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From the Chair

Greetings, and welcome to the Spring 2016 AANS/CNS Section on Tumors newsletter!



*Frederick G. Barker,
MD, FAANS
Chair, Section on Tumors*

As I write, final arrangements are being made for the Tumor Section program at the 2016 AANS Annual Scientific Meeting. Program officers, Matt Tate, MD, PhD and Gelareh Zadeh, MD, PhD, FRCS have assembled a cutting-edge program with special sessions on “Precision Medicine,” featuring speakers Ken Aldape, MD (Integrating OMICS into clinical practice), Roeland Verhaak, PhD (Can you DIY large scale genomic data analysis?), Don Berry, PhD (Targeted clinical trials design: iSPY), Amy Heimberger, MD, FAANS (Immunotherapy) and a molecular tumor board; and “Surgical Innovation,” including Costas Hadjipanayis, MD, PhD, FAANS (5-ALA), Gene Barnett, MD, MBA, FAANS (Laser ablative surgery), Manish Aghi, MD, PhD, FAANS (Intraoperative adjuncts & beyond in glioma surgery), Michael Vogelbaum, MD, PhD, FAANS (Convection enhanced delivery), Dr. Zadeh (Focused ultrasound) and Colin Watts, FRCS, PhD (Role of the neurosurgical specialist in multidisciplinary glioma treatment). In addition, there will be abstract sessions and this year’s Bittner lecture presented Monday afternoon by Michael Taylor, MD, PhD, entitled “Heterogeneity through space and time drive the clinical behaviors of childhood posterior fossa tumors.”

As my term as Tumor Section chair winds down, it is a pleasure to review all the members of the Executive Committee have accomplished

during the last three years. I will mention just a few highlights. In awards, Dr. Aghi, working with our development co-chairs, established two new research awards, the Brian D. Silber Award for research on spinal tumors (with generous support from the Silber Family) and the Columbia Softball Tournament Award for pediatric brain tumor research (special thanks to Jeff Bruce, MD, PhD, FAANS). Jason Heth, MD, FAANS, our Bylaws officer, carried through two bylaws revisions, the first clarifying our committee structure and harmonizing the bylaws with gender-neutral language; and the second clarifying plans for leadership succession in case of failure of an Officer to complete their term.

Clinical Trials officers Ian Parney, MD, PhD, FAANS; Dan Cahill, MD, PhD, FAANS; and J. Brad Elder, MD, FAANS provided continuous updates from NCI Clinical Trials Network groups NRG and the Alliance, and the upcoming 2016 AANS Annual Scientific Meeting will feature both our first Surgical Investigators’ Lunch on Sunday at noon (assembled by Andy Sloan, MD, FAANS and sponsored by ABTC) and an informational meeting on the Alliance 07110 heat shock vaccine protocol on Sunday at 3 p.m. (coordinated by Dr. Parney and Orin Bloch, MD, co-PI’s). Historian Tony D’Ambrosio, MD, FAANS coordinated the scanning and website display of our Section’s founding documents, long thought to be lost, but rediscovered and presented to the Section by Founder Mark Rosenblum, MD, FAANS(L) at the 2015 Satellite Meeting.


IT/Website co-chairs, Chris McPherson, MD, FAANS and Jeff Weinberg, MD, FAANS

wrangled our new website into a functioning enterprise. Our 10 program officers lined up great programs at three AANS, three CNS and one Satellite meetings, and Young Neurosurgeon liaisons, Kai Chaichana, MD and Ian Dunn, MD, FAANS put on six great Young Neurosurgeons Committee (YNC) receptions. We established a new liaison arrangement with Women in Neurosurgery (WINS), with Uzma Samadani, MD, PhD, FAANS as the first WINS officer, and strengthened our YNC relationships with Edjah Nduom, MD, both helping membership chair, Randy Jensen, MD, PHD, FAANS, with outreach to neurosurgery's new faces. Our newsletter editor, Jennifer Moliterno Günel, MD coordinated six newsletter issues; a modern record.

A special word about Development: Section member dues are essentially fully absorbed by member benefits, such as the Journal of Neuro-oncology subscription and meeting costs, such as our YNC reception and travel for invited speakers. In 2013, when our term started, secretary-treasurer Andy Parsa, MD, PhD, FAANS proposed that we work during my term and his towards a financial goal of enabling our Section to fund its own research fellowship. Toward that end, we created a new position of development officer on our Executive Committee (EC). Development co-chairs, Will Curry, MD, FAANS and Allen Waziri, MD, FAANS have done yeoman's work in this new role, with many key assists from other EC members. Mainly through corporate support, our Section's

unrestricted assets have grown 70 percent in the last three years; a success I attribute to Andy's vision and efforts during his two years as secretary-treasurer and carried on admirably by Steve Kalkanis, MD, FAANS in the same officer role. In addition, a year ago, we established the Andy Parsa Honor-Your-Mentor Fund through the NREF; through generous gifts from private donors, support from the Columbia Softball Tournament, thanks to former Section chair Dr. Bruce, and an especially generous grant from BrainLab shepherded by Dr. Bloch, the Parsa Fund has reached over \$600,000 in donations and pledges. With judicious support from Section operating funds, we may soon be able to make the Parsa Research Fellowship a reality.

At the end of the 2016 AANS Annual Scientific Meeting, Dr. Kalkanis will take over as Tumor Section chair for a two-year term, assisted by newly-elected secretary-treasurer Dr. Aghi. Dr. Kalkanis will be selecting a new EC for his term. I will always be grateful to Dr. Parsa, Dr. Kalkanis and my entire EC for their unlimited support in the last three years with all of the Section's many activities. I am looking forward to an amazing new Tumor Section leadership group and cannot wait to see what they will accomplish. Good luck!



In Remembrance: Albert Loren Rhoton, Jr, MD, FAANS(L)(1932-2016)

Jennifer Moliterno Günel, MD

Dr. Rhoton, a true legend in the field of neurosurgery, passed away at the age of 83 on Sunday, February 21, 2016 in Gainesville, FL. He was the R.D. Keene Family Professor of Neurosurgery at the University of Florida at the time of his death. A life time of influential achievements in our field gained him the unanimous respect of his peer's worldwide and his passion for microsurgery and neuroanatomy education and the mentoring of young neurosurgeons was apparent. He truly changed the field of neurosurgery, and as one of his students, he certainly changed it for me.

Dr. Albert L. Rhoton, Jr. attended Washington University School of Medicine, graduating with the highest academic standing in the class of 1959. He completed his neurosurgical training at Washington University and joined the staff of the Mayo Clinic in Rochester, Minnesota in 1965. He became professor and chairman of the Department of Neurological Surgery at the University of Florida in 1972. Dr. Rhoton has served as President of the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, the Society of Neurological Surgeons, the North American Skull Base Society, the International Interdisciplinary Congress on Craniofacial and Skull Base Surgery, the Florida Neurosurgical Society, and the International Society for Neurosurgical Technology and Instrument Invention. He served as the Honored Guest of the

Congress of Neurological Surgeons in 1993 and was awarded the Cushing Medal of the American Association of Neurological Surgeons in 1998, the highest honor given by the two largest neurosurgical societies in the United States. In 2001, he was awarded the Medal of Honor of the World Federation of Neurosurgical Societies. He has served as the Honored Guest or been elected to Honorary Membership in neurosurgical societies in Africa, Asia, Australia, Europe, and North and South America. He has published more than 300 scientific papers. He recently completed the Millennium Issue of NEUROSURGERY on the posterior cranial fossa and the 25th Anniversary Issue on the supratentorial area. He has received an Alumni Achievement Award from Washington University School of Medicine and both a Distinguished Faculty Award and a lifetime Achievement Award from the University of Florida. In 1998, the University of Florida completed a Brain Institute which houses the activities of the neurosurgical group and his famed microsurgical laboratory.

He is survived by his wife of 58 years, Joyce L Rhoton, their four children, 12 grandchildren, and 3 great-grandchildren, as well as his brother and sister.

