volume 8 number 2 | ucsf department of neurological surgery

neurosurgery news

academic and research news

Comprehensive Care for Children: The Practice of Pediatric Neurological Surgery at UCSF

Pediatric neurosurgical care at UCSF has expanded substantially during the past five years. "Our long-term goal is to develop comprehensive treatment for complex neurological disorders that require a large team of pediatric specialists," says **Nalin Gupta MD, PhD,** chief of pediatric neurological surgery. By integrating translational research with a multidisciplinary approach to patient care, these specialists can bring new therapies into clinical practice. Here are some of the areas of expertise that are growing with a new arsenal of techniques and equipment and the addition of faculty with rare expertise.

Epilepsy

Approximately 1.3 million children world-wide have epilepsy and nearly 200,000 of them have symptoms that can not be controlled with medication. "If children do not respond after being treated with two different medications, they should be referred to an epilepsy center to determine if they are surgical candidates," says **Joseph Sullivan MD,** an expert in treating refractory pediatric epilepsy. Sullivan joined UCSF in 2007, bringing with him unique experience from Children's Hospital of Philadelphia where he was a fellow in pediatric epilepsy.

Surgery, which involves the removal of seizure 'hot-spots,' or foci, has dramatically changed the outlook for pediatric patients with epilepsy; 50% of patients have their seizures controlled and can go on to live without medications. Because younger children usually have a greater chance of functional recovery, an early referral for surgery is best. To determine if a child is a good surgical candidate, the team at UCSF's Epilepsy Center uses a variety of tools to help determine the exact location in the brain where seizure foci are located.[1] These include video electroencephalogram (EEG) recordings and a powerful 3 Tesla (3T) MRI scanner to provide exquisite anatomical detail. Physicians may also use recordings from a magnetic encephalogram (MEG), which is similar to EEG, but uses a magnetic field to study brain waves. An MEG can be done in just 24 hours, which is a significant advantage over the weeks of hospitalization required for standard EEG.

If seizure foci are located in eloquent cortex (areas of the brain required for language and hand movement), more detailed information is obtained by placing subdural grids directly on the brain surface to map electrical activity as precisely as possible. "Subdural grids allow us to map the foci in pediatric patients who would not be able to tolerate awake surgery," says Gupta. "This decreases morbidity that can result from surgery and increases the safety." Subdural grids, however, do require a two-stage operation and often mean a two-week stay in the hospital.

Recently, UCSF has begun using functional MRI (fMRI) techniques to localize language and motor centers in the brain. "fMRI is a noninvasive method of determining whether epileptic foci reside in the eloquent cortex," says Sullivan. "It could replace Wada testing and determine early if patients are surgical candidates." The pediatric epilepsy center is also bringing a neuropsychologist on board in 2008 who will take into account various cognitive factors and how patients function in their daily lives to determine the best treatment plan for each patient.

Cerebrovascular Disorders

The most common cause of spontaneous brain hemorrhage in children is an arteriovenus malformation (AVM) — a tangle of blood vessels and arteries that have the potential to burst open, often without any warning. AVM rupture can lead to major neurologic problems and death in some cases. A study conducted at UCSF, however, has confirmed that children with AVMs can look forward to better functional outcomes than adults.[2] The study revealed that factors such as KPS score, location, and severity made little difference when comparing the outcomes of adults with children following microsurgery. Pediatric

cont. on page 3

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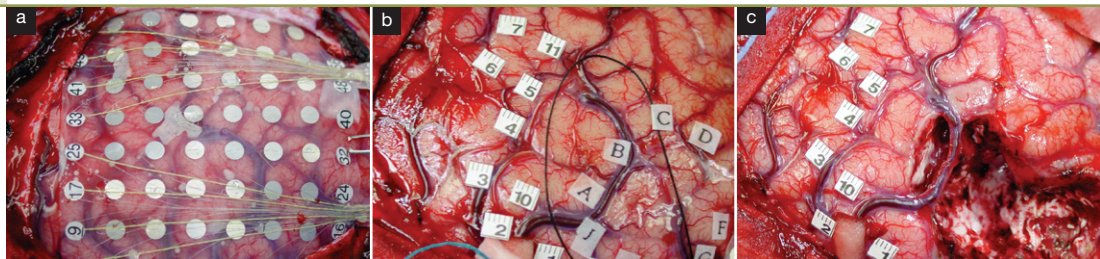
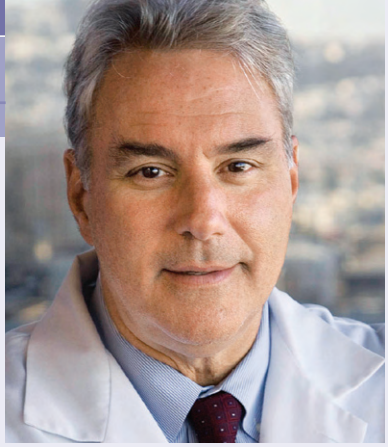


