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Honoring the Past, Building the Future



Raymond Sawaya, MD

The AANS/CNS Section on Tumors has just completed a highly successful two-year tenure under the outstanding leadership of James Rutka, MD. Many notable accomplishments were achieved, including a strong and stable financial balance; yearly financial contributions to the AANS/CNS Washington Committee; strengthened partnership with the key brain tumor foundations and associations that so generously support our awards program; increased membership without an increase in our membership fees; establishment of a collaborative agreement with the *Journal of Neuro-Oncology*; creation of a new section logo; and the approval of an accreditation process by the Society of Neurological Surgeons. We are all indeed indebted to Dr. Rutka's tremendous leadership and to the hard work of the members of the Executive Council.

20th Anniversary

The next biennial meeting will be marked by the 20th anniversary of the establishment of the Tumor Section (1984-2004). It is therefore fitting to plan a celebration of this event during our next Brain Tumor Satellite Symposium, which will take place in San Francisco Oct. 21-22, 2004, immediately following the Annual Meeting of the Congress of Neurological Surgeons.

The program is being planned by Fred Lang, MD, and Corey Raffel, MD, and the local arrangements, by Mike McDermott, MD. In addition, Fred Barker, MD, has assumed the newly created position of historian; he will be developing a brochure highlighting the key accomplishments and events of the past 20 years.

Neurosurgical Oncology

The next biennial meeting will focus on all aspects of neurosurgical oncology, including skull base and spinal oncology, clinical and laboratory research, and fellowship education and training. It is important to emphasize the diversity and the complexity of the problems encountered by our specialty and the various areas of expertise required for addressing them.

This Is Your Section

The members of the Tumor Section are fortunate to have a strong and tireless Executive Council. I welcome the election of Ron Warnick, MD, as our new secretary/treasurer, and I thank all the committee chairs for their commitment to the continued success of the Tumor Section. I would be remiss however, not to mention the importance of the role that our members play in maintaining a vibrant and engaged section by participating in its activities and its programs. Your continued involvement, your opinions and your suggestions on how the section can better meet your needs and interests are necessary and highly encouraged.

First Announcement: World Federation of Neurological Surgeons (WFNS) Tumor Section Meeting

Jaipur, India: Oct. 11-13, 2004

Satellite Meeting: Kolkata, India, Oct. 15-16, 2004

International Experts in Surgery, Radiation, Medical and Research in Neuro-Oncology
Organizers:

- Main Meeting: A. Guha and J. Rutka, Canada; S. Dharker, India; contacts: SandiAmaral@uhn.on.ca; dharker@sancharnet.in
- Satellite Meeting: R. Sengupta, United Kingdom; contact: R.Sengupta@nuth.northy.nhs.uk

Tumor Highlights at the 2003 CNS Meeting

The 53rd Annual Meeting of the Congress of Neurological Surgeons, “Fundamentals, Foundations, Innovations, Integrations,” will be held Oct. 18–23, 2003, in Denver, Colo. For the most up-to-date program listings and registration information, go to www.neurosurgery.org/cns.

Tuesday, Oct. 21, 2003

SECTION ON TUMORS I

2:00–5:30 PM

Moderators: Kevin Lillehei, Gene H. Barnett

2:00–2:20 PM

The Role of Surgery in the Treatment of High-Grade Gliomas

2:20–2:40 PM

The Role of Surgery in the Treatment of Low-Grade Gliomas

2:40–3:00 PM

The Role of Surgery in the Treatment of Metastatic Brain Tumors

ORAL POSTERS 91–100

3:00–3:30 PM

REFRESHMENTS WITH EXHIBITORS

3:30–4:00 PM

OPEN PAPERS 750–759

4:00–5:30 PM

Moderators: James T. Rutka, Ronald E. Warnick

4:00–4:09 PM

750 – Identification of a Cancer Stem Cell in Human Brain Tumors

4:09–4:18 PM

751 – Safety and Efficacy of Convection-Enhanced Delivery of Gemcitabine or Carboplatin in a Rodent Glioma Model