Part of the above was taken from Dr. Rhoton's obituary. Please visit <http://www.legacy.com/obituaries/gainesville/obituary.aspx?pid=177815313#sthash.tANjmJnQ.dpuf>

Medical Neuro-Oncology Report

Susan M. Chang, MD

Novel treatments continue to be investigated for glioblastoma. In this brief report, several approaches are reviewed. Preliminary results of the planned interim analysis of the randomized phase III trial of tumor treating fields (TTFields) as adjuvant treatment with temozolomide in stable glioblastoma patients following concurrent chemoradiotherapy were reported in *Lancet* in December 2015(1). The study enrolled 695 of the planned 700 patients between July 2009 and November 2014 at 83 centers in the U.S., Canada, Europe, Israel and South Korea. The interim analysis of 315 patients at a median follow-up time of 38 months showed a median progression-free survival in the intent-to-treat population of 7.1 months (95 percent CI, 5.9-8.2 months) in the TTFields plus temozolomide group and four months (95 percent CI, 3.3-5.2 months) in the temozolomide alone group (hazard ratio [HR], 0.62 [98.7 percent CI, 0.43-0.89]; $P = .001$). Median overall survival in the per-protocol population was 20.5 months (95 percent CI, 16.7-25.0 months) in the TTFields plus temozolomide group ($n = 196$) and 15.6 months (95 percent CI, 13.3-19.1 months) in the temozolomide alone group ($n = 84$) (HR, 0.64 [99.4 percent CI, 0.42-0.98]; $P = .004$). Based on these findings, TTF has been approved in the adjuvant setting for glioblastoma by the FDA. The final results of the total population of patients enrolled in the study are pending.

Studies focused on various immunotherapeutic approaches that range from vaccine trials and check-point inhibitors are being actively pursued both in the recurrent and upfront setting. Combination targeted/immunotherapeutic strategies are also being evaluated. An example is the mutated epidermal growth factor receptor VIII (EGFRvIII) that is expressed exclusively in malignant tissue and can serve as a target for immunotherapy. CDX-110 or rindopepimut is a vaccine that targets this mutated protein. A single arm multicenter phase II clinical trial demonstrated a median overall survival (24.6 months from diagnosis) after vaccination against EGFRvIII in GBM(2). Most patients produced robust, specific and durable immune responses in the setting of concurrent temozolomide therapy. A randomized, double-blind

phase III clinical trial (ACT IV) evaluating the effects of CDX-110 in newly diagnosed, EGFRvIII positive GBM (NCT01480479) has completed accrual. A recent announcement by the company, Celldex Therapeutics, stated that based on the independent data monitoring committee analysis, the recommendation was for trial discontinuation as the study was unlikely to meet the pre-specified primary endpoint. At 75 percent of the planned events, the interim analysis showed a hazard ratio of 0.99 with a median overall survival of 20.4 months for the rindopepimut arm and 21.1 months for the control arm. Results are expected to be presented at the annual scientific meeting of the American Society of Clinical Oncology. These results highlight the importance of randomized controlled trials to confirm the efficacy of novel agents that may be seen in single arm phase II trials.

Yet another immunotherapeutic strategy targeting this mutated protein is the use of a retroviral vector to mediate genetic transfer of a chimeric antigen receptor (CAR) to the T cells with high efficiency. (NCT02209376 and NCT01454596). Other strategies targeting EGFR includes the antibody-drug conjugate ABT-414 (EGFR and monomethylauristatin F) and a nonrandomized, phase II study of this agent in recurrent, bevacizumab-naïve GBM with EGFR amplification is ongoing (NCT02573324).

1. Stupp R, Taillibert S, Kanner AA et al
Maintenance Therapy With Tumor-Treating Fields Plus Temozolomide vs Temozolomide Alone for Glioblastoma: A Randomized Clinical Trial.
JAMA. 2015 Dec 15;314(23):2535-43. doi: 10.1001/jama.2015.16669.
2. Schuster J, Lai RK, Recht LD et al
A phase II, multicenter trial of rindopepimut (CDX-110) in newly diagnosed glioblastoma: the ACT III study.
Neuro Oncol. 2015 Jun;17(6):854-61. doi: 10.1093/neuonc/nou348. Epub 2015 Jan 13.

Report from the Alliance for Clinical Trials in Oncology

Brad Elder, MD, FAANS

The 2015 Congress of Neurological Surgeons (CNS) tumor sessions and presentations had a fantastic turnout. The first scientific session showcased exciting findings both in the laboratory and clinics. Hasan Zaidi, MD, won the Synthes Skull Base Award on his or her clinical outcomes of the treatment of pituitary tumors. The ABTA award was given to Prashant Chittiboina, MD, MPH, for their work on the discovery of an intriguing potential new VHL target. Hans-Georg Wirsching, MD, and his group won the Brainlab award for their thoughtful study on the role of surgery for recurrent GBM. Kyle Halvorson, MD, and his group were awarded the Columbia Softball Charity Award on the use of their unique high-throughput drug screening technology to discover new drugs for diffuse pontine gliomas. The Integra Award was given to Jared Pisapia, MD, and his group on correlating imaging pattern and technology with survival and molecular subtype in patients with GBM. The Journal of Neuro-Oncology Award went to Pascal Zinn, MD, PhD, and his group for demonstrating provocative findings in correlating the areas of edema in patients with GBM with diffusion changes and genetic signatures. Achal Achrol, MD, presented work on the identification of a vasculogenic phenotype in GBM and was awarded the National Brain Tumor Society Mahaley Clinical Research Award. The Preuss Award was given to John Kuo, MD, PhD, FAANS, and his laboratory for their groundbreaking work on the hERG gene as a potential biomarker and target for patients with GBM. Finally, the Stryker Neuro-Oncology Award was given to Jason Sheehan, MD, PhD, FAANS, and his group for looking at the role of early vs. late radiosurgery for patients with recurrent pituitary tumors.

The second session focused on the important topic on the management of patients with recurrent glioblastoma. The next steps for a patient who present with recurrent glioblastoma are not well-defined. The indications and efficacy of the various modalities were discussed in detail by our invited experts in neurosurgery, oncology and radiation oncology.

It is interesting to see that there is great diversity on the opinion of offering repeat surgery for patients who present with recurrent disease. Jeffrey Weinberg, MD, FAANS, gave a thoughtful lecture on the role of surgery as well as the pros and cons of repeat surgery for recurrence. The use of Avastin and chemotherapy for recurrent GBM is highly variable. We were fortunate to have David Reardon, MD, a neuro-oncologist give us his perspective on the indication for using Avastin and chemotherapy in patients with GBM. Imaging can also be a complicated issue in taking care of patients after treatment. The complex issues created by pseudoprogression were also discussed by Dr. Reardon.

Lawrence Kleinberg, MD, a radiation oncologist, then discussed the appropriate indication for repeat radiation as well as the issue of using stereotactic radiosurgery for patients with recurrent glioblastoma. Local chemotherapy is also another FDA approved option for patients with recurrent disease. Henry Brem, MD, FAANS, discussed the most recent data as well as his experience on

the use of Carmustine Wafers. Laser therapy is also an exciting new technology that is being used for patients with recurrent GBM. Gene Barnett, MD, MBA, FAANS, has amassed a great deal of experience with this technology and shared his lessons learned and thoughts about this technology.

While the meeting was a great success, we realize that it took a great deal of time and effort to organize. We would like to take the time to thank all the organizers, moderators, graders and executive committee members for their support of this great meeting.

Tumor Symposium Highlights

Gavin P. Dunn, MD, PhD

Orin Bloch, MD

The AANS/CNS 11th Biennial Satellite Tumor Symposium was held May 1-2, 2015, in advance of the 2015 AANS Annual Scientific Meeting in Washington, D.C. A total of 172 clinicians, scientists and trainees attended the meeting. The theme of this year's symposium was "Tech Developments in Neuro-Oncology" and focused primarily on malignant glioma and metastatic brain tumors. Specifically, there were four sessions on 'Technological advances in glioma surgery', 'Molecular advances in glioma treatment,' 'Management of brain metastases' and 'Surgically-based clinical trials.' These sessions were complemented by oral abstract presentations that highlighted a broad range of exciting basic, translational and clinical research in tumor biology. The keynote lecture by Michael Taylor, MD, PhD, on the genomic landscapes of pediatric brain tumors was a highlight of the Symposium.

