

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2. Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Bradford C. Dickerson, M.D., M.MSc.		POSITION TITLE Associate Professor of Neurology, Harvard Medical School	
eRA COMMONS USER NAME (credential, e.g., agency login) BCDICKERSON			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Southern Methodist University, Dallas, TX	B.S.	1990	Biomedical Engineering
Univ. of Illinois at Chicago College Of Medicine	M.D.	1994-1999	Medicine
Brigham & Women’s Hospital, Boston, MA		1999-2000	Internship, Medicine
Massachusetts General & Brigham Hospitals		2000-2003	Residency, Neurology
Harvard-Martinos Center for Biomedical Imaging, MGH		2003-2005	Fellowship, Neuroimaging
Harvard-Brigham Behavioral Neurology Unit		2003-2005	Fellowship, Cognitive and Behavioral Neurology
Harvard Medical School/MIT, Boston, MA	M.MSc.	2003-2005	Clinical Investigation

A. Personal Statement

I have the expertise, leadership, and commitment necessary to successfully carry out the proposed work. I have a broad background in behavioral neurology, neuroimaging, and cognitive neuroscience, with specific training and expertise in key research areas for this application. I have been performing neuroimaging research for more than 15 years. As a medical student, I performed research as part of a mentored research program to develop methods for the quantitative measurement of brain regions related to memory in patients with Alzheimer’s disease (AD). During neurology residency and as a postdoctoral fellow in neuroimaging, I continued this work and expanded to the use of functional MRI, which I further developed as part of a K23 career development award. Advanced training in behavioral neurology and cognitive neuroscience provided skills in cognitive assessment and further depth in experimental psychology. As PI or co-Investigator on several previous foundation-, industry- and NIH-funded grants, I laid the groundwork for the proposed research by developing an approach to the use of novel imaging and behavioral measures as markers for use as diagnostics and in clinical trials. In addition, I successfully administered the projects (e.g. staffing, research protections, budget), collaborated with other researchers, and produced several peer-reviewed publications from each project. Finally, as Director of the MGH FTD Unit and Co-Director of the Imaging Subcore of the ADRC, I am well-positioned to recruit and assess patients and to make use of imaging resources. As a result of these previous experiences, I am aware of the importance of frequent communication among project members and of constructing a realistic research plan, timeline, and budget. The current application builds logically on my prior work. In summary, I have a demonstrated record of successful and productive research projects and my expertise and experience have prepared me to participate in the proposed project.

B. Positions and Honors

Positions and Employment:

- 1990-93 Information Prog Specialist, Med/Sci Affairs Div, Alzheimer’s Assn, Chicago, IL
- 1993-94 Manager, Information Program, MSA Division, Alzheimer’s Association, Chicago, IL
- 1995 Walter Rice Craig Research Fellow, Beckman Institute Neural Systems Group, Univ. of Illinois at Urbana-Champaign, Urbana, IL (Bill Greenough)
- 1996-97 Research Fellow, Rush-Presbyterian-St. Luke’s Medical Center, Chicago, IL (Frank Morrell & Leyla deToledo-Morrell)
- 2002-2003 Chief Resident, Departments of Neurology, MGH and BWH, Boston, MA
- 2003- Assistant in Neurology, Massachusetts General Hospital, Boston, MA
- 2003-2006 Instructor in Neurology, Harvard Medical School, Boston, MA
- 2005- Co-Director, Neuroimaging Group, MGH Gerontology Research Unit, Charlestown, MA

2005- Director of Clinical Applications, MGH Morphometry Analysis Center, Charlestown, MA
 2006-2008 Assistant Professor of Neurology, Harvard Medical School, Boston, MA
 2007- Co-Director, Imaging Subcore, MGH Alzheimer's Disease Research Center
 2008- Director, MGH Frontotemporal Dementia Unit
 2008- Associate Professor of Neurology, Harvard Medical School

Honors and Awards:

1995 Walter Rice Craig Summer Research Fellowship, Univ. of Illinois at Urbana-Champaign
 1995-99 James Scholar, UIC College of Medicine
 1996 Honorable Mention, UIC College of Medicine Student Research Symposium
 1997 Second place, Sigma Xi Session of Rush University Research Forum
 1998 Alpha Omega Alpha
 1999 David M. Olkon Honors Scholarship, UIC College of Medicine
 2001 Outstanding Resident Teacher in Neurology, Harvard Medical School
 2002 Partners in Excellence Award (Neurology Chief Residents), Partners Healthcare System
 2005 Mentor of the Year Award, Partners Neurology Residents

