

# STEVEN N. KALKANIS, M.D.

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## PROFESSIONAL EXPERIENCE and DISTINCTIONS

**Professor and Neurosurgeon, Henry Ford Medical Group, Detroit, MI** *January 2004 - present*  
**Wayne State University School of Medicine**; Complex Cranial and Spinal Neurosurgery with a focus in brain tumor surgery

**Chair, Department of Neurosurgery; Co-Director, Neuroscience Institute** *May 2014 – present*

Responsible for the growth of neurosurgery and neuroscience systemwide with 32 senior staff physicians (including 14 neurosurgeons) covering 4 hospitals while matching 2 residents/year in a 7 year academic research program.

**Vice-Chair (2011-2014)**: operations across all sites plus strategic planning with Wayne State University-Smart Sensors and Integrative Microsystems (SSIM), and Blue Cross - Michigan Spine Collaborative; **HFMG Operations Council** member

**Medical Director, Henry Ford Center for Cancer Surgery** *January 2012 – present*

Spearheaded creation of Center for Cancer Surgery, in partnership with Josephine Ford Cancer Institute, to unify, enhance and promote surgical oncology across all disciplines at Henry Ford while creating a 24-hour patient access infrastructure with nurse navigation, concierge support, new “preferred referring provider” marketing outreach and a cancer mobile app;

**Co-Director, Hermelin Brain Tumor Center** *April 2008 - present*

Assist in offering the most treatment-related brain tumor clinical trials in the Midwest with one of the largest tumor tissue banks in the world; largest contributor to The Cancer Genome Atlas (TCGA) to develop personalized medicine therapies based on targeted molecular genomics (2009-present); one of only 15 sites nationally in the NIH-designated Adult Brain Tumor Consortium (2004-present); spearheaded implementation of first-in-the-state intraoperative MRI (2011)

**Medical Director, Henry Ford Referring Physician Office** *June 2009 - present*

Partnered with administrative leadership to develop immediate access and communication standards to support external referring physicians; as chair of the **Outstate Growth Strategy**, helped increase outside referrals, hospital transfers and new patient MRNs by over 119% since 2010, along with new referring physicians and overall case mix index at Henry Ford

\* *Director*, Cell-Based Therapeutics Laboratory for Translational Brain Tumor Research, Henry Ford Hospital (2004 – present)

\* *Neurosurgery Residency Co-Director*, Henry Ford West Bloomfield Hospital (2009 – 2014)

\* *Member*, Henry Ford Hospital Strategy and Clinical Practice Executive Committee (2012 – present)

\* *Physician Leadership Institute (selected for)*, Henry Ford Health System 2012

\* Selected for “**Castle Connolly**,” “**Who’s Who in American Medicine**” and as one of Michigan’s “**Top Docs**” in Neurosurgery by referring physicians, *Hour Detroit Magazine*: 2008, 2009, 2010, 2011, 2012, 2013

## Board Certification and Licensure

\* Passed USMLE Step 1 (1995), Step 2 (1996), Step 3 (1997) and written Neurosurgical Board exam as a junior resident (2001)

\* Oral Board Certification ~ *Diplomate*, American Board of Neurological Surgery (2009); invited as *Guest Examiner* (2014)

\* *Licensure*: State of Massachusetts (1997-2004), State of Michigan (2004 – present)

## NEUROSURGICAL TRAINING

**Chief Resident in Neurosurgery, Harvard-Massachusetts General Hospital** Boston, Massachusetts  
*June 2003 through December 2003*, served as North Service attending, leading the trauma service and all teaching conferences

**Resident in Neurosurgery, Harvard-Massachusetts General Hospital** Boston, Massachusetts  
*July 1997 through June 2003*, including **Internship in General Surgery** (MGH July 1997 – June 1998), rotation in **Pediatric Neurosurgery** (Children’s Hospital – Boston 1999), and **infolded Neuro-oncology training** (2002-2003)

\* First Prize Winner, 2002 American College of Surgeons *Best Resident Paper Award*, NE Chapter Annual Meeting, for “Intraspinal Cell Based Therapy as a Novel Treatment for ALS and Spinal Cord Injury”

\* National recipient of *Project ALS Grant Award* involving novel stem cell transplantation applications (2000 – 2002)

\* *Stem Cell Research Award Recipient*, Society for Neuroscience and Motor Neuron Diseases, San Francisco, CA, November 2001

\* Co-author, primate motor neuron regeneration project; received the *National CNS Resident Prize*, San Diego, CA, September 2001

\* Selected as *Course Lecturer and Laboratory Instructor*, and winner of *Anatomy Section Teaching Prize*, for *Advanced Neuroanatomy*, Harvard Medical School – MIT Health Sciences and Technology Curriculum, (2001 – 2002)

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## EDUCATION, HONORS and AWARDS

**Harvard Medical School** 1993-1997 Boston, Massachusetts  
Doctor of Medicine degree conferred in June 1997. Selected as Class Marshal for Commencement (1997) and elected *President*, HMS Student Body (1994-1997).

\*Awarded the *Linnane Prize*, “given to those two students who have demonstrated superior academic achievement as evidenced by tutorial and clinical evaluations and who have shown inspiring leadership at Harvard Medical School.”

\**Highest Honors* clinical distinctions in Neurosurgery, Core Surgery, Core Medicine, Neurology, Psychiatry, Neurosurgery as Neuroscience, and Obstetrics and Gynecology.

**Harvard University** 1989-1993 Cambridge, Massachusetts  
B.A. Honors degree in Government, Magna Cum Laude, awarded in June 1993 with special emphasis in American Democracy, Economics and International Relations, in addition to advanced science courses. Elected *Phi Beta Kappa*.

\*Recipient of the John Harvard Award (Group I) all years in recognition of highest academic achievement.

\*Senior thesis on post-Cold War international relations selected for Harvard Archives placement and highest honors.

**Oxford University** Oxford, England  
Visiting Fellow, Summer Term 1991, New College, Oxford. Coursework in Biomedical Cancer Research/cell cycle control as an intern with the Imperial Cancer Research Fund, and Changing East-West Relations in the Post-Cold War World.

\*Recipient of the Oxford Honour Prize for highest academic performance during the summer term.

## LEADERSHIP in PROFESSIONAL ORGANIZATIONS

**Congress of Neurological Surgeons (CNS), Executive Board** 2010 – present

*The CNS is the largest neurosurgical association in the world with over 8,500 active members from over 100 nations, and is governed by a 15-member Executive Board, with a central mission to enhance neurosurgical education and advance scientific and clinical discovery in neuroscience while promoting the profession of neurosurgery*

\***CNS Fellowships Committee, Chair** (2010 – 2012)

\***CNS Guidelines Committee, Chair** (2012 – present)

\***CNS Quarterly**®, *Editorial Board* (2011 – present)

\***NEUROSURGERY**® journal, *Editorial Board* (2010 – present)

\***CNS Foundation, Executive Board Member** (2013 – present)

\***CNS Scientific Program Chairman** (2014 – 2015)

\***CNS Annual Meeting Chairman** (2015 – 2016)

**Joint Section on Tumors, Secretary/Treasurer (2015-2017), Chair (2017-2019)** 2006 - present

*A joint section of the American Association of Neurological Surgeons (AANS) and the Congress of Neurological Surgeons (CNS), the Tumor Section serves to promote neurosurgical oncology through education and research in the US and around the world*

\***Tumor Section Guidelines Committee, Chair** (2010 – present)

\***Journal of Neuro-oncology**®, *Editorial Board* (2012 – present)

\**Chair*, Brain Metastases Guidelines Project involving multidisciplinary collaborations with neurosurgeons, radiation oncologists and medical and neuro-oncologists, along with the McMaster University Evidenced-Based Medicine Practice Center; comprehensive national brain metastases treatment guidelines published in January 2010, *Journal of Neuro-oncology*

**AANS/CNS Joint Guidelines Committee, Executive Committee** 2008 – present

\***Joint Guidelines Committee, Vice-Chair** (2012 – present)

\*Neurosurgical Liaison to the **American College of Radiology Appropriateness Criteria Panel** (2013 – present)

