocols: 23

Research Support:

- Editorial Support
- Clinical Trials Protocol Development
- Illustration Support
- Research Fellows

Clinical Trials Course Highlights:

- 4 Day Course
- Mix of Lectures and Interactive Small Group Sessions
- Submission of Research Idea at the Beginning of the Course
- Submission of Proposal After Revisions from Feedback at Course End

Option for Second Translational Research Year

5

What Are We Looking For In Our Fellowship Candidates?

What Makes Our Fellowship Unique?

- Breadth and Complexity of Surgical Cases
- Clinical and Academic Mentorship
- Alumni Network

Mission Statement

Our mission is to eliminate nervous system tumors and improve the lives of those affected by them through compassionate and innovative neurosurgical care, pioneering research, outreach and education.



6



Memorial Sloan Kettering Cancer Center

Program Director: Cameron Brennan, MD




1

Fellowship Overview

- Postgraduate fellowship
- 12-month duration (July 1 – June 30)
- Two Tracks:
 - Cranial Track (2 fellows, CAST accredited)
 - Spine Oncology Track (1 fellow)
- **Home call on a Q4 basis (transitioning to backup call)**
- Weekend call Q4
- Call is shared with Cornell Residents (PGY2/3 & 6)
- Vacation: 3 weeks
- Conference Support: Travel allowance of \$1,200
- Flexible scheduling of interview dates
- Subsidized housing

*All call is with an attending of record for staffing consults



2

Cranial Oncology Fellowship

- 11 months on the cranial service
- Apprenticeship model with designated attending Q2 months
- Weekly ½ day of clinic
- Weekly ½ day of academic time
- Multiple weekly tumor boards
- Up to 1 month on the spine oncology service

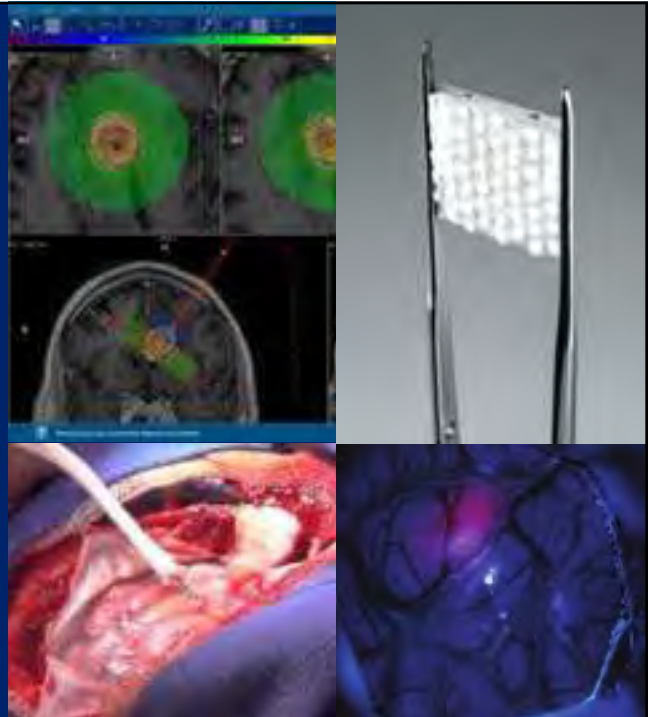


Memorial Sloan Kettering
Cancer Center

3

Cranial Oncology Fellowship

- Operative Cases
 - Awake craniotomies
 - Laser Interstitial Thermal Therapy (LITT)
 - Brachytherapy cases
 - 5-ALA
 - Endoscopic endonasal tumor resections
 - Acoustic neuroma resections
 - Intraoperative MRI cases
 - SRS planning
- Surgical Clinical Trial Exposure



Memorial Sloan Kettering
Cancer Center

4

Cranial Multidisciplinary Conferences

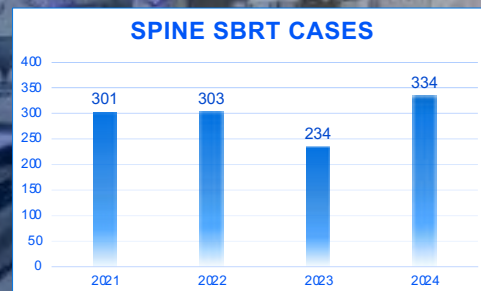
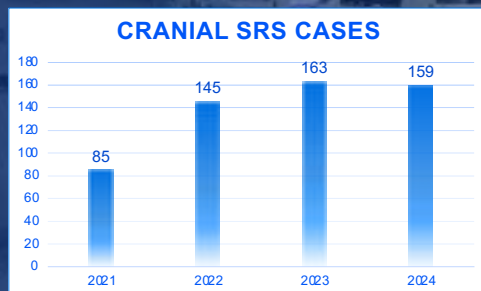
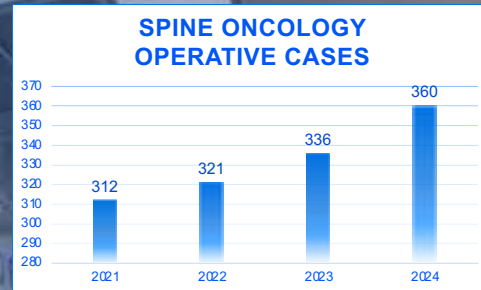
- Brain Tumor Board (glioma focus)
- Brain Metastasis Tumor Board
- Radiosurgery Tumor Board
- Pediatric Tumor Board
- Acoustic Neuroma Tumor Board (every other week)
- Pituitary and Skullbase Tumor Board (every other week)
- Sinonasal/Nasopharyngeal Tumor Board (every other week)
- Neuropathology Conference (monthly)



Not expected to attend every tumor board

5

Yearly Case Volume



6

Why choose MSK?