Evening symposia on genomically-based personalized medicine in brain tumors and adaptive hybrid surgery further enriched the program. The latter symposium also served to honor the significant and lasting contributions of the late Andrew Parsa, MD, PhD, FAANS, who was a towering figure in the neurosurgical oncology community and a key architect of the adaptive treatment concept. Three well-attended breakfast breakout seminars on the timely topics of starting a research lab, becoming involved in clinical trials and the merits of pursuing fellowship training provided practical guidance to junior attendees of the symposium. The Tumor Symposium was capped off by a spectacular gala dinner at the downtown Newseum to commemorate the 30th anniversary of the AANS/CNS Tumor Section. Overseen by Tumor Section president Frederick Barker, MD, FAANS, this celebration included a recognition of the prodigious achievements and contributions of Edward Oldfield, MD, FAANS, who was honored with the Charles B. Wilson Award, and Raymond Sawaya, MD, FAANS, who received the Distinguished Service Award. The humble and inspiring comments from both esteemed awardees were a highlight of the evening for all in attendance.

Tumor Section Newsletter – Report from the Alliance for Clinical Trials in Neuro-Oncology (February 2016)

J. Bradley Elder, MD, Liaison to Alliance for Clinical Trials in Oncology

The AANS/CNS Tumor Section has implemented a collaboration with the Alliance for Clinical Trials in Oncology to facilitate cooperative efforts between neurosurgeons, neuro-oncologists and radiation oncologists at the national level in an effort to more efficiently support neuro-oncology clinical trials. Each issue of the Tumor Section Newsletter will highlight a clinical trial that is being sponsored by the Alliance or presented at one of the semi-annual meetings, which may be of interest to neurosurgeons. Additional information regarding the Alliance is available on the website allianceforclinicaltrialsinoncology.org

Past report highlights:

- A Phase II Randomized Trial Comparing the Efficacy of Heat Shock Protein-Peptide Complex-96 (HSPPC-96) (NSC #725085, ALLIANCE IND #15380) Vaccine given with Bevacizumab versus Bevacizumab alone in the treatment of Surgically Resectable Recurrent Glioblastoma Multiforme (GBM).
 - PI: Andrew T. Parsa, MD, PhD, FAANS; Northwestern University Medical Center
- Clinical Trial: A Phase III Trial of Post-Surgical Stereotactic Radiosurgery (SRS) Compared with Whole Brain Radiotherapy (WBRT) for Resected Metastatic Brain Disease NCT01372774 (Alliance ID: N017C)
 - PI: Paul D. Brown, MD; M.D. Anderson Cancer Center
- Phase III Intergroup Study of **Temozolomide** alone versus Radiotherapy with Concomitant and Adjuvant **Temozolomide** versus Radiotherapy with Adjuvant PCV Chemotherapy in Patients with 1p/19q co-deleted **Anaplastic Glioma**
 - PI: Kurt Jaeckle, MD; Mayo Clinic
- Phase I/Comparative Randomized Phase II Trial of TRC105 Plus Bevacizumab versus Bevacizumab in Bevacizumab-Naïve Patients with Recurrent Glioblastoma Multiforme
 - PI: Evanthia Galanis, MD; Mayo Clinic
- A phase II/III randomized trial of veliparib or placebo in combination with adjuvant temozolomide in newly diagnosed glioblastoma with MGMT promotor hypermethylation
 - PI: Jann Sarkaria, MD; Mayo Clinic

The clinical trial highlighted in this report involves patients with progressive meningioma and is entitled:

- Phase II trial of SMO/AKT/NF2 inhibitors in progressive meningiomas with SMO/AKT/NF2 mutations.

This clinical trial will enroll patients with residual or progressive meningiomas after surgery or radiation. Tumors must have SMO or NF2 mutations as documented by central laboratory. Patients who meet these and other eligibility criteria are candidates for one of two treatment arms:

- Arm 1: Patients with SMO-mutated meningiomas will receive 150 mg vismodegib daily until study withdrawal or progressive disease.
- Arm 2: Patients with NF2-mutated meningiomas will receive 750 mg GSK2256098 twice daily until study withdrawal or progressive disease.

Primary objectives:

- Determine activity of a SMO inhibitor in patients with SMO-mutated meningiomas as measured by six-month PFS and radiographic response rate; and
- Determine activity of a FAK inhibitor in patients with NF2-mutated meningiomas as measured by six-month PFS and radiographic response rate.

Secondary objectives:

- Determine overall survival and PFS of patients in both arms; and
- Determine rates of adverse events in both arms.

This trial is open at 173 centers in the U.S. and Canada. The PI is Priscilla Brastianos, MD, at MGH. Further information regarding this clinical trial can be obtained from allianceforclinicaltrialsinoncology.org or clinicaltrials.gov. A list of ongoing trials sponsored by the Alliance, current as of February 2016, is attached.

The spring Alliance for Clinical Trials in Oncology meeting is May 12-14, 2016, in Chicago. For details regarding the meeting, please contact myself or Ian Parney, MD.

Tumor Section Awards Update

Manish K. Aghi, MD, PhD, FAANS

The Tumor Section Awards Committee continues to actively develop the most robust awards program for outstanding research of any of the American Association of Neurological Surgeons (AANS)/Congress of Neurological Surgeons (CNS) joint sections.

After recognizing nine award winners and one named lectureship at the 2015 CNS annual meeting, the section will recognize 12 award winners and one named lectureship at the 2016 AANS Annual Scientific Meeting.

Most of the awards are limited to Tumor Section members, providing an additional incentive for membership. Support for the awards program encourages submission of the highest quality works in neuro-oncology.

Synthes Skull Base Award

The Synthes Skull Base Award is given to an attending neurosurgeon, resident or fellow, in the Tumor Section who submits the best abstract related to skull base surgery.

This award is given at the annual meetings of the AANS and CNS. Franco DeMonte, MD, chair of the Skull Base Committee, was largely responsible for obtaining this award through a generous contribution from the Synthes Corporation.

The winner for the 2015 CNS meeting was Hasan Zaidi, MD, of the Barrow Neurologic Institute, for the presentation entitled “Comparison of extent of tumor resection and endocrine outcomes for nonfunctioning pituitary adenomas of a less experienced surgeon using a fully endoscopic transsphenoidal surgery technique to a very experienced surgeon using a microscopic transsphenoidal technique.” The winner at the 2016 AANS will be Nathan T. Zwagerman, MD, from the University of Pittsburgh neurological surgery residency program for the presentation entitled “A prospective, randomized control trial for lumbar drain placement after endoscopic endonasal skull base surgery.” The award includes a \$1,000 honorarium.



Hasan Zaidi, MD receives the Synthes Skull Base Award from Tumor Section Chair Fred Barker, MD, FAANS, and Secretary/Treasurer Steve Kalkanis, MD, FAANS

Preuss Award

The Preuss Award, sponsored by the Preuss Foundation, is given at each of the AANS and CNS annual meetings to a young scientist investigating brain tumors, within 10 years of training, who has submitted the best basic science research paper. The winner at the 2015 CNS meeting was John S. Kuo, MD, PhD, FAANS, of the University of Wisconsin for



John Kuo, MD, PhD, FAANS, receives the Preuss Award from Tumor Section Chair Fred Barker, MD, FAANS, and Secretary/Treasurer Steve Kalkanis, MD, FAANS

his presentation entitled “Human ether-a-go-go-Related-1 gene (hERG) K+ channel as a prognostic marker and therapeutic target for glioblastoma.” The winner at the 2016 AANS Annual Scientific Meeting will be Andrew Venteicher, MD, PhD, of the Massachusetts General Hospital, for his presentation entitled “Cellular architecture of human IDH1-mutant gliomas revealed using single-cell RNA sequencing.” This award has a \$1,000 honorarium.