a Subdural grids placed directly on the brain map electrical activity to precisely identify epileptic foci

b Intraoperative mapping defines functional areas of the brain and the exact location of the epileptic foci

c Postoperative view of surgical cavity where epileptic foci has been removed and functional brain preserved

looking to the future



Pediatric neurosurgery at the University of California, San Francisco (UCSF) is entering a period of exciting change in the next several years. First, a new UCSF Children's Hospital will begin construction on the Mission Bay campus, next to downtown San Francisco. This state-of-the-art facility will incorporate cutting-edge surgical and monitoring devices that are designed to meet the unique healthcare needs of children. The new location will also be the home of the Helen Diller Family Comprehensive Cancer Center, which will, for the first time, house all members of the Brain Tumor Center, including researchers and clinicians specifically working on problems related to pediatric brain tumors.

The new Children's Hospital will focus on creating an environment that will emphasize clinical research and the development of new treatments for pediatric diseases with a particular emphasis on the neurosciences. The developing nervous system is highly vulnerable to early injury, but can also rapidly adapt by assigning function to alternate areas of the brain; a phenomenon known as neural plasticity. In some situations, early surgical treatment is preferred to take advantage of this built-in adaptability (see page 1). In the Division of Pediatric Neurosurgery at UCSF, a wide range of specialists led by **Nalin Gupta MD,** chief of the division and associate professor of neurological surgery, collaboratively evaluate each patient to develop the best treatment plan. And as the program continues to expand, we are excited about the future of pediatric neurosurgery at UCSF.

Our clinical pediatric brain tumor program continues to be one of the largest practices in the Western United States and we are committed to providing novel treatment options for malignant tumors. We are currently offering 16 clinical trials in partnership with the Pediatric Brain Tumor Consortium, Children's Oncology Group, and Wyeth Pharmaceuticals; all of which are coordinated through **Anurahda Banerjee MD,** pediatric neuro-oncologist and associate professor of pediatrics and neurosurgery.

These clinical trials are only made possible through the translation of basic science discoveries and we are pleased to announce that **C. David James PhD,** professor and Berthold and Belle N. Guggenhime Endowed Chair of neurological surgery, **Graeme Hodgson PhD,** assistant professor of neurological surgery, and **David Rowitch MD, PhD,** professor of pediatrics and neurological surgery, have been awarded a generous grant by the Pilocytic Low Grade Astrocytoma (PLGA) Foundation in honor of ten-year-old Jake Gainey (www.teamjake.org), who was diagnosed with a PLGA. The studies funded by this grant will examine the possible stem-cell origin of these tumors and explore new treatment options.

Finally, the continued success of our partnership with Children's Hospital and Research Center in Oakland (CHRCO) ensures that we are training the next generation of academic neurosurgeons to have strong backgrounds in pediatric neurosurgery and the residency rotation at CHRCO gives Department of Neurological Surgery residents exposure to a wide variety of cases. **Peter Sun MD,** director of neurosurgery at CHRCO, is vital member of our team and we are proud to partner with him in serving the community of Oakland.

Mitchel S. Berger MD,
Kathleen M. Plant
Distinguished Professor & Chairman

Director, Brain Tumor
Research Center

Department of
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Comprehensive Care for Children: The Practice of Pediatric Neurological Surgery at UCSF

cont. from page 1

patients uniformly did better, leading the authors to conclude that neural plasticity is the most important factor in recovery and making the case for aggressive microsurgical treatment to ablate the anomaly. “Pediatric AVMs are rare entities and we look forward to treating them because in general pediatric patients do very well,” says **Michael Lawton MD,** chief of cerebrovascular surgery.

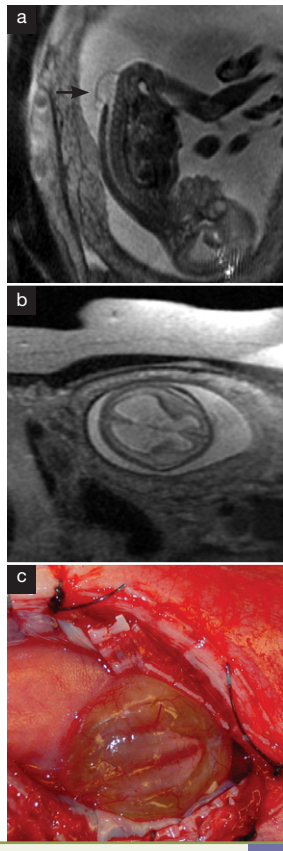
Surgical procedures for cerebrovascular disorders are done in conjunction with neurointerventional radiologists who perform preoperative AVM embolization — closure of large AVM vessels through a small catheter threaded into a major artery in the leg. For lesions affecting the vasculature that are inoperable, or for patients who can not tolerate surgery, Gamma Knife® radiosurgery provides a noninvasive option that delivers high-dose radiation directly to the abnormality while sparing surrounding brain tissue from unnecessary injury. Stroke is another disease that, while exceedingly rare in children, requires a multidisciplinary team to treat the myriad of morbidities associated with it. UCSF neurologist and pediatric stroke expert **Heather Fullerton MD** is an important member of the pediatric cerebrovascular team and has expertise in recognizing the symptoms of stroke in children and identifying effective treatment for each one.