- **Complex Case Volume**
 - One of the largest and most diverse population of primary and metastatic tumors
- **Exposure to Novel Therapies**
 - Impact of novel therapies on surgical management
 - Integration of surgical options with complex decision making
- **Multidisciplinary team integration**
 - Complex tumor board discussions
 - Integrated clinics with radiation oncology, rehabilitation medicine, and pain services
- **Patient quality of life and survivorship**
 - Balancing maximal tumor control with quality of life and function
 - Extensive survivorship clinics and long-term outcomes
- **Advanced technology and clinical trial innovation**
 - Multiple active neurosurgery clinical trials
- **Academic and leadership development**
 - Mentorship from internationally recognized leaders
 - Significant publication opportunities

7



Moffitt Cancer Center

Program Director: Nam Tran, MD, PhD



H. LEE MOFFITT CANCER CENTER & RESEARCH INSTITUTE
 AN NCI COMPREHENSIVE CANCER CENTER - Tampa, FL
 1-888-MOFFITT (1-888-663-6468) www.MOFFITT.org
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Moffitt Cancer Center

Neurosurgical Oncology Fellowship



1



Faculty



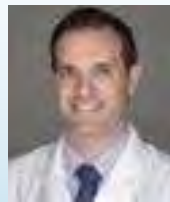
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Michael Vogelbaum, MD PhD
 Chief Neurosurgery
 Brain Tumors



Nam D Tran, MD PhD
 Fellowship Director
 Brain & Spinal Tumors



Andre Beer Furlan, MD PhD
 Associate Fellowship Director
 Skullbase Tumors



Arnold Etame, MD PhD
 Brain Tumors



James Liu, MD
 Brain & Spinal Tumors

Neuro-Oncology

- Peter Forsyth, MD
- Sepideh Mokhtari, MD
- Yolanda Pina, MD
- Edwin Peguero, MD
- Muhammad Jaffer, MD
- Ali-Musa Jaffer, MD

Neuro-Radiology

- Michael Yu, MD
- Donny Oliver, MD
- Rituraj Upadhyay, MD
- Jose Pinagaricano, MD

Neuro-Pathology

- Robert Macaulay, MD
- Yu Sun, MD
- Christine Walko, MD

Orthopedic Surgery

- Odion Binitie, MD
- David Joyce, MD
- Alexander Lazerides, MD

2

Services

350-400 spinal surgeries/year

- Curative (11%)
 - Pancoast tumors
 - Primary bone tumors
 - En bloc vertebrectomies and sacralectomies
 - Spinal cord/peripheral nerve tumors
- Palliative (80%)
 - Open and MIS tumor decompression and stabilization
 - Minimally invasive lateral access
 - Kyphoplasty/Spinal radiofrequency ablation
 - Navigation
 - Endoscope
- Diagnostic (3%)
 - biopsy
- Other (5%)
 - Degenerative disease in cancer patients

500-550 cranial cases/year

- Intra-axial (40%)
 - Glioma/metastasis
 - Awake craniotomies
 - DTI
 - LITT
 - HIFU/LIFU
- Extra-axial (9%)
- Skullbase (20%)
 - Pituitary
 - Vestibular
- Radiosurgery (25%)
-

3

Education


- Both cranial and spinal oncology
- 1 year clinical, optional 2nd year research
- 2 fellows, 1 neurosurgery resident
- Rotations
 - Neuro-oncology
 - Radiation-oncology
 - Pathology/molecular pathology
- Tumor Board
- Didactic lectures
- Journal club
- Case conference
- Specialty clinics
 - Neurofibromatosis
 - VHL
- Research
- Total Cancer Care (TCC)
- Phase 1-3 clinical trials
- Investigator Initiated Trials (IIT)

4



The Ohio State University

Program Director: J. Bradley Elder, MD






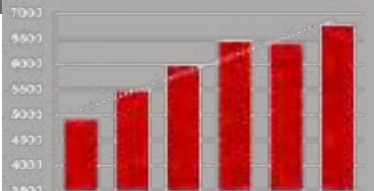

Neurosurgical Oncology Fellowship

Department of Neurological
Surgery

1

Neurological Surgery

Nationwide Children's	James Cancer Center	University Hospital
		
	4 Neurosurgery block/day 1200 cranial surgeries FY25	16 Neurosurgery (non-tumor) block/day



Year	Volume
Year 1	4800
Year 2	5500
Year 3	6000
Year 4	6500
Year 5	6800

2

Clinical



Surgical Neuro-Oncology



J. Bradley Elder, M.D.
Director



Kyle Wu, M.D.



John McGregor, M.D.



Daniel Prevedello, M.D.



Russell Lonser, M.D.