National Brain Tumor Society Mahaley Award

The National Brain Tumor Society Mahaley Award (NBTS) Mahaley Award is given at each of the AANS and CNS annual meetings to a neurosurgery resident, fellow or attending physician who submits the best clinical study in neuro-oncology. The winner at the 2015 CNS meeting was Achal Singh Achrol, MD, of Stanford University, for the presentation “Quantitative volumetric MR perfusion identifies a distinct vasculogenic molecular subtype of human glioblastoma associated with worse clinical outcomes.” The winner at the 2016 AANS Annual Scientific Meeting will be John Sampson, MD, PhD, FAANS, of Duke University for the presentation “ReACT: A randomized Phase II study of rindopepimut (CDX-110) plus bevacizumab in relapsed glioblastoma.” The award carries a \$1,000 honorarium.

Integra Foundation Award

The Integra Foundation Award, sponsored by the Integra Foundation, is given at each of the AANS and CNS annual meetings for the best research or clinical paper submitted investigating benign brain, spinal or peripheral nerve tumors. At the 2015 CNS annual meeting, the winner was Jared M. Pisapia, MD, of the University of Pennsylvania, for the presentation entitled “Imaging Patterns Predict Patient Survival and Molecular Subtype in Glioblastoma using Machine Learning Techniques.” The winner at the 2016 AANS Annual Scientific Meeting will be Jeremy Steinberger, MD, of the Icahn School of Medicine at Mount Sinai, New York, for his presentation entitled “Morbidity and mortality of meningioma resection increases in octogenarians.” The award carries a monetary honorarium of \$1,000.



Jared M. Pisapia, MD, Receives the Integra Foundation Award from Tumor Section Chair Fred Barker, MD, FAANS, and Secretary/Treasurer Steve Kalkanis, MD, FAANS

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Springer Journal of Neuro-Oncology Award

The Journal of Neuro-Oncology Award is sponsored by Springer Publishers and is presented at both the annual AANS and CNS meetings to a highly ranked abstract in either clinical or basic science as related to neuro-oncology. The winner at the 2015 CNS annual meeting was Pascal O. Zinn, MD, PhD, of Baylor College of Medicine, for his presentation entitled “Diffusion MRI ADC Mapping of Glioblastoma Edema/Tumor Invasion and Associated Gene Signatures.” The winner at the 2016 AANS Annual Scientific Meeting will be Arman Jahangiri, BS, of University of California San Francisco (UCSF), for his presentation entitled “From bench to bedside: NIH funding for neurosurgeons from 1991-2015.” A \$500 award and a framed certificate are given to the winner.



Pascal Zinn, MD, PhD, receives the Journal of Neuro-Oncology Award from Bob Carter, MD, PhD, FAANS

Stryker Neuro-Oncology Award

The Stryker Neuro-Oncology Award is given to a high-ranking brain tumor clinical or basic science abstract submitted by a resident or medical student. The award is presented at the CNS and AANS annual meetings, and the senior author of the paper must be a member of the AANS/CNS Section on Tumors. The winner at the 2015 CNS annual meeting was Isaac Jonathan Pomeraniec, BS, of the University of Virginia, for his presentation entitled “Early versus late gamma knife radiosurgery following transsphenoidal resection for nonfunctioning pituitary macroadenomas: A matched cohort study.” The winner at the 2016 AANS Annual Scientific Meeting will be Kristen A. Batich, BS, of Duke University, for her presentation entitled “CMV-targeted dendritic cell vaccines increase survival for randomized patients with glioblastoma in successive trials.” A monetary component of \$1,000 is included with an award certificate.



Isaac Pomeraniec receives the Stryker Neuro-Oncology Award

Columbia Softball Charity Award

The Columbia Softball Charity Award is given to the best pediatric tumor abstract submitted by a resident or faculty member who is a member of the section on tumors at each AANS and CNS annual meeting. Current Section on Tumors chair, Fred Barker, MD, FAANS; previous Section on Tumors chair, Jeff Bruce, MD, FAANS; and pediatric neurosurgeon Richard Anderson, MD, FAANS, from Columbia University, were instrumental in putting together a plan to use a portion of the proceeds from the annual

charity softball tournament to sponsor this award. The third award was given at the 2015 CNS meeting to Kyle Halvorson, MD, of Duke University, for his presentation entitled “A High-throughput in Vitro Drug Screen in a Genetically Engineered Mouse Model of Diffuse Intrinsic Pontine Glioma Identifies BMS-754807 as a Promising Therapeutic Agent.” The fourth award will be given at the 2016 AANS Annual Scientific Meeting to Ian F. Pollack, MD, FAANS, of the University of Pittsburgh for the presentation “Immune responses and clinical outcome after glioma-associated antigen vaccination in children with recurrent low-grade gliomas.” The award carries an honorarium of \$1,000.



Kyle Halvorson, MD, receives the Columbia Softball Charity Award from Tumor Section Chair Fred Barker, MD, FAANS, and Secretary/Treasurer Steve Kalkanis, MD, FAANS

Brainlab Neurosurgery Award

The Brainlab Neurosurgery Award is awarded at the annual meetings of the AANS and CNS. This award is given to a neurosurgeon practicing in a nonacademic or international setting with the best abstract related to central nervous system tumors. Previous AANS/CNS Tumor Section chairs Michael McDermott, MD, FAANS; and Ronald Warnick, MD, FAANS, were instrumental in securing this award given through the generosity of Brainlab. At the 2015 CNS annual meeting, the award was given to Bogdana Suchorska of Klinikum Grosshadern, Munich, Germany, for the presentation entitled “Complete resection of contrast enhancing tumor volume is associated with improved survival in recurrent glioblastoma – Results from the DIRECTOR Trial.” At the 2016 AANS Annual Scientific Meeting, the award will be given to Hirokazu Takami, MD, of the University of Tokyo, for the presentation entitled “Clinical profiles of 132 cases of intracranial germ cell tumors of the iGCT Consortium.” The award carries a \$1,000 honorarium.



Joerg-Christian Tonn, MD, IFAANS, receives the Brainlab Neurosurgery Award from Tumor Section Chair Fred Barker, MD, FAANS

American Brain Tumor Association Young Investigator Award

Sponsored by the American Brain Tumor Association, the Young Investigator Award is given at each AANS and CNS annual meeting to a young faculty member involved in neuro-oncology research who has demonstrated outstanding potential for future basic science research. The applicant must have been out of training for less than six years. At the 2015 CNS annual meeting, the winner was Prashant Chittiboina, MD, MPH, of the NIH, for his presentation entitled “Somatostatin receptor expression on VHL-associated hemangioblastomas offers novel therapeutic target.” At the 2016 AANS Annual Scientific Meeting, the winner will be Viviane Tabar, MD, FAANS, of Memorial Sloan Kettering, for her talk entitled “From bench to bedside: Results of a Phase I trial using a notch inhibitor for glioblastoma.” A \$2,000 honorarium accompanies this award.



Prashant Chittiboina, MD, MPH, receives the ABTA Young Investigator Award from Bob Carter, MD, PhD, FAANS, and Tumor Section Awards Chairperson Manish Agbi, MD, PhD, FAANS

Ronald L. Bittner Award

The Ronald Bittner Award is endowed by Mrs. E. Laurie Bittner in memory of her husband, Ronald L. Bittner. It is awarded to the best abstract paper submitted to the AANS Annual Scientific Meeting on Brain Tumor Research by a resident or junior faculty member. At the 2015 AANS Annual Scientific meeting, the award was given to Yan Michael Li, MD, PhD, of University of Rochester, for his presentation “The influence of maximum safe resection of T1 contrast-enhancing tumor and T2 FLAIR abnormality on survival in 1229 glioblastoma patients.” At the 2016 AANS Annual Scientific Meeting, the award will be given to Christopher Paul Deibert, MD, of the University of Pittsburgh neurosurgical residency program, for the presentation entitled “IDH mutant gliomas escape natural killer cell immune surveillance through downregulation of NKG2D ligands.” This award includes a \$1,000 honorarium.