4:18–4:27 PM

752 – Intense Chemotherapy with Low-Dose Irradiation in the Treatment of Medulloblastoma

4:27–4:36 PM

753 – G207 Infection of Dendritic Cells: Effects on Maturation and Generation of Antitumor Immunity

4:36–4:45 PM

754 – Intraoperative Subcortical Stimulation Mapping During Resection of Hemispheric Gliomas Located in or Adjacent to the Rolandic Cortex and Descending Motor Pathways

4:45–4:54 PM

755 – In Vivo Targeting Ability of Human Glioblastoma by Human Skin-Derived Stem Cells

4:54–5:03 PM

756 – Elevated Plasma S-100b Levels: A Noninvasive Marker for Early Detection of Brain Metastasis

5:03–5:12 PM

757 – Cytokine-Induced Radiation Sensitization in Glioblastoma Multiforme Is Mediated by the Fas/FasL System

5:12–5:21 PM

758 – Intraoperative OIS of the Human Brainstem: Functional Mapping the Floor of the Fourth Ventricle

5:21–5:30 PM

759 – Radiation-Induced Neuron Loss in the Immature Brain

Wednesday, Oct. 22, 2003

SECTION ON TUMORS II

2:30–5:30 PM

Moderators: Raymond Sawaya, Michael W. McDermott

PREUSS AWARD

2:30–2:39 PM

800 – Loss of Heterozygosity Analysis of Meningiomas: A Population Study

TUMOR YOUNG INVESTIGATOR AWARD

2:39–2:48 PM

801 – Local Release of Carboplatin Via an Alzet Mini-osmotic Pump Prolongs Survival in a Rat Brainstem Tumor Model

MAHALEY CLINICAL RESEARCH AWARD

2:48–2:57 PM

802 – Sarcomas of the Skullbase: Analysis and Evaluation of Treatment Paradigms

ORAL POSTERS 100 – 110

3:00–3:30 PM

REFRESHMENT BREAK

3:30–4:00 PM

OPEN PAPERS 802 – 812

4:00–5:30 PM

4:00–4:09 PM

803 – Decreasing Mortality and Progressive Centralization of Surgical Treatment of Primary Brain Tumors in the United States, 1988–2000

4:09–4:18 PM

804 – Transsphenoidal Surgery for Pituitary Tumors in the United States, 1996–2000: Mortality, Morbidity, and the Effect of Hospital and Surgeon Volume

4:18–4:27 PM

805 – Somatic Point Mutations as “Second Hit” Events in a Kindred With a Germline Deletion of a Tumor Suppressor Gene

4:27–4:36 PM

806 – Tumor Margin Dose Affects Local Control in Patients With Metastatic Brain Tumors Treated With Gamma Knife Stereotactic Radiosurgery

4:36–4:45 PM

807 – A Functional Polymorphism in the EGF Gene Is Common in Glioblastoma Multiforme

4:45–4:54 PM

808 – Igf2 Overexpression Enhances Sonic Hedgehog Induced Medulloblastoma in a Mouse Model

4:54–5:03 PM

809 – Intraoperative Speech Mapping in 17 Bilingual Patients Undergoing Resection of a Mass Lesion

5:03–5:12 PM

810 – siRNA Silencing of Monocarboxylate Transporters Inhibits Glycolytic Metabolism, Suppresses Proliferation, and Induces Apoptosis in Malignant Gliomas

5:12–5:21 PM

811 – Hemorrhagic Sequelae of Endoscopic Surgery for Intraventricular Brain Tumors

5:21–5:30 PM

812 – Total Removal of Meningiomas Occluding the Superior Sagittal Sinus (SSS) Without Sinus Reconstruction: Considerations Over a Series of 27 Patients

Awards Overview

Michael McDermott, MD

The AANS/CNS Section on Tumors administers several awards each year during the annual meetings of the American Association of Neurological Surgeons (AANS) and the Congress of Neurological Surgeons (CNS). The awards are given to recognize excellence in basic neuroscience research and clinical research in the field of neuro-oncology. While the Executive Committee is reviewing with sponsoring agencies some of the specific wording associated with each award, descriptions of awards administered through the section are found at www.neurosurgery.org/tumor/awards.html. Below is a brief review of each award, as well as who can apply and when the awards are given.