3

Radiosurgery



4

Leadership





JNS JOURNAL OF NEUROSURGERY
OFFICIAL JOURNAL OF THE AANS SINCE 1944



American Academy of Neurological Surgeons



Congress of Neurological Surgeons
The global leader in neurological education



American Association of Neurological Surgeons



The Society of Neurological Surgeons




NEUROSURGERY




OHIO STATE UNIVERSITY

5

Research



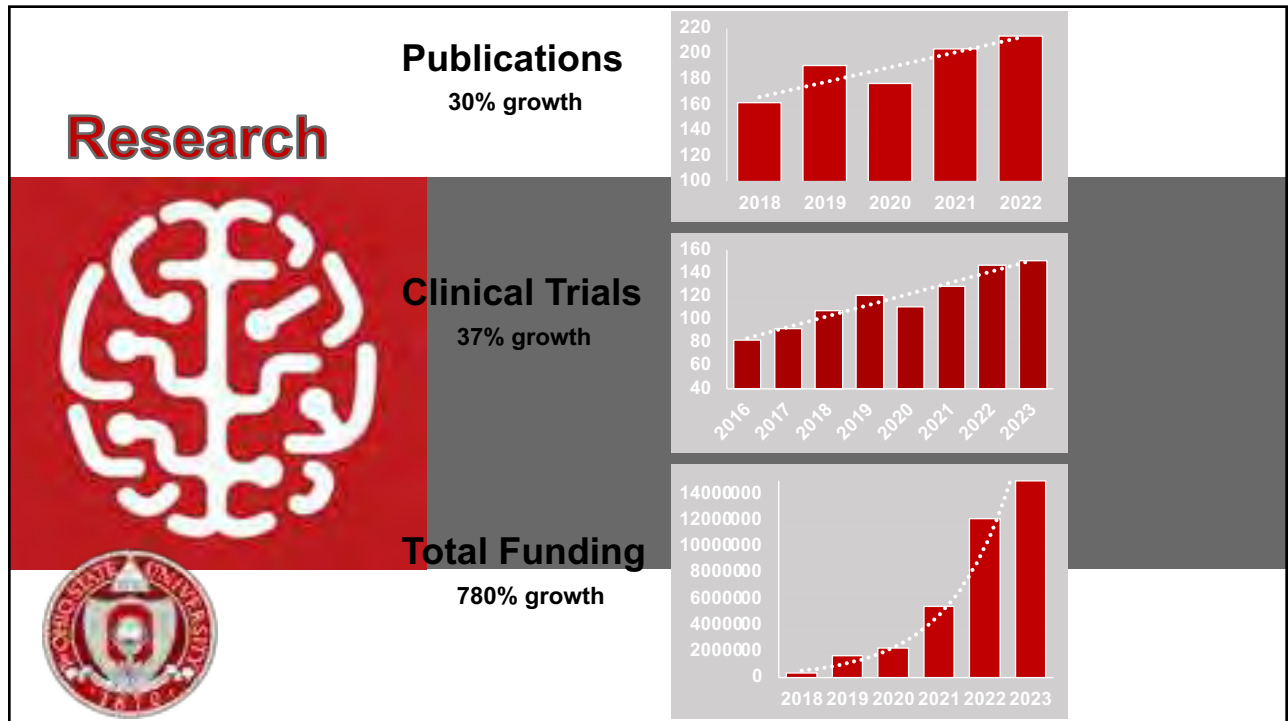
Academic Productivity



Department	i _n (5)-index		Summed h-index		Total Publications		Total Citations		Faculty Number
	Rank*	Number†	Rank	Number	Rank	Number	Rank	Number	
University of California, San Francisco	1 [30]	42 (1.273)	1	625	1	680	1	9048	33
University of California, Los Angeles	2 [15]	36 (1.565)	5	467	5	360	2	6038	23
University of Pittsburgh	3 [58]	31 (0.912)	4	471	3	388	5	4065	34
Brigham & Women's Hospital	3 [5]	31 (1.938)	16	289	10	263	4	4250	16
Johns Hopkins University	5 [55]	29 (0.936)	3	509	2	557	3	4795	31
University of Virginia	6 [2]	28 (2.000)	8	361	6	328	7	3552	14
Duke University Hospital	7 [7]	27 (1.800)	13	298	10	263	6	3783	15
Ohio State University	7 [35]	27 (1.227)	22	258	12	261	11	3013	22
St. Joseph's Hospital and Medical Center/Barrow Neurological Institute	9 [60]	26 (0.897)	2	513	4	365	8	3547	29
Stanford University	9 [48]	26 (1.000)	9	342	8	279	9	3534	26
Northwestern University	11 [43]	26 (1.130)	21	261	12	261	15	3013	23
Columbia University	12 [27]	25 (1.316)	6	410	7	291	10	3013	9

Taylor et al., *J Neurosurg*

6



7



Thank you!



Get real-time updates,
follow us on X/Twitter
[@neurosurgeryOSU](https://twitter.com/neurosurgeryOSU)

8



University of Miami (UMiami)

Program Director: Ashish Shah, MD

University of Miami Surgical Neuro-oncology Fellowship



1

Fellowship Structure

- 1 year post-graduate fellowship
- 2 fellows per year
 - Split weeks between clinic/OR/research and OR alone
- High degree of interaction and collaboration with the residents, ENT team, Neuro-ICU team
- 1 week of backup call per 12 weeks due to high number of fellows at UM



2

Mentorship

- **Primary mentors (neuro-onc)** – Dr. Ricardo Komotar and Dr. Ashish Shah
- Additional mentorship (skull base and some neuro-onc) – Dr. Mike Ivan and Dr. Carolina Benjamin
- Excellent, wide-ranging connections and perspectives from multiple viewpoints



3

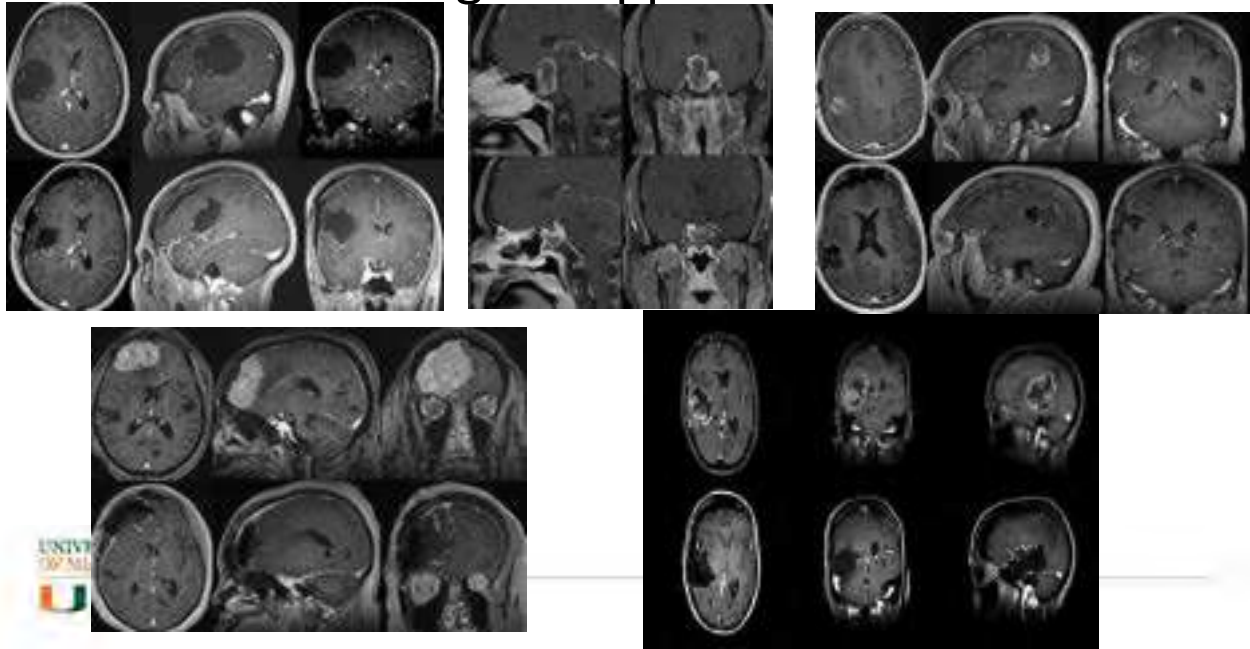
Surgical Opportunities

- Typical operative week:
 - Monday – four to six endoscopic endonasal surgeries
 - Tuesday – four craniotomies
 - Wednesday – clinical trial cases, lasers, biopsies
 - Thursday – four craniotomies
 - Friday – one to two cases, depending on what came into clinic/ER
- Each fellow will average 20-30 cases per month
- 1000+ tumor cases
- Clinic fellow is often operating on Tuesday and Thursday mornings to help with room coverage



4

Surgical Opportunities



5

Research Opportunities

- Dr. Shah Lab – glioblastoma tumor biology, translational therapeutics, multiple active clinical trials
- Dr. Ivan – Connectomics, brain-computer interfaces, skull base clinical research
- Dr. Komotar – high-volume clinical research output on tumors, laser therapy, etc.



