



Washington University School of Medicine

NEUROSURGERY Residency Program



Washington
University in St. Louis
SCHOOL OF MEDICINE

“

“Every faculty member had a vested interest in my success and did their absolute best to give me all the right tools, in the operating room and out, to be a great neurosurgeon.”



Amy Lee, MD, FAANS, Pediatric Division Chief, associate professor of neurological surgery at the University of Washington, Seattle Children’s Hospital.

Lee completed her neurosurgery residency at Washington University School of Medicine/Barnes-Jewish Hospital and her fellowship at St. Louis Children’s Hospital.

Chair Gregory J. Zipfel, MD (*below*)





Outstanding Training

Recognized as one of the best in the world, the Washington University Neurosurgery Residency training program prepares residents for exceptional careers as neurosurgeons and neurosurgeon-scientists.

Supported by one of the top hospitals in the U.S., substantial research funding, some of the most creative minds in academic medicine, and the latest technologies, our residents learn how to study and solve neurosurgical problems at the very highest level. All of this takes place at the top-ranked Washington University School of Medicine as it embarks on its \$1 billion 10-year growth plan.

Our culture of excellence is founded in our unique approach: a program intentionally designed to give residents one-on-one mentorship from world-class faculty members. This personal level of training prepares residents for long, successful, and fulfilling careers in academic and clinical medicine.

TOP

10

residency program as rated by
Doximity / U.S. News & World Report

4,600+

neurosurgical cases per year

10

RO1s among seven faculty: most
RO1-funded neurosurgeons in the U.S.

24

months for residents to
pursue dedicated research

65%

of graduates go into academics
including 8 Chairs/Division Chiefs and
6 Professors in the last 20 years



Dedicated to creating world-class surgeons

Our residents are exposed to high clinical volume and thorough immersion in every subspecialty including pediatrics. They learn directly from our 21 faculty members who are all experts in their respective fields.



surgical dissection experiences comprise the weekly didactic structure of the program.

STATE-OF-THE-ART FACILITIES

In St. Louis, our residents train at one of the country’s largest medical centers, which includes Barnes-Jewish Hospital, Alvin J. Siteman Cancer Center, and St. Louis Children’s Hospital. The center serves a diverse region of more than 3 million people and draws patients from all 50 states and more than 80 countries.

CONTINUITY OF TRAINING

Our program gives residents continuity in each subspecialty in order to build their confidence, gain trust from the attending physicians, and ultimately, gain autonomy. Our junior and senior residents spend 3-month long rotations working with the same four or five attendings within a subspecialty. This continuity instills a deep understanding of the disease processes encountered by neurosurgeons across subspecialties.

A new state-of-the-art neurosurgery and neurology intensive care unit including an in-unit CT scanner opened in August 2019, which increased neurocritical bed capacity at Barnes-Jewish Hospital from 20 to 44. In addition, a \$620 million neuroscience research building is scheduled to open in 2022, which will dramatically expand neurosurgery research laboratory space including creation of a multidisciplinary Brain Tumor Research Center. Finally, a new inpatient bed tower designed to markedly expand the neurosurgery and neurology bed platform is scheduled to open in 2023.

RESIDENT CURRICULUM

Resident education is one of the centerpieces of the department. Surgical case conferences, grand rounds, a longitudinally designed curriculum conference, journal club, and

IRELAND ROTATION

Our residents are given the opportunity to expand their surgical skills during a six-month



“When you talk to graduates of this program, they say when you graduate you realize you got exactly the right training.”



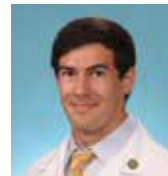
PGY6 resident Bhuvic Patel, MD

international elective at Beaumont Hospital in Dublin, Ireland. This rotation represents a critical point in training, when residents are able to increase their surgical independence and experience. The rotation also provides residents with exposure to a nationalized health care system that consolidates specialty medical care into designated care centers like Beaumont, which cares for neurosurgical patients from more than 90% of the country. The experience is also personally enriching, as Ireland is a jumping off point to visit the many wonderful destinations throughout Europe.



“We see everything. We get the full scope of neurosurgery with a highly individualized education. With this kind of support, we are able to learn good habits and become confident — all in an environment where every specialty is world class.”

