University of California, San Francisco

CURRICULUM VITAE

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Current Position: Professor of Radiology and Neurological Surgery
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EDUCATION

1983 - 1987	Georgetown University, Washington, DC	B.S.	Chemistry
1987 - 1991	Georgetown University, Washington, DC	M.D.	Medicine
1991 - 1992	Georgetown University Hospital, Washington, DC	Internship	Transitional Internship
1992 - 1996	North Shore University Hospital, Manhasset, NY	Residency	Diagnostic Radiology
1996 - 1998	New York University Medical Center, New York, NY	Fellowship	Neuroradiology

LICENSES, CERTIFICATION

1991	National Board of Medical Examiners
1996	American Board of Radiology
1997	New York State Medical License (#209868)
1998	Certificate of Added Qualification Neuroradiology
1999	California State Medical License (#G85328)

PRINCIPAL POSITIONS HELD

1997 - 1998	New York University Medical Center, New York, NY	Clinical Instructor of Neuroradiology	Department of Radiology
1998 - 1999	New York University School of Medicine, New York, NY	Assistant Professor of Clinical Radiology	Department of Radiology
1999 - 2001	New York University School of Medicine, New York, NY	Assistant Professor of Radiology	Department of Radiology
2001 - 2005	University of California San Francisco	Assistant Professor in Residence	Department of Radiology
2005 - 2011	University of California San Francisco	Associate Professor in Residence	Department of Radiology
2011 - present	University of California San Francisco	Professor in Residence	Department of Radiology

OTHER POSITIONS HELD CONCURRENTLY

2001 - 2005	University of California San Francisco	Assistant Professor in Residence, WOS	Department of Neurological Surgery
2005 - present	University of California San Francisco	Associate Professor in Residence, WOS	Department of Neurological Surgery
2012 - present	University of California San Francisco	Diagnostic Radiology Residency Program Director	Department of Radiology & Biomedical Imaging

HONORS AND AWARDS

1994	RSNA Certificate of Merit Award Feinberg MJ, Cha S, Simon DW. "A Biomechanical Approach to Understanding and Analyzing the Swallowing Response". Scientific exhibit at the Radiological Society of North America, Chicago, IL	Radiological Society of North America
1995	RSNA Certificate of Merit Award Cha S, Simon D, Kalina P, et al. "CT, MR and Angiographic Appearance of Unusual Posterior Fossa Lesions". Scientific exhibit at the Radiological Society of North America, Chicago, IL	Radiological Society of North America
2000	ASNR Outstanding Presentation Award in General Neuroradiology at the 38th Annual Meeting in Atlanta, GA, April 2000. Cha S, Pierce S, Knopp EA, et al. "Dynamic Contrast-Enhanced T2*-Weighted Echo-Planar MR Imaging of Tumefactive Demyelinating Lesions"	American Society of Neuroradiology

2001	ASNR Foundation Scholar Award in Neuroradiology Research for 2001. Cha S. "Dynamic Contrast-enhanced T2*-weighted MRI and Histopathological Assessment of Experimental Gliomas".	American Society of Neuroradiology
2006	Best Speaker Award, fMRI/DTI/PWI Morning Categorical Course, International Society of Magnetic Resonance in Medicine, Seattle, WA.	International Society of Magnetic Resonance in Medicine
2010	Hideyo Minagi Outstanding Teacher Award, Department of Radiology and Biomedical Imaging	University of California, San Francisco
2010	Hideyo Minagi Outstanding Teacher Award (June 2010)	
2013	Hideyo Minagi Outstanding Teacher Award, Department of Radiology and Biomedical Imaging	University of California, San Francisco
2013	Starkey J, Cha S. Brain Tumor Mimics, Educational Exhibit - Cum Laude Award	Radiological Society of North America
2013	Hideyo Minagi Outstanding Teacher Award (June 2013)	
2014	Excellence and Innovation in Graduate Medical Education Award	University of California, San Francisco
2014	UCSF Radiology Team - first place win in Phillips Vydareny Imaging Interpretation Competition	Association of University Radiologist
2014	Ranked #1 Diagnostic Radiology Residency Program in the country	Doximity and U.S. News & World Report
2014	Li,Y, Ali,S, Clarke,J, Cha,S, Bevacizumab in Recurrent Glioma: Patterns of Treatment Failure and Complications, Educational Exhibit - Cum Laude Award	Radiological Society of North America
2014	Excellence and Innovation in Graduate Medical Education Award, University of California San Francisco	

KEYWORDS/AREAS OF INTEREST

Brain tumor, brain cancer, glioblastoma multiforme, gliomas, primary cerebral lymphoma, angiogenesis, hypoxia, invasion, perfusion MR imaging, diffusion-weighted imaging, molecular imaging, biomarkers, microarray, genomics, neural stem cell

CLINICAL ACTIVITIES SUMMARY

I am a board certified radiologist with a certification of added qualification and a two-year fellowship training in neuroradiology. I provide consistently outstanding patient care through expertise in the performance and interpretation of imaging studies of the brain, neck, and spine including the careful use of computed tomography (CT), magnetic resonance imaging (MRI),

and x-ray radiography. I also perform a variety of neuroradiologic procedures such as fluoroscopy or CT-guided lumbar puncture, myelogram, and CT-guided biopsy or aspiration. With early, accurate imaging diagnosis, I am committed to helping patients achieve the best outcomes in brain tumor, stroke, epilepsy, multiple sclerosis, neurodegenerative disease, headache, vasculopathy, infection, and many other neurologic disease. I have a deep clinical and research interest in imaging of brain tumors and I have been the imaging director of brain tumor board at UCSF since 2002.