6

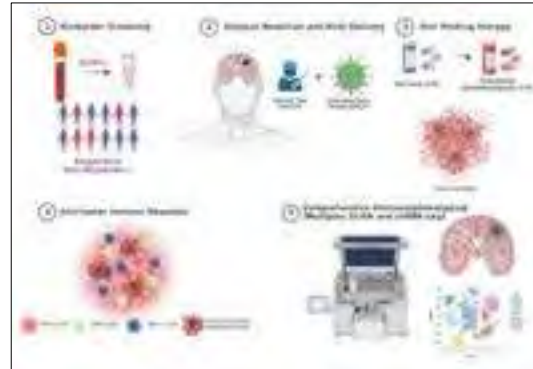
Research Opportunities

A Biomarker-Guided Phase 2 Study of DB107-RRV (a Retroviral Replicating Vector) Combined with DB107-...

INVESTIGATOR: Ashish Shah STUDY PHASE: Phase II ENROLLMENT STATUS: Open

STARLITE : A Phase 1 Study of STARLITE for Unresectable High-Grade Gliomas

INVESTIGATOR: Ashish Shah STUDY PHASE: Phase I ENROLLMENT STATUS: Open



A Phase 2 biomarker driven, study of DB107, a Retroviral Replicating Vector, Combined With 5-FU in Patients with Recurrent Glioblastoma or Anaplastic Astrocytoma

Project Number: 18275A200002 01 Principal Investigator: Ashish Shah, MD Institution: UNIVERSITY OF ALABAMA, SCHEERER



University of Southern California (USC)

Program Director: Gabriel Zada, MD

THE USC BTC FELLOWSHIP

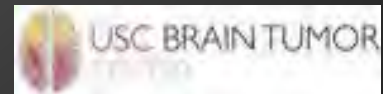


GABRIEL ZADA, MD, MS, FAANS

PROFESSOR OF NEUROSURGERY, OTOLARYNGOLOGY AND MEDICINE
 DIRECTOR, USC BRAIN TUMOR CENTER
 DEPARTMENT OF NEUROSURGERY, KECK SCHOOL OF MEDICINE OF USC



OCTOBER 2025
 CNS



1

PRINCIPLES EMPHASIZED

- Treatment of intra-axial and extra-axial brain tumors, focusing on the role(s) of multimodality treatment including surgical, radiation-based, medical, and gene based therapies
- -Principles of intra-axial cortical/subcortical surgery, including the role of intraoperative ultrasound, contrast agents, and awake craniotomy for mapping
- -Applications of neuro-endoscopy to skull base, intraventricular, channel-based (MIPS), and assisted keyhole craniotomy in neurosurgery
- -Endoscopic and open anterior/lateral skull-base approaches
- -Independent direct EEA to address sellar pathology
- -Collaborative approaches with ENT for EEA and complex CSF leak
- -Principles of radiosurgery and its role in current neuro-oncology
- -Collaboration with other multidisciplinary providers, including endocrinologists, radiation oncologists, oncologists, ophthalmologists, etc.
- Translational lab research program building

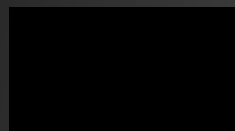
2

PROCEDURES EMPHASIZED

- Endoscopic skull base and pituitary surgery, including:
 - The Direct EEA to the sella
 - Extended EEA, including: Transcribriform approach, Transplanum approach, Transtuberculum approach, Transclival approach, Lateral/Transpterygoid approach
- Open anterior and lateral skull base surgery: Pterional and modified OZ, Bifrontal craniotomy, Retrosigmoid approach, Translabyrinthine approach
- Keyhole open/endoscopic approaches: Eyebrow supraorbital craniotomy, Mini-pterional craniotomy, Endoscopic retrosigmoid craniotomy, Endoscopic-assisted craniotomy
- Intraventricular neuro-endoscopy: ETV, Septum pellucidotomy, Colloid cyst + tumor resection
- Exoscopic channel-based craniotomy and minimally-invasive parafascicular surgery (MIPS)
- Deep-seated and intraventricular tumors, ICH
- Craniotomy for brain tumors with functional and awake mapping
- SRS: Gamma Knife and TrueBeam

3

MINIMALLY INVASIVE CRANIAL TUMOR SURGERY AT USC: 2011-2025 1,598 ENDOSCOPIC CASES (54% OF ALL CASES)



1) INTRAVENTRICULAR CHANNEL
NEURO-ENDOSCOPY (89)



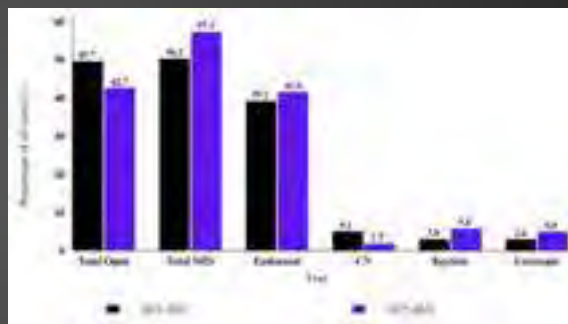
2) ENDOSCOPIC ENDONASAL
APPROACH (EEA) (1,247)



3) ENDOSCOPIC ASSISTED
KEYHOLE CRANIOTOMY (142)



4) EXOSCOPIC/ENDOSCOPIC
PORT-BASED APPROACH (120)



4




USC FRESH TISSUE "LIVE" CADAVERIC DISSECTION LABORATORY

Development of a Perfusion-Based Cadaveric Simulation Model Integrated into Neurosurgical Training: Feasibility Based On Reconstitution of Vascular and Cerebrospinal Fluid Systems

OPERATIVE NEUROSURGERY
CONCEPTS, INNOVATIONS AND TECHNIQUES

CADAVERIC SIMULATIONS AND MOCK OR


- EVD
- INTRAVENTRICULAR NEURO-ENDOSCOPY
- EEA/SKULL BASE WITH CAROTID + CSF PERFUSION
- STA-MCA bypass
- CEA
- SPINE DUROTOMY MODEL
- SSS INJURY MODEL


Gabriel Zada, MD*
Joshua Bakhsheshian, MD*
Martin Pham, MD*
Mike Minnati, BS*
Erika Christian, MD*
Jesse Winer, MD*
Aaron Robinson, MD*
Suzana Wrobel, MD*
Jonathan Russin, MD*
William J. Mack, MD*
Steven Giannotta, MD*