Fetal Surgery

Perhaps one of the most exciting advances in recent medical history, fetal surgery has the potential to treat patients before they are born. The Fetal Treatment Center at UCSF, founded by **Michael Harrison MD,** of the Department of Pediatrics, was the first of its kind and remains a leading center of innovation for evaluation of fetal anomalies and treatment using minimally invasive techniques.

In a recent interview with Jeff Miller of UCSF’s Science Café, Harrison described how endoscopic techniques are revolutionizing the field.[3,4] While operating, surgeons consult sonograms for cross-sectional views of the fetus as well as an endoscope for viewing the instrumentation. As risky, open surgeries become replaced by safer, minimally invasive ones, surgeons are able to tackle conditions such as myelomeningocele — which, according to Harrison, is the first non-life-threatening problem taken on using fetal surgery.

Currently, the Fetal Treatment Center is participating in the first clinical trial of fetal surgery for myelomeningocele — a condition which may cause paralysis, deformity, or hydrocephalus and is usually discovered during the second trimester. The Management of Myelomeningocele Study (MOMS) is a randomized trial that will compare the outcomes of infants treated in utero to those treated after birth. Investigators hypothesize that treating the anomaly before birth has the potential to decrease morbidity associated with spina bifida. “Our hope is that early closure of the spinal cord will reduce the secondary injury that occurs in utero and this may potentially reduce some of the lifelong disabilities associated with spina bifida,” says Gupta.



a Fetal MR image showing a myleomenigocele sac (arrow) protruding from the posterior spine.

b Axial MR image showing hydrocephalus in the fetal brain.

c An open myelomeningocele defect on a developing fetus seen during fetal surgery.

further information:

1 To find out more about care for pediatric patients with epilepsy at UCSF, visit: http://www.ucsfhealth.org/childrens/medical_services/neuro/epilepsy/index.html.

2 Sanchez-Mejia RO, Chennupati SK, Gupta N, Fullerton H, Young WL, Lawton MT. Superior outcomes in children compared with adults after microsurgical resection of brain arteriovenous malformations. **J Neurosurg** 2006;105:82-87.

3 To hear the episode “Translating Science: A Conversation with Pioneering Fetal Surgeon Michael Harrison,” visit the Web site of UCSF’s award-winning Science Café at: http://www.ucsf.edu/sciencecafe/2008/harrison.html.

4 To find out more about the Fetal Treatment Center at UCSF, visit http://fetus.ucsfmedicalcenter.org/

selected publications

Gupta N, Park J, Solomon C, Kranz DA, Wrensch M, Wu YW. Long-term outcomes in patients with treated childhood hydrocephalus. J Neurosurg 2007;106(5 Suppl):334-9.

Liang Y, Bollen AW, **Gupta N.** CC chemokine receptor-2A is frequently overexpressed in glioblastoma. J Neurooncol 2008;86(2):153-63.

Liang Y, Diehn M, Bollen AW, Israel MA, **Gupta N.** Type I collagen is overexpressed in medulloblastoma as a component of tumor microenvironment. J Neurooncol 2008;86(2):133-41.

McBride SM, Daganzo SM, Banerjee A, **Gupta N,** Lamborn KR, Prados MD, Berger MS, Wara WM, Haas-Kogan DA. Radiation is an Important Component of Multimodality Therapy for Pediatric Non-Pineal Supratentorial Primitive Neuroectodermal Tumors. Int J Radiat Oncol Biol Phys 2008; [Epub ahead of print].

Nalin Gupta MD, PhD, chief of the Division of Pediatric Neurosurgery, has specialty interests in the evaluation and surgical management of pediatric brain tumors, hydrocephalus, cranial and spinal congenital anomalies, and epilepsy. After his residency training in neurological surgery at the University of Toronto in Ontario, Canada, he completed fellowship training in pediatric neurosurgery at the Hospital for Sick Children in Toronto. He is currently an associate professor in the Department of Neurological Surgery and Pediatrics, a principal investigator of the Brain Tumor Research Center, and holds the Dennis Bruce Dettmer Endowed Chair in Pediatric Neurosurgery.

Gupta's research interests include fundamental mechanisms of brain tumor progression and developing new delivery strategies for agents used for cancer chemotherapy. During his graduate studies, Gupta studied the effect of radiation and chemotherapy agents on glioma cells as they progress through the cell cycle. Currently, his laboratory is focusing on cell-cell interactions during tumor progression, and the special role of pro-inflammatory cytokines. He is also co-principal investigator of a project funded by the Pediatric Brain Tumor Institute of the U.S. that examines convection-enhanced and intranasal delivery of therapeutic agents to the rodent brainstem. These new methods of drug delivery have the ability to direct high concentrations of therapeutic agents directly to a tumor site, while sparing the surrounding normal brain tissue from toxic side effects.

