

BIOGRAPHICAL SKETCH

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NAME Mukherjee, Pratik		POSITION TITLE	
eRA COMMONS USER NAME (credential, e.g., agency login) pratik		Professor of Radiology & Biomedical Imaging, Bioengineering & Therapeutic Sciences	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
Yale University, New Haven, CT	B.A.	06/88	Computer Science & Psychology
Rockefeller University, New York, NY	Ph.D.	05/94	Neuroscience
Cornell University, New York, NY	M.D.	05/95	Medicine
Cornell University, New York, NY	Intern	06/96	Medicine
Washington University, St. Louis, MO	Resident	06/00	Radiology
Washington University, St. Louis, MO	Fellow	06/02	Neuroradiology

A. Personal Statement

My research has centered on technical development and basic and clinical neuroscience applications of advanced imaging methods for mapping structure and function in the human brain: diffusion MRI and tractography, functional MRI (fMRI), and magnetoencephalography (MEG), including the structural connectome and the functional connectome of the human brain. Recent work includes the application of DTI and resting state fMRI and MEG to study cerebral connectivity in traumatic brain injury (TBI), as well as neurodevelopmental disorders such as autism, sensory processing disorders, congenital brain malformations and genetic copy number variation. I serve as a PI and the Imaging Core leader for a multi-center population-based observational study of TBI funded by an NIH U01 grant for the International TBI Research (InTBIR) Initiative. I also serve as a PI and the Clinical Team Leader of an NIH Brain Research through Advancing Innovative Neurotechnologies (BRAIN) multi-center project to produce transformational advances in ultra-high field MR technology to bring noninvasive human cortical imaging to the micro-scale. Additionally, I am PI of a longitudinal study of acute mild TBI, funded by the GE-NFL Head Health Initiative, and an interventional study of pediatric concussions using attention-based cognitive training, funded by a private foundation.

B. Positions and Honors**Positions and Employment**

2002 - 2008	Assistant Professor of Radiology and Bioengineering, Univ. of California, San Francisco
2008 - 2013	Associate Professor of Radiology and Bioengineering, Univ. of California, San Francisco
2013 - present	Professor of Radiology and Bioengineering, Univ. of California, San Francisco
2013 - present	Director, Center for Imaging of Neurodegenerative Diseases, San Francisco VAMC

Other Experience and Professional Memberships

2003 - present	Associate Member, UC Berkeley/UCSF Graduate Group in Bioengineering
2009 - present	Member, California Institute for Quantitative Biosciences (QB3)
2009 - present	Member, NINDS Common Data Elements in Traumatic Brain Injury Committee
2010 - 2013	Ad Hoc Reviewer, NIH Study Section NST-1
2011 - 2013	Ad Hoc Reviewer, NIH Study Section ANIE
2014 - present	Charter Member, NIH Study Section ANIE (for review of grants in TBI, stroke, epilepsy)

Honors

1988 - 1995	Medical Scientist Training Program (MSTP) Grant, National Institutes of Health
1994	S. Koide Memorial Fellowship, Rockefeller University
1999	Roentgen Resident/Fellow Research Award, Radiological Society of North America

2001	Berlex/ASNR Award in Basic Science Research, American Society of Neuroradiology
2004	Scholar Award in Neuroradiology, Neuroradiology Education & Research Foundation
2005	Berlex Best Paper Award in General Neuroradiology, 40th Annual Meeting of the American Society of Neuroradiology, Toronto, Canada
2006	Outstanding Presentation Award in Functional Neuroradiology, 41st Annual Meeting of the American Society of Neuroradiology, San Diego, CA
2008	Annual Derek Harwood-Nash Lecture, Hospital for Sick Children, Toronto, Canada
2009	Magnetic Resonance Thought Leader Award, GE Healthcare, 17th Annual Scientific Meeting of the International Society of Magnetic Resonance in Medicine, Honolulu, HI
2012	Editorial Board, Current Radiology Reports
2013	Editorial Board, Brain Connectivity
2014	Annual Morrison Lecture, Beth Israel Deaconess Medical Center, Harvard Medical School