On a weekly basis I provide clinical services to clinical colleagues in Neurosurgery, Neurology, Neuro-Oncology, Neuropathology, and Radiation Oncology in over 6 hours of interdisciplinary conferences. I attend the brain tumor board at UCSF, which takes place every Thursday and starts at 12:30pm and can last up to 4hrs. I provide imaging interpretation of 30 - 40 brain or spine imaging studies during tumor board. I attend weekly Neuroradiology working conference and multidisciplinary Neuroimaging conference on Thursdays from 8am-10am. I also provide 4-6hrs of neuroimaging consult services in clinical interpretations to our clinical colleagues every week.

MEMBERSHIPS

1997 - present	Radiological Society of North America
1997 - present	American Society of Neuroradiology (ASNR)
2005 - present	International Society of Magnetic Resonance in Medicine (ISMRM)
2012 - present	Association of Program Directors in Radiology (APDR)

SERVICE TO PROFESSIONAL ORGANIZATIONS

2004 - present	American Society of Neuroradiology	Research Committee Member
2009 - 2012	International Society of Magnetic Resonance in Medicine	Annual Meeting Program Committee Member
2013 - 2013	Radiological Society of North America	Annual Meeting Neuroradiology Series: Brain Tumors- Moderator
2014 - 2014	Radiological Society of North America	Annual Meeting Neuroradiology (Neuro-Oncology) Moderator

SERVICE TO PROFESSIONAL PUBLICATIONS

1998 - present	American Journal of Neuroradiology, Reviewer
1998 - present	Journal of Magnetic Resonance Imaging, Ad Hoc Reviewer
2003 - present	Cancer Journal, Ad Hoc Reviewer
2003 - present	Neurology, Ad Hoc Reviewer
2005 - 2014	Select Reviews in Neuro-Ocoloy, Editorial Board Member
2006 - present	Radiology, Ad Hoc Reviewer
2006 - 2014	American Journal of Neuroradiology, Editoria Board Member

INVITED PRESENTATIONS - INTERNATIONAL

2002 White matter disease of the brain. - Keynote Lecture, 4th Chinese National Magnetic Resonance Scientific Meeting, Tianjin, People's Republic of China

2002 Perfusion MR imaging of intracranial mass lesions - Keynote Lecture, 4th Chinese National Magnetic Resonance Scientific Meeting. Tianjin, People's Republic of China

2002 MR Perfusion Techniques. Second International Symposium on CT/MR Perfusion Imaging. San Francisco, California

2004 Perfusion MR imaging of brain tumors: Correlation with spectroscopy International Conference on Xenon CT CBF and Related CBF Techniques. Bordeaux, France

2005 Update on brain tumor imaging: what neurosurgeons need to know. Neurosurgery Grand Rounds, Seoul National University School of Medicine. Seoul, South Korea

2005 Perfusion MR imaging of Brain Tumors, Techniques of Perfusion MR imaging the brain. Third International Symposium on Perfusion Imaging, Chicago, IL

2007 Sunday Educational Symposium and Morning Categorial Course (fMRI/DTI/PWI) Lecturer, Annual Meeting of the Internal Society of Magnetic Resonance Medicine, Berlin, Germany

2008 Advanced MR Imaging Methods of the Brain. 12th Asian Oceanian Congress of Radiology. Seoul, South Korea

2013 State-of-the-Art: Glioma Imaging. XV World Federation of Neurosurgical Societies. Seould, South Korea

2014 Young Professionals Programming: Advances in Imaging: How to Incorporate Them Into Your Practice - Perfusion MRI (Latest Update on Tumor Pre and Post Therapy). The American Society of Neuroradiology 52nd Annual Meeting, Montreal, Canada

2014 Blood Brain Barrier Imaging: Key Concepts When Evaluating Primary Brain Tumors. The American Society of Neuroradiology 52nd Annual Meeting, Montreal, Canada

INVITED PRESENTATIONS - NATIONAL

1999 Evaluation of an infarction by MRI & CT. Radiology Update 1999, St. John Hospital and Medical Center. Detroit, Michigan

2000 Clinical applications of advanced neuroimaging. Grand Rounds at Broward General Medical Center, Fort Lauderdale, Florida

2001 Perfusion MR imaging of intracranial mass lesions. Radiology Grand Rounds, Northwestern University Medical Center, Chicago, Illinois

2000 Clinical applications of advanced neuroimaging. Grand Rounds at Broward General Medical Center. Fort Lauderdale, Florida

2001 T2*-weighted cerebral perfusion of gliomas.Neuroradiology Education and Research Symposium. American Society of Neuroradiology (ASNR) 39th Annual Meeting, Boston, Massachusetts