Professional Societies and Committees:

1990- American Medical Writers Association
 1995- Society for Neuroscience
 1996-1999 James Scholar Program Advisory Committee
 2001-2005 BWH Department of Internal Medicine Resident Selection Committee
 2001- American Academy of Neurology
 2002- Organization for Human Brain Mapping
 2004- Greater Boston Alzheimer's Association Medical & Scientific Advisory Board
 2004-2006 Ad-Hoc Member, Grant review committee, Fidelity Research Foundation
 2005- Ad-Hoc Member, Grant review committee, Alzheimer's Association
 2004- Member, Society for Behavioral and Cognitive Neurology
 2006 Chair (invited session), Winter Conference on Neural Plasticity
 2005 Ad-Hoc Member, Grant review committee, National Science Foundation
 2005- Founding Chair, Charles River Association for Memory
 2007- Member, Editorial Board, *Frontiers in Neuroscience*
 2007- Member, Editorial Board, *The Open Neurology Journal*
 2008- Ad-Hoc Member, NAME Study Section, NIH
 2008- Member, Editorial Board, *Hippocampus*
 2009- Member, NIH Challenge Grant Review Panel #10 ZRG1 BDA-A
 2009- Faculty Member, Harvard FAS Mind/Brain/Behavior committee

C. Selected Peer-Reviewed Publications (Selected from 35 peer-reviewed publications):

Most relevant to the current application

1. **Dickerson BC**, Goncharova I, Sullivan MP, Forchetti C, Wilson RS, Bennett DA, Beckett LA, deToledo-Morrell L. MRI-derived entorhinal and hippocampal atrophy in incipient and very mild Alzheimer's disease. *Neurobiol. Aging* 2001;22(5):747-54.
2. **Dickerson BC**, Salat DH, Bates JF, Atiya M, Killiany RJ, Greve DN, Dale AM, Stern CE, Blacker D, Albert MS, Sperling RA. MRI measures of medial temporal lobe function and structure in mild cognitive impairment. *Ann Neurol* 2004;56:27-35.
3. **Dickerson BC**, Salat DH, Greve DN, Chua EF, Rand-Giovanetti E, Rentz DM, Bertram L, Mullin K, Tanzi RE, Blacker D, Albert MS, Sperling RA. Increased hippocampal activation in mild cognitive impairment compared to normal aging and AD. *Neurology*, 2005 65:404-411.
4. **Dickerson BC**, Miller SL, Greve DN, Dale AM, Albert MS, Schacter DL, Sperling RA. Prefrontal-hippocampal-fusiform activity during encoding predict intra-individual differences in free recall ability: An event-related functional-anatomic MRI study. *Hippocampus* 2007; 17(11):1060-1070.
5. **Dickerson BC**, Sperling RA, Hyman BT, Albert MS, Blacker D. Clinical prediction of AD dementia across the spectrum of mild cognitive impairment. *Archives of General Psychiatry* 2007;64(12):1443-1450.

6. Miller SL, Fenstermacher E, Bates J, Sperling RA, **Dickerson BC**. Hippocampal activation in adults with mild cognitive impairment predicts subsequent cognitive decline. *Journal of Neurology, Neurosurgery, and Psychiatry*. 2008 Jun;79(6):630-5. Epub 2007 Sep 10.
7. **Dickerson BC**, Bakkour A, Salat DH, Feczko E, Pacheco J, Greve DN, Grodstein F, Wright CI, Blacker D, Rosas HD, Sperling RA, Atri A, Growdon JH, Hyman BT, Morris JC, Fischl B, Buckner RL. The cortical signature of Alzheimer's disease: Regionally-specific cortical thinning relates to symptom severity in very mild to mild AD dementia and is detectable in asymptomatic amyloid-positive individuals. *Cerebral Cortex*, 2009 Mar;19(3):497-510.
8. Bakkour A, Morris JC, **Dickerson BC**, The cortical signature of prodromal AD: Regional thinning predicts mild AD dementia. *Neurology* 2009 Mar 24;72(12):1048-55.
9. Wang L, Negreira A, LaViolette P, Bakkour A, Sperling RA, **Dickerson BC**. Intrinsic interhemispheric hippocampal functional connectivity predicts individual differences in memory performance ability. *Hippocampus*, in press.