5

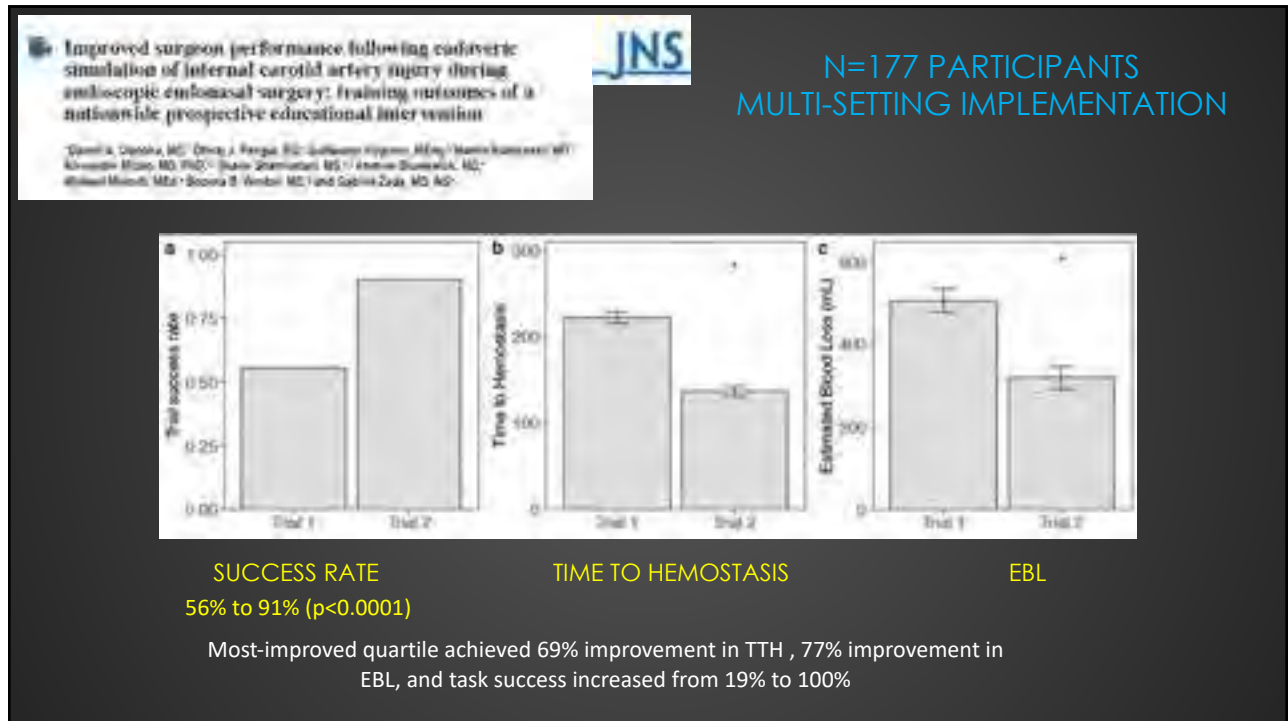
SIMULATION TASK: OBTAIN HEMOSTASIS USING COTTONOID FOLLOWED BY MUSCLE PATCH



1. **TEAMWORK** + VISUALIZATION
2. **HOVER**: UPGRADE SUCTION, IDENTIFY + CHARACTERIZE INJURY
3. **COVER**: OBTAIN INITIAL HEMOSTASIS USING COTTONOID
4. **SWITCH**: REPLACE COTTONOID WITH CRUSHED MUSCLE PATCH FOR DURABLE HEMOSTASIS



6



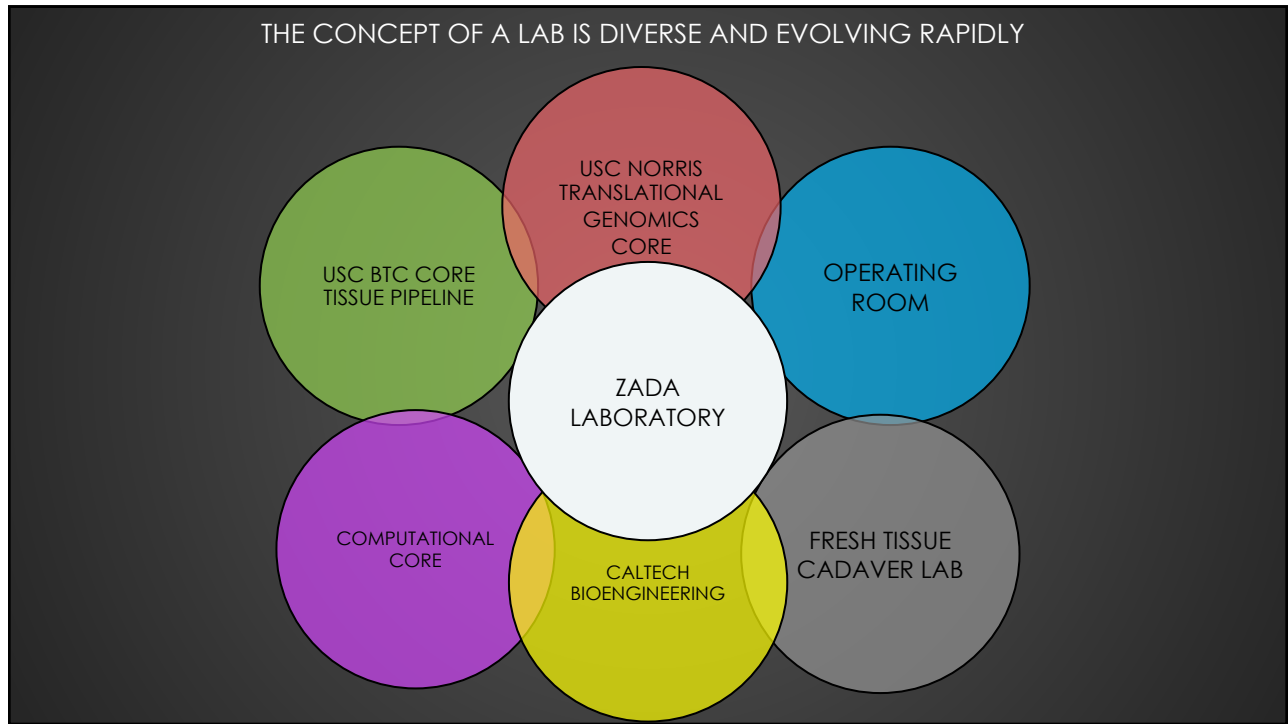
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**LESS INVASIVE, MORE IMPACTFUL:
FROM OR → BENCH → BEDSIDE**