2003 Perfusion MR Imaging of Brain Tumors and Intracranial Mass Lesions. Radiology Grand Rounds Lecture, Massachusetts General Hospital & Brigham and Women Hospital, Boston, MA

2003 Perfusion MR Imaging: Basic Principles and Clinical Applications. Annual Meeting of the American Roentgen Ray Society. San Diego, California

2003 Brain tumor imaging with special focus in meningiomas - Keynote lecture. Meningioma Support Group Meeting, San Francisco, California

2003 Advances in neuroimaging - Keynote lecture, Sami Disharoon Brain Tumor Research Foundation, San Francisco, California

2004 Advances in brain tumor imaging, American Roentgen Ray Society Annual Meeting, Miami, Florida

2004 Anatomic and Functional Imaging in the Planning of Conformal Radiation Therapy. ASNR Neuradiology Education and Research Symposium 2004. Seattle, Washington

2004 Perfusion MR imaging of pediatric brain tumors. ASNR 42nd Annual Meeting, Seattle, Washington

2004 Surrogate biomarkers of glioma by quantitative MR imaging. American Association of Neurological Surgeons and Congress of Neurological Surgeons Section on Tumors Sixth Biennial Satellite Symposium. San Francisco, California

2004 Update on Brain Tumor Imaging. First Annual Cancer Symposium, Hackensack Medical Center, Hackensack, New Jersey

2004 Perfusion and spectroscopic imaging of brain tumors. American Association of Neurological Surgeons and Congress of Neurological Surgeons Joint Section on Pediatric Neurological Surgery Annual Meeting. San Francisco, California

2005 Update on Brain Tumor Imaging: What the Neurosurgeons need to know. Annual Meeting of the American Association of Neurological Surgeons, New Orleans, LA

2005 Perfusion MR imaging of the Brain. Annual Meeting of the Internal Society of Magnetic Resonance Medicine, Miami, FL

2006 Update on Brain Tumor Imaging: From Anatomy to Physiology. American Society of Neuroradiology, San Diego, CA

2006 Morning Categorial Course (fMRI/DTI/PWI) Organizer & Lecturer. Annual Meeting of the Internal Society of Magnetic Resonance Medicine, Seattle, WA

2007 Advanced Brain MRI Methods. Irvin I. Kricheff Lecture, New York University School of Medicine, New York, New York

2009 Effects of treatment on brain tumors: Postoperative imaging. Annual Meeting of the Radiological Society of North America. Chicago, Illinois

2009 Clinical Needs for Quantitative Imaging in Brain Disorders:Brain Tumor Imaging Annual Meeting of the Radiological Society of North America, Chicago, Illinois

2009 Clinical Application of Diffusion-weighted Imaging in the Brain, Annual Meeting of the American Society of Neuroradiology, Vancouver, British Columbia, Canada

2010 "Imaging of Primary Brain Tumors in Adults" May 15, 2010; American Society of Neuroradiology Symposium, Boston, MA

2011 State-of-the-Art Review of Imaging Techniques for Differentiating Recurrent Tumor from Post-treatment Changes in Treated Gliomas. American Society of Radiation Oncology

2011 MR Spectroscopy: Histologic-Spectroscopic Correlation. American Society of Radiation Oncology

2012 Building a Research Program. Young Physician Programming: Academic Session. American Society of Neuroradiology

2012 Super Resolution Track Density Imaging of White Matter Signal Abnormality in Suspected Recurrent High Grade Glioma. Cohen BA, Barajas RF, Yu JPJ, von Morze C, Hess CP, Cha S. Presented at the annual meeting of American Society of Neuroradiology Received ASNR Trainee Award (Cohen BA)

2013 State-of-the-Art Review of Imaging Techniques for brain tumors. Cancer Imaging and Radiation Therapy Symposium. Association of Radiation Oncology

2013 Imaging Mimics of Common Malignancies - Brain Tumor Mimics. Radiological Society of North America 2013 Scientific Assembly and Annual Meeting, December 1 - December 6, 2013, Chicago IL

2014 Latest Advances in Brain Tumor Imaging. Radiology Grand Rounds. University of California Davis

2014 Brain Tumor Imaging-from Structure to Individual Biology. Radiological Society of North America 2014 Scientific Assembly and Annual Meeting, November 30 - December 5, 2014, Chicago IL

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

2003 Advances in Neuroimaging: Perfusion, Diffusion, and Spectroscopic MR Imaging. San Francisco Neurological Society Annual Meeting, Berkeley, California

2003 Perfusion MR Imaging. In-service for MRI technologists, UCSF

2003 Introduction to Perfusion MR Imaging. Grand Rounds Lecture, USCF

2004 Advances in brain tumor imaging. Key note speaker San Francisco Neurological Society meeting, San Francisco, California

2005 Update on brain tumor imaging. Core curriculum series for residents, UCSF

2005 Basics of proton MR spectroscopic imaging. In-service for MRI technologists, UCSF

2009 Current state of brain tumor imaging. FAIR Seminar, UCSF

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

2005 Annual Meetings of American Society of Neuroradiology & International Society of Magnetic Resonance in Medicine & Radiological Society of North America