Mahaley Award Named in memory of neurosurgeon Steven Mahaley, MD, a neurosurgeon long devoted to neuro-oncology, the Mahaley Clinical Research Award is given at each AANS and CNS annual meeting to a neurosurgeon who is an established investigator and presents the best clinical research paper in the field. The applicant must be a member of the Section on Tumors. The award is given to a recipient only once. The National Brain Tumor Foundation sponsors the award.

Preuss Award Established in 1990 by long time benefactor of the AANS/CNS Section on Tumors, Peter Preuss, the Preuss Award is given at each AANS and CNS meeting to the neurosurgery resident who has submitted the best basic science research paper. The award is given to a recipient only once.

Young Investigator Award Sponsored by the American Brain Tumor Association, the Young Investigator Award is given at each AANS and CNS meeting to a young faculty member involved in neuro-oncology research who has demonstrated outstanding potential for basic science research. The applicant must be a member of the section and have been in practice for less than six years. The award is given only once to a recipient.

Farber Award Sponsored by the Farber Foundation, the Farber Awardee is selected by a subcommittee from the AANS/CNS Section on Tumors and the Society of Neuro-Oncology. The award is presented at the annual meeting of the respective societies in alternate years. The award recognizes the most promising investigators who are achieving significant results early in their careers. The award is given only once to a recipient.

Kluwer Award Sponsored by Kluwer Publishing, the Kluwer Award recognizes the work of an investigator who has submitted a high ranking clinical or basic science paper to the AANS annual meeting. The applicant must be a member of the section.

National Brain Tumor Foundation Translational Research Grant Award This award is provided by the National Brain Tumor Foundation for the best translational research grant proposal submitted in the spring of each year. Proposals that bring novel laboratory research findings to clinical trials are preferred. The award is presented annually at the CNS meeting. The award is given only once to a recipient, and the recipient must be a member of the section.

Bittner Awards There are two other annual awards for excellence in clinical and basic science research in neuro-oncology, presented at the AANS meeting for the past three years. The Ronald Bittner Foundation sponsors two Bittner awards, one for clinical presentations and one for a basic science presentation. A subcommittee from the AANS Scientific Program Committee selects the awardees.

Currently there are outstanding opportunities for recognition of excellent work in the field of neuro-oncology for young and established neurosurgeons, neurosurgery residents and adjunct basic science members of the Tumor Section. These opportunities may expand even further in the future, and we encourage all those with interest to submit their work for the appropriate award consideration.

Tumor Section Awards at the 2003 AANS Annual Meeting



Michael W. McDermott, MD, at right, presents the Young Investigators Award to Moneeb Ehtesham, MD.



Joseph M. Piepmeier, MD, at left, presents the Kluwer-Journal of Neuro-Oncology Award to John H. Sampson, MD.



James T. Rutka, MD, at right, presents the Preuss Award to Markus Bredel, MD.



Raymond Sawaya, MD, at right, presents the Mahaley Award to Marcus L. Ware, MD.

Contemporary Management of Cerebral Metastases: The Significance of ACOSOG and the Z0300 Protocol

Anthony Asher, MD, FACS; Stuart H. Burri, MD; Mark Shaffrey, MD

The management of brain metastases has been evolving with the broader acceptance and application of stereotactic radiosurgery (SRS). Whole brain radiation therapy (WBRT), which has long been the standard palliative treatment for patients with brain metastases, appears to have been superseded with the results of RTOG 95-08 in which an advantage in overall survival was noted in a significant percentage of patients with one to three brain metastases who were treated with both SRS and WBRT. With the establishment of SRS plus WBRT as the putative “standard” therapy, the next question that arises is whether WBRT is necessary as an adjunct to SRS.