**American Association of Neurological Surgeons (AANS)** 1998 - present

\***AANS Young Neurosurgeons Committee** (2004 – 2011)

\***AANS Neurosurgeon**®, *Editorial Board* (2012 – present)

\***National Neurosurgery Quality and Outcomes Database (N2QOD)**, *Scientific Committee Vice-Chair*

**Michigan Association of Neurological Surgeons (MANS)** 2005 – present

\***MANS President** (2012 – 2014); *Vice-President* (2010 – 2012)

**Society for Neuro-Oncology (SNO)** 2005 - present

**Phi Beta Kappa** 1992 - present

**Harvard Medical School Alumni Officer, Aesculapian Society** 1997 - present

**Harvard Club of Michigan** *President*, 2009-2012 2004 - present

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## NEUROSCIENCE RESEARCH and GRANT AWARDS

### Henry Ford Health System - Hermelin Brain Tumor Center

January 2004 - present

Serve as Principal Investigator and director of the Cell-based Therapeutics Laboratory, investigating multiple translational research projects aimed at developing novel clinical trials and therapies for pre-treatment screening protocols and gene-based personalized medicine approaches for treating brain tumor patients; we are also conducting several ongoing projects involving convection enhanced delivery and the creation of stem cell delivery vehicles for anti-tumor therapy in animal models, in conjunction with the laboratories of Tom Mikkelsen MD and Chaya Brodie PhD, through the Hermelin Brain Tumor Center and Henry Ford Hospital

### Research Support Funding

\* **U01 CA137443-01: Mikkelsen/Kalkanis** (co-PI, role: Neurosurgery Investigator) 3/13/09 – 6/28/14

*NIH/NCI* (RFA: CA-04-001): *New Applications in Brain Tumor Therapy* [Johns Hopkins University]

To improve the therapeutic outcome of patients with primary brain tumors. (\$1,000,000)

\***Kalkanis (PI) Hermelin – Shoot for a Cure Grant # H60071**

1/15/12 – 6/1/14

Wayne State University – Smart Sensors and Integrative Microsystems Grant Award – Henry Ford Innovations in collaboration with Greg Auner PhD, Mark Rosenblum, MD, Tom Mikkelsen, MD PhD, Rachel Kast PhD and Panos Varelas, MD

*Raman Spectroscopy* for Real-Time, Intra-operative Validated Detection of Tumor vs. Normal Brain (\$150,000)

*Remote Intracranial Pressure Monitoring*: Novel Methodologies to monitor patient neurological status (\$50,000)

*Focused Ultrasound* for use in ablating intracranial lesions while protecting normal brain tissue (\$50,000)

\***Henry Ford Research Grant H10191: Brodie/Kalkanis** (PI, role: Neurosurgery Investigator)

9/1/13 – 10/1/14

To investigate the role of micro-RNA as a predictive biomarker for long vs. short term glioblastoma survivors (\$50,000)

\***Henry Ford Research Grant H10192: Brodie/Kalkanis** (co-PI, role: Neurosurgery Investigator)

12/1/13 – 1/1/15

To develop an animal model of brain metastases for drug throughput analysis (\$50,000)

\***Hermelin/Henry Ford Research Grant H101493: Kalkanis** (PI, role: Neurosurgery Investigator)

12/1/13 – 1/1/15

To develop an animal model of glioma surgical resection using human xenograft tumor tissue (\$50,000)

\* **Kalkanis (PI)**

09/01/06 - 08/31/12

*Brain Tumor Society*, Novel Cell-Based Therapies for Malignant Glioma

To develop a protocol using stem cells as intelligent delivery vehicles able to seek out invading tumor cells (\$300,000)

\* **Kalkanis (PI)**

07/01/06 - 06/30/07

*Recipient of 2006 American Brain Tumor Association Award* – Translational Brain Tumor Research Grant, Cell-Based Gene Therapy to develop a personalized medicine stem-cell based protocol for malignant glioma (\$100,000)

### Massachusetts General Hospital - Spinal Cord Stem Cell Transplantation

July, 2000 – December 2003

*Principal Investigator*: Robert H. Brown, Jr., D.Phil., MD., Department of Neurology, Massachusetts General Hospital

Specific project involved the systemic and stereotactic intraspinal transplantation of fetal pig, human umbilical cord and other stem cell lines into a novel transgenic murine model (superoxide dismutase) of spinal cord dysfunction resulting from amyotrophic lateral sclerosis (ALS). Research supported by grant from Project ALS and Massachusetts General Hospital.

\*Selected as one of three surgeons to travel to the St. Kitts Primate Research Lab to conduct intraspinal transplantation of stem cells and neuroproliferative growth factors in a Project ALS-sponsored national collaboration for nerve regeneration studies between Harvard Medical School, Johns Hopkins, Yale, and Columbia University, St. Kitts, August 2000.

### Harvard Medical Research Fellowship in Neurosurgery

1994 – 1997

*Principal Investigator*: Peter McL. Black, M.D., Ph.D., Department of Neurosurgery, Brigham and Women's Hospital

*Sponsored by the Boston Neurosurgical Foundation and Harvard Medical School*

Specific projects examined the effects of various steroid hormone receptors (i.e. progesterone) and growth factors (VEGF) on cell growth and peritumoral edema, in meningiomas by analyzing mRNA expression (Northern blots) and cDNA (PCR).

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## SELECTED PEER-REVIEWED PUBLICATIONS

1. **Kalkanis SN**, Carroll RS, Zhang J, Zamani AA, Black PM: Vascular endothelial growth factor (VEGF) expression correlates with peritumoral vasogenic cerebral edema in meningiomas. *Journal of Neurosurgery*, 85: 1095-1101, 1996.
2. **Kalkanis SN**, Blumenfeld H, Sherman JC, Krebs DE, Irizarry MC, Parker SW, Cosgrove GR: Delayed complications thirty-six years after hemispherectomy: a case report. *Epilepsia*, 37 (8): 758-762, 1996.
3. **Kalkanis SN**, Quinones-Hinojosa A, Black PM: Quality of life following surgery for intracranial meningiomas: a study of 164 patients using a modification of the functional assessment of cancer therapy-brain questionnaire. *Journal of Neuro-Oncology* 48: 233-241, 2000.
4. **Kalkanis SN**, Eskandar E, Carter B, Barker F: Microvascular Decompression (MVD) Surgery in the United States, 1996-2000: mortality, morbidity, and the effect of hospital and surgeon volume. *Neurosurgery* 52(6): 1251-1263, 2003.
5. **Kalkanis SN**, Welty C, Upchurch K, Chen R, Ende N, Brown RH: Human Umbilical Cord Blood Stem Cell therapy delays onset and improves survival in a transgenic murine model of ALS. *Harvard Research Journal* 38(2): 56-63, 2005.
6. Cheung, A, **Kalkanis SN**, Ogilvy CS: Paraplegia after tethered cord surgery: an uncommon combined anomaly of spinal arteriovenous fistula and sacral lipoma. *Neurosurgery* 2005 Sep;57(3):E598.
7. Kiehl TR, **Kalkanis SN**, Louis D: Pigmented Neurocytoma. *Acta Neuropathologica* 2004 Jun;107(6):571-4.
8. Zhang X, Jiang F, **Kalkanis S**, Zhang Z, Hong X, Chopp M. Low-dose photodynamic therapy increases endothelial cell proliferation and VEGF expression in nude mouse Brain. *Lasers Med Sci.* (2005): 20: 74-79.
9. Jiang F, Zhang Z, **Kalkanis S**, Katakowski M, Robin A, Zhang X, Gotlib A, Chelst I, Mikkelsen T, Chopp M: A quantitative model of tumor-induced angiogenesis in the nude mouse. *Neurosurgery* 2005 Aug;57(2):320-4.
10. Hong X, Jiang F, **Kalkanis S**, Zhang ZG, Zhang X, deCarvalho A, Katakowski M, Bobbitt K, Mikkelsen T, Chopp M: SDF-1 and CXCR4 are up-regulated by VEGF and contribute to glioma cell invasion. *Cancer Lett.*, MS-CL-1332-05, 2005.
11. Zhang X, Jiang F, **Kalkanis S**, Zhang ZG, Hong X, Yang H, Chopp M: Post-acute response of 9L gliosarcoma to Photofrin<sup>TM</sup>-mediated PDT in athymic nude mice. *Lasers in Medical Science*, 22:253-259, February 2006.
12. Zhang X, Jiang F, **Kalkanis S**, Yang H, Zhang ZG, Katakowski M, Hong X, Zheng X, Chopp M: Combination of Surgical Resection and Photodynamic Therapy of 9L Gliosarcoma in the Nude Rat. *Photochemistry and Photobiology*, December 2006.
13. Zheng X, Jiang F, Katakowski M, **Kalkanis S**, Hong X, Zhang X, Zhang ZG, Yang H, Chopp M. Inhibition of ADAM17 reduces hypoxia-induced brain tumor cell invasiveness. *Cancer Sci.* 2007 May;98(5):674-84. Epub 2007 Mar 9. PMID: 17355261
14. Hong X, Jiang F, **Kalkanis SN**, Zhang ZG, Zhang X, Zheng X, Mikkelsen T, Jiang H, Chopp M. Decrease of endogenous vascular endothelial growth factor may not affect glioma cell proliferation and invasion. *J Exp Ther Oncol.* 2007; 6(3):219-29.
15. deCarvalho A, Zhang X, Jiang F, **Kalkanis S**, Hong X, Lu M, Chopp M. Subclinical photodynamic therapy treatment modifies the brain microenvironment and promotes glioma growth. *Glia* 55(10):1053-60, 2007.
16. Yang H, Chopp M, Zhang X, Jiang F, Zhang Z, **Kalkanis S**, Schallert T. Using behavioral measurement to assess tumor progression and functional outcome after antiangiogenic treatment in mouse glioma models. *Behavioural Brain Research* 182(1):42-50, 2007.
17. Hong X, Jiang F, **Kalkanis S**, Zhang ZG, Zhang X, Jiang H, Mikkelsen T, Chopp M. Increased chemotactic migration and growth in heparanase-overexpressing human U251n glioma cells. *Journal of Experimental & Clinical Cancer Research*, 27(1):23, 2008.