Leksell Radiosurgery Award

This award, presented at each AANS Annual Scientific Meeting since 2009, is for the best paper on stereotactic radiosurgery related to brain tumors. At the 2015 AANS Annual Scientific Meeting, the award was given to Deborah Marshall, BA, of University of California at San Diego (UCSD), for her presentation entitled “Survival patterns of patients with cerebral metastases after multiple rounds of stereotactic radiosurgery (SRS).” At the 2016 AANS Annual Scientific Meeting, the award will be given to Anthony L. Asher, MD, FAANS, of Carolina Neurosurgery and Spine Associates, for his presentation entitled “Cognitive decline with whole brain radiotherapy after radiosurgery for metastases.” The award comes with a monetary component of \$2,000.

Brian D. Silber Award

This award is given to the best abstract related to vertebral column or spinal cord tumors at the AANS Annual Scientific Meeting. The first award was given at the 2015 AANS Annual Scientific Meeting to Claudio Tatsui, MD, of MD Anderson, for his presentation, “Laser interstitial thermotherapy as an alternative to separation surgery in the management of spinal metastasis.” The second award will be given at the 2016 AANS Annual Scientific Meeting to Ganesh Mani Shankar, MD, from Massachusetts General Hospital, for his talk entitled “BRAF alteration status and the histone H3F3A gene K27M mutation segregate spinal cord astrocytoma histology.” A \$1,000 honorarium accompanies the award. The section would like to thank the family of Brian D. Silber, who passed away in 1996 at age 28 of a malignant spinal cord tumor, for their generous support of this award.

The AANS/CNS Tumors Section would like to thank the award sponsors for helping to encourage submission of the highest quality work in neuro-oncology. Congratulations to the 2016 AANS Annual Meeting award winners.

There are two lectureships supported by the section:

Bittner Lecture

In addition to the Ronald Bittner Award, the Bittner Family Foundation sponsors an annual Bittner Lectureship awarded by the AANS at its Annual Scientific Meeting. The lectureship is awarded to an established investigator, and is presented during the main scientific program component of the annual AANS meeting. Selection of the Bittner Lecturer is made by the Senior Scientific Program Committee of each AANS Annual Scientific Meeting. At the 2015 AANS Annual Scientific Meeting, the Bittner Lecture was delivered by John Sampson, MD, PhD, FAANS, of Duke University. In 2016, the Bittner Lecture will be delivered by Michael Taylor, MD, PhD, of the University of Toronto.

The Abhijit Guha Award

The Abhijit Guha Award and Lecture are jointly sponsored by the Section on Tumors and the Society for Neuro-Oncology (SNO) and is given annually alternating between the SNO and Tumor Section meetings. The 2015 award was given at the CNS annual meeting to John Sampson, MD, PhD, MBA, while the 2016 award will be given at the 2016 SNO meeting to Michael Taylor, MD, PhD, of the University of Toronto.

AANS 2016 Highlights

For the 2016 American Association of Neurological Surgeons (AANS) Annual Meeting, Tumor Section Program chairs Matt Tate, MD, PhD, and Gelareh Zadeh, MD, PhD, have assembled an exciting program.

Monday afternoon's Scientific Session I will feature the annual Ronald L. Bittner lecture, delivered by speaker Michael Taylor, MD, PhD, entitled "Heterogeneity Through Space and Time Drive the Clinical Behaviour of Childhood Posterior Fossa Tumours." This prestigious lecture will be followed by open presentations on tumor topics, including four award-winning abstracts. Both Tuesday and Wednesday afternoon sessions will also feature additional open abstracts, as will each of the three morning Plenary sessions.

Tuesday afternoon's Tumor Section I will be dedicated to the timely topic of Precision Medicine, with a team of internationally recognized speakers to speak on molecular pathology of brain tumors, leveraging information on molecular diagnostics towards introducing personalized clinical trials. The session will feature Ken Aldape, MD, (Integrating "OMICS" into clinical practice); Don Berry, (iSPY and related designs for clinical trials of targeted antitumor agents), Roel Verhaak, PhD, ("DIY" genomic analysis)

and Amy Heimberger, MD, FAANS, (immunotherapy) speaking on this timely topic in neuro-oncology, wrapping up with an interactive tumor board where key molecular diagnostics and their clinical application will be highlighted by the speakers, with additional panelists Susan Chang, MD, and Steve Kalkanis, MD, FAANS.

Wednesday afternoon's Tumor Section II will focus on surgical advances and innovations in technology as applied to tumor resection, covering a range of technologies, including 5-ALA (Costas Hadjipanayis, MD, PhD, FAANS), intraoperative MRI (Manish Aghi, MD, PhD, FAANS), convection enhanced delivery (Michael Vogelbaum, MD, PhD, FAANS), high frequency focused ultrasound (Gelareh Zadeh, MD, PhD) and laser therapeutics (Gene Barnett, MD, MBA, FAANS), summed up by Colin Watts, PhD, speaking on the role of the specialist tumor neurosurgeon in the multidisciplinary treatment of malignant gliomas.

We hope that you will be able to join us for these invited speakers and many outstanding abstracts and award-winning presentations that we have put together for the tumor section at the 2016 AANS Annual Scientific Meeting. We look forward to seeing you in Chicago!

Tumor Section Membership Committee

Randy Jensen, MD, PhD, FAANS

Membership in the American Association of Neurological Surgeons (AANS)/Congress of Neurological Surgeons (CNS) Section on Tumors currently includes over 2,000 members. Our Section has a very large resident and fellow contingency that continues to grow significantly. This is, in large part, due to the Section waiving membership dues for residents and fellow members. We have reached out to international resident members to let them know that membership in the AANS can also include Tumor Section membership, if they are interested. They can join with no annual dues like North American residents.

We continue to give reduced membership dues for members living in developing countries (defined on the AANS website). Since deciding to allow for medical student membership in the Tumor Section, we have added a number of medical students to our ranks. As has been our tradition, we will continue to collaborate with the Young Neurosurgeons Committee (YNC) to host receptions at each of the national meetings of the AANS and CNS. We expect each of these events to bring new opportunities for collaboration, education and social interaction with residents, fellows, younger neurosurgeons and our many colleagues from around the world with interest in neurosurgical oncology. New members are shown below as well as current membership statistics.

ACTIVE

Nicolas F. Arredondo, MD, FAANS
Han-Chiao I. Chen, MD
William S. Cobb, MD
Dhruve S. Jeevan, MD

INTERNATIONAL RESIDENT

Kenny Yu, MD

Tumor Section Membership Statistics

Class Code	Subclass Code	2016 Dues	# of Members
ASSOCIATE	15D	\$ 0.0	68
ADJUNCT	60D	\$ 37.50	26
ACTIVE	01S	\$ 150.00	531
INTERNATIONAL	40S	\$ 150.00	63
INTERNATIONAL DEVELOPING COUNTRY	40SD	ACTIVE	9
HONORARY	45S	ACTIVE	20
MEDICAL STUDENT	15M	ACTIVE	4
RESIDENT/FELLOW	50R	ACTIVE	1,695

AANS/CNS Tumor Section Survey: Preliminary Results

Michael C. Dewan, MD, Nashville, Tenn.
Costas Hadjipanayis, MD, PhD, FAANS, New York

On behalf of the Section, we would like to thank all those who participated in the survey sent November 2015. In this brief, 11-question online survey, Section members were asked about their practice regarding seizure prophylaxis following brain tumor resection in seizure-naïve patients (see Table 1). Respondents included more than 140 surgeons from over 80 institutions in 16 countries. Sixty-three percent reported routinely prescribing prophylaxis (85 percent - levetiracetam), while 28 percent rarely or never prescribe. The duration of seizure prophylaxis varied widely from seven days (31 percent) to more than six weeks (17 percent). Over 60 percent of surgeons felt that tumor histology influences perioperative seizure risk, with high-grade glioma, low-grade

glioma and metastasis carrying the greatest risk (in descending order). While nearly 2/3 reported routinely prescribing prophylaxis, well over half either did not believe, or were unsure, whether prophylaxis mitigated perioperative seizure risk. More than 80 percent stated that results from a well-designed randomized trial on the subject would influence their future practice patterns.

It seems wide practice gaps and knowledge gaps exist regarding this clinical decision – one that many of us encounter on a daily basis. We are hopeful these results will stimulate a discourse on future steps warranted to generate stronger evidence for or against perioperative antiepileptic administration in this important patient population.