Several retrospective analyses have looked at the efficacy of SRS alone or with WBRT for the treatment of brain metastases. Sneed and her colleagues published results of a retrospective, multi-institutional study in which 268 patients were treated with SRS alone and 301 received SRS plus WBRT (Sneed, 2002). In that series, after adjustment for known prognostic factors, there was not a significant difference in overall survival. Hasegawa et al. (2003) noted that patients treated with SRS alone relapsed elsewhere in the brain at a gross rate of 38 percent. In another retrospective series, patients who received SRS alone for cerebral metastases and survived for one year were free from relapse in the brain only 28 percent of the time (Sneed 1999). Despite the high rate of new lesions developing in patients treated with SRS alone, however, overall survival appears to be equivalent to SRS plus WBRT, as salvage therapies are fairly effective and patients’ extracranial disease is frequently the cause of death (Sneed 1999 and 2002).

The Argument for SRS Alone

The primary argument for utilizing SRS alone in the treatment of cerebral metastases is to limit the neurocognitive side effects of radiation therapy. Although there is evidence that WBRT can produce negative neurocognitive sequelae, the available data is not compelling. The two most commonly quoted papers on the topic evaluated a total of 18 affected patients and were published in the late 1980s (DeAngelis 1989, Asai 1989). The patients in the larger series were treated from the late 1970s to the mid-1980s with radiation regimens that were generally not representative of present standards. In fact, 75 percent of the patients received daily fractions of five Gray or greater for some or all of their therapy (DeAngelis 1989). Despite the widespread perception that WBRT inevitably results in worsened neurocognitive function, the contrary argument can be made that the exclusion of WBRT in patients with brain metastases can lead to inferior cognitive outcomes. Recently published data provide evidence that when patients treated with SRS alone relapse, they are frequently symptomatic (71 percent) and the majority (59 percent) suffer a neurological deficit (Regine 2002).

Unfortunately, any retrospective analysis of such a complex issue is intriguing at best, but cannot be definitive as a result of inherent

selection bias. Based on the available evidence, several authors have correctly concluded that a randomized trial including a prospective quality of life and neurocognitive evaluation is the best way to answer the questions raised.

Phase III Trial Is Open: Z0300

We have previously informed the members of the Tumor Section about the mission of the American College of Surgeons Oncology Group and the role of neurosurgery within that organization (Asher, *Tumor News*, Winter 2003). The purpose of this communication is to remind section members about an important open phase III randomized trial addressing the exact issues previously raised. To recap, the American College of Surgeons Oncology Group (ACOSOG) is a relatively recently formed cooperative trial group. ACOSOG is funded by the National Cancer Institute (NCI) to conduct prospective, randomized clinical trials that evaluate surgical therapies in the management of patients with malignant tumors. ACOSOG has activated study Z0300, “a phase III randomized trial of the role of whole brain radiation therapy in addition to radiosurgery in the management of patients with one to three cerebral metastases.”

The first study opened by the group’s Central Nervous System Organ Site Committee, Z0300 is designed to evaluate the role of WBRT in patients with one to three brain metastases treated with SRS. The primary endpoint of the study is overall survival since the previous retrospective analyses referenced all suffered from unavoidable selection bias. Perhaps equally important, however, are secondary endpoints that include prospective evaluation of quality of life and neurocognitive function. ACOSOG Z0300 is the first multi-institutional trial to prospectively evaluate the neurocognitive effects of WBRT in which one arm does not receive WBRT. This feature should allow accurate conclusions to be drawn regarding the role of WBRT in the optimal management of patients with one to three brain metastases not only for survival, but also for quality of life and neurocognitive effects.