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## *Publications continued*

18. Jiang F, Zhang X, **Kalkanis SN**, Zhang Z, Yang H, Katakowski M, Hong X, Zheng X, Zhu Z, Chopp M. Combination therapy with antiangiogenic treatment and photodynamic therapy for the nude mouse bearing U87 glioblastoma. *Photochem Photobiol.* 2008 Jan-Feb;84(1):128-37.
19. Hong X, Jiang F, **Kalkanis SN**, Zhang ZG, Zhang X, Zheng X, Jiang H, Chopp M. Intracellular free calcium mediates glioma cell detachment and cytotoxicity after photodynamic therapy. *Lasers Med Sci.* 24(5):777-86, 2009. PMID: PMC2746241.
20. Lomonaco SL, Finnis S, Xiang C, deCarvalho A, Umansky F, **Kalkanis SN**, Mikkelsen T, Brodie C. The induction of autophagy by gamma-radiation contributes to the radioresistance of glioma stem cells. *Int J Cancer.* 125(3):717-22, 2009. PMID: 19431142.
21. Rosenblum ML, **Kalkanis S**, Goldberg W, Rock J, Mikkelsen T, Remer S, Whitehouse S, Nerenz D. Odyssey of hope: a physician's guide to communicating with brain tumor patients across the continuum of care. *J Neurooncol.* 92(3):241-51, 2009. PMID: 19357952.
22. Hong X, Miller C, Savant-Bhonsale S, **Kalkanis SN**. Antitumor Treatment Using Interleukin-12-Secreting Marrow Stromal Cells in an Invasive Glioma Model. *Neurosurgery.* 64(6):1139-46, 2009. PMID: 19487894.
23. deCarvalho AC, Nelson K, Lemke N, Lehman NL, Arbab AS, **Kalkanis S**, Mikkelsen T. Gliosarcoma Stem Cells Undergo Glial Mesenchymal Differentiation *In Vivo*. *Stem Cells.* 2009 Nov 23. [Epub ahead of print]. PMID: 19937755.
24. Linksey ME, **Kalkanis SN**. Evidence-linked clinical practice guidelines-getting serious: getting professional. *J Neurooncol.* 96(1):1-5, 2010. PMID: PMC2810238.
25. **Kalkanis SN**, Linksey ME. Evidence-based clinical practice parameter guidelines for the treatment of patients with metastatic brain tumors: introduction. *J Neurooncol.* 96(1):7-10, 2010. PMID: PMC2808533.
26. Robinson PD, **Kalkanis SN**, Linksey ME, Santaguida PL. Methodology used to develop the AANS/CNS management of brain metastases evidence-based clinical practice parameter guidelines. *J Neurooncol.* 96(1): 11-6, 2010. PMID: PMC2808528.
27. Olson JJ, Paleologos NA, Gaspar LE, Robinson PD, Morris RE, Ammirati M, Andrews DW, Asher AL, Burri SH, Cobbs CS, Kondziolka D, Linksey ME, Loeffler JS, McDermott M, Mehta MP, Mikkelsen T, Patchell RA, Ryken TC, **Kalkanis SN**. The role of emerging and investigational therapies for metastatic brain tumors: a systematic review and evidence-based clinical practice guideline of selected topics. *J Neurooncol.* 96(1): 115-42, 2010. PMID: PMC2808529.
28. Ryken TC, McDermott M, Robinson PD, Ammirati M, Andrews DW, Asher AL, Burri SH, Cobbs CS, Gaspar LE, Kondziolka D, Linksey ME, Loeffler JS, Mehta MP, Mikkelsen T, Olson JJ, Paleologos NA, Patchell RA, **Kalkanis SN**. The role of steroids in the management of brain metastases: a systematic review and evidence-based clinical practice guideline. *J Neurooncol.* 96(1): 103-14, 2010. PMID: PMC2808527.
29. Mikkelsen T, Paleologos NA, Robinson PD, Ammirati M, Andrews DW, Asher AL, Burri SH, Cobbs CS, Gaspar LE, Kondziolka D, Linksey ME, Loeffler JS, McDermott M, Mehta MP, Olson JJ, Patchell RA, Ryken TC, **Kalkanis SN**. The role of prophylactic anticonvulsants in the management of brain metastases: a systematic review and evidence-based clinical practice guideline. *J Neurooncol.* 96(1): 97-102, 2010. PMID: PMC2808526.
30. Ammirati M, Cobbs CS, Linksey ME, Paleologos NA, Ryken TC, Burri SH, Asher AL, Loeffler JS, Robinson PD, Andrews DW, Gaspar LE, Kondziolka D, McDermott M, Mehta MP, Mikkelsen T, Olson JJ, Patchell RA, **Kalkanis SN**. The role of retreatment in the management of recurrent/progressive brain metastases: a systematic review and evidence-based clinical practice guideline. *J Neurooncol.* 96(1): 85-96, 2010. PMID: PMC2808530.