Chief resident
Daniel M. Hafez, MD, PhD



4,602

SURGICAL CASES PER YEAR

949

Neuro-oncology

368

Functional

1,307

Spine

534

Vascular

961

Pediatric



Commitment to world-class research

Washington University School of Medicine has one of the most comprehensive research programs in the country.

Neurosurgery residents are provided expansive opportunities for basic science, clinical, and translational work across the major

subspecialties of neurosurgery and related diseases. Dedicated research programs led by faculty in the department of neurosurgery include brain tumor immunotherapy, brain tumor stem cells, brain-computer interface, neural plasticity, neural networks, Chiari and syringomyelia, neonatal intraventricular hemorrhage/hydrocephalus, subarachnoid hemorrhage, vascular dementia, spinal cord injury, peripheral nerve injury and neuroprosthetics, neurogenetics, and Huntington's disease. Our faculty and residents are integrated into

many of the key research areas at the medical school, including neuroscience, immunology, cancer biology, developmental biology, genetics, and engineering.

UP TO 24 MONTHS PROTECTED RESEARCH TIME

Residents identify a mentor inside or outside the Department of Neurosurgery and develop a proposal for a research project that is pursued for up to 24 months during PGY5 and PGY6 years of training. Residents can

choose from a broad range of research topics in laboratories throughout the world-class research environment at Washington University. To aid in the development of their research projects, residents present their research plans to a prestigious committee of physician-scientists known as the Neuroscience Research Mentorship Group. These mentorship meetings are held on a quarterly basis and are attended by residents who are preparing for their research years and those that are in the midst of the research programs. Clinical responsibilities are extremely limited during this period of dedicated research to allow residents to focus on their academic productivity.

RESIDENT RESEARCH FUNDING AND AWARDS

Residents are often awarded independent funding and fellowships including awards from the NIH, NREF, and other foundations. Residents also have the opportunity to participate in the department's prestigious R25 Resident Research Education Program Grant funded by the NIH. A neurosurgery research mentorship group meets quarterly to support resident efforts to develop projects and obtain funding.

MOST PRODUCTIVE

Our residency is a top-10 training program in average H-index ranking of our residents,

making it one of the most productive in the country. Recent graduates have had high-quality publications in some of the most elite scientific journals including *Science*, *Nature Medicine*, *New England Journal of Medicine*, *JAMA*, *Stroke*, and *Journal of Neuroscience* and the highest impact neurosurgical journals including *Journal of Neurosurgery* and *Neurosurgery*.



\$11.8 million

in research awards in 2020

R25

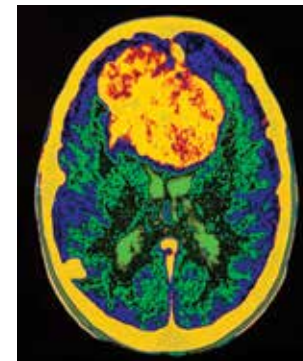
prestigious training grant to support neurosurgery resident research

12

federally funded laboratories

#11

neurosurgery research department in the country based on NIH funding



Faculty

Our faculty hold or have held 18 national leadership roles in important academic and clinical societies and serve as members or chair on seven journal editorial boards. They are leaders in innovation and clinical care. Most importantly, they serve as mentors for our trainees.



Gregory J. Zipfel, MD

Ralph G. Dacey Professor and Chair of Neurosurgery



David D. Limbrick, MD, PhD

Executive Vice-Chair and Chief of Pediatric Division | T.S. Park Professor of Neurosurgery