2006	Annual Meetings of American Society of Neuroradiology & International Society of Magnetic Resonance in Medicine
2007	Annual Meetings of American Society of Neuroradiology & International Society of Magnetic Resonance in Medicine
2008	Annual Meetings of American Society of Neuroradiology & International Society of Magnetic Resonance in Medicine
2009	Annual Meetings of American Society of Neuroradiology & Radiological Society of North America
2010	Annual Meetings of American Society of Neuroradiology & Radiological Society of North America
2010	UCSF CME Course RAD10034 Brain, Body and Breast Imaging in Bermuda
2010	UCSF CME Course RAD10027 Spring Training for Radiologists
2011	Annual Meetings of American Society of Neuroradiology & Radiological Society of North America
2011	UCSF CME Course RAD11019 Imaging and Intervention on the Mayan Riviera
2012	Annual Meetings of American Society of Neuroradiology & Radiological Society of North America
2012	UCSF CME Course RAD13005 Advances in Neuroimaging: Essentials and Cutting-Edge
2012	UCSF CME Course RAD120022 Current Concepts in Neuro and Musculoskeletal Imaging
2012	UCSF CME Course MRO12001 Radiation Oncology Update: Combined Therapies, Combined Images, Combined Vision
2013	Annual Meeting of American Society of Neuroradiology
2013	Annual Meeting of the Radiological Society of North America

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

2005 - present	National Institute of Health	Study Section Member
2005 - present	NIH Study Section: Biomedical Imaging and Technology-A (BMIT-A): Behrouz Shabestari, PhD, National Institute of Health Permanent member	Scientific Review Officer (SRO)
2005 - present	NIH Study Section: ZRG1 SBIB, Ad hoc reviewer, National Institute of Health	NIH study section grant reviewer
2006 - present	American Society of Neuroradiology	Grant Reviews and Research Committee Member

SERVICE ACTIVITIES SUMMARY

I have been a member of NIH study section since 2005. On average I review grants 3 times a year, 10 grants per session. Each grant review entails about 24hrs of careful review and assessment of the impact of the proposal. In addition I am an Ad Hoc reviewer for specialized grant review sessions which come about once a year and I review about 10 grants for these sessions. During the past 9 years of my service, I have enjoyed and taken serious responsibility in being a part of important institution that decides the merits of medical science research proposal and the likelihood of federal funding of a particular research project. Through this process, I have learned a great deal in assessing potential clinical impact of medical research projects and in becoming a better reviewer of others as well as my own research proposal.

I joined the Committee on Human Research at UCSF in April of 2010 to serve and to learn more about the process of getting institutional approval on human research. I served on the committee for 2 years and 5 months, until September 2012, at which time I was asked by my department Chairman to focus on my new role and responsibilities as the Diagnostic Radiology Residency Program Director. During my committee service I attended 2 monthly CHR meetings at Laurel Heights and reviewed anywhere between 8-12 applications per meeting. Each application entailed about 12hrs or my review time. As a committee member I underwent training on the subject of the responsible conduct of research and the procedures on human subject protections. This in-depth training has strengthened my understanding of shared values for the responsible conduct of research that bind all researcher together, such as honesty, accuracy, efficiency, and objectivity. Although this committee required a great deal of time commitment, I learned so much and being a member has given me a renewed conviction in taking serious responsibility in reviewing research proposals as they pertain to the wellness and safety of the subjects involved as well as to the advancement of science.

Since 2005, I have been a member of faculty search committees for the Departments of Radiology, Neurological Surgery, and Radiation Oncology. During this time, I have interviewed over 15 candidates and selected 4 junior faculties in residence series (Jean Nakamura and Igor Barani in the Department of Radiation Oncology; Jennifer Clarke in the Department of Neurological Surgery; and Leo Sugrue in the Department of Radiology). The interview and selection process provided me a great opportunity to meet junior faculty candidates and share their new research ideas and academic aspirations. I am currently informal mentors and senior colleagues to Drs. Clarke and Barani as we collaborate on several research projects on imaging of brain tumor patients treated at UCSF.

I became the Diagnostic Radiology Program Director in July 2012. With changes in board examination structure in 2013 and the ACGME Milestones Project, I have had the unique opportunity to impact the future of our residency program. The ACGME Milestones project is an outcomes-based method of evaluating resident performance within the 6 general competency domains to be demonstrated by residents at particular points during their education. In my role as Diagnostic Radiology Residency Pogram Director I formed 2 committees -- Clinical Competency Committee and the Program Evaluation Committee -- in compliance with the ACGME Milestones Project. The Clinical Competency Committee meets 4 times a year to evaluate resident performance and each 2 hour meeting requires 10-12 hours of preparation. The Program Evaluation Committee meets twice a year and each 1 hour meeting requires 5-6 hours of preparation. In addition we submit Milestones Reporting to the ACGME twice a year and it takes several days of preparation to complete this. I allocate over 10 hours a week to my program director duties which include meeting with each of our 55 residents 2-4 times a year, advocating to continually improve resident education, collaborating

with faculty and residents to implement new teaching tools and promote an interactive learning environment to achieve responsible teaching and learning.