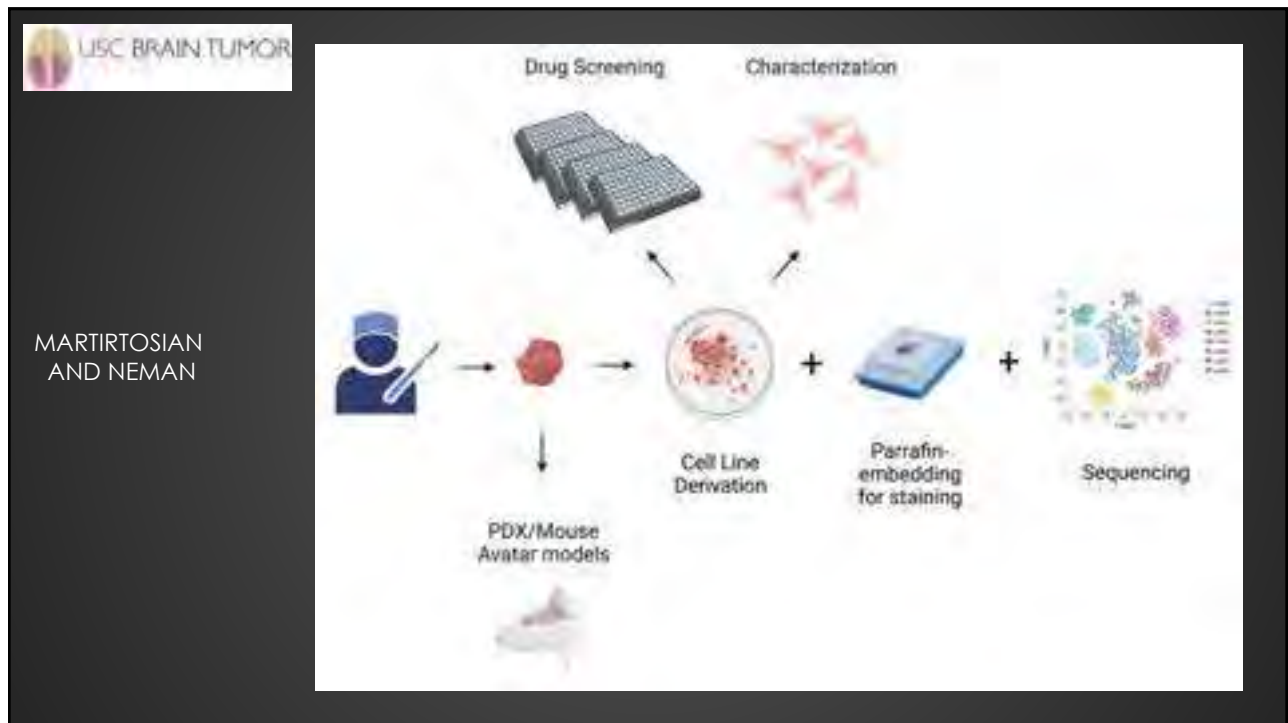
- All 3 USC BTC directors NIH-R01 funded
- Two junior faculty with K awards
- BTC Core: Tissue Collection & Culture Pipeline
 - Genomics & PERSONALIZED Drug delivery
 - Immunotherapy: Vaccines, LITT, CAR-T
 - Clinical trial expansion & IITs
- \$10.8M CIRM Grant: Awarded
- NIH P01 grant submitted (Salhia/Zada)
- Advancement + Community Advisory Council
- Template for Neuroscience Service Lines

Gene	Relative mRNA
Vitellogenin	~0.8
Proteinase 3	~0.7
Substrate 1	~0.6
Thymosin	~0.5
Myoglobin	~0.4
Proteinase 10	~0.3
Desmin	~0.2
Proteinase 9	~0.1
Proteinase 8	~0.05

8



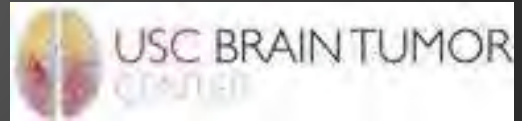
9



10

ACKNOWLEDGEMENTS

- CNS
- JOINT TUMOR SECTION
- KHOI THAN MD
- DANIEL HOH MD
- MARTIN WEISS MD
- USC BRAIN TUMOR CENTER
- FELLOWS:
 - MARTIN RUTKOWSKI, MD
 - ANDREW BRUNSWICK, MD
 - BEN STRICKLAND, MD
 - JACOB RUZEVICK, MD
 - STEPHANIE CHEOK, MD
 - ILARIA BOVE, MD
 - RACHEAL PETERSON MD
 - JONATHAN SISTI, MD
 - R. GRADY BRIGGS, MD





University of California, Los Angeles (UCLA)

Program Director: Richard G. Everson, MD

UCLA Fellowship *Neurosurgical Oncology*

- Ronald Reagan UCLA Medical Center
- Eight Dedicated Faculty
- One Fellow, One Year
- Six campus clinics & programs
- CAST accredited



RRUMC



Fellowship Director
Richard G. Everson, MD
Assistant Professor
Neurosurgery



Resident Shivani Baisiwala, MD, Richard Everson, MD,
Past Fellow Sophie Peeters, MD

In the Operating Room

Fellows work alongside Neurosurgery Residents and act as first assistant surgeon to the NO faculty. Fellows and faculty work together in outpatient clinics & pre/post operative patient management.

Operative Cases

- Spinal & Skull Base Tumors
- Radiosurgery
- Craniotomies

Case Volume Annually

- Departmental Cases ~800
- Fellows ~200+

Brain and Tumor Faculty



Linda M. Liau, MD, PhD, MBA
Department Chair
Director of UCLA Brain Tumor Program



Richard Everson, MD
Neurosurgical Oncology
Fellowship Director



Kunal S. Patel, MD



Marvin Bergsneider, MD
Director of UCLA Pituitary & Skullbase Tumor Program
Skullbase Fellowship Co-Dir.



Gregory Lekovic, MD, PhD
Skullbase Fellowship
Co-Director



Anthony Wang, MD
Associate Program Director



Won Kim, MD
Vice Chair,
Clinical Affairs



Isaac Yang, MD

Weekly Schedule Monday-Friday

Monday: OR & Case conference

Tuesday: Clinic, NF & Lateral Skull Base
Board meeting (*weekly*)

Wednesday: OR & Departmental
conference, Radiosurgery conference,
Brain SPORE meeting & Brain Tumor
Board meeting (*weekly*). Pituitary Tumor
Board meeting (*monthly*).