The first patient in the trial was enrolled in December 2002, and approximately 15 patients are enrolled at the time of this writing. Presently, more than 20 sites around the country are open to patients. Other institutions are in the process of opening the trial, but additional sites that are interested in helping to answer this important scientific question are encouraged to participate. Further information regarding the CNS Organ Site Committee-ACOSOG or this trial can be obtained by contacting ACOSOG (www.acosog.org) directly, or Anthony Asher, MD, chair, CNS Organ Site Committee-ACOSOG (asher@cnsa.com).

Anthony Asher, MD, FACS, chair, CNS Organ Site Committee-ACOSOG
Stuart H. Burri, MD, director, Radiation Oncology-Z0300
Mark Shaffrey, MD, vice chair, CNS Organ Site Committee-ACOSOG

Editor's Corner

Isabelle M. Germano, MD

In this issue of the newsletter, Raymond Sawaya, MD, reviews the accomplishments of the AANS/CNS Section on Tumors during the two-year tenure of James Rutka, MD; Dr. Sawaya also outlines his program for the next two years. Michael McDermott, MD, provides a detailed overview of the section's awards program. Susan Chang, MD, reports on the intergroup trial for anaplastic astrocytoma, which still is recruiting patients. Ron Warnick, MD, summarizes the highlights of the recent Executive Committee meeting. Gene Barnett, MD, stresses the benefits of membership in the Tumor Section. Kevin Yao, MD, discusses why he chose to pursue a fellowship in neurosurgical oncology in the Residents' Corner, and Dr. Rutka reports on the status of neurosurgical oncology. Finally, the highlights of the tumor program planned for the 2003 CNS meeting are summarized; Kevin Lillehei, MD, put together this highly stimulating program.

If you have content for the newsletter please contact me. In particular we are interested in expanding the Residents' Corner. We also are planning on publishing a "case discussion," so please mail your most interesting case for discussion to me:

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Neurosurgery Oncology Fellowship

AANS/CNS Section on Tumors Applies to the Society of Neurological Surgeons for Fellowship Accreditation

James T. Rutka, MD

Through the Committee of Accreditation of Subspecialty Training (CAST) of the Society of Neurological Surgeons (SNS), several AANS/CNS sections have achieved approval for fellowship training in neurosurgery. To date, fellowship applications in cerebrovascular surgery, peripheral nerve surgery, and spine are being reviewed and approved by CAST on an ongoing basis. Last year, the Tumor Section prepared the clinical curriculum and the program requirements for proposed fellowship training in neurosurgical oncology. The curriculum and the program requirements were reviewed by the Tumor Section Executive Committee, modified, and then sent to the CAST of the SNS for comments.

At the Executive Council Meeting of the SNS at its annual meeting in Cincinnati on May 17, the AANS/CNS Tumor Section fellowship documents were enthusiastically reviewed. A final version of the revised documents is being submitted now so that CAST can approve the fellowships in neurosurgical oncology later this year. It is hoped that many neurosurgical programs across North America will take advantage of this opportunity to apply for Fellowship status in neurosurgical oncology. Applications will soon be online at www.societyns.org/fellowships/index.html.

Residents' Corner

So What Are You Doing Next Year?

Kevin Yao, MD

"So what are you doing next year?"

"A tumor fellowship at MD Anderson," I reply.

The sideward glance and look of bewilderment silently inquire, "Why tumor?" It's not an unreasonable question. In 1999, a national survey of neurosurgery residents and fellows showed that only 4 percent were interested in subspecialty training or careers in neuro-oncology.¹ In my training program, six of the eight residents who preceded me did spine fellowships. Many of the junior residents will be specializing in endovascular surgery. So why did I choose neuro-oncology? My reasons are many, ranging from personal academic interest to a hunch that neuro-oncology is entering a critical new era.