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## *Publications continued*

31. Linksey ME, Andrews DW, Asher AL, Burri SH, Kondziolka D, Robinson PD, Ammirati M, Cobbs CS, Gaspar LE, Loeffler JS, McDermott M, Mehta MP, Mikkelsen T, Olson JJ, Paleologos NA, Patchell RA, Ryken TC, **Kalkanis SN**. The role of stereotactic radiosurgery in the management of patients with newly diagnosed brain metastases: a systematic review and evidence-based clinical practice guideline. *J Neurooncol*. 96(1): 45-68, 2010. PMID: PMC519.
32. Mehta MP, Paleologos NA, Mikkelsen T, Robinson PD, Ammirati M, Andrews DW, Asher AL, Burri SH, Cobbs CS, Gaspar LE, Kondziolka D, Linksey ME, Loeffler JS, McDermott M, Olson JJ, Patchell RA, Ryken TC, **Kalkanis SN**. The role of chemotherapy in the management of newly-diagnosed brain metastases: a systematic review and evidence-based clinical practice guideline. *J Neurooncol*. 96(1): 71-83, 2010. PMID: PMC2808518.
33. **Kalkanis SN**, Kondziolka D, Gaspar LE, Burri SH, Asher AL, Cobbs CS, Ammirati M, Robinson PD, Andrews DW, Loeffler JS, McDermott M, Mehta MP, Mikkelsen T, Olson JJ, Paleologos NA, Patchell RA, Ryken TC, Linksey ME. The role of surgical resection in the management of newly-diagnosed brain metastases: a systematic review and evidence-based clinical practice guideline. *J. Neurooncol*. 96(1): 33-43, 2010. PMID: PMC2808516.
34. Gaspar LE, Mehta MP, Patchell RA, Burri SH, Robinson PD, Morris RE, Ammirati M, Andrews DW, Asher AL, Cobbs CS, Kondziolka D, Linksey ME, Loeffler JS, McDermott M, Mikkelsen T, Olson JJ, Paleologos NA, Ryken TC, **Kalkanis SN**. The role of whole brain radiation therapy in the management of newly-diagnosed brain metastases: a systematic review and evidence-based clinical practice guideline. *J. Neurooncol*. 96(1): 17-32, 2010. PMID: PMC2808517.
35. Hong, X., K. K. Nelson, A. C. deCarvalho and **S. N. Kalkanis** (2010). "Heparanase expression of glioma in human and animal models." *J Neurosurg* **113**(2): 261-9.
36. Lee, I. Y., **S. N. Kalkanis** and M. L. Rosenblum (2010). "Malignant Gliomas: Current Concepts." *Neurosurgery Quarterly* **20**(3): 115-121.
37. D. Zlotnick, **S.N. Kalkanis**, A. Quinones-Hinojosa, K. Chung, M. E. Linskey, R.L. Jensen, F. DeMonte, F.G. Barker, C.A. Racine, M.S. Berger, P.M. Black, M. Cusimano, L.N. Sekhar, A. Parsa, M. Aghi, M. W. McDermott, "FACT-MNG: tumor site specific web-based outcome instrument for meningioma patients," *J. Neurooncol*. DOI 10.1007/s11060-010-0394-3, September 2010
38. X. Hong, K. Nelson, N. Lemke, **S. Kalkanis** (2011): "Heparanase expression is associated with histone modifications in glioblastoma." *International Journal of Oncology* (10.3892/ijo.2011.1229)
39. X. Hong, K. Chedid, **S. Kalkanis**: "Glioblastoma Cell-Line derived spheres in serum containing medium vs. serum free medium: comparison of cancer stem cell properties." *Int. J. Oncol* (10.3892/ijo.2012.1592), May 2012
40. Robbins JR, Ryu S, **Kalkanis S**, Cogan C, Rock J, Movsas B, Kim JH, Rosenblum M, "Radiosurgery to the Surgical Cavity as Adjuvant Therapy for Resected Brain Metastasis" *Neurosurgery*: June 2012, PMID 22806080
41. DD Gonda, JC Akers, R Kim, **SN Kalkanis**, FH Hochberg, CC Chen, BS Carter, "Neuro-Oncologic Applications of Exosomes, Microvesicles, and Other Nano-sized Extra-cellular Particles." *Neurosurgery*: Dec 2012, PMID 23277376
42. Teng YD, Benn SC, **Kalkanis SN**, Shefner JM, Onario RC, Cheng B, Lachyankar MB, Marconi M, Li J, Yu D, Han I, Maragakis NJ, Llado J, Erkmen K, Redmond DE Jr, Sidman RL, Przedborski S, Rothstein JD, Brown RH Jr, Snyder EY., "Multimodal Actions of Neural Stem Cells in a Mouse Model of ALS: A Meta-Analysis," *Science Transl Med*. 2012 Dec 19;4(165):165ra164. doi: 10.1126/scitranslmed.3004579. PMID: 23253611
43. Lee IY, Ekram T, Jain R, Scarpace L, Omodon M, Rock J, Rosenblum M, **Kalkanis SN**, "Intraoperative MRI improves brain tumor extent of resection: Henry Ford Hospital initial experience," *Neuro-oncology* 2012; 14.

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## *Publications continued*

44. Gates M, Alsaidi M and **Kalkanis SN**, “Surgical Treatment of Solitary Brain Metastases,” *Prog Neurol Surg*. 2012; 25: 74-81.
45. N. Lin, J. Wefel, E. Lee, M. Vogelbaum, M. Mehta, M. Linskey, **S. Kalkanis** et al, “Challenges relating to solid tumour brain metastases in clinical trials, part 1: patient population, response, and progression. A report from the RANO group,” *Lancet Oncology* 2013; 14: e396-406
46. N. Lin, J. Wefel, E. Lee, M. Vogelbaum, M. Mehta, M. Linskey, **S. Kalkanis** et al, “Challenges relating to solid tumour brain metastases in clinical trials, part 2: neurocognitive, neurological, and quality of life outcomes. A report from the RANO group,” *Lancet Oncology* 2013; 14: e407-416
47. Cloughesy TF, Liau LM, Chiocca EA, Jolly DJ, Robbins JM, Ostertag D, Ibanez CE, Gruber HE, Kasahara N, Vogelbaum MA, Kesari S, Mikkelsen T, **Kalkanis S**, Landolfi J, Bloomfield S, Foltz G, and Pertschuk D. “Evidence supporting mechanism of action and drug activity in phase I trial of patients with recurrent high grade glioma administered Toca 511 at surgical resection followed by Toca FC,” *Neuro Oncol* 2013; 15:69-69
48. Brennan CW, Verhaak RG, McKenna A, Campos B, Noushmehr H, Salama SR, Zheng S, Chakravarty D, Sanborn JZ, Berman SH, Beroukhi R, Bernard B, Wu CJ, Genovese G, Shmulevich I, Barnholtz-Sloan J, Zou L, Vegesna R, Shukla SA, Ciriello G, Yung WK, Zhang W, Sougnez C, Mikkelsen T, Aldape K, Bigner DD, Van Meir EG, Prados M, Sloan A, Black KL, Eschbacher J, Finocchiaro G, Friedman W, Andrews DW, Guha A, Iacocca M, O'Neill BP, Foltz G, Myers J, Weisenberger DJ, Penny R, Kucherlapati R, Perou CM, Hayes DN, Gibbs R, Marra M, Mills GB, Lander E, Spellman P, Wilson R, Sander C, Weinstein J, Meyerson M, Gabriel S, Laird PW, SN Kalkanis, Haussler D, Getz G, Chin L; TCGA Research Network. *Cell*. 2013 Oct 10;155(2):462-77. doi: 10.1016/j.cell.2013.09.034. Erratum in: *Cell*. 2014 Apr 24;157(3):753. PMID: 24120142
49. E. Kim, R. Yechieli, J. Kim, T. Mikkelsen, **S. Kalkanis**, J. Rock, M. Rosenblum, S. Ryu, “Patterns of failure after radiosurgery to two different target volumes of enhancing lesions with and without FLAIR abnormalities in recurrent glioblastoma multiforme,” *Journal of Neuro-oncology*, 2014, 116 (2), DOI 10.1007/s11060-013-1290-4
50. **S. Kalkanis**, R. Kast, M. Rosenblum, T. Mikkelsen, S. Yurgelevic, K. Nelson, A. Raghunathan, L. Poisson, G. Auner, “Raman Spectroscopy to distinguish grey matter, necrosis and glioblastoma multiforme in frozen tissue sections,” *Journal of Neuro-oncology*, January 2014, PMID: 24390405
51. T. Owonkikoko, J. Arbiser, A. Zelnak, H. Shu, H. Shim, A. Robin, **SN Kalkanis**, T. Whitsett, B. Salhia, N. Tran, T. Ryken, M. Moore, K. Egan, J. Olson, “Current Approaches to the Treatment of Metastatic Brain Tumours,” *Nature Reviews Clinical Oncology*, February 2014, NRCO-13-216V1C, PMID: 24569448
52. J. Olson, M. Linskey, **S. Kalkanis**, “The Management of Progressive Glioblastoma: A Systematic Review and Evidence-Based Clinical Practice Guideline, Introduction and Methodology,” *Journal of Neuro-oncology*, April 2014, PMID: 24715655.
53. T. Ryken, N. Aygun, J. Morris, M. Schweizer, R. Nair, C. Spracklen, **S. Kalkanis**, J. Olson, “The Role of Imaging in the Management of Progressive Glioblastoma,” *Journal of Neuro-oncology*, April 2014, PMID 24715656.
54. D. Brat, T. Ryken, **S. Kalkanis**, J. Olson, “The Role of Neuropathology in the Management of Progressive Glioblastoma,” *Journal of Neuro-oncology*, April 2014, PMID 24733643.
55. T. Ryken, **S. Kalkanis**, J. Buatti, J. Olson, “The Role of Cytoreductive Surgery in the Management of Progressive Glioblastoma,” *Journal of Neuro-oncology*, April 2014, PMID 24756348.
56. S. Ryu, J. Buatti, A. Morris, **S. Kalkanis**, T. Ryken, J. Olson, “The Role of Radiotherapy in the Management of Progressive Glioblastoma,” *Journal of Neuro-oncology*, April 2014, PMID 24728785.
57. J. Olson, L. Nayak, D. Ormond, P. Wen, **S. Kalkanis**, “The Role of Cytotoxic Chemotherapy in the Management of Progressive Glioblastoma,” *Journal of Neuro-oncology*, April 2014, PMID 24740194.