Thursday: OR & research

Friday: OR & research

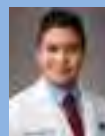
Call & Conferences

On call every 4th week

Monthly QA conference

Fellow Responsibilities

- Lead Multi-disciplinary Tumor Board, CNS Radiation Oncology Board, Pituitary Tumor Board
- Present Neurosurgery Grand Rounds
- Present & lead at Journal Club
- Present didactic sessions & lead Anatomy Lab for Residents
- Meet required case volumes



Joshua Casaos, MD
PGY 7 Resident
Current Fellow
(Enfolded)



Benjamin Uy, MD, PhD
**Skullbase NSGY Fellow,
UC Irvine**
Fellow 2024-2025



Sophie F. Peeters, MD
**Neurosurgeon,
Neurosurgical Group of
Texas**
Fellow 2023-2024



Kunal S. Patel, MD
**UCLA Neurosurgery
Faculty**
Fellow 2022-2023

Research Opportunities at UCLA

Richard Everson, MD, Maya Harary MD, Robert Prins, PhD



The UCLA Brain Tumor Center is designated as a Specialized Program of Research Excellence (**SPORE**) site funded by the National Cancer Institute.

Principal Investigator Dr. Linda Liau brings together basic science researchers & clinicians to translate basic research from the lab into patient clinical trials.

Current SPORE Research Projects

- Targeting Immunotherapy-induced Resistance with DC Vaccination & Immune Modulation
- Overcoming Drug-induced Resistance to Intrinsic Apoptosis in Glioblastoma
- Targeting Glioblastoma Cells & Tumor Microenvironment with Bispecific CAR-T Cell Therapy to Overcome Resistance

Ronald Reagan UCLA Medical Center (RRUMC) is the campus location for

- UCLA Brain Tumor Program
- UCLA Brain Cancer SPORE Program
- Skullbase & Pituitary Program
- Radiosurgical Program
- Neuro-Oncology Translational Research Training Program
- Neurofibromatosis Clinic

Interested in Applying?

- CV
- Personal Statement
- USMLE Scores
- 3 Letters of Recommendation

**We are currently unable to accept international applicants*

Please email questions & application materials to the Fellowship Coordinator Abigail McCann, MPA

amccann@mednet.ucla.edu



Scan for Website



Thank You!





Yale University

Program Director: Jennifer Moliterno, MD

Yale Neurosurgical Oncology

Jennifer Moliterno, MD, FAANS

Chief, Neurosurgical Oncology
 Clinical Director, Chênevert Family Brain Tumor Center
 Director, Susan Beris, MD Neurosurgical Oncology Program
 Director, Neurosurgical Oncology Fellowship
 Surgical Director, Facial Pain and Spasm Program
 Professor, Yale School of Medicine

Frank Mezzacappa, MD

CAST Neurosurgical Fellow 25-26, Yale Neurosurgical Oncology

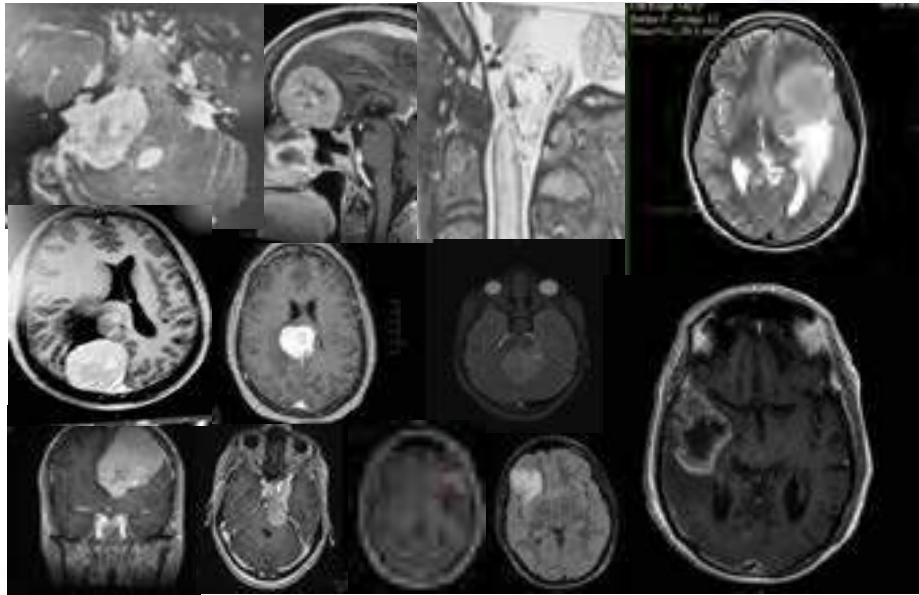
1

Yale Neurosurgical Oncology: The Clinical Enterprise

- We are **the premier** academic neurosurgical oncology program in Connecticut
- Highest volume of brain tumor patients and surgeries each year
- Full spectrum of complex neurosurgical oncology cases referred by other neurosurgeons across the region and beyond
 - Routinely perform tertiary, quaternary, “marquee” surgical cases
 - Gliomas in eloquent cortex
 - Vestibular schwannomas
 - More aggressive meningiomas
 - Pineal, intraventricular tumors
 - Pituitary and sella tumors
- Every tumor undergoes whole exome sequencing
- Weekly Multidisciplinary Tumor Board, Precision Brain Tumor Board
- Surgical clinical trials

2

Our Typical Primary Brain Tumor Surgical Practice



Yale-Peapack Health
Smile Cancer Institute

Yale
Peapack Health

3

What We Offer and Can Teach You

- Subspecialized expertise
- Advanced imaging
- Neuronavigation
- Ultrasound
- iMRI
- Hybrid intraop angio suite
- Neurophysiology/ Functional Mapping
- Awake surgery
- Advanced microsurgery and various approaches
- Endoscopic endonasal
- Gamma Knife Radiosurgery



