

BIOGRAPHICAL SKETCH
DO NOT EXCEED FOUR PAGES.

NAME	POSITION TITLE		
Ray M. Chu	Attending Neurosurgeon, Brain Tumor Center of Excellence		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Stanford University, Palo Alto, CA	B.S.	1990-1994	Biological Sciences
University of California San Diego, La Jolla, CA	M.D.	1994-1998	Medical Degree
University of Minnesota, Minneapolis, MN	N/A	1998-2004	Neurosurgery Residency

A. Personal Statement

As a neurosurgeon at a level one trauma center, improving neurosurgical trauma care has been a passion. In my career, I have made presentations at national meetings regarding trauma care. I also have a role as the neurosurgery liaison to the Trauma Committee, and the goal is to oversee neurosurgical quality care. Another aspect of this role is to evaluate trauma outcomes and processes for the department.

B. Positions and Honors

Positions and Employment

1992-1993: Biological Sciences Core Laboratory Teaching Assistant at Stanford University

1993-1994: Biological Sciences Core Laboratory Senior Teaching Assistant at Stanford University

1997-1998: Anatomy Course Instructor at University of California San Diego School of Medicine

1998-2004: Neurosurgery Resident. University of Minnesota Department of Neurosurgery. Minneapolis, MN.

2004-Current: Attending Neurosurgeon. Cedars-Sinai Medical Center, Maxine Dunitz Neurosurgical Institute. Los Angeles, California.

Honors:

2007 Listed with America's Top Surgeons

2008 Listed with Los Angeles Super Doctors

2011 Department of Neurosurgery Golden Apple Teaching Award

2013 Department of Neurosurgery Crystal Apple Teaching Award

2015 Department of Neurosurgery Crystal Apple Teaching Award

C. Selected peer-reviewed publications (in chronological order). Do not include publications submitted or in preparation.

Chu RM, Tummala RP, Hall WA: Focal intracranial infections due to *Propionibacterium acnes*. *Neurosurgery* 49:717-720, 2001.

Nussbaum ES, Chu RM, Tummala RP: Cerebral revascularization other than carotid endarterectomy. *Medlink Neurology*, November 2001.

Tummala RP, Chu RM, Madison MT, Myers M, Tubman D, Nussbaum ES: Outcomes after aneurysm rupture during endovascular coil embolization. *Neurosurgery* 49:1059-1066, 2001.

Nussbaum ES, Sebring LA, Neglia JP, Chu RM, Mattsen ND, Erickson DL. Delayed Cerebrovascular Complications of Intrathecal Colloidal Gold. *Neurosurgery* 49: 1308-1312, 2001

Tummala RP, Chu RM, Liu H, Truwit CL, Hall WA: Optimizing brain tumor resection: High-field interventional MR imaging. *Neuroimaging Clin N Am* 11:673-683, 2001.

Chu RM, Tummala RP, Kucharczyk J, Truwit CL, Maxwell RE: Minimally invasive procedures: Interventional MR image-guided functional neurosurgery. *Neuroimaging Clin N Am* 11:715-725, 2001.

Tummala RP, Chu RM, Hall WA: High-field functional capabilities for magnetic resonance imaging-guided brain tumor resection. *Techniques in Neurosurgery* 7(4):319-25, 2002.

Tummala RP, Chu RM, Nussbaum ES: Extracranial-intracranial bypass for symptomatic occlusive cerebrovascular disease not amenable to carotid endarterectomy. *Neurosurg Focus* 14(3):article 8, 2003.

Tummala RP, Chu RM, Liu H, Hall WA: Application of diffusion tensor imaging to magnetic resonance-guided brain tumor resection. *Pediatr Neurosurg* 39(1): 39-43, 2003.

Chu RM, Tummala RP, Hall WA: Intraoperative Magnetic Resonance Imaging-Guided Neurosurgery. *Neurosurg Q* 13:234-50, 2003.

- D. Research Support.** List selected ongoing or completed research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and your role (e.g. PI, Co-Investigator, Consultant) in the research project. Do not list award amounts or percent effort in projects.
(Skip this question if you are an NIH employee.)

The Brain and CNS Tissue Registry. 1997 – present. Black (PI)

This study aims to create a bank of tumor, blood and other tissue that can be used for future research purposes to better understand the clinical characteristics and genetic nature of brain tumors.

Role: co-investigator.

Operating Room of the Future: re-engineering teamwork and technology. 2010 – present. Gewertz (PI)

This is a Department of Defense grant reviewing hospital system and human factors which can improve safety and efficacy of peri-operative processes in the civilian arena with the hope it can improve the same in the military environment.

Role: co-investigator.

Microwave Ablation Technology for Treatment of Intracranial Neoplasms: A Pilot Study. 2011 – present. Role: PI

Microwave ablation is a technique which has not been extensively used to treat brain tumors. It has essentially no risk of treatment effect unlike radiosurgery which can produce radiation necrosis. This work is currently in animal trials.

Intra-operative Ultraviolet Imaging for Delineation of Brain Tumor Resection Margin. 2011 – present. Role: PI.

We have a terrific collaboration with NASA/ Jet Propulsion Laboratory and have begun to use an ultraviolet camera with a specialized computer and software which were originally designed to read UV emissions from deep space. This is a clinical trial with use of the UV camera to detect residual brain tumor based on increased NADH production and auto-fluorescence.

A pilot study investigating the use of a novel microwave ablation device for refractory malignant brain tumors.

Role: PI

This is preliminary work utilizing microwave ablation for a clinical trial which is not yet open.