UCSF CAMPUSWIDE

2010 - 2012	Committee on Human Research, Laurel Heights Committee	Grant proposal reviewer

DEPARTMENTAL SERVICE

2004 - 2004	Biostatistician Search Committee: Interviewing and selecting candidates for departmental biostatistician, Radiology	
2005 - 2005	Computer Support Committee: Attending monthly meeting to discuss issues related to computer support for researchers and academic computing, Radiology	
2005 - present	Radiation Oncology Faculty Search Committee: Interviewing and selecting candidates, Radiation Oncology	
2006 - 2008	Seminar Committee: Attending monthly meeting to discuss relevant topics and speakers for special lectures: FAIR, Grand Rounds, Progress in Radiology, Radiology	
2006 - present	Neuro-oncology Fellow Search Committee: Interviewing and selecting candidates, Neurological Surgery	
2007 - present	Neuro-oncology Faculty Search Committee: Interviewing and selecting candidates, Neurological Surgery	
2012 - present	Executive Committee, Radiology	
2013 - present	Clinical Competency Committee: Evaluation of resident performance semi-annually and ACGME Milestones reporting, Radiology	
2013 - present	Program Evaluation Committee: Diagnostic Radiology program evaluation.	Chair
2014 - present	Neuroradiology Search Committee: Interviewing and selecting candidates, Radiology	

COMMUNITY AND PUBLIC SERVICE

2002 - present	Provide pro-bono consultations for physicians around the country treating patients with brain tumor and tumor mimicking lesions
2004 - present	Provide regular consultations and lectures to a variety of brain tumor support groups (ex. Meningioma Support Group and the Sami Disharoon Brain Tumor Research Foundation)

TEACHING SUMMARY

I believe teaching is an important part of my responsibility as an academic radiologist. I thoroughly enjoy teaching medical students, residents, and fellows as well as clinicians from other discipline. Radiology is taught to the medical students, residents, and fellows both in the

Department of Radiology and from other services, mainly by informal contact in consultation, ward rounds, seminars, demonstrations, etc. Any patient contact is simultaneously a teaching demonstration. During my clinical service days I spend on average 6hrs of my shift providing in depth one-on-one teaching with the trainees scheduled in the reading room with me. In addition I attend the Neuroradiology multidisciplinary conferences which occur every Thursday from 8-10am.

Teaching Neuroradiology to clinicians and trainees from other disciplines of medicine provides me with a greater opportunity to understand the clinical needs and relevance of imaging in the context of making impact in management of patients. In 2010 and 2013 I was nominated and awarded the Department of Radiology Hideyo Minagi Outstanding Teacher Award. The recipient is nominated and selected by the diagnostic radiology residents for outstanding teaching in a given year. I am the first faculty member in the Department of Radiology to have received this award twice. In addition I was nominated and awarded one of the 2014 UCSF Excellence and Innovation in Graduate Medical Education Awards. The award recognizes program coordinators and other staff, faculty, and residents and fellows who show exemplary efforts in improving graduate medical education at UCSF. It is awarded to individuals who have demonstrated a commitment to advancing graduate medical education through educational and clinical quality improvement, service excellence, and innovation.

Since becoming the program director of diagnostic radiology residency in July 2012, I have implemented innovative curriculum and training approaches, which impact quality of resident education. I have developed and implemented new and innovative online curriculum and learning modules for resident education, contributed to an exceptionally supportive, self-directed, accountable, and team-oriented learning environment and made special efforts to recognize excellence in individual residents. With changes in board examination structure in diagnostic radiology in 2013, I took advantage of opportunities to improve resident learning environment and training strategy to better serve our residents' educational needs and encourage faculty to adapt and provide updated teaching material to our residents. All 26 residents who have taken the new board examination have passed with high marks. Our residency program was ranked number one in the country by Doximity and U.S. News & Health Report in September 2014. Doximity is the largest online professional network for U.S. physicians. Doximity provides a Residency Navigator tool to help medical students make informed residency decisions and to increase transparency in the residency match process. Residency ranking reflects peer nominations from physicians who have trained and are board-certified in the respective specialties.

FORMAL TEACHING

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2002 - 2002	Clinical Magnetic Resonance Imaging, SF, CA	Formal Lecture	Medicine	
	2002 - 2002	CT/MR Perfusion Imaging, SF, CA	Formal Lecture	Medicine	
	2003 - 2003	Solving Problems in Diagnostic Radiology, US Virgin Islands	Formal Lecture	Medicine	

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2003 - 2003	Solving Problems in Diagnostic Radiology, Kona, Hawaii	Formal Lecture	Medicine	
	2003 - 2003	Diagnostic Radiology Seminars, Maui, Hawaii	Formal Lecture	Medicine	
	2004 - 2004	Current concepts in Neuroimaging, Kona, Hawaii	Formal Lecture	Medicine	
	2004 - 2004	Radiology Spring Training, Tucson, Arizona	Formal Lecture	Medicine	
	2005 - 2005	Diagnostic Radiology, Sonoma, CA	Formal Lecture	Medicine	
	2006 - 2006	Neuro/Musculoskeletal Imaging, Kona, Hawaii	Formal Lecture	Medicine	
	2006 - 2006	Diagnostic Radiology, Kona, Hawaii	Formal Lecture	Medicine	
	2007 - 2007	Neurosurgery Update Two-Thousand-Seven in the Wine Country, Napa, CA	Formal Lecture	Medicine	
	2007 - 2007	Advances in Clinical MR/CT Imaging, San Francisco, CA	Formal Lecture	Medicine	
	2010 - 2010	Spring Training for Radiologists, Orlando, CA	Formal Lecture	Medicine	
	2002 - 2010	Advances in Clinical MR/CT Imaging, San Francisco, CA	Formal Lecture	Medicine	
	2010 - 2010	Neuroradiological and Muskuloskeletal Imaging in Monterey, CA	Formal Lecture	Medicine	