I developed an interest in neuro-oncology during my neurosurgery residency at Mount Sinai School of Medicine. In the year dedicated to research, I studied the molecular response of glioblastoma multiforme to radiation. I found neuro-oncology to be the ideal field in which my basic science research experience could be applied to complex and interesting clinical problems. As my exposure to the field has grown, so has my interest. And while my neuro-oncology training during residency has been extensive in volume and breadth, I believe that additional focused training will substantially improve my ability to manage oncologic disease.

Clearly, fellowship will provide an environment in which academic interests can be nurtured into career-defining pursuits. Furthermore, subspecialty training provides proficiency that comes only with experience. Much emphasis has been placed on experience-dependent outcomes in neurosurgical subspecialties. This is particularly true for vascular and complex spinal surgery. Surprisingly, the practice of neurosurgical oncology has not received similar scrutiny.

Yet, more than other neurosurgical subspecialties, the appropriate care of neuro-oncologic disease demands an efficient multi-disciplinary team versed on the most current thinking in this rapidly changing field. This sort of environment is not always available to a neurosurgical resident in training. Consequently, a neurosurgical resident who has recently completed training often will not have a paradigm for the appropriate management of neuro-oncology patients. Subspecialty training at a dedicated cancer center provides exposure to an ideal neuro-oncology practice. As a more critical eye is placed on neurosurgical oncology, I believe that it will become apparent that such exposure is not only beneficial, but necessary for neurosurgeons who assume the care of cancer patients. The upcoming accreditation of neurosurgical oncology fellowship programs is emblematic of this trend.

So while some may wonder at my selection of a tumor fellowship, I am extremely excited by my future in neurosurgical oncology.

¹Lee TT, Klose JL. Survey on Neurosurgery Subspecialty Fellowship Training. Congress of Neurological Surgeons Education Committee, *Surg Neurol*. 1999 Dec; 52(6):641-4.

[Kevin Yao, MD completed his Neurosurgery Residency at Mount Sinai School of Medicine, New York, in June 2003 and will continue with a neurosurgery neuro-oncology fellowship at MD Anderson in Texas. -Ed.]

Intergroup Trial for Anaplastic Astrocytomas

Susan Chang, MD

The Radiation Therapy Oncology Group (RTOG), in collaboration with the Eastern Cooperative Oncology Group (ECOG), the South West Oncology Group (SWOG) and the North Central Cancer Trials Group (NCCTG), is conducting a phase III randomized study of radiation therapy and temozolomide (IND#60,265) versus radiation therapy and BCNU for anaplastic astrocytoma (RTOG-9813). Patients with centrally reviewed, newly diagnosed anaplastic astrocytoma with KPS at least 60, normal laboratory parameters and adequate pulmonary function are potentially eligible. Treatment must begin within five weeks of a tissue diagnosis, so timely referral by the neurosurgeon to radiation oncology or medical oncology is encouraged. This also will allow for the central review process. Radiation therapy parameters are standard (59.4 Gy in 33 fractions of 1.8 Gy, five days a week for six weeks) for both arms. In arm one, the temozolomide (provided free of charge) is given at 200mg/m² daily for days one through five of the first week of RT and repeated every 28 days.

This study is open at multiple sites nationwide and is supported by Schering-Plough Corporation. Institutions will receive \$3,000 per patient enrolled in the study. For more information about the study please visit: www.rtog.org/members/active.html#brain.

The study chairs and their contact information are:

RTOG: Susan M. Chang, MD, (415) 353-2966, chang@neurosurg.ucsf.edu;
ECOG: Peter Bushunow, MD, (716) 922-4020, peter.bushunow@viahealth.org;
NCTTG: Kurt Jaeckle, MD, (904) 953-7102, jaeckle.kurt@mayo.edu; and
SWOG: Geoffrey Barger, MD, (313) 577-1242, gbarger@med.wayne.edu.