Gupta is also a co-investigator in the NIH-funded Fetal Myelomeningocele Trial (see page 2), a national randomized clinical trial evaluating the efficacy of fetal surgery for spina bifida. Finally, through collaborations with the Hydrocephalus Association and the Division of Neuroepidemiology, ongoing investigations are beginning to define the incidence, prevalence, and long-term outcome for patients developing hydrocephalus in childhood.

Peter Sun MD is the director of pediatric neurosurgery at Children's Hospital and Research Center in Oakland (CHRCO) and a staff neurosurgeon at several Bay Area hospitals, including Alta Bates Medical Center in Berkeley, Summit Medical Center in Oakland, and Good Samaritan Hospital in San Jose. Sun is also an assistant clinical professor in the Department of Neurological Surgery at UCSF and is the residency-training site director for the UCSF residency rotation at CHRCO. Residents gain from a unique training environment, as CHRCO is Northern California's only pediatric trauma center and possesses the region's largest pediatric intensive care unit. It is also home to a large craniofacial surgery program, an innovative spinal disorders program, and comprehensive neuro-oncology and spasticity programs.

Sun received his medical degree from Columbia University, College of Physicians and Surgeons. After completing an internship at the University of California, Davis, Sun went on to become chief resident in neurosurgery at Yale University and in spine surgery, neurosurgery, and orthopedics at New York University. He has also completed a fellowship in pediatric neurosurgery at Children's Hospital of Philadelphia, where he focused on complex cervical spine disorders, craniosynostosis, and childhood brain tumors.

Sun is board certified by the American Board of Neurological Surgery and the American Board of Pediatric Neurosurgery. He specializes in all aspects of pediatric neurosurgery, including brain tumors, hydrocephalus, spinal disorders, and spasticity. He is also a member of the Children's Oncology Group neurosurgery committee. He has been involved in several clinical trials of new treatments for brain tumors and was the study coordinator for a Children's Oncology Group trial evaluating systemic chemotherapy, second-look surgery, and conformal radiation for infants with medulloblastoma. Sun is also a member of several professional organizations including the Congress of Neurological Surgeons, the American Association of Neurological Surgeons, and the International Society of Craniofacial Surgeons.

selected publications

Hosalkar HS, Pill SG, **Sun PP,** Drummond DS. Progressive spinal lordosis after laminoplasty in a child with thoracic neuroblastoma. J Spinal Disord Tech 2002;15(1):79-83.

Lu DC, **Sun PP.** Bone morphogenetic protein for salvage fusion in an infant with Down syndrome and craniovertebral instability [case report]. J Neurosurg 2007;106(6 Suppl):480-3.

Sanai N, Quinones-Hinojosa A, Gupta NM, Perry V, **Sun PP,** Wilson CB, Lawton MT. Pediatric intracranial aneurysms: durability of treatment following microsurgical and endovascular management. J Neurosurg 2006;104(2 Suppl):82-9.

von Koch CS, Gupta N, Sutton LN, **Sun PP.** In utero surgery for hydrocephalus. Childs Nerv Syst [review]. 2003;19(7-8):574-86.

Frank L. Acosta, Jr. MD was born and raised in Los Angeles, California. He balanced his secondary education with interests in basketball, tennis, and cross country running. He attended Harvard College, where he majored in Chemistry. While in college, Acosta conducted research in stroke at the Brigham & Women's Hospital and in asthma at Massachusetts General Hospital. He then went on to attend Harvard Medical School. While there, he was awarded a prestigious Howard Hughes Research Scholarship to study blood-brain tumor barrier permeability in the laboratory of Keith Black MD at Cedars-Sinai Medical Center.

Acosta graduated from Harvard Medical School in 2002 and came to the University of California, San Francisco to become a resident in the Department of Neurological Surgery. His interest turned from brain tumors to spinal disorders, particularly degenerative disc disease. In 2006, Acosta was awarded a National Research Service Award from the National Institutes of Health under the mentorship of Jeffrey Lotz PhD. With this grant, he studied vertebral endplate permeability and its relationship to intervertebral disc health and degeneration. In addition, Acosta has also spent time conducting biomechanical spine research in the laboratory of **Christopher Ames MD.** Acosta plans to complete a fellowship in spinal deformity surgery at Northwestern University in 2008 and will then pursue a career in academic neurospinal surgery.

selected publications

Acosta FL Jr, Aryan HE, Chou D, Ames CP. Long-term Biomechanical Stability and Clinical Improvement After Extended Multilevel Corpectomy and Circumferential Reconstruction of the Cervical Spine Using Titanium Mesh Cages. J Spinal Disord Tech 2008;21(3):165-74.

Acosta FL Jr, Buckley JM, Xu Z, Lotz JC, Ames CP. Biomechanical comparison of three fixation techniques for unstable thoracolumbar burst fractures. Laboratory investigation. J Neurosurg Spine 2008;8(4):341-6.