Responses by Tumor Section members to select survey questions

Question	Percent responding
Do you prescribe AED prophylaxis?	
Yes, almost always	63%
Sometimes	9%
No, rarely if ever	28%
How long do you prescribe AED prophylaxis	
-7 days post-op	31%
-2 weeks post-op	19%
2-6 weeks post-op	27%
>6 weeks post-op	17%
Which tumors do you believe carry a higher seizure risk?	
Low-grade glioma	31%
High-grade glioma	39%
Meningioma	18%
Metastasis	26%
Do you believe prophylactic AED administration significantly reduces the rate of post-operative seizures?	
Yes	39%
No	24%
Unsure	37%
Do you believe results from a well-designed randomized trial evaluating modern seizure prophylaxis would guide your clinical decision in the future?	
Yes	82%
No	9%
Unsure	9%

NRG-BN001 Update

Daniel Cahill, MD, PhD, FAANS; and Michael Vogelbaum, MD, PhD, FAANS

NRG-BN001: Randomized Phase II Trial of Hypofractionated Dose-Escalated Photon IMRT or Proton Beam Therapy versus Conventional Photon Irradiation with Concomitant and Adjuvant Temozolomide in Patients with Newly Diagnosed Glioblastoma

The NRG Oncology cooperative group is one of two National Cancer Institute (NCI)-funded cancer clinical cooperative groups with a special focus on clinical trials for brain cancers. As a historical reminder, in 2014, the three legacy groups, the National Surgical Adjuvant Breast and Bowel Project (NSABP), the Radiation Therapy Oncology Group (RTOG) and the Gynecologic Oncology Group (GOG), were unified into the combined group now known as 'NRG Oncology.'

Here, we highlight a study for newly-diagnosed glioblastoma (GBM) patients, NRG-BN001, which has relevance for neurosurgeons. Intensification of local therapy, through concomitant escalation of radiotherapy dose and dose per-fraction, is an approach thought to help overcome local failure in GBM. Prior dose escalation studies with radiotherapy alone suggest that the pattern of failure can be altered and local control improved with radiotherapy dose escalation. Though prior studies of focal radiotherapy boost techniques, such as radiosurgery and brachytherapy, have failed to show a survival benefit, the impact of local therapy intensification has not been addressed in the context of concomitant temozolomide, a radiotherapy sensitizer and chemotherapeutic agent that has demonstrated improved survival when delivered with radiotherapy.

Thus, this NRG Oncology trial aims to determine if dose-escalated and dose-intensified photon IMRT or proton beam therapy with concomitant and adjuvant temozolomide improves

overall survival, as compared to standard-dose photon irradiation, when administered with concomitant and adjuvant temozolomide. To this end, after registration and stratification by RPA class and MGMT status, GBM patients at *proton* centers will be randomized to either a "reference arm" of photon irradiation using 3DCRT or IMRT to 46Gy in 23 fractions followed by a sequential boost for an additional seven fractions to 60Gy, plus concomitant and adjuvant temozolomide, or *proton* dose-intensified irradiation 50 Gy(RBE) in 30 fractions with a simultaneous integrated boost to 75 Gy(RBE) in 30 fractions, plus concomitant and adjuvant temozolomide. For photon centers, there will be a randomization including the same reference arm, but the dose-intensification arm will be *photon* dose-intensified irradiation using IMRT: 50 Gy in 30 fractions with a simultaneous integrated boost to 75 Gy in 30 fractions, plus concomitant and adjuvant temozolomide.

Importantly for neurosurgeons, the protocol eligibility requires "histologically proven diagnosis of glioblastoma (WHO grade IV) confirmed by central review prior to step two registration. Tumor tissue that is determined by central pathology review prior to step two registration to be of sufficient quantity for analysis of MGMT status. The tumor must be located in the supratentorial compartment only (any component involving the brain stem or cerebellum is not allowed)." Thus, biopsy-only cases, or partial resections, where only a small specimen remains for pathologic analyses will not be sufficient for a patient to qualify for trial candidacy. Neurosurgeons are key contributors for patient enrollment in this trial, through the identification of glioblastoma patients who are surgically resectable, and therefore, can meet enrollment criteria.

International Committee Spring 2016

Isabelle M. Germano, MD, FACS, FAANS, Committee Chair

The International Committee was involved in numerous projects over the past six months. Below are just a few highlights of immediately past and upcoming meetings of high interest to our membership:

- The International Gliomas and Brain Metastases Course of the Argentine Association of Neurosurgery and SAC Section of Neuro-oncology took place in Buenos Aires, Argentina, on Aug. 6, 2015, led by Alejandra Rabadan, MD, PhD, IFAANS. This multi-disciplinary, well-attended meeting provided an in-depth review and update on primary and metastatic brain tumors.
- The first Neurosurgery Latin-American Residents' Bootcamp took place in Santa Cruz, Bolivia, on Oct. 12-13, 2015. Roberta Glick, MD, FAANS(L), organized this program with the help and support of Solidarity Bridge, a multidisciplinary medical mission group, and the cooperation and support of the Foundation for International Education in Neurological Surgery (FIENS), Congress of Neurological Surgeons (CNS) and the Society for Neurological Surgeons (SNS). Dr. Glick and the course faculty donate their time and travel expenses to decrease the expenses of this activity and to maximize funds allocation to training purposes.
- The first Society of Neuro-Oncology Latin America (SNOLA) will take place on March 24-26, 2016, in Rio de Janeiro, Brazil, under the leadership of Marcos Maldaun, MD. Over 15 international faculty will review and present on current therapeutic advances and challenges in neuro-oncology. The best international paper presented by a non-Latin-American, mid-career physician will receive the SNOLA International Award.

Argentina

Alejandra T Rabadán, MD, PhD, IFAANS, reports the following current activities:

- The 4th Annual "Brain Tumor Awareness Day" was held in Buenos Aires, Argentina, on Oct. 27, 2015, at the Argentine Medical Association Building. The results of the national survey about the accessibility to resources for brain tumor treatment was presented. We are now in the process of publication.
- We support and are part of the Scientific Committee of the SNOLA Meeting that will be held in Rio de Janeiro, Brazil, on March 24-26, 2016. Isabelle Germano, MD, FAANS, and Raymond Sawaya, MD, FAANS, from the AANS Section on Tumors are guest speakers.

Upcoming Meetings:

- On Aug. 8-10, 2016, we will hold the 5th Symposium of the Section of Neuro-oncology within the Meeting of the Society of Cancerology, Argentine Medical Association (AMA). The

5th Annual "Brain Tumor Awareness Day" will take place in Buenos Aires on Oct. 25, 2016. Steven Kalkanis, MD, FAANS, from the AANS Tumors Section is our guest speaker.

Japan

Fumio Yamaguchi, MD, PhD, IFAANS, highlights that the Brain Tumor Registry of Japan (BTRJ) was founded in 1974 to investigate the statistical data of brain tumors in Japan. This registry has been around for more than 40 years and is known as one of the most authentic databases in the world. Currently, the registration is conducted online, and has been since 2009, from all neurosurgical institutes that are dealing with CNS tumors. The Department of Neurosurgery and Neuro-Oncology of National Cancer Center in Tokyo has been working as an executive secretariat, and its contribution to the analysis of this field is worthy of high praise. Based on the database until 2004, five-year survival rates of most CNS tumors, including low-grade gliomas, have been increasing; however, that of glioblastoma has not changed for 40 years. At the end of January 2016, the registration of all CNS tumors from 2005 to 2008 was closed, and we are awaiting the aggregate results.