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2010 - 2010	Brain, Body and Breast Imaging in Bermuda, Southamptom, Bermuda	Formal Lecture	Medicine	
	2011 - 2011	Imaging and Intervention, Mayakoba, Mexico (4 Lectures)	Formal Lecture	Medicine	
	2011 - 2011	UCSF Annual Review, Comprehensive Clinical Imaging, San Francisco, CA (1 Lecture)	Formal Lecture	Medicine	
	2012 - 2012	Neuro-MSK UCSF CME Course, Co-Chair (Feb2012, Kona, HI)	Formal Lecture	Medicine	
	2012 - 2012	Neuroradiology UCSF CME Course, Co-Chair (September 2012, San Francisco, CA)	Formal Lecture	Medicine	
	2012 - 2012	Brain Tumor Mimics (Course #RCA318A) RSNA Refresher Course 11/27/2012	Formal Lecture	Medicine	
	2012 - 2012	Advances in Structural and High-Field-Strength Imaging (Course# RC718A) RSNA Refresher Course 11/29/2012	Formal Lecture	Medicine	
	2011 - 2014	Annual UCSF Radiology Highlights, San Francisco, CA	Formal Lecture	Medicine	

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2002 - 2013	Annual Diagnostic Radiology Postgraduate Course, SF, CA	Formal Lecture	Medicine	
	2005 - 2014	Annual Resident Review Course, San Francisco, CA	Formal Lecture	Medicine	

MENTORING SUMMARY

I have been a primary mentor to more than 20 medical and graduate students and over the past decade. I take my mentoring role seriously and make a point to meet with my mentees on a regular basis, on average 2-3 time a month, to provide guidance and career advice. I have also formally mentored 4 junior faculty through my department's faculty mentoring program. In this role I meet with my junior faculty mentees every other month for about an hour to provide guidance and career advice. Mentoring is critical in identifying highly motivated and talented medical trainee who may become the next leaders of their field. Mentoring is a professional activity, a trusted relationship, and a meaningful commitment. As a mentor, I have learned to become a better educator, advocate, academic, and leader. I recognize that professional development through mentorship can be highly beneficial to both mentor and mentee and mentoring is a critical element in preparing future leaders of our profession.

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Mentor Type	Role	Current Position
2002 - 2004	Annette Chan	U.C. San Francisco/U. C. Berkeley Graduate Student, Department of Bioengineering		Dissertation Committee Member	Working in Industry
2003 - 2006	Forrest Crawford	U.C. San Francisco Research Associate		Research Supervision	Graduate Student

Dates	Name	Program or School	Mentor Type	Role	Current Position
2003 - 2006	Janine Lupo	U.C. San Francisco/U. C. Berkeley Graduate Student, Department of Bioengineering		Dissertation Committee Member, Research Advisor	Assistant Researcher in the Professional Series, UCSF, Department of Radiology
2004 - 2005	Peter Jun	Medical Student at Stanford University School of Medicine		Mentor and research advisor	4th year Radiology resident, UCSF
2004 - 2007	Joseph Osorio	U.C. San Francisco/U. C. Berkeley Graduate Student, Department of Bioengineering		Dissertation Committee Member	2nd year medical student at UCSF School of Medicine
2006 - 2008	Mathew Zierhut	U.C. San Francisco/U. C. Berkeley Graduate Student, Department of Bioengineering		Dissertation Committee Member, Research Advisor	Working in Industry
2006 - 2010	Il Woo Park	U.C. San Francisco/U. C. Berkeley Graduate Student, Department of Bioengineering		Dissertation Committee Member, Research Advisor	3rd year Bioengineering Graduate Student

Dates	Name	Program or School	Mentor Type	Role	Current Position
2007 - 2009	Ramon Barajas	UCSF Medical Student, Doris Duke Scholar		Mentor of Doris Duke Scholarship and Research Supervisor	Radiology residency at UCSF
2010 - 2010	Francisco Valles	UCSF Medical Student, PACCTR Fellow		Mentor of Pathways to Careers in Clinical and Translational Research (PACCTR) Program and Research Supervisor	PACCTR Fellow

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2002 - 2004	Joonmi Oh, PhD	Post-Doctoral Researcher		Research Supervision	Scientist at Synarc Company
2003 - 2004	Donna Hoghooghi, MD	Clinical Fellow		Mentor and Research Supervision	Radiology attending at Marin General Hospital
2003 - 2004	Joseph Hoxworth, MD	Radiology Resident		Research Supervision	Neuroradiology Faculty at Mayo Clinic, Phoenix, Arizona
2003 - 2004	Justin Smith, MD, PhD	Neurosurgery Resident		Research Supervision	Neurosurgery Faculty at University of Virginia
2003 - 2005	Lucie Yang, MD, PhD	UCSF Medical Student		Mentor and Research Supervisor	Scientist at Food and Drug Administration