Acosta FL Jr, Sanai N, Chi JH, Dowd CF, Chin C, Tihan T, Chou D, Weinstein PR, Ames CP. Comprehensive management of symptomatic and aggressive vertebral hemangiomas. Neurosurg Clin N Am 2008;19(1):17-29.

Aryan HE, **Acosta FL,** Ames CP. Two-level total en bloc lumbar spondylectomy with dural resection for metastatic renal cell carcinoma. J Clin Neurosci 2008;15(1):70-2.

Rene Sanchez-Mejia MD graduated with honors from Harvard Medical School in 2002 and was a student in the Harvard-Massachusetts Institute of Technology Health Sciences and Technology Program. There, he became interested in the function of inflammation and PLA2-dependent fatty acids in the brain. Working with Robert Friedlander, MD, Sanchez-Mejia found that minocycline could decrease neuroinflammation in a mouse model of traumatic brain injury and improve neurological outcomes. He also described the temporal activation of caspase proteins after stroke and found evidence of PLA2 activation in mouse models of neurodegeneration.

At UCSF, he continued to study the function of PLA2-dependent fatty acids in the brain. Working at the Gladstone Institute for Neurological Disease with Lennart Mucke, MD, Sanchez-Mejia found that fatty acid alterations are associated with memory and cognitive dysfunction in a mouse model of dementia. His experiments have shown that manipulating fatty acid pathways can improve cognitive function that may be due to cerebrovascular dysfunction and synaptic deficits.

Sanchez-Mejia has pursued his interest in cerebrovascular disease and cognition with clinical research. His work with **Nicholas Barbaro MD,** evaluating patients with cerebrovascular compression of the trigeminal nerve, was awarded with the Ronald Tasker Young Investigator Award by the American Association of Neurological Surgeons and Congress of Neurological Surgeons in 2005 and the Kaiser Award for clinical research by the San Francisco Neurological Society in 2006. More recently he was awarded a Clinical Research Award from the NIH. His work with **Michael T. Lawton MD** on brain arteriovenous malformations, aneurysms, and dural arteriovenous fistulas has been published in *Journal of Neurosurgery* and *Neurosurgery.* In 2008, Sanchez-Mejia will be returning to Harvard to learn endovascular techniques at Massachusetts General Hospital and continue researching cerebrovascular disease and cognitive function.

selected publications

Aryan HE, **Sanchez-Mejia RO,** Ben-Haim S, Ames CP. Successful treatment of cervical myelopathy with minimal morbidity by circumferential decompression and fusion. Eur Spine J 2007;16(9):1401-9.

Lawton MT, **Sanchez-Mejia RO,** Pham D, Tan J, Halbach VV. Tentorial dural arteriovenous fistulae: operative strategies and microsurgical results for six types. Neurosurgery 2008;62(3 Suppl 1):110-25.

Sanchez-Mejia RO, Lawton MT. Distal aneurysms of basilar perforating and circumferential arteries. Report of three cases. J Neurosurg 2007;107(3):654-9.

Sanchez-Mejia RO, Limbo M, Cheng JS, Camara Quintana J, Ward MM, Barbaro NM. Ronald Tasker Award: retreatment of medically refractory trigeminal neuralgia. Clin Neurosurg 2006;53:313-5.

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Just Published

Neuro-Oncology: The Essentials, 2nd Edition, edited by Mark Bernstein MD, FRCSC and Mitchel S. Berger MD. Thieme, New York, NY, 2008, 496 pp, 59 tables, 278 illustrations. This book presents a comprehensive summary of the fundamental science and core clinical concepts for successfully managing common problems in neuro-oncology. The second edition maintains the brevity and effective use of special boxed features to highlight the most salient points and issues, which made the first edition such an invaluable reference tool for neurosurgeons, neurologists, oncologists, and residents. A select group of international authors cover biology, imaging, surgery, radiation chemotherapy, immune therapy, gene therapy, and problems associated with specific tumor types.

Spinal Deformity: A Guide to Surgical Planning and Management, edited by Praveen V. Mummaneni MD, Lawrence G. Lenke MD, and Regis W. Haid, Jr. MD. Quality Medical Publishing Inc., St. Louis, MO, 2008, 825 pp, 1100 illustrations, DVD with operative technique video. This book provides analyses of every aspect of diagnosis, strategic planning, and surgical treatment of spinal deformities, and includes current information on state-of-the-art techniques for the cervical, thoracic, and lumbosacral spine. Both open and minimally invasive techniques are described.