## STEVEN N. KALKANIS, M.D.

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### *Publications continued*

58. J. Olson, L. Nayak, D. Ormond, P. Wen, **S. Kalkanis**, T. Ryken, “The Role of Targeted Therapies in the Management of Progressive Glioblastoma,” *Journal of Neuro-oncology*, April 2014, PMID 24740195.
59. P. Mazaris, X. Hong, D. Altshuler, L. Schultz, L. Poisson, R. Jain, T. Mikkelsen, M. Rosenblum, **S. Kalkanis**. “Key determinants of short-term and long-term glioblastoma survival: A 14-year retrospective study of patients from the Hermelin Brain Tumor Center at Henry Ford Hospital,” *Clinical Neurology and Neurosurgery*, May 2014, 120: 103-112
60. Kondziolka D., **Kalkanis SN**, Mehta M, Ahluwalia M, Loeffler J. “It is time to re-evaluate the management of patients with brain metastases,” *Neurosurgery* 2014; PMID: 24662510
61. S. Devpura, K. Barton, S. Brown, O. Palyvoda, **S. Kalkanis**, F. Siddiqui, I. Chetty. “Vision 20/20: The role of Raman spectroscopy in early stage cancer detection and feasibility for application in radiation therapy response assessment,” *Medical Physics* 41, 050901 (2014); doi 10.1118/1.4870981
62. Robin AM, **Kalkanis SN**, Rock J, Lee I, Rosenblum ML. “Through the patient’s eyes: an emphasis on patient-centered values in operative decision making in the management of malignant glioma,” *Journal of Neuro-oncology*, 2014, PMID 24962199
63. Robin AM, Walbert T, Mikkelsen T, **Kalkanis SN**, Rock J, Lee I, Rosenblum ML. “Through the patient’s eyes: the value of a comprehensive brain tumor center,” *Journal of Neuro-oncology* 2014, PMID: 25026994
64. Godil SS, McGirt MJ, Glassman SD, Knightly JJ, Mummaneni PV, Oetting G, Theodore N, Gottfried ON, Khairi S, Schmidt MH, Boakye M, **Kalkanis SN**, Rabin D, Ryken TC, Balturshot GW, Chaddock J, Fassett DR, Reeder RE, Miller CF, Briggs TB, Zhang D, Bambakidis NC, Shaffrey ME, Hadley MN, Karahalios DG, Angevine PD, Martin MD, Ewend MG, Bydon A, Kremer MA, Holly LT, Slotkin J, Kaakaji W, Powers AK, Griffitt WE, Tippett TM, Cozzens JW, Christiano LD, Grahm TW, Guthrie BL, Harrington JF, Shaffrey CI, Elowitz EH, Foley KT, Watridge CB, Asher AL, “Defining the effectiveness of lumbar spine surgery in a nationwide, prospective longitudinal quality of life registry: an analysis of variability in patient-reported outcomes and preliminary predictive models of treatment failure.” *Neurosurgery* 2014 Aug;61 Suppl 1:194-5. doi:10.1227/01.neu.0000452383.18082.73, PMID: 25032560
65. Hamani C, Pilitsis J, Rughani AI, Rosenow JM, Patil PG, Slavin K, Abosch A, Eskandar E, Mitchell L, and **Kalkanis S**. Deep brain stimulation for obsessive-compulsive disorder: Systematic review and evidence-based guideline sponsored by the American Society for Stereotactic and Functional Neurosurgery (ASSFN) and the Congress of Neurological Surgeons (CNS) and endorsed by the CNS and American Association of Neurological Surgeons (AANS) *Neurosurgery* 2014;PMID: 25050579.
66. Jolly DJ, Ibanez C, Robbins JM, Ostertag D, Kasahara N, Aghi MK, Vogelbaum MA, Bankiewicz K, Cloughsey TF, Liao LM, Chang SM, Butowski N, Kesari S, Chen C, Mikkelsen T, **Kalkanis SN**, Landolfi JC, Bloomfield SM, Elder JB, Gruber HE, and Pertschuk D. Interim report from two ongoing ascending dose trials of a retroviral replicating vector (toca 511) in patients with recurrent high grade glioma. *Mol Ther* 2014; 22:S11-S11.
67. Linskey M, Olson J, Mitchell L, **Kalkanis SN**. Clinical practice guidelines in the AANS/CNS Section on Tumors: Past, Present and Future Directions. *Journal of Neuro-oncology*, August 2014, DOI 10.1007/s11060-014-1497-z.
68. Kast RE, Auner GW, Rosenblum ML, Mikkelsen T, Yurgelevic SM, Raghunathan A, Poisson LM, **Kalkanis SN**: Raman molecular imaging of brain frozen tissue sections. *Journal of Neuro-oncology*, October 2014, 120(1): 55-62. DOI 10.1007/s11060-014-1536-9.



# STEVEN N. KALKANIS, M.D.

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## INVITED BOOK CHAPTERS, REVIEWS and EDITORIALS

1. **Kalkanis SN** and Sloane DE: Chapter 16, Cardiovascular Pharmacology. In Lilly LS (ed.) *Pathophysiology of Heart Disease*. Philadelphia: Lea and Febiger, Second Edition, 1997.
2. **Kalkanis SN** and Borges L: Surgical Options for Neck and Back Pain in the Elderly. *Current Treatment Options in Neurology*, Current Science, Inc., Vol. 3, No. 3, May 2001: 215-226.
3. **Kalkanis S**, Rosenblum M: Malignant Gliomas. *Neuro-oncology: The Essentials, 2<sup>nd</sup> Edition*, Chapter 26, 2007.
4. S. Bhangoo, M. Linskey and **S.N. Kalkanis** (2011). "Evidence-based guidelines for the management of brain metastases." *Neurosurgery Clinics of North America* (Vol. 22, No. 1) 96-104.
5. M. Gates, M. Alsaïdi, **S. Kalkanis**, "Surgical Treatment of Solitary Brain Metastases," *Current and Future Management of Brain Metastases*, Kim DB, Lunsford LD, eds., Karger Press, Vol 26, 2011.
6. **S. Kalkanis**, T. Ryken, "Evidence-Based Guidelines for Stereotactic Radiosurgery: Status and Future Directions," *AANS Neurosurgeon*, Vol. 20, No. 3, 2011.
7. A. Robin, M. Rosenblum, **S. Kalkanis**, "Future Therapies for the Patient with a Brain Tumor," *CNS Quarterly*, Vol. 13, No. 3, Summer 2012.
8. A. Robin, **S. Kalkanis**, M. Rosenblum, "Past Advances in the Treatment of the Patient with a Brain Tumor," *CNS Quarterly*, Volume 13, No. 3, Summer 2012
9. S. Patra, **S. Kalkanis**, "Brain Metastases," *The Evidence for Neurosurgery*, Ghogawala, Barker, eds., Chapter 17, pp. 195-210, TFM Publishing, June 2012
10. **Kalkanis S**, Patra S. Metastatic Brain Tumors, *Clinical Management and Evolving Novel Therapeutic Strategies for Patients with Brain Tumors*, Dr. Terry Lichtor (Ed.), ISBN: 978-953-51-1058-3, InTech, DOI: 10.5772/51041, 2013.
11. C. Farrell, **S. Kalkanis**, "Brain Tumor Management in the Elderly: Too Old to Treat?" *CNS Quarterly*, Volume 14, Number 3, Summer 2013, 19-22.
12. M. Omodon, **S. Kalkanis**, "The Role of Whole Brain Radiation Therapy in Brain Metastases," *Tumors of the Central Nervous System*, M. A. Hayat, ed., Springer Science, Volume 12, 2013
13. A. Pabaney, **S. Kalkanis**, "The Role of Surgical Resection in Brain Metastases," *Tumors of the Central Nervous System*, M. A. Hayat, ed., Springer Science, Volume 13, 2013
14. R. Ali, **S. Kalkanis**, "The Role of Stereotactic Radiosurgery in Brain Metastases," *Tumors of the Central Nervous System*, M. A. Hayat, ed., Springer Science, Volume 13, 2013
15. D. Nerenz, **S. Kalkanis**, M. Abdulhak, "Enhancing Patient Safety and Functional Outcomes through Patient Registries," *AANS Neurosurgeon*, Volume 22, Number 3, 2013
16. L. Mubita, **S. Kalkanis**, "The Role of Chemotherapy in Metastatic Brain Tumors," *Brain Metastases from Primary Tumors: Epidemiology, Biology and Therapy*, Volume 1, M. A. Hayat (ed.), Elsevier, Inc., San Diego, CA, 2014