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2003 - 2005	Ashley Aiken, MD	Radiology Resident		Research Supervision	Neuroradiology Faculty at Emory University Medical Center
2003 - 2010	Yan Li, PhD	U.C. San Francisco/U. C. Berkeley Graduate Student		Dissertation Committee Member, Research Advisor	Postdoctoral Fellow at Nelson Lab, UCSF
2006 - 2010	Inas Khayal, PhD	Post-Doctoral Reseacher		Dissertation Committee Member, Research Advisor	Searching for an academic career job
2009 - present	Ramon Barajas, MD	Neuroradiology Fellow		Mentor and Research Advisor	Neuroradiology Fellow
2009 - present	John-Paul (JP) Yu, MD, PhD	Neuroradiology Fellow		Mentor and Research Advisor	Neuroradiology Fellow

FACULTY MENTORING

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2008 - 2010	Alison Meadows, MD, PhD	Radiology and Pediatric Cardiology Faculty (Assistant Professor of Clinical Radiology)		Mentor	Attending Physician at Kaiser, San Francisco
2009 - 2010	Natasha Brasic, MD	Radiology Faculty (Assistant Professor in Residence)		Mentor	Associate Professor
2009 - 2012	Jane Wang, MD	Radiology Faculty (Assistant Professor in Residence)		Mentor	Assistant Professor

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2010 - present	Karen Ordovas, MD	Radiology Faculty (Assistant Professor in Residence)		Mentor	Associate Professor

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

I am committed to a career dedicated to patient-oriented research in the field of brain tumor imaging. I believe non-invasive imaging technology will make important contributions to the health of patients through improving the specificity and precision of diagnosis and treatment monitoring, which will in turn have significant impact on therapeutic decisions. With the explosion of knowledge in molecular and cellular biology and genetics of brain tumors, effective and tailored therapy for patients with malignant glioma is on the horizon. Neuroradiologic imaging techniques are also improving at a rapid pace, and in many instances, serve now as a surrogate biomarker for alterations in molecular and cellular biology. We are in the early stages of the capability of *in vivo* molecular profiling of brain tumors at UCSF, which will permit better classification and statification of tumor biology.

My short-term research goal is to 1) to investigate imaging based classification of primary CNS lymphoma with biologic and clinical relevance and 2) to identify correlative cerebrospinal fluid and tissue markers of clinical prognosis in patients with primary CNS lymphoma.

The main focus of my current research is to identify reliable surrogate markers of prognosis and therapeutic efficacy by quantitative MR imaging methods in patients with brain tumor. Progress in the basic understanding of molecular and genetic aspects of brain tumor is providing new targets for therapies and more rational ways of delivering these novel therapies. Nonetheless, the assessment of therapeutic efficacy remains problematic. My conviction is that by using MR imaging techniques such perfusion MR imaging, diffusion-weighted imaging, and 3-dimensional proton (^{1}H) magnetic resonance spectroscopic imaging, detection of changes in tumor angiogenesis, cellularity, invasion, tumor hypoxia, and metabolic burden can be accurately measured and will provide more specific information about a patient's early response to therapy in the context of tumor growth.

The central hypothesis underlying my career development award proposal (K23 funded by the National Institute of Neurological Disease and Stroke) was that the biologic behavior and early stages of an aggressive growth phase in primary brain tumors are related to angiogenesis and cellular proliferation. The goals of the proposed study were to use MR imaging and proton (^{1}H) MR spectroscopy to characterize tumor malignancy; to correlate MRI-derived relative cerebral blood volume and vascular permeability with histologic vessel density and tumor-related vascular permeability factor expression; and to predict response to treatment following irradiation and chemotherapy in a well-characterized cohort of patients who have a primary glial neoplasm. The results of this study did show that noninvasive MR imaging can provide valuable quantitative information on glioma biology that is predictive of clinical prognosis and biological course of the disease. Based on the preliminary results from this study, I submitted an RO1 application to the NIH that focuses specifically on imaging based classification of glioblastomas that can predict cellular origin, biologic behavior, and clinical prognosis. Currently I am funded by the North American Gamma Knife Consortium grant to study neuroimaging changes in patients with brain metastases treated with radiosurgery or whole-brain radiotherapy. I am also funded by NIH SPORE grant studying low grade gliomas and NIH P01 grant studing high grade gliomas since July 2013.