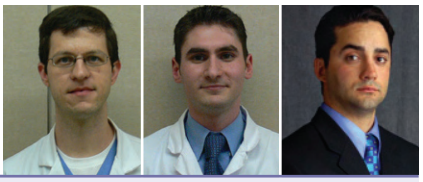
Orientation to Caregiving. A Handbook for Family Caregivers of Patients with Brain Tumors. Steffanie Goodman MPH, Michael Rabow MD, Susan Folkman PhD. University of California, San Francisco, 2008, 68 pp. The handbook covers the full range of issues faced by family caregivers, including managing physical symptoms, caring for loved ones at home and in medical facilities, communicating with healthcare providers, emotional distress, and financial and legal advice. It is available for download from the website of the American Brain Tumor Association at: http://www.abta.org/index.cfm?contentid=227

• The nonprofit organization Meningioma Mommas has recently awarded the Department of Neurological Surgery a $60,000 grant to support translational research into the genetic changes underlying the development of meningiomas and the use of this information to develop new therapies. On January 8, 2008, Liz Holmeir, co-founder of the organization, presented the check to **Michael McDermott MD,** professor of neurological surgery and Robert and Ruth Halperin Endowed Chair in Meningioma Research, and **Anita Lal PhD,** assistant professor of neurological surgery and principal investigator of the UCSF Meningioma Research Laboratory. The program will fund a clinical database to capture patient data and futher support long-term translational research on the disease. For more information on Meningioma Mommas, visit their Web site at: http://www.meningiomamommas.org.

• The Department of Neurological Surgery has installed the newest model of the Leksell Gamma Knife radiosurgery systems: the Gamma Knife Perfexion®. The new machine has greater flexibility and reach than the previous model, allowing treatment of more areas of the head and now the neck. Neurosurgeons at UCSF have treated more than 3,000 patients with Gamma Knife radiosurgery since 1991.

• The Pediatric Low Grade Astrocytoma (PLGA) Foundation has awarded a grant to members of the Brain Tumor Research Center in honor of Jake Gainey (www.teamjake.org) to study the possible stem-cell origin of PLGAs and explore new treatment options. The principal investigators of this new program are **C. David James PhD,** professor and Berthold and Belle N. Guggenhime Endowed Chair of neurological surgery; **Graeme Hodgson PhD,** assistant professor of neurological surgery; and **David Rowitch MD, PhD,** professor of pediatrics and neurological surgery. For more information on the PLGA Foundation and the project funded at UCSF, please visit: http://www.fightplga.org/research/.

• The Department of Neurological Surgery is pleased to welcome two new faculty members. Biostatistician **Mei-Yin Polley PhD,** assistant adjunct professor of neurological surgery, has joined the Brain Tumor Research Center and supplies input into the design, analysis, and reporting of new studies. **Manish Aghi MD, PHD,** has joined the Department as assistant professor of neurological surgery. Aghi specializes in surgery for adult brain tumors, with a special interest in pituitary surgery, and is leading a research program focused on angiogenic and viral vector therapies for glioblastoma.



PGY2 Residents in the Department of Neurological Surgery. From left to right: Matthew Tate MD, PhD, Orin Bloch MD, and Brian Jian MD, PhD.

residents' publications

Chang EF, Zada G, Kim S, Lamborn KR, Quinones-Hinojosa A, Tyrrell JB, Wilson CB, Kunwar S. Long-term recurrence and mortality after surgery and adjuvant radiotherapy for nonfunctional pituitary adenomas. J Neurosurg 2008;108(4):736-45.

Lim DA, Cha S, Mayo MC, Chen MH, Keles E, VandenBerg S, Berger MS. Relationship of glioblastoma multiforme to neural stem cell regions predicts invasive and multifocal tumor phenotype. Neuro Oncol 2007;9(4):424-9.

Lu DC, Theodore P, Korn WM, Chou D. Esophageal erosion 9 years after anterior cervical plate implantation. Surg Neurol 2008;69(3):310-3.

Richardson RM, Barbaro NM, Alvarez-Buylla A, Baraban SC. Developing cell transplantation for temporal lobe epilepsy. Neurosurg Focus. 2008;24(3-4). http://thejns.org/doi/full/10.3171/FOC/2008/24/3-4/E16. Accessed May 15, 2008.

Sanai N, Berger MS. Glioma extent of resection and its impact on patient outcome. Neurosurgery 2008;62(4):753-66.

Sughrue ME, Levine J, Barbaro NM. Pain as a symptom of peripheral nerve sheath tumors: clinical significance and future therapeutic directions. J Brachial Plex Peripher Nerve Inj 2008;3:6.

Wang VY, Manley G. Recognition of paroxysmal autonomic instability with dystonia (PAID) in a patient with traumatic brain injury. J Trauma 2008;64:500-2.

Yang I, Barbaro NM. Advances in the radiosurgical treatment of epilepsy. Epilepsy Curr 2007;7(2):31-35.

Zador Z, **Bloch O,** Yao X, Manley GT. Aquaporins: role in cerebral edema and brain water balance [Review]. Prog Brain Res 2007;161:185-94

Mitchel S. Berger MD, Kathleen M. Plant Distinguished Professor and chairman of the Department of Neurological Surgery, has been elected to the Board of Directors of the American Association of Neurological Surgeons (AANS). He has also been elected as a member of the American Board of Neurological Surgery.