Wilson Z. Ray, MD

Vice-Chair; Chief of Spine Division Professor of Neurosurgery



Peter Brunner, PhD

Assoc. Professor of Neurosurgery



Michael R. Chicoine, MD

August A. Busch, Jr. Professor of Neurosurgery



Ralph G. Dacey, Jr., MD

Henry G. & Edith R. Schwartz Professor of Neurosurgery



Ian G. Dorward, MD

Assoc. Professor of Neurosurgery



Joshua L. Dowling, MD

Professor of Neurosurgery



Gavin P. Dunn, MD, PhD

Residency Program Director
Assoc. Professor of Neurosurgery



Gabriel Haller, PhD

Asst. Professor of Neurosurgery



Albert H. Kim, MD, PhD

Director of Brain Tumor Program
Assoc. Professor of Neurosurgery



Eric C. Leuthardt, MD

Chief of Neurotechnology Division
Professor of Neurosurgery



Pat McAllister, PhD

Professor of Neurosurgery



Sean D. McEvoy, MD

Asst. Professor of Neurosurgery



Camilo Molina, MD

Deputy Director, Spine Innovation at CINT
Asst. Professor of Neurosurgery



Joshua W. Osburn, MD

Assoc. Residency Program Director
Asst. Professor of Neurosurgery



Tae Sung Park, MD

Shi H. Huang Professor of Neurosurgery



Brenton Pennicooke, MD

Asst. Professor of Neurosurgery



Allegra Petti, PhD

Asst. Professor of Neurosurgery



Keith M. Rich, MD

Professor of Neurosurgery



Paul Santiago, MD

Professor of Neurosurgery



Ismael Seáñez, PhD

Asst. Professor of Neurosurgery

Faculty



Matthew D. Smyth, MD
Appoline Blair Professor of Pediatric
Neurosurgery | Professor of Neurosurgery



Jennifer M. Strahle, MD
Assoc. Professor of Neurosurgery



Jon T. Willie, MD, PhD
Director of Stereotactic, Functional,
and Epilepsy Surgery | Assoc. Professor
of Neurosurgery