Emphasis on Efficient and Safe Complex Tumor Surgery

Yale-Peapack Health
Smile Cancer Institute

Yale
Peapack Health

4

Fellowship Details

- Centered in the Yale Department of Neurosurgery and Yale Brain Tumor Center at Smilow Cancer Hospital
- 1 year clinically oriented fellowship, 1 fellow per year
 - >300 cases/year
- Comprehensive management of brain and skull base tumor surgery, with focus on primary central nervous system neoplasms
 - Integration with related services (neuro-oncology, neuroradiology, radiation oncology, neuropathology, etc.)
 - Team-based patient-centered management with residents and inpatient and outpatient APPs
 - Dedicated NICU
- Standard 4 operative days per week and 1 day split with clinic and educational conferences
- Robust research opportunities with large prospective genomics database (maintained by a team) and collaborations within the Yale scientific community
 - Participate in reviews, chapters, ongoing projects



CAST Neurosurgical Oncology Fellowship

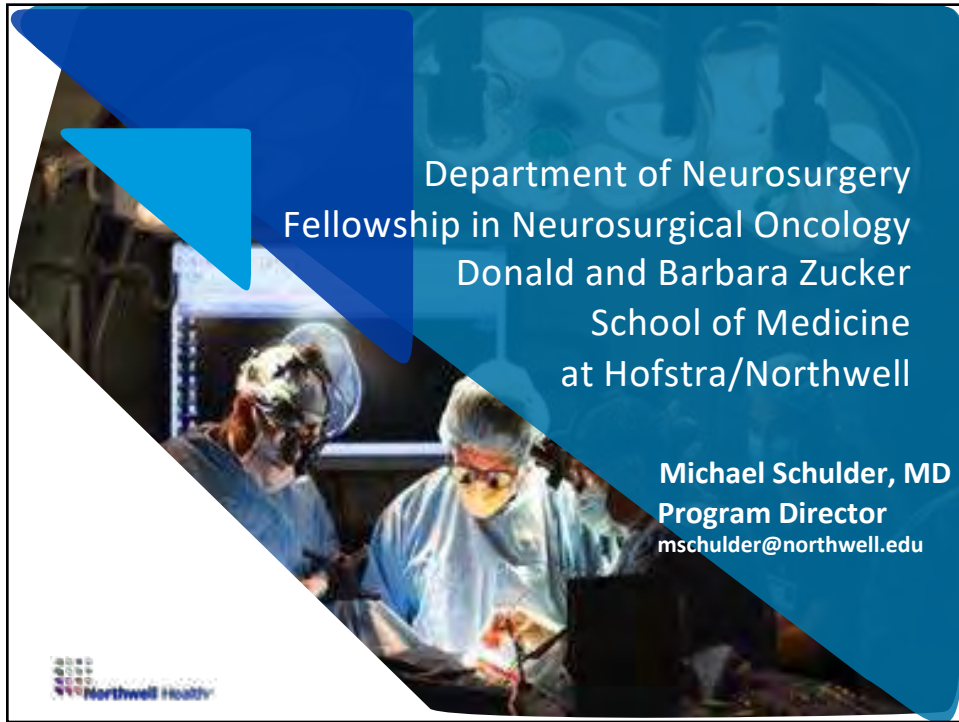


For more information:
jennifer.molinternogunel@yale.edu
kaitlyn.Rowley@yale.edu (administrative assistant)



Zucker SOM / Northwell

Program Director: Michael Schulder, MD




Department of Neurosurgery
Fellowship in Neurosurgical Oncology
Donald and Barbara Zucker
School of Medicine
at Hofstra/Northwell

Michael Schulder, MD
Program Director
mschulder@northwell.edu

Northwell Health

1



North Shore University Hospital

Long Island Jewish Medical Center

2

Neurosurgical Oncology Faculty

Neurosurgery








Radiation Medicine






3

Division of Clinical Research

NSUH Research Team


Nancy D'Amico, MD, PhD
Chief of Neurosurgical Oncology


Michael Eckman, MD
Neurosurgeon


Jung Park, MD, PhD
Neurosurgeon


Mark Sills, MD
Neurosurgeon


Joann Barthelemy, NP
Research Coordinator


Angela Traversa, MD
Neurosurgeon


Anuj Goenka, MD
Neurosurgeon


Michael Sills, MD
Neurosurgeon

Active clinical trials program for patients with brain tumors – phases 1 through 3.

Our outstanding research coordinators manage all the details and are available to help you bring your ideas for research into reality!



Joann Barthelemy, NP
Research Coordinator

- **INTRACRANIAL PRESSURE - 23 enrolled**
- **Fluorophore (SAM) - 8 enrolled**
- **Hyperflex Study (novel pathologies) - 20 enrolled**
- **IMMUNOTHERAPY - 22 enrolled**
- **Novel pCRMs - 22 active**
- **Novel Study - 8 active**
- **Novel Therapeutic - 10 active**





4

2

2025-26 Academic Year Neurosurgery Residents

We have an excellent and diverse group of residents, who enjoy working with our fellows


 Muhammad Ali Icahn School of Medicine at Mount Sinai	 Hayley Doaldson Rutgers, Robert Wood Johnson School of Medicine	 James Duehr University of Pittsburgh School of Medicine	 Jacob Gluski Wayne State University School of Medicine	 Danielle Golub New York University School of Medicine	 Audrey Grossen The University of Oklahoma
 Sebastian Hajtovic CUNY School of Medicine	 Alon Kashanian American Program at Tel Aviv University Faculty of Medicine	 Daniel Lynch Donald & Barbara Zucker School of Medicine	 Joshua McBriar Donald & Bargarua Zucker School of Medicine	 Shyle Mehta Drexel University College of Medicine	 Isabella Pecorari Albert Einstein College of Medicine
 Miriam Shao Albany Medical College	 Daniel Toscano Georgetown University School of Medicine	 Justin Turpin Sidney Kimmel College at Thomas Jefferson University	 Prashin Unadkat K J Somaiya Medical College & Research Center	 Max Ward Rutgers New Jersey Medical School	 Cassidy Werner Tulane University School of Medicine

5

Northwell neurosurgical oncology procedures

We welcome your interest in our program – please contact Ms. Rita Raio, our Training Program Manager at rraio@northwell.edu or Dr. Schulder at mschulder@northwell.edu with any questions!

Description2	2023-2024 (2 sites)	2024-2025
Crani for Intra-axial tumor		
Glioma/Primary Brain Tumor	74	142
Metastasis	35	54
Crani for extra-axial tumor		
Meningioma	64	85
Intra-ventricular	12	6
Radiosurgery	298	393
Biopsy/Stereotactic	25	60
Craniotomy for skull base tumor		
Vestibular Schwannoma	11	13
Other skull base surgery	31	44
EEA/craniotomy sellar/parasellar	82	80
Spinal Tumors		
Intramedullary	6	13
Extramedullary/metastasis	46	100
TOTAL	684	990



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