# STEVEN N. KALKANIS, M.D.

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## INVITED VISITING PROFESSORSHIPS

**Invited Visiting Professor, University of Chicago – Northshore Hospital, Dept. of Neurosurgery,** “Current Concepts in Surgical Neuro-oncology,” Chicago, March 10-11, 2009

**Keynote Speaker and recipient of Marquette Hospital Honored Guest Award, Neuroscience Symposium, Marquette General Hospital,** “Comprehensive Management of Brain Metastases,” Marquette, Michigan, May 26, 2010

**Invited Visiting Professor, Harvard Medical School – Massachusetts General Hospital, Dept. of Neurosurgery,** “Novel Therapies for Brain Tumors,” Boston, April 27-28, 2011

**Invited Visiting Professor and Leonard Malis, MD Endowed Lecturer, Mount Sinai Hospital,** “Novel Surgical Advances in Brain Tumor Therapy,” New York, New York, November 11-12, 2014.

**Invited Visiting Professor, Louisiana State University – Shreveport,** Neuroscience Institute, “Clinical Practice Guidelines in Neurosurgery,” Shreveport, LA, March 2015

## INVITED NATIONAL ORAL PAPER PRESENTATIONS

1. Ogilvy CS and **Kalkanis SN**: “Micro-AVMs: Significant Hemorrhage from Small Arteriovenous Shunting Vessels,” *Poster Presentation, American Association of Neurological Surgeons Annual Meeting*, Denver, April 1997.
2. **Kalkanis SN**, Black P. M., “Vascular endothelial growth factor (VEGF) and Progesterone receptor expression in human meningiomas: a correlation with peritumoral brain edema,” Harvard Medical School Research Day forum, Invited Soma Weiss honoree, Boston, MA, May 2000
3. **Kalkanis SN**: “Experimental microsurgery in transgenic mice,” *Boston ALS Foundation*, Boston, MA, January 2001.
4. **Kalkanis SN**: “Neurosurgical Indications for Novel Stem Cell Therapies,” *Neurosurgery Grand Rounds*, Massachusetts General Hospital, Boston, MA, September 2001.
5. **Kalkanis SN** and Brown RH: “Stereotactic intraspinal stem cell transplantation techniques in transgenic ALS mice,” *Oral Paper Presentation, New England Neurosurgical Society fall meeting*, Lee, Massachusetts, September 2001.
6. Erkmen K, Teng Y, Sidman R, Ensrud E, DeGirolami U, **Kalkanis SN**, Brown RH, Rothstein J, Redmond DE, Snyder EY: “Transplantation of Human Neural Stem Cells (hNSCs) in a New Primate Model of Motor Neuron Degeneration – An Experimental Study of Potential Cell Therapy for ALS,” *CNS Annual Meeting*, San Diego, CA, October 2001.
7. **Kalkanis SN**, Dreibelbis J, Welty C, Haque J, Doucette W, Chen R, Ende N, Cudkovicz M, Brown RH: “Intraspinal and systemic human umbilical cord blood stem cell transplantation delays onset, improves survival in ALS mice,” *Oral Paper Presentation, Section on Spine Disorders, CNS Annual Meeting*, San Diego, CA, October 2001. **Selected for Plenary Session Presentation**
8. **Kalkanis SN**, Ende N, Chen R, Brown RH: “Stem cell transplantation delays onset, improves survival in transgenic ALS mice,” *Plenary Session Speaker, 12<sup>th</sup> International Symposium on ALS/MND*, San Francisco, CA, November 2001. **Selected for Plenary Session Presentation**
9. **Kalkanis SN** and Ogilvy CS: “Current Management of Intracranial Aneurysms,” *General Surgery Grand Rounds*, Massachusetts General Hospital, Boston, MA, January 2002.
10. **Kalkanis SN** and Ogilvy CS: “Distal MCA Fusiform Aneurysms: Diagnosis and Treatment,” *Neurosurgery Grand Rounds*, Massachusetts General Hospital, Boston, MA, February 2002.
11. Ogilvy CS and **Kalkanis SN**: “New Approaches to Triple-H Therapy for SAH-induced Cerebral Vasospasm,” *Neurology Grand Rounds*, Massachusetts General Hospital, Boston, MA, April 2002.

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## *Oral Presentations Continued*

12. **Kalkanis SN**, Ojemann RG, McKenna MJ, Poe DS, Nadol JB, Barker FG: "Subtotal Resection for Acoustic Neuromas: Long Term Results," *Oral Paper Presentation, Section on Tumors, Congress of Neurological Surgeons Annual Meeting*, Philadelphia, PA, September 2002.
13. **Kalkanis SN** and Ogilvy CS: "Case Report: Spinal Cord A-V fistula within a lipomatous tethered cord," *Neurosurgery Grand Rounds*, Massachusetts General Hospital, Boston, MA, June 2002.
14. **Kalkanis SN**, Ojemann RG, Barker FG: "New Treatment Paradigms for Acoustic Neuroma Surgery," *Oral Paper Presentation, New England Neurosurgical Society spring meeting*, Concord, Massachusetts, June 2002.
15. **Kalkanis SN** and Brown RH: "Neurosurgical Treatment for Neurodegenerative Disease: Stereotactic intraspinal delivery of a variety of stem cell lines in a transgenic murine model of ALS," *Oral Paper Presentation, American Association of Neurological Surgeons Annual Meeting*, Chicago, IL, April 2002
16. **Kalkanis SN**, Eskandar E, Carter BS, Barker FG: "Microvascular Decompression (MVD) Surgery in the United States, 1996-2000: mortality, morbidity, and the effect of hospital and surgeon volume," *Oral Paper Presentation, American Association of Neurological Surgeons Annual Meeting*, San Diego, CA, April 2003. **Selected for Plenary Session Presentation**
17. **Kalkanis SN**: "New Stem Cell Based Therapies for the Treatment of Malignant Gliomas," *Oral Paper Presentation, Section on Tumors Biennial National Meeting*, San Francisco, CA, October 2004. **Selected for Plenary Session Presentation**
18. **Kalkanis SN**: "IL12 Transfected Cell Therapy Significantly Decreases Tumor Volume in an Animal Glioma Model," *Oral Paper Presentation, CNS Annual Meeting*, San Francisco, CA, October 2004.
19. **Kalkanis SN**, Jiang F, Chopp M: "Combination photodynamic therapy (PDT) and anti-angiogenesis treatment in a malignant glioma animal model," *Congress of Neurological Surgeons Annual Meeting*, Boston, MA, October 2005
20. **Kalkanis SN**, deCarvalho A: "InVitro and InVivo Characterization of a Gliosarcoma Model," *Congress of Neurological Surgeons Annual Meeting*, Chicago, IL, September 2006.
21. **Kalkanis SN**: "Update on the Brain Metastases Clinical Practice Guideline Initiative," *American Association of Neurological Surgeons annual meeting*, Washington, DC, April 2007.
22. **Kalkanis SN**: "New Paradigms in Radiosurgery for Brain Metastases," *CNS Annual Meeting*, San Diego, CA, Oct. 2007.
23. **Kalkanis SN**: "MSCs + IL-12 as a novel therapy in a GBM animal model," *AANS Annual Meeting*, Chicago, April 2008.
24. **Kalkanis SN**: "Novel Therapies for Malignant Glioma," *MANS Annual Meeting*, Mackinac Island, MI, June 2008.
25. **Kalkanis SN**: "Update on the Brain Metastases Clinical Practice Guideline Initiative," *Congress of Neurological Surgeons Executive Committee annual meeting*, Orlando, FL, October 2008.
26. **Kalkanis SN**: "A Ten Year Experience at Henry Ford Hospital with post-operative radiosurgery for brain metastases to the resection cavity only," *Society for Neuro-Oncology annual meeting*, Las Vegas, NV, November 2008. **Selected for Plenary Session Presentation**
27. **Kalkanis SN**: "Radiosurgery in Neurosurgical Practice," *MANS Annual Meeting*, Boyne Mountain, MI, June 2009
28. **Kalkanis SN**: "Novel Clinical Trials for Malignant Glioma," Grand Rounds, University of Chicago and Northshore Medical Center, Chicago, IL, March 2009
29. **Kalkanis SN**: "Comprehensive Brain Metastases Guidelines," CNS Special Course and Afternoon Seminar, *CNS Annual Meeting*, New Orleans, LA, October 2009