C. Selected Peer-reviewed Publications (from over 80 peer-reviewed papers)

Most relevant to the current application

1. **Mukherjee P**, Miller JH, Shimony JS, Conturo TE, Lee BC, Almlie CR & McKinstry RC 2001 Normal brain maturation during childhood: developmental trends characterized with **diffusion**-tensor MR imaging. Radiology, 221(2):349-58.
2. **Mukherjee P**, Miller JH, Shimony JS, Philip JV, Nehra D, Snyder AZ, Conturo TE, Neil JJ & McKinstry RC 2002 Diffusion-tensor MR imaging of gray and white matter development during normal human brain maturation. AJNR Am J Neuroradiol, 23(9):1445-56.
3. Niogi SN**, **Mukherjee P****, Ghajar J, Johnson C, Kolster R, Lee H, Suh M, Zimmerman RD, Manley GT & McCandliss BD 2008 Structural dissociation of attentional control and memory in adults with and without mild traumatic brain injury. Brain, 131:3209-21. **co-first authors
4. Niogi SN**, **Mukherjee P****, Ghajar J, Johnson C, Kolster RA, Sarkar R, Lee H, Meeker M, Zimmerman RD, Manley GT & McCandliss BD 2008 Extent of microstructural white matter injury in postconcussive syndrome correlates with impaired cognitive reaction time: a 3T diffusion tensor imaging study of mild traumatic brain injury. AJNR Am J Neuroradiol, 29:967-73. **co-first authors
5. Owen JP, Li YO, Ziv E, Strominger Z, Gold J, Bukhpun P, Wakahiro M, Friedman EJ, Sherr EH & **Mukherjee P** 2013 The structural connectome of the human brain in agenesis of the corpus callosum. Neuroimage, 70:340-355. PMID: PMC4127170
6. Owen JP, Li YO, Yang FP, Shetty C, Bukshpun P, Vora S, Wakahiro M, Hinkley LB, Nagarajan S, Sherr EH & **Mukherjee P** 2013 Resting-state networks and the functional connectome of the human brain in agenesis of the corpus callosum. Brain Connect, 3(6):547-62. PMID: PMC3868398
7. Owen JP, Marco EJ, Desai S, Fourie, E, Harris J, Hill S, Arnett AB & **Mukherjee P** 2013 Abnormal white matter microstructure in children with sensory processing disorders. Neuroimage: Clinical, 2:844-853. PMID: PMC3778265
8. Owen JP, Chang YS, Pojman N, Bukshpun P, Pojman N, Wakahiro M, Berman JI, Spiro JE, Chung WK, Buckner RL, Roberts TPL, Nagarajan SS, Sherr EH, **Mukherjee P** & Simons VIP Consortium 2014 Aberrant white matter microstructure in children with 16p11.2 deletions. J Neurosci, 34(18):6214-23.
9. Chang YS, Owen JP, Desai SS, Hill SS, Arnett AB, Harris J, Marco EJ & **Mukherjee P** 2014 Autism and sensory processing disorders: shared white matter disruption in sensory pathways but divergent connectivity in social-emotional pathways. PLoS ONE, 9(7):e103038. PMID: PMC4116166

Additional recent publications of importance to the field

1. Wahl M, Li YO, Ng J, LaHue SC, Cooper SR, Sherr EH & **Mukherjee P** 2010 Microstructural correlations of white matter tracts in the human brain. Neuroimage, 51:531-41. PMID: PMC2856800
2. Li YO, Yang FG, Nguyen CT, Cooper SR, LaHue SC, Venugopal S & **Mukherjee P** 2012 Independent component analysis of DTI reveals multivariate microstructural correlations of white matter in the human brain. Hum Brain Mapp, 33(6):1431-51. PMID: PMC21567660
3. Owen JP, Ziv E, Bukhpun P, Pojman N, Wakahiro M, Berman JI, Roberts TPL, Friedman EJ, Sherr EH & **Mukherjee P** 2013 Test-retest reliability of computational network measures derived from the structural connectome of the human brain. Brain Connect, 3(2):160-76. PMID: PMC3634151

4. Tarapore PE, Findlay A, LaHue SC, Lee HA, Cooper SC, Honma SM, Mizuiri D, Luks TL, Manley GT, Nagarajan SS & **Mukherjee P** 2013 Resting state MEG functional connectivity in traumatic brain injury. J Neurosurg, 118:1306-16. PMID: PMC4071964
5. Friedman EJ, Landsberg AS, Owen JP, Li YO & **Mukherjee P** 2014 Stochastic geometric network models for groups of functional and structural connectomes. Neuroimage, 101:473-84. PMID: PMC4165788

D. Research Support

Ongoing Research Support

U01 NS086090-01 Mukherjee (PI)

09/30/13-08/31/18

NIH/NINDS/NIBIB/NIDCD

Transforming Research and Clinical Knowledge in Traumatic Brain Injury

The goal is to create a large, high quality TBI database that integrates clinical, imaging, proteomic, genomic, and outcome biomarkers, and provides analytic tools and resources to establish more precise methods for TBI diagnosis and prognosis, improve outcome assessment, and compare the effectiveness and costs of tests, treatments, and services.

Role: PI (MPI Grant)

R24 MH106096 Mukherjee (PI)

09/01/14-08/31/17

NIH/NIMH/NINDS BRAIN Initiative

MRI Corticography: Micro-scale Human Cortical Imaging

This is a project to produce order of magnitude improvements in the spatial resolution of MRI for noninvasive imaging of the cerebral cortex in vivo that promises to transform human neuroscience and accelerate the next generation of diagnostic neuroimaging.

Role: PI (MPI Grant)

R01 NS060776 Mukherjee (PI)

07/01/09-06/30/15 (NCE)

NIH/NINDS

Macrostructural and Microstructural Imaging Biomarkers of Traumatic Brain Injury

The objective of this research proposal is to establish quantitative macrostructural and microstructural imaging biomarkers for predicting patient outcome after TBI.

Role: PI

114-2014-GES-0001 Mukherjee (PI)

08/01/14-07/31/15

GE-NFL Head Health Initiative

Advanced MRI Applications for Mild Traumatic Brain Injury – UCSF

This is a prospective longitudinal study of concussions (mild traumatic brain injury) using advanced MR imaging biomarkers with correlation to neurological evaluation and functional outcome.

Role: PI

Donor Gift Mukherjee (PI)

01/01/13-12/31/14

Dennis J. & Shannon Wong Foundation

A Prospective Longitudinal Study of Pediatric Concussions

This investigation will define the natural history of alterations in the structural and functional connectivity of the pediatric brain following concussion, including how cognitive performance changes over time after the injury as well as the effect of an attention-based cognitive training intervention on improving cognition as well as on MRI and MEG imaging biomarkers of structural and functional connectivity.

Role: PI

OSR P0052593 Mukherjee (PI)

01/01/13-12/31/14

Wallace Research Foundation

White Matter Microstructure and Connectivity in Sensory Processing Disorders

This is a study of the role of white matter microstructure and connectivity using advanced MRI techniques in children with sensory processing disorders (SPD) to better understand the cause of SPD and also point the way toward better diagnosis of the disease and improved prediction of the response to treatment.

Role: PI