Upcoming Meetings:

- The 36th Annual Meeting of the Japanese Congress of Neurological Surgeons: May 20-22, 2016, in Osaka, Japan <http://www.jcns2016.jp/>
- The 25th Annual Meeting of the Japanese Society of Stereotactic Radiosurgery: May 27, 2016, in Kyoto, Japan. <http://jssr25.umin.jp/>
- The 34th Annual Meeting of the Japan Society of Brain Tumor Pathology: May 27-28, 2016, in Tokyo, Japan <http://btp34.umin.ne.jp/index.html>
- The 7th International Congress of the World Federation of Skull Base Societies: June 14-17, 2016, in Osaka <http://www2.convention.co.jp/skullbase2016/>
- The 16th Annual Meeting of the Japan Society of Intraoperative Imaging: July 9, 2016, in Matsuyama, Japan. <http://ac.rsol.jp/jsii16/>
- The 21st Annual Meeting of the Japanese Congress for Brain Tumor Surgery: Sept. 9-10, 2016, in Tokyo <http://bts2016.umin.jp/>
- The 75th Annual Meeting of the Japan Neurosurgical Society: Sept. 29-Oct. 1, 2016, in Fukuoka, Japan <http://www.jns2016.jp/>

Australia

Charles Teo, MD, IFAANS, summarizes that a number of think tanks in 2013-2014 convened by Ann Barker, Web Cavenee, PhD; and Al Yung, MD, to “rethink” GBM led to the concept of planning, designing and conducting an adaptive trial for GBM initially including patients in the U.S., Australia and China. The adaptive trial, named GBM Adaptive Global Innovative Learning Environment (AGILE) provides a unique, efficient and innovative approach to learn from every patient entering the trial. The trial used a Bayesian statistical design and incorporated biomarkers to divide GBM into subclasses. GBM AGILE more rapidly and efficiently tested single agents and their combinations. This project, which began as a small “coalition of the willing” determined to improve the survival of GBM patients, has evolved into a global force of over 150 neurosurgeons, neuro-oncologists, pathologists, imagers and basic and clinical neuroscientists, from academia, industry and government. The Cure Brain Cancer Foundation is pleased to provide the funding for the planning phase of this initiative, in partnership with the National Biomarker Development Alliance at Arizona State University.

Italy

Francesco DiMeco, MD, IFAANS, highlights that the Besta NeuroSim Center (BNSC) in Milan, Italy, was created in late 2014, with the specific aim of giving rise to a qualified training center for neurosurgery residents and young neurosurgeons (www.bestaneurosim.com). It is the first center for training and neurosurgical simulation in Europe, which also emerges as one of the best-equipped simulation centers in the world. It is endowed with a state-of-the-art, 3-D, virtual reality neurosurgical simulation systems with tactile sensitivity (haptic feedback) NeuroTouch, ImmersiveTouch, Surgical Theater and the 3-D anatomical visualizer: Virtual Proteins. Recently the BNSC armamentarium has been further improved by the development of the brand-new USim*, the only dedicated intraoperative neurosurgery ultrasound simulator which allows the neurosurgeons to easily get to know the actual intraoperative CNS ultrasound semiotics (<https://goo.gl/FLGxey>).

For the first time ever, at the 2016 EANS Training Course, a four-year cycle course for senior European neurosurgery residents, a Cranial Neurosurgery Simulation Session has been included,

which was entirely carried out by the BNSC team (Sofia, Feb. 8-10, 2016). This educational activity was actively fostered by Karl Schaller, EANS Training Committee chair elect and professor and chairman of the Department of Neurosurgery at the Geneva University Medical Center in Switzerland. We do not know yet if simulation will become a new pillar in the process of educating top-notch, young European neurosurgeons; as a matter of fact, the EANS Training Committee is eager to explore this possibility with the prospect to include simulation as part of the curriculum studiorum within the EANS training program. It is reasonable to assume that simulation might soon become an ancillary step along the way of building a neurosurgical CV in Europe!

Switzerland

Dominik Cordier, MD, reports on the Swiss Glioma Network: Obstacles such as the definition of datasets for input into the inter-institutional database are progressively being solved. There are several planned glioma projects that will take advantage of this nationwide database, prospectively within the course of this year. The multi-center PIQUR-study is now open to include patients with recurrent glioblastoma multi-forme in its surgical arm. The non-surgical arm is currently under ethical evaluation. PIQUR evaluates a PI3K/mTOR-inhibitor (PQR309) with blood-brain-barrier penetrating properties. Phase I of the study, initially in the treatment of advanced solid tumors, has been successfully completed (presentation ASCO 2015).

Additional work in progress includes the Peptide receptor radionuclide therapy (PRRT) with radiolabelled DOTA-OPS201 for progressive or recurrent meningiomas without promising surgical, conventional radiotherapeutical or radiosurgical treatment options (Joint project of Neurosurgery and Nuclear Medicine, University Hospital Basel). Phase II of the study is funded by the Swiss Cancer foundation. Inclusion of patients prospectively by the end of 2016/beginning of 2017.

Upcoming meetings:

- 3rd SFCNS Congress 2016: Swiss Federation of Clinical Neuro-Societies, Sept. 28-30, 2016; Congress Center Basel

Young Neurosurgeons Committee

Walavan Sivakumar, MRCS, MSc, MD and Ian Dunn, MD, FAANS

John H. Sampson MD, PhD, MBA, FAANS, chairman of the department of neurosurgery at Duke University, shared insights and lessons learned on the progression of leadership within a neurosurgical career to a captivated audience at the Young Neurosurgeons Committee (YNC)/Tumor Section reception at the Congress of Neurological Surgeons (CNS) Annual Meeting on September 29, 2015.

By describing the challenges he faced through various periods of his medical career, from that of a neurosurgical trainee, to a young faculty member at Duke University, to most recently his time as chairman and MBA student, he eloquently described the qualities the young neurosurgeon needs to maintain and hone in order to advance in their career. Early on in one's career, it is important for the neurosurgeon to remain flexible and humble and take the opportunities presented to him or her. These can vary and not necessarily align with initial plans and goals. This point underscored the importance of pursuing powerful mentors early on who would "open doors" and afford opportunities that would allow for meaningful experiences and eventual advancement both within the home institution and national neurosurgery.

The pursuit of an executive MBA taught him the importance

of learning how to negotiate and performing an honest self-assessment. On the scale of a large academic center, the overall contribution of neurosurgery is relatively small, necessitating intellectual poise and savvy when negotiating with hospital and university administration. This can be gained by honest introspection and carefully listening to your team which will enable one to identify the strengths within a department and the areas of weakness where time and effort is needed to fortify.

These lessons were carefully spun together and, partially in jest, likened to advice given by Tony Robbins, the life success coach: 1) really figure out what you want, 2) find someone who has done it and 3) do what they do. These simplified "take-home points" solidified carefully orchestrated lessons set forth by one of the most gifted orators and charismatic leaders in neurosurgery.

The YNC is pleased to announce that the special guest lecturer for the YNC/Tumor Section reception at the 2016 American Association of Neurological Surgeons (AANS) will be former AANS president, William T. Couldwell MD, PhD, FAANS, chairman of the department of neurosurgery at the University of Utah. The reception will take place on May 3, 2016 beginning at 5:45 p.m. in the Mayfair Room in the Sheraton Grand Chicago.

Stereotactic Radiosurgery Report: Spring 2016

By Jason Sheehan, MD, PhD, FAANS, Email: jsheehan@virginia.edu

The Leksell Gamma Knife Society will host its biennial meeting in Amsterdam. The international meeting will be held May 15-19, 2016. The theme of the meeting is “Building Bridges...” Program co-chairs include neurosurgeon Guus Beute, MD, and radiation oncologist, Patrick Hanssens, who each practice at Tilburg. The meeting registration and abstract submission center is open now. Further meeting information is available through the Leksell Gamma Knife Society website here: <https://www.lgksociety.com/home/>. The topics covered include radiosurgery for functional, vascular and tumor targets. Other focuses include quality outcomes and international registries.

The Radiosurgery Society will hold its annual meeting in Orlando on June 16-18, 2016. Its theme is “Bridging the Gap: Advancing Research & Education.” The meeting offers travel grants to residents who submit one of the top scientific abstracts. For more information, see the following link: <https://www.regonline.com/builder/site/Default.aspx?EventID=1752617>.

The International Gamma Knife Research Foundation has launched a prospective trial on SRS and concurrent Avastin for recurrent glioblastoma. Study site participation is still needed. Prospective and retrospective trials for the IGKRF can be found at <http://www.igkrf.org/projects.html>.