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## *Oral Presentations Continued*

30. **Kalkanis SN:** “Applying the Brain Metastases Guidelines to Clinical Practice,” AANS Plenary Session, *AANS National Meeting*, Philadelphia, PA, May 2010. ***Selected for Plenary Session Presentation***
31. **Kalkanis SN:** Dinner Course Seminar T1, “Surgery vs. Radiosurgery for Brain Metastases,” *CNS Annual Meeting*, San Francisco, October 2010
32. **Kalkanis SN:** Luncheon Seminar Course Director T25, “Role of WBRT for Brain Metastases,” *CNS Annual Meeting*, San Francisco, CA, October 2010
33. **Kalkanis SN:** Practical Course 32 Director, “Implementing the Brain Metastases Guidelines into Clinical Practice,” *Congress of Neurological Surgeons Annual Meeting*, San Francisco, October 2010. ***Selected for Plenary Session Presentation***
34. **Kalkanis SN:** “Building a robust referral network in an accountable care organization,” *Physician-Executive Leadership Summit*, Scottsdale, Arizona, October 2010. ***Selected for Plenary Session Presentation***
35. **Kalkanis SN:** “Comparing the Neurosurgical Brain Mets Guidelines to the Radiation Oncology Guidelines: an Evidence-Based Approach,” *ASTRO Plenary Session*, San Diego, November 2010. ***Selected for Plenary Session Presentation***
36. **Kalkanis SN:** “Radiosurgery for Brain Metastases,” T25 Luncheon Seminar, Course Director: R. Sawaya, *CNS Annual Meeting*, Washington DC, October 2011
37. **Kalkanis SN:** “Neurosurgical Best Practice Parameters: Tumor,” Special Course 2, Plenary Session, *CNS Annual Meeting*, Washington DC, October 2011. ***Selected for Plenary Session Presentation***
38. **Kalkanis SN:** “Guidelines for Brain Metastases,” PC21 Practical Course, Course Directors: S. Kalkanis, M. Linskey, *CNS Annual Meeting*, Washington DC, October 2011
39. **Kalkanis SN:** “Knowledge Gaps: Strategies for Guidelines Prioritization,” *CNS Executive Committee, AANS Annual Meeting*, Miami, Florida, April 2012
40. **Kalkanis SN:** “Institute of Medicine Guidelines on Guidelines,” National Joint Guidelines Committee (JGC) Presentation, *AANS Annual Meeting*, Miami, April 2012
41. **Kalkanis SN:** “Guidelines Development in the Tumor Section: Spine Mets, Recurrent Glioblastoma Treatment Protocols, Pediatric Tumors and Pituitary Adenomas,” National Joint Guidelines Committee (JGC) Presentation, *AANS Annual Meeting*, Miami, FL, April 2012
42. **Kalkanis SN:** “Novel uses of intra-operative MRI and functional mapping techniques for resection of complex brain tumors,” *MANS Annual Meeting*, Boyne, MI, June 2012
43. **Kalkanis SN:** “Radiosurgery or Open Surgery for Brain Mets: What does the Evidence Say?” *CNS Luncheon Seminar, CNS Annual Meeting*, Chicago, IL, October 2012
44. **Kalkanis SN:** “Beyond the Guidelines: New and Emerging Evidence for Brain Metastases,” *CNS Special Tumor Symposium, CNS Annual Meeting*, Chicago, IL, October 2012. ***Selected for Plenary Session Presentation***
45. **Kalkanis SN:** “On the Horizon: Innovative Treatments for Brain Metastases,” *AANS Dinner Seminar*, Anil Nanda, Zvi Ram, Gene Barnett, L. Dade Lunsford, *AANS Annual Meeting*, New Orleans, April 2013
46. **Kalkanis SN:** “Clinical Practice Guidelines for Low Grade Glioma,” *CNS Luncheon Seminar*, Michael McDermott, Gene Barnett, Fred Barker, *CNS Annual Meeting*, San Francisco, CA, October 2013

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## *Oral Presentations Continued*

47. **Kalkanis SN:** “Novel Treatment for Brain Metastases,” *Course Director*, CNS Featured Dinner Symposium, Timothy C. Ryken, David Andrews, Mark Linskey, *CNS Annual Meeting*, San Francisco, CA, October 2013
48. **Kalkanis SN:** “Neurosurgical Innovations in Brain Tumors: A Glimpse into the Future,” *Course Co-Director*, CNS Featured All-Day Technology and Innovation Symposium, Brian Hoh, Ashwini Sharan, Ali Rezai, *CNS Annual Meeting*, San Francisco, CA, October 2013
49. **Kalkanis SN:** “New Advances in the Management of Brain Metastases,” AANS Practical Clinic Course Faculty, “Brain Neoplasms – Advances in Tumor Management through Diagnostics and Therapeutics,” *AANS Annual Meeting*, San Francisco, April 2014.
50. J. Robbins, T. Huang, D. Jolly, M. Aghi, M. Vogelbaum, T. Cloughesy, S. Chang, S. Kesari, T. Mikkelsen, **S. Kalkanis**, E. A. Chiocca, H. Gruber, D. Pertschuk, “Ascending Dose Trials of a Retroviral Replicating Vector (Toca 511) in Patients with Recurrent High Grade Glioma,” *ASCO Annual Meeting*, May 2014