Christopher Ames MD, assistant professor of neurological surgery, has been elected to the Cervical Spine Research Society in recognition of contributions to the study of the cervical spine.

Nicholas Barbaro MD, professor of neurological surgery, was the lecturer at the 2007 Sidney A. Hollin, MD Endowed Memorial Lectureship at the Mount Sinai Hospital. He also gave the Annual William H. Sweet Lecture on Functional Neurosurgery and Pain at Massachusetts General Hospital.

Michael Beattie PhD, professor of neurological surgery, has been appointed to the scientific advisory board of the Charles H. Neilsen Foundation.

Susan Chang MD, professor and Lai Wan Kan Endowed Chair of neurological surgery, has been elected president of the Society of Neuro-Oncology.

Adam Ferguson PhD, postdoctoral scholar in the Department of Neurological Surgery, has been given the Michael Goldberger Award at the National Neurotrauma Symposium for work performed in the laboratories of Michael Beattie PhD and Jacqueline Bresnahan PhD.

John Fike PhD, professor of neurological surgery, has been appointed chairperson of the Radiotherapy and Biology Study Section at the National Institutes of Health (NIH).

John Forsayeth PhD, associate researcher in the Department of Neurological Surgery, has received a Michael J. Fox Foundation Rapid Response Innovation Award for a 12-month pilot project to evaluate a novel gene for treatment of Parkinson's disease.

Graeme Hodgson PhD, assistant professor of neurological surgery, has received a junior faculty award from the UCSF Research Evaluation and Allocation Committee to study RNA interference therapeutics in pediatric brainstem gliomas.

Geoffrey Manley MD, PhD, associate professor of neurological surgery, is the principal investigator of a new UC Discovery Grant entitled "Biomedical Informatics for Critical Care." This program will partner with UC Santa Barbara and Intel's Digital Health Group to create a highly scalable warehouse for critical care data and to examine the utility of data-driven informatics methods to identify physiological data patterns for classifying patients and outcomes.

Praveen Mummaneni MD, associate professor of neurological surgery, was the first neurosurgeon to receive the Scoliosis Research Society International Traveling Fellowship. During the fellowship, he traveled to five countries and participated in scoliosis surgeries with six senior orthopedic surgeons, gave lectures on spinal deformity, and discussed complex scoliosis cases.

Michael McDermott MD, professor of neurological surgery, has been appointed chairman of the AANS-CNS joint section on tumors. Dr. McDermott and David Larson MD, PhD, professor emeritus of radiation oncology, also co-chaired the 2007 International Stereotactic Radiosurgery Society Meeting held in San Francisco. There were 550 attendees from around the world, and the next meeting will be held in Seoul, Korea in 2009.

Andrew Parsa MD, PhD, associate professor of neurological surgery, has been awarded the Reza and Georgianna Khatib Endowed Chair in Skull Base Tumor Surgery.

Claudia Petritsch PhD, assistant research biochemist in the Department of Neurological Surgery, has been given a grant from the Oligo Brain Tumor Fund of the National Brain Tumor Foundation.

Nader Sanai MD, resident in the Department of Neurological Surgery, has been given a National Research Service Award and a Research Training Grant by NIH-NINDS (National Institute of Neurological Disorders and Stroke). He has also been awarded a Research Fellowship by the AANS Neurosurgery Research Education Foundation, as well as the Kaiser Award for Clinical Research by the San Francisco Neurological Society. Dr. Sanai was also asked to serve as a guest editor for Neurosurgery Clinics of North America.

Philip A. Starr MD, PhD, associate professor and Dolores Cakebread Endowed Chair of neurological surgery, and Jill Ostrem MD, assistant professor of neurology, have been awarded a grant by the Benign Essential Blepharospasm Foundation to fund a clinical trial of deep brain stimulation for craniocervical dystonia.

Michael Sughrue MD, resident in the Department of Neurological Surgery, has been awarded the Synthes Skull Base Award by the AANS for his presentation "The Natural History of Untreated Acoustic Neuroma."

James Waldron MD, resident in the Department of Neurological Surgery, has been awarded a National Research Service Award by the NIH to fund the project "Inhibition of the PI3 Kinase Pathway in Malignant Glioma by Convection Enhanced Delivery."

Charles B. Wilson MD, professor emeritus and former chairman of the Department of Neurological Surgery, was honored with the 2008 Cushing Medal at the AANS annual meeting on April 28, 2008. The Cushing Medal is the highest honor presented by the AANS and it was given to Dr. Wilson in recognition of his many years of outstanding leadership, dedication, and contributions to the field of neurosurgery.

Isaac Yang MD, resident in the Department of Neurological Surgery, has been awarded the Dandy Fellowship by the Congress of Neurological Surgeons.

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selected recent publications from the department of neurological surgery

Baia GS, Dinca EB, Ozawa T, Kimura ET, McDermott MW, James CD, VandenBerg SR, Lal A. An orthotopic skull base model of malignant meningioma. **Brain Pathol** 2008;18(2):172-9.