RESEARCH AWARDS - CURRENT

1. 2P01CA118816-06A1 Co-PI; Project Leader (Imaging CORE)

NIH, NINDS, Percent Effort: 12% 07/01/2013 06/30/2018

Imaging and Tissue Correlates to Optimize Management of Glioblastoma - Integrated imaging and tissue biomarkers in glioblastoma multiforme post therapy; The objective of this study is to determine whether the quantitative characteristics derived from metabolic neuroimaging parameters can be predictive of the biologic behavior of glioblastoma multiforme (GBM) post therapy. This is an important clinical question because although histologic grade at initial diagnosis is an important prognostic factor, there is tremendous heterogeneity in the histopathology of GBM that can be influenced by prior therapy. At re-operation post therapy, pathologic specimens often consist of both "tumor" and "necrosis" (treatment effect). There are currently no well-established biomarkers that are predictive of the behavior of disease post therapy or the subsequent clinical outcome. While standard MR imaging is used for clinical evaluation of GBM, it may both under- and over-estimate tumor burden post therapy. This is especially true following therapies such as radiosurgery, brachytherapy, and interstitially administered agents using convection enhanced delivery (CED) where treatment effects can result in enlarging enhancing masses. To date, biopsy or histologic confirmation of enhancing tissue remains the standard for assessing these masses; however, sampling error, inability to perform repeated samplings, as well as the limited ability of pathology to predicting the behavior of these masses, remain significant challenges.

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2. 2P50CA097257-11A1 Co-Investigator

NIH, NCI, Percent Effort: 4% 07/01/2013 06/30/2018

SPORE: Brain Tumor SPORE Grant - Prognostic value of MRSI parameters for patients with gliomas; The goal of this study is to translate a new metabolic imaging modality into a tool for clinical management of patients with recurrent low-grade glioma. The objective of the study is to determine whether quantitative parameters derived from magnetic resonance spectroscopic imaging (MRSI) data are predictive of response to therapy for patients with low-grade glioma.

3. 1R01CA169316-01A1	Co-Investigator		Costello, Joseph (PI)
NIH, Percent Effort: 3%		07/01/2013	06/30/2018
Imaging Guided Genomics of Malignant Transformation			

4. 2R01CA127612-06	Co-Investigator		
NIH, Percent Effort: 2%		07/01/2013	06/30/2018
MR Metabolic Markers for Evaluation of Patients with Recurrent Glioma			

RESEARCH AWARDS - PAST

1. CC121010/NAGKC 12-01	(Co-Investigator)		
NIH, NINDS, Percent Effort: 12%		11/1/2012	10/31/2014
Multi-Mets Protocols 1 & 2 - North American Gamma Knife Consortium (PI: Barani, I); A randomized controlled study of neurocognitive outcomes in patients with five or more brain metastases treated with radiosurgery or whole-brain radiotherapy.			

2. SPORE	Co-Investigator		Berger, M (PI)
NIH, NCI, Percent Effort: 10%		05/01/2007	04/30/2012
Prognostic value of MRSI parameters for patients with gliomas			

3. PO1	Co-PI; Project Leader (Project 2)		Berger, M (PI)
NIH, NINDS, Percent Effort: 20%		07/01/2007	06/30/2012
Integrated imaging and tissue biomarkers in glioblastoma multiforme post therapy;			

4. RO1 CA127612-01A1	Co-Investigator		Nelson, S (PI)
NIH, NCI, Percent Effort:10%		12/1/2007	06/30/2012

Imaging biomarkers for improved management of patients with newly diagnosed GBM; The objective is to integrate metabolic and physiologic MR imaging data into the clinical management of patients with newly diagnosed GBM who are being treated with a combination of radiation, temozolamide and anti-angiogenic therapy

5. Career Development Award — Principal Investigator
   NIH/NINDS K23 NS45013-02A1 — 08/01/2003 — 04/30/2008
   Brain tumor imaging: Quantitative MRI and 1H MRS;
   Percent Effort:75%

6. Career Development Award Brain Tumor SPORE — Principal Investigator
   NIH/NCI — 05/01/2005 — 04/30/2007
   Validation of neuroimaging biomarkers of gliomas using molecular genetic analysis of image-guided tissue biopsy;
   Percent Effort: 5%

7. Accelerate Brain Cancer Cure — Principal Investigator
   Private Foundation Grant
   Identification of prognostic surrogate markers in malignant gliomas by quantitative magnetic resonance imaging;
   Percent effort: 5%

8. Foundation Scholar GrantAward — Principle Investigator
   American Society of Neuroradiology
   Dynamic Contrast-enhanced T2*-weighted MRI and Histopathological Assessment of Experimental Gliomas;
   Percent Effort: 50%

9. Seed Grant
   Radiological Society of North America
   Dynamic, Contrast-Enhanced T2*-weighted MR Imaging of Intracranial Neoplasm: Differentiation between Radiation Necrosis and Recurrent Tumor
   Percent Effort: 30%

10. UOI CA81449 — Co-Investigator — Prados (PI)

National Cancer Institute, NIH

Pediatric Brain Tumor Clinical Trial Consortium (PBTCTC);

Percent Effort: 2.5% (effort only)

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11. Intramural Grant Principal Investigator

    REAC Grant, UCSF

    Quantitative Assessment of Tumor Angiogenesis by perfusion MR imaging;

    Percent Effort: 2.5% (effort only)

PEER REVIEWED PUBLICATIONS

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11. Wetzel SG, Johnson G, Tan AG, Cha S, Knopp EA, Lee VS, Thomasson D, Rofsky NM. Three-dimensional, T1-weighted gradient-echo imaging of the brain with a volumetric interpolated examination. Amer J Neuroradiol 2002;23:995-1002. PMID: 12202717

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