## MENTORSHIP, TEACHING and TRAINING

### Faculty Teaching Positions

1. Harvard Medical School – Health Science Technology Neuroanatomy, Course Instructor, Boston, MA, 1997 – 2000
2. Harvard Medical School Advanced Neuroanatomy II, Course Director, Boston, MA, 2001
3. Massachusetts General Hospital – Harvard Spine Anatomy Resident Dissection Clinic, Chief Resident Course Director, Boston, MA, 2003
4. Massachusetts General Hospital – Harvard Skull Base Cranial Resident Dissection Clinic, Chief Resident Course Director, Boston, MA, 2003
5. Massachusetts General Hospital – Harvard Medical School, Instructor in Surgery, Department of Neurosurgery, Boston, MA, 2003
6. Henry Ford Neurosurgery Resident Spine Anatomy Teaching Series, *Attending Course Director*, Detroit, MI, 2004 – 2006
7. Henry Ford Neurosurgery Resident Cranial Anatomy Teaching Series, *Attending Course Director*, Detroit, MI, 2006 – 2008
8. Hermelin Brain Tumor Center Multidisciplinary Tumor Board Symposium and Teaching Session for Neurosurgeons, Neuro-oncologists, Radiation Oncologists, Neuroradiologists, Neuropathologists and Clinical Trials Liaisons, *Course Director*, Dearborn, MI, May 2010 (CME Credit Awarded)
9. CNS Teaching Course: Surgery vs. Radiosurgery for Brain Metastases, *Faculty Presenter*, San Francisco, CA, October 2010 (CME Credit awarded)
10. CNS Teaching Course: Role of Whole Brain Radiotherapy for Brain Metastases, *Faculty Presenter*, San Francisco, CA, October 2010 (CME Credit awarded)
11. CNS Practical Course: Implementing the Brain Metastases Guidelines into Clinical Practice, *Course Director and Faculty Presenter*, San Francisco, CA, October 2010 (CME Credit Awarded)
12. CNS Teaching Course: Radiosurgery for Brain Metastases, *Faculty Presenter*, Washington DC, October 2011 (CME Credit awarded)
13. CNS Practical Course: Neurosurgical Best Practices Parameters in Tumor, *Faculty Presenter*, Washington DC, October 2011 (CME Credit awarded)
14. American Association of Neuroscience Nurses Teaching Session: Head Trauma and Craniotomy Anatomic Landmarks, *Faculty Presenter*, Rochester, MI, October 2012 (CME Credit awarded)
15. CNS Teaching Course: Radiosurgery vs. Open Surgery for Brain Metastases – What Does the Evidence Say?, *Course Director and Faculty Presenter*, Chicago, IL, October 2012 (CME Credit awarded)
16. AANS Teaching Course: On The Horizon – New and Emerging Therapies for Brain Metastases, *Faculty Presenter*, New Orleans, LA, April 2013 (CME Credit Awarded)

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## *Mentorship, Teaching and Training Continued*

17. Henry Ford Practical START training course sponsored by Varian, Inc: The Neurosurgical Applications for Radiosurgery, *Faculty Presenter*, Detroit, MI, April 2013 (CME Credit awarded)
18. Philips intraoperative MRI training course: The Henry Ford experience, *Faculty Presenter*, Detroit, MI, May 2013
19. Michigan Association of Neurological Surgeons teaching session: Spine Cadaver Lab, *Course Director*, Traverse City, MI, June 2013 (CME Credit awarded)
20. Michigan Association of Neurological Surgeons teaching session: Understanding Patient Quality and Outcomes Reporting in a Changing Health Care Environment, *Course Director*, Traverse City, MI, June 2013 (CME Credit Awarded)
21. Michigan Association of Neurological Surgeons teaching session: Developing a statewide collaborative in partnership with insurance payers to improve spine surgery outcomes, *Faculty Presenter*, Traverse City, MI, June 2013 (CME Credit awarded)
22. Arbor Pharmaceutical Brain Tumor Symposium: Understanding clinical trial design and implementation, *Faculty Presenter*, Chicago, IL, July 2013
23. CNS Teaching Course: Clinical Practice Guidelines for Low Grade Glioma, *Faculty Presenter*, San Francisco, CA, October 2013 (CME Credit awarded)
24. CNS Teaching Course: Novel Treatments for Brain Metastases, *Course Director and Faculty Presenter*, San Francisco, CA, October 2013 (CME Credit awarded)
25. CNS Technical and Innovation Course: Neurosurgical Innovations in Brain Tumors – A Glimpse into the Future, *Course Co-Director*, San Francisco, CA, October 2013 (CME Credit awarded)

## **Mentoring**

### *High School Shadowing and Mentoring Program*

- 2006 Ashwin Reddy: Advised at Detroit Country Day School
- 2008 Dina Dalaly: Advised at West Bloomfield High School
- 2009 Andrew Pan: Advised at Detroit Country Day School followed by Harvard College
- 2010 Daniel Gold: Advised at Cranbrook followed by University of Michigan
- 2011 David Portney: Advised at Cranbrook followed by University of Michigan
- 2013 Sanjay Reddy: Advised at Andover High School followed by University of Michigan
- 2013 Audrey Fotouhi: Advised at Detroit Country Day School followed by Dartmouth College
- 2013 Alexander Kucy: Advised at Detroit Country Day School followed by Yale

### *Pre-Medical Undergraduate College Students*

- 1997 Jennifer Gibson: Advised at Harvard College, entered University of Michigan Medical School
- 1997 Sotiri Kyriakopoulos: Advised at Harvard College, entered University of Michigan Medical School
- 1998 Paul Nguyen: Advised at Harvard College, entered Johns Hopkins School of Medicine
- 1998 Jennifer Rhodes: Advised at Harvard College, entered Columbia Medical School
- 1999 Ian Dunn: Advised at Harvard College, entered Harvard Medical School
- 2000 Neda Ratanawongsa: Advised at Harvard College, entered UCSF Medical School
- 2001 Katherine Black: Advised at Harvard College, entered Yale Medical School
- 2002 Alyson Brown: Advised at Princeton, entered Harvard Medical School
- 2003 Yonina Goroff: Advised at Harvard College, entered Harvard Medical School
- 2004 Adam Robin: Advised at Wayne State University, entered University of Michigan Medical School
- 2005 Alexis Smith: Advised at University of Michigan, entered Wayne State University Medical School
- 2012 Ridwan Alam: Advised at Wayne State, entered Johns Hopkins School of Medicine
- 2013 Jasmine Yousif: Advised at University of Michigan (current)
- 2013 Adriana Saroki: Advised at University of Michigan (current)
- 2013 Maria Tecos: Advised at University of Michigan (current)
- 2013 Philip Tangalos: Advised at University of Michigan (current)

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## *Mentorship, Teaching and Training Continued*

### *Residents and Post-doctoral Research Fellows*

- 2003 Manish Aghi MD PhD: Mass General neurosurgery resident, now attending faculty at UCSF
- 2003 Ekkehard Kasper MD: Mass General neurosurgery resident, now attending faculty at Harvard-BIDMC
- 2003 Ziv Williams MD: Mass General neurosurgery resident, now attending faculty at Mass General
- 2003 Khalid Abbed MD: Mass General neurosurgery resident, now attending faculty at Yale
- 2004 Clark Chen MD PhD: Mass General neurosurgery resident, now attending faculty at UCSD
- 2004 Daniel Cahill MD PhD: Mass General neurosurgery resident, now attending faculty at Mass General
- 2005 Richard Veyna MD: Henry Ford neurosurgery resident, now attending staff at St. John's - Detroit
- 2006 Ali Bydon MD: Henry Ford neurosurgery resident, now attending faculty at Johns Hopkins
- 2007 Paul Pannu MD: Henry Ford neurosurgery resident, now attending staff at Oakwood
- 2008 Hayden Boyce MD: Henry Ford neurosurgery resident, now attending faculty at SUNY-Rochester
- 2009 Mohammad Shukairy MD: Henry Ford neurosurgery resident, now attending staff in Chicago private practice
- 2010 Ian Lee MD: Henry Ford neurosurgery resident, now attending staff at Henry Ford
- 2011 Beejal Amin MD: Henry Ford neurosurgery resident, now attending staff at Loyola
- 2012 Sanjay Patra MD: Henry Ford neurosurgery resident, now attending staff in Grand Rapids, MI private practice
- 2012 Brian Nahed MD: Mass General neurosurgery resident, now attending staff at Mass General
- 2013 Victor Chang MD: Henry Ford neurosurgery resident, now in spine fellowship UCLA
- 2013 Raphael Yechieli MD: Henry Ford radiation oncology senior resident (current)
- 2013 Paul Mazaris MD: Henry Ford neurosurgery chief resident (current)
- 2013 Y. S. Mohan MD: Henry Ford neurosurgery chief resident (current)
- 2005 – Present: Xin Hong, PhD and Ana deCarvalho, PhD (Henry Ford Hermelin Brain Tumor Center research staff)

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### *Personal Data*

**Place of Birth: Detroit, Michigan, USA**

**Married to Laurel Kalkanis with three children: Nicholas, Connor and Grace**