Secretary/Treasurer's Report

Ron Warnick, MD

The Executive Committee of the AANS/CNS Section on Tumors held a productive meeting on April 28. For those interested, the minutes from this meeting can be viewed at www.neurosurgery.org/tumor/index.asp

The section remains in sound financial condition with net assets of \$243,621. The fiscal 2004 budget (7/1/03-6/30/04) was recently approved and has estimated net revenue of \$8,675. The main revenue sources are membership dues (\$39,000) and contributions from brain tumor organizations (\$23,000). The main expenses are honoraria and awards (\$25,000), contributions to the AANS/CNS Washington Committee (\$10,000) and the newly formed campaign for medical liability reform (Neurosurgeons to Preserve Health Care Access).

The Executive Committee discussed the pros and cons of raising membership dues for the Tumor Section, but ultimately decided to maintain the current dues structure: Active \$75, International \$75, Adjunct \$37.50. Honorary, Associate, and Resident membership is complimentary.

Membership Benefits of the AANS/CNS Section on Tumors

Gene Barnett, MD

Why join the Section on Tumors? Consider these benefits:

- Formal acknowledgement of your special interest in tumors
- Enhanced credibility with tumor patients and in medicolegal activities
- Semiannual newsletter
- 50 percent discount on the *Journal of Neuro-Oncology* (the official journal of the AANS/CNS Section on Tumors)
- Reduced registration at the section's biennial Tumor Satellite Meeting
- Access to colleagues with interest in peripheral, primary and metastatic CNS, skull base and spinal tumors

Your membership also helps support the activities of the section, which serves as the official voice of the AANS and the CNS in matters related to tumors. The Section on Tumors deals with a myriad of tumor-related issues including new CPT codes, resident and fellowship education, and research initiatives, as well as supports organized neurosurgery in areas pertinent to the scope of neurosurgical tumor practice and policy.

Active membership is available to members of the AANS and/or the CNS with an interest in tumors. International and Adjunct (non-neurosurgeon) memberships also are available. Please complete the application in this issue and mail it to Gene Barnett, MD, Brain Tumor Institute – S-80, The Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH 44195.

Brain Tumor Research Projects Wanted — Apply Now!

NREF Annual Research Grant Applications due October 31, 2003

The Neurosurgery Research and Education Foundation (NREF) presents the **Young Clinician Investigator Award**:

Young Clinician Investigator Award — for full-time faculty pursuing careers as clinician investigators, this award offers a one-year grant of \$40,000. This award is cosponsored by The American Brain Tumor Association (ABTA).

NREF encourages the submission of both patient-oriented clinical research and basic science research applications.

For details on this and other fellowship offerings visit www.AANS.org and select "Research" or contact the AANS Development Department at 847-378-0500.



Application for Membership

AANS/CNS Section on Tumors



Eligibility: Members of the AANS and/or CNS who have demonstrated a special interest in tumors of the nervous system.

I. Biographical:

(A) Name: _____

(B) Home Address: _____

(C) Office Address: _____

Phone: _____ Fax: _____

(D) E-Mail (Required): _____

II. Category of Membership Requested:

Active Associate International Resident/Fellow Adjunct

* See www.neurosurgery.org/Tumor/Memberinfo.html for Membership Category Descriptions.

III. Membership, Certification and Practice:

(A) Are you certified by the American Board of Neurological Surgery? Yes No

(B) For Resident/Fellow Applications-Expected Training Completion Date (month/year) _____

(C) Are you a member of

1. American Association of Neurological Surgeons? Yes No

2. Congress of Neurological Surgeons? Yes No

(D) Are you currently involved in brain tumor research?
Clinical- Yes No Basic- Yes No

Suggestions on Section activities that would benefit you:

Signature of Applicant

Date

Please return completed application and curriculum vitae to:

Gene H. Barnett, MD
Brain Tumor Institute - S-80
The Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH 44195
Phone: (216) 444-5381 • Fax: (216) 444-9170 • E-mail: barnett@neus.ccf.org

AANS/CNS Section on Tumors
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**SPLENDID
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*Research Update
in
Neuroscience for
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**RUNN 2003
November 9-16th**

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