Additional recent publications of importance to the field (in chronological order)

1. Desikan RS, Segonne F, Fischl B, Quinn B, **Dickerson BC**, Blacker D, Buckner RL, Dale A, Hyman BT, Albert MS, Killiany RJ. A computer generated labeling system for subdividing the human cerebral cortex on MRI scans into gyral based regions of interest. *Neuroimage* 2006;31(3):968-980.
2. Celone KA, Calhoun VD, **Dickerson BC**, Atri A, Chua EF, Miller SL, DePeau K, Rentz DM, Selkoe DJ, Blacker D, Albert MS, Sperling RA. Alterations in memory networks in mild cognitive impairment and Alzheimer's disease: an independent component analysis. *J Neurosci* 2006; 26(40): 10222-10231.
3. Wright CI, Feczko E, **Dickerson BC**, Williams D. Neuroanatomical correlates of personality in the elderly. *Cerebral Cortex* 2007 07 Mar;35(1):263-72.
4. Diamond EL, Miller S, **Dickerson BC**, Atri A, DePeau K, Fenstermacher E, Pihlajamäki M, Celone K, Salisbury S, Gregas M, Rentz D, Sperling RA. Relationship of functional MRI activation to clinical trial memory measures in Alzheimer's disease. *Neurology* 2007 Sep 25;69(13):1331-41.
5. Miller SL, Celone K, DePeau K, Diamond E, **Dickerson BC**, Rentz D, Pihlajamäki M, Sperling RA. Age-related memory impairment associated with loss of parietal deactivation but preserved hippocampal activation. *Proc Natl Acad Sci U S A*. 2008 Feb 12;105(6):2181-6. Epub 2008 Jan 31.
6. Van Leemput K, Bakkour A, Benner T, Wiggins G, Wald LL, Augustinack J, **Dickerson BC***, Golland P*, Fischl B* [*Authors contributed equally]. Automated segmentation of hippocampal subfields from ultra-high resolution in vivo MRI. *Hippocampus* 2009 Jun;19(6):549-57.

D. Research Support

Ongoing

R01-AG027435 (Sperling, PI) Role: Co-Investigator 3/1/2006 - 2/28/2011
NIA/NIH

Evolution of memory-related fMRI activation over the course of MCI and AD
This study seeks to determine the validity and reliability of fMRI (routine lower resolution) as an imaging biomarker of MCI and AD.

R01 AG029411 (Dickerson, PI) 9/15/2007 – 9/14/2012
NIH/NIA

Medial temporal lobe subregions in aging, MCI and AD:Structural and functional MRI
This study seeks to use high-resolution MRI methods to identify structural and functional abnormalities of medial temporal lobe subregions that can be used to better differentiate AD from normal aging.

R21 AG029840 (Dickerson, PI) 2/15/2008 - 2/14/2010
NIA/NIH

Ultrahigh-resolution MRI of medial temporal lobe anatomy in aging
The goal of this study is to optimize 7T and 3T in vivo and ex vivo methods for ultrahigh-resolution study of medial temporal lobe anatomy in normal aging.

R01 NS062028 (Smith, PI) Role: Co-Investigator 08/01/08 – 02/28/13
NIH/NINDS

Small vessel disease and beta-amyloid deposition in mildly impaired cognition

The goal of this study is to investigate the independent contributions of white matter abnormalities and beta amyloid to cognitive dysfunction in MCI.

P50 AG005134 (Hyman, PI) Role: Co-Investigator, Imaging Subcore 4/1/2009 – 3/31/2014
NIA/NIH
Alzheimer's Disease Research Center

IIRG-09-133560 (Dickerson, PI) 7/1/2009 – 6/30/2012
Alzheimer's Association
Quantitative neuroanatomic biomarkers for dementia differential diagnosis
The goal of this study is to further develop and apply quantitative MRI measures and assess diagnostic sensitivity and specificity in AD, FTD, and DLB.

Completed

K23 AG22509 (Dickerson, PI) 9/30/2003 - 8/31/2008
NIH/NIA
Structural-functional MRI Studies of Memory in MCI & AD

Corporate Sponsored (Dickerson, PI) 9/20/2005 - 9/30/2008
Pfizer, Inc.
Longitudinal MRI morphometric methods analysis

Pending

None