The International Society of Stereotactic Radiosurgery (ISRS) has embarked upon an ambitious guidelines project for stereotactic radiosurgery. The guidelines focus on common stereotactic radiosurgery indications including acoustic neuromas, skull base meningiomas, arteriovenous malformations and trigeminal neuralgia. The guidelines committee for the ISRS has also sent the guidelines for review to the AANS and CNS guidelines committees. The ISRS plans to submit the guidelines for publication consideration later this year.

The national stereotactic radiosurgery registry, under the auspices of the AANS and American Society for Radiation Oncology (ASTRO), was launched in May 2015. Patient accrual has begun with sites open at the University of Cincinnati, NYU, UVA, University of Colorado, Carolina Medical Center and USC. Two dozen additional sites are set to come online in the next couple of months. Initial data analysis will be performed by the Quintiles biostatisticians in approximately six months. The first paper on this registry effort has been published in the *Journal of Neurosurgery*. A PI meeting will be held at the 2016 AANS Annual Scientific Meeting. More details on this meeting will follow shortly.

AANS/CNS Tumor Section Survey: Preliminary Results

On behalf of the Section, we would like to thank all those who participated in the survey sent November 2015. In this brief, 11-question online survey, Section members were asked about their practice regarding seizure prophylaxis following brain tumor resection in seizure-naïve patients (see Table 1). Respondents included more than 140 surgeons from over 80 institutions in 16 countries. Sixty-three percent reported routinely prescribing prophylaxis (85 percent - levetiracetam), while 28 percent rarely or never prescribe. The duration of seizure prophylaxis varied widely from seven days (31 percent) to more than six weeks (17 percent). Over 60 percent of surgeons felt that tumor histology influences perioperative seizure risk, with high-grade glioma, low-grade glioma and metastasis carrying the greatest risk (in descending order). While nearly 2/3 reported routinely prescribing prophylaxis, well over half either did not believe, or were unsure, whether prophylaxis mitigated perioperative seizure risk. More than 80 percent stated that results from a well-designed randomized trial on the subject would influence their future practice patterns.

It seems wide practice gaps and knowledge gaps exist regarding this clinical decision – one that many of us encounter on a daily basis. We are hopeful these results will stimulate a discourse on future steps warranted to generate stronger evidence for or against perioperative antiepileptic administration in this important patient population.

Michael C. Dewan, MD
Nashville, Tenn.
Costas Hadjipanayis, MD, PhD, FAANS
New York

Skull Base Tumor Update

Michael Link, MD, FAANS

Since our last update, the North American Skull Base Society (NASBS) held their 26th annual scientific meeting, Feb. 12–14, 2016, in Scottsdale, Ariz. Once again, the meeting was an unqualified success. The pre-meeting practical course, emphasizing open and endoscopic approaches to the skull base, was held at Mayo Clinic Arizona, Feb. 10–11. The two-and-a-half day scientific sessions that followed included eight master surgeon sessions presented by leaders in the field, 20 panel discussions covering all aspects of diagnosis and management of complex vascular, benign and malignant skull base tumors, eight Pecha Kucha sessions (20 slides in five minutes, slides advance automatically – I strongly recommend you try it sometime!), 20 proffered paper sessions featuring 144 selected abstracts, plus brainstorming and coaching sessions and key note lectures. Additionally, there were 140 posters accepted and displayed in the exhibit hall. Over 500 registrants attended the meeting emphasizing this year's theme of 'Innovation and Creativity in Skull Base Surgery.' Jacques J. Morcos, MD, FAANS, from the University of Miami Department of Neurosurgery, was elected president of the NASBS for the 2016–2017 academic year. Next year's meeting will be held at The Roosevelt New Orleans Hotel, in New Orleans, Feb. 17–19, 2017. Mark your calendars now.

Also to note, the 12th Congress of the European Skull Base Society will be held in Berlin, Germany, May 26–28, 2016. Robert Behr, MD, from Klinikum Fulda in Hesse, Germany, is this year's president. The program will once again include in depth analysis of the diagnosis and treatment of benign and malignant skull base tumors. Please visit <http://www.esbs.eu/2016/> to learn more, and register to attend this exciting event. The following month, the 7th International Congress of the World Federation of Skull Base Societies, in conjunction with the 28th annual meeting of the Japanese Society for Skull Base Surgery and the 10th Congress of International Meningioma Society and Cerebral Venous System, will meet in Osaka, Japan, June 14–17, 2016. Kenji Ohata, MD, IFAANS, has put together an amazing international program. More information can be found at <http://www.skullbase2016.jp/>.

Multiple opportunities exist regarding clinical research for patients with skull base tumors. A listing of clinical trials available specifically for skull base tumors can be found at <https://clinicaltrials.gov/ct2/results?term=Skull+base+tumors&Search=Search>.

The Adult Brain Tumor Consortium (ABTC) is hosting a luncheon conference to discuss early stage clinical trials and potential opportunities for neurosurgical oncologists to participate and lead trials within the consortium. The luncheon will be held in the Mayfair Room at the Sheraton Grand Chicago Hotel, May 1, 2016, from 12–1:30 p.m. Please contact Andy Sloan (Andrew.Sloan@UHHospitals.org) if you plan to attend.

ch. This list includes trials available for both benign and malignant tumors of the skull base. Of 92 listed studies, 38 are actively recruiting patients.

This year's AANS Annual Scientific Meeting in Chicago also contains many interesting abstracts and practical courses dealing with skull base tumors, as usual. Tumor Section abstracts will be presented Monday, Tuesday and Wednesday, May 1–3, 2016, from 2–5:30 p.m.

Finally, it is with immense sadness that I note the passing of Albert L. Rhoton Jr, MD, FAANS(L), last month. His accomplishments are too well known to this audience to attempt to list them here. He was a giant in skull base surgery and was the 5th president of the NASBS in 1994. His immense contributions to neurosurgery, and skull base surgery in particular, will be a lasting legacy.

I look forward to seeing everyone in Chicago.

Report from the Liaison to the Society for NeuroOncology (SNO) – Spring 2016

The 2016 SNO Annual Meeting will be held in Scottsdale, Ariz., with the Education Day on Thursday, Nov. 17, followed by the Scientific Meeting from Nov. 18–20, 2016. AANS/CNS Section on Tumors executive committee member Manish Aghi MD, PhD, FAANS, is the co-chair of the Scientific Meeting. He and his team have planned a multidisciplinary program that includes many sessions of interest to neurosurgeons. Keynote speakers that are currently confirmed include David Louis, MD; David Ellison, MD, PhD; Joe Costello and Brad Bernstein. Others are slated to be added over the course of the next few months.

Education Day will cover the impact of the new World Health Organization (WHO) classification for low grade gliomas on clinical trials and quality of life. Also, there will be a pre-meeting on drug design chaired by Victor Levin, MD, on Wednesday, Nov. 16.

Key dates to keep in mind are as follows:

- Opening of abstract submission site - March 14
- Closing of abstract submission site - June 6 or 13
- Notification emails sent to abstract authors – Aug. 1

Please be aware that the main venue, Fairmont Scottsdale, has limited capacity. First come, first served. SNO has arranged for additional rooms at off-site hotels two miles away with a shuttle service.

Michael A. Vogelbaum MD, PhD, FAANS

AANS/CNS Section on Tumors Executive Committee

Chair: Fred Barker

Secretary-Treasurer: Steve Kalkanis

Past-Chair: Fred Lang

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IT/Website: Chris McPherson

Jeff Weinberg

International: Isabelle Germano (Chair)

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Nitin Mukerji (England)

Alejandra Teresa Rabadan (Argentina)

Zvi Ram (EANS)

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Ugur Ture (Turkey)

Jose Valerio-Pascua (Central America)

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Manfred Westphal (Germany)

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Journal of Neuro-Oncology: Linda M. Liau

Matrix: Ennio A. Chiocca (Chair)

Medical Neuro-Oncology: Susan Chang

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Michael Sughrie (AANS '15)

Michael Lim (CNS '15)

Gavin Dunn (Satellite '15)

Orin Bloch (Satellite '15)

Matt Tate (AANS '16)

Gelareh Zadeh (AANS '16)

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SNO: Michael Vogelbaum

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Washington: Andrew E. Sloan (Chair)

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Young Neurosurgeons: Kaisorn Chaichana

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