Carvalho LH, Smirnov I, Baia GS, Modrusan Z, Smith JS, Jun P, Costello JF, McDermott MW, Vandenberg SR, Lal A. Molecular signatures define two main classes of meningiomas. **Mol Cancer** 2007;6:64.

Chang EF, Potts MB, Keles GE, Lamborn KR, Chang SM, Barbaro NM, Berger MS. Seizure characteristics and control following resection in 332 patients with low-grade gliomas. **J Neurosurg** 2008;108(2):227-35.

Chi JH, Acosta FL Jr, Aryan HE, Chou D, Ames CP. Partial spondylectomy: modification for lateralized malignant spinal column tumors of the cervical or lumbosacral spine. **J Clin Neurosci** 2008;15(1):43-8.

Chi JH, Panner A, Cachola K, Crane CA, Murray J, Pieper RO, James CD, Parsa AT. Increased expression of the glioma-associated antigen ARF4L after loss of the tumor suppressor PTEN. **J Neurosurg** 2008;108(2):299-303.

Fan Y, Liu Z, Weinstein PR, Fike JR, Liu J. Environmental enrichment enhances neurogenesis and improves functional outcome after cranial irradiation. **Eur J Neurosci** 2007;25(1):38-46.

Fiandaca MS, Forsayeth JR, Dickinson PJ, Bankiewicz KS. Image-guided convection-enhanced delivery platform in the treatment of neurological diseases. **Neurotherapeutics** 2008;5(1):123-7.

Frenzel T, Lee CZ, Kim H, Quinnine NJ, Hashimoto T, Lawton MT, Guglielmo BJ, McCulloch CE, Young WL. Feasibility of minocycline and doxycycline use as potential vasculostatic therapy for brain vascular malformations: pilot study of adverse events and tolerance. **Cerebrovasc Dis** 2008;25(1-2):157-63.

Han YG, Spassky N, Romaguera-Ros M, Garcia-Verdugo JM, Aguilar A, Schneider-Maunoury S, Alvarez-Buylla A. Hedgehog signaling and primary cilia are required for the formation of adult neural stem cells. **Nat Neurosci** 2008;11(3):277-84.

Johnston SC, Dowd CF, Higashida RT, Lawton MT, Duckwiler GR, Gress DR; CARAT Investigators. Predictors of rehemorrhage after treatment of ruptured intracranial aneurysms: the Cerebral Aneurysm Rerupture After Treatment (CARAT) study. **Stroke** 2008;39(1):120-5.

Keyoung HM, Kanter AS, Mummaneni PV. Delayed-onset neurological deficit following correction of severe thoracic kyphotic deformity. **J Neurosurg Spine** 2008;8(1):74-9.

Marks WJ Jr, Ostrem JL, Verhagen L, Starr PA, Larson PS, Bakay RA, Taylor R, Cahn-Weiner DA, Stoessl AJ, Olanow CW, Bartus RT. Safety and tolerability of intraputaminal delivery of CERE-120 (adeno-associated virus serotype 2-neurturin) to patients with idiopathic Parkinson's disease: an open-label, phase I trial. **Lancet Neurol** 2008;7(5):400-8.

Mihai G, Nout YS, Tovar CA, Miller BA, Schmalbrock P, Bresnahan JC, Beattie MS. Longitudinal comparison of two severities of unilateral cervical spinal cord injury using magnetic resonance imaging in rats. **J Neurotrauma** 2008;25(1):1-18.

Panner A, Murray JC, Berger MS, Pieper RO. Heat shock protein 90alpha recruits FLIPS to the death-inducing signaling complex and contributes to TRAIL resistance in human glioma. **Cancer Res** 2007;67(19):9482-9.

Pietras K, Pahler J, Bergers G, Hanahan D. Functions of paracrine PDGF signaling in the proangiogenic tumor stroma revealed by pharmacological targeting. **PLoS Med** 2008;5(1):e19.

Sorani MD, Morabito D, Rosenthal G, Giacomini KM, Manley GT. Characterizing the dose-response relationship between mannitol and intracranial pressure in traumatic brain injury patients using a high-frequency physiological data collection system. **J Neurotrauma** 2008;25(4):291-8.

Sanai N, Mirzadeh Z, Berger MS. Functional outcome after language mapping for glioma resection. **N Engl J Med** 2008;358(1):18-27.

Smith JS, Chang EF, Lamborn KR, Chang SM, Prados MD, Cha S, Tihan T, Vandenberg S, McDermott MW, Berger MS. Role of extent of resection in the long-term outcome of low-grade hemispheric gliomas. **J Clin Oncol** 2008;26(8):1338-45.

Wiencke JK, Zheng S, Morrison Z, Yeh RF. Differentially expressed genes are marked by histone 3 lysine 9 trimethylation in human cancer cells. **Oncogene** 2008;27(17):2412-21.

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