Hiroko Yano, PhD
Assoc. Professor of Neurosurgery

PGY6



Chris Dibble, MD, PhD
UNC – Chapel Hill



Jacob Greenberg, MD
Washington University



Bhuvic Patel, MD
Washington University

PGY3



Diane Aum, MD
Washington University



Ridhima Guniganti, MD
Washington University



Rowland Han, MD
Washington University

PGY5



Rupen Desai, MD
Duke University



Anna Huguenard, MD
Emory University



Peter Yang, MD
Columbia University

PGY2



Sean Gupta, MD
Columbia University



Derek Li, MD
Northwestern University



Benjamin Plog, MD, PhD
University of Rochester

Neurosurgery Residents

CHIEFS



Adam Bevan, MD, PhD
The Ohio State University



Dan Hafez, MD, PhD
Rosalind Franklin



Peter Sylvester, MD
Eastern Virginia

PGY4



Kevin Cross, MD
Washington University



Carl Hacker, MD, PhD
Washington University



Anja Srienc, MD, PhD
University of Minnesota

PGY1



Michelle Connor, MD
University of Southern California



Charise Garber, MD, PhD
Washington University



David Giles, MD, PhD
University of Michigan

Neurosurgery alums

90% complete subspecialty fellowships

65% in academic practice

2020

Brendan Fong, MD

Skull Base Fellow, University of California Irvine

Richard Price, MD, PhD

Spine Fellow, Swedish Neuroscience Institute

Afshin Salehi, MD

Pediatric Fellow, Washington University in St. Louis

2019

S. Hassan Akbari, MD

Assistant Professor of Neurosurgery, Penn State

Ashwin Kamath, MD

Private Practice, Texas

Ananth Vellimana, MBBS

Endovascular Fellow, Washington University in St. Louis

2018

Katie Dlouhy, MD

Assistant Professor, University of Iowa

Jarod Roland, MD

Assistant Professor, UCSF

Zohny Zohny, MD

Private Practice, Oklahoma

2017

Eric Arias, MD

Private Practice, Colorado

Thomas Beaumont, MD, PhD

Assistant Professor, UCSF

Bradley Stephens, MD

Army, Hawaii

2016

Ammar Hawasli, MD, PhD

Private Practice, Missouri

Rory Murphy, MD

Assistant Professor, Barrow Neurological Institute

Chester Yarbrough, MD

Assistant Professor, Duke University

2015

S. Katie Bandt, MD

Assistant Professor, Northwestern University

Terry Holekamp, MD, PhD

Private Practice, Missouri

Matthew Reynolds, MD, PhD

Assistant Professor, Loyola University

2014

Devon Hayden, MD

Private Practice, Florida

Chad Washington, MD

Chairman; Associate Professor, University of Mississippi

2013

Manish Shah, MD

Assistant Professor, University of Texas/Houston

Ivan Stoev, MD

Private Practice, Florida

2012

Ian Dorward, MD

Associate Professor, Washington University in St. Louis

Eriks Lusis, MD

Private Practice, Michigan

2011

Wilson Z. Ray, MD

Vice-Chair; Chief of Spine Division

Professor, Washington University in St. Louis

Jon Willie, MD, PhD

Associate Professor, Washington University in St. Louis,

Director, Stereotactic, Functional and Epilepsy Surgery

2010

Spiros Blackburn, MD

Associate Professor, University of Texas/Houston

Amy Lee, MD

Associate Professor and Division Chief of Pediatrics,

University of Washington

2009

Jim Johnson, MD

Associate Professor, University of Alabama

Daniel Refai, MD

Associate Professor, Emory University

2008

Srinivas Prasad, MD

Associate Professor, Jefferson University

Nilesh Vyas, MD

Private Practice, Virginia

2007

William Ashley, Jr., MD, PhD

Private Practice, Maryland

David Limbrick, Jr., MD, PhD

Executive Vice-Chair; Chief of Pediatric Division

Professor, Washington University

2006

Sarah Fouke, MD

Private Practice, Missouri

Jose Menendez, MD

Private Practice, Arizona

2005

Douglas “Kit” Fox, MD

Private Practice, Texas

Eric Leuthardt, MD

Chief of Neurotechnology Division

Professor, Washington University

2004

Richard Lytle, Jr., MD

Private Practice, North Carolina

David Walker, MD

Private Practice, Oregon

2003

James Lu, MD

Private Practice, Missouri

Dennis Rivet, MD

Associate Professor, Virginia Commonwealth University

2002

Jeffrey Leonard, MD

Professor and Division Chief of Pediatrics, The Ohio State University

Todd Stewart, MD

Private Practice, Missouri

2001

Stuart Kaplan, MD

Private Practice, Nevada

John Wanebo, MD

Director, Moyamoya Center, Barrow Neurological Institute

2000

Eric Sherburn, MD

Private Practice, Oklahoma

Neill Wright, MD

Private Practice, Illinois

1999

Jeffrey Ojemann, MD

Professor and Vice-Chair, University of Washington

Michael Vogelbaum, MD, PhD

Chief of Neurosurgery and Professor, Cleveland Clinic

St. Louis quality of life

St. Louis is known as one of the most livable cities in the U.S., a place where residents can afford to buy their own home, commute to work by short car ride, bike, or on foot; and, at the same time, enjoy all the cultural activities a great city can offer.

ENTERTAINMENT

Within five miles of Washington University School of Medicine, residents cheer on the Cardinals at Busch Stadium, see *Hamilton* and other Broadway shows at the Fox Theatre,



revel in Bach at the Saint Louis Symphony, attend Slam Poetry contests in north city, deconstruct Van Gogh and Monet paintings at the Saint Louis Art Museum, and pet stingrays at the Saint Louis Zoo. Because the winters are short, residents can also play golf or tennis in Forest Park, directly across the street from the hospital, starting as early as March and as late as November.

ENERGY

With substantial resources for startups, St. Louis has become a top destination for entrepreneurs, attracting a growing millennial population, and with them an expansive network of craft breweries, music venues and restaurants. In fact, Yelp recently named St. Louis the No. 2 “food city” in the U.S. just behind San Francisco.

CAMARADERIE

Neurosurgery residents enjoy many of these St. Louis venues together, during the monthly department-funded social events, at gatherings with faculty, and in outings planned on their own.

Because of the camaraderie within the program, and all of the fun activities they can do together in St. Louis, residents find that they make some of their best, lifelong friends here.



Washington University School of Medicine
Department of Neurosurgery

Gregory J. Zipfel, MD, *Department Chair*
Gavin P. Dunn, MD, PhD, *Program Director*
Joshua W. Osbun, MD, *Associate Program Director*
Sophie Church, *Program Coordinator*

Contact: Sophie Church
660 South Euclid Ave., CB 8057
St. Louis, MO 63110

314-362-3636
sophie.church@wustl.edu