BIOGRAPHICAL SKETCH

Provide the following information for the Senior/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	POSITION TITL	POSITION TITLE		
Adam W. Anderson	Associate F	Associate Professor		
eRA COMMONS USER NAME				
adamwanderson				
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)				
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY	
Williams College, Williamstown, MA	B.A.	1982	Philosophy, Physics	
Yale University, New Haven, CT	M.S.	1984	Physics	
Yale University, New Haven, CT	M.Phil.	1986	Physics	
Yale University, New Haven, CT	Ph.D.	1990	Physics	
Yale University School of Medicine	Post-doc	1989-91	Medical Imaging	

A. Positions and Honors

1991-1994 Associate Research Scientist, Yale School of Medicine, Dept. of Diagnostic Radiology
1994-2000 Assistant Professor, Yale School of Medicine, Dept. of Diagnostic Radiology
1997-2000 Assistant Professor, Applied Physics, Yale University
2000-2002 Associate Professor, Yale University, Depts. of Diagnostic Radiology and Applied Physics
2002-present Associate Professor, Vanderbilt University, Depts. of Biomedical Engineering and Radiology and Radiology

B. Selected Peer-reviewed Publications (selected from over 50)

- R.T. Constable, A.W. Anderson, J. Zhong and J.C. Gore. "Factors Influencing Contrast in Fast Spin Echo MR Imaging" Magn. Reson. Imag. 10, 497-511 (1992).
- B.S. Peterson, B. Vohr, L.H. Staib, C.J. Cannistraci, A. Dolberg, K.C. Schneider, K.H. Katz, M. Westerveld, S. Sparrow, A.W. Anderson, C.C. Duncan, R.W. Makuch, J.C. Gore, and L.R. Ment. "Regional brain volume abnormalities and long-term cognitive outcome in preterm infants" Journal of the American Medical Association 284, 1939-1947 (2000).
- A.W. Anderson. "A theoretical analysis of the effects of noise on diffusion tensor imaging" Mag. Res. Med. 46:1174-1188 (2001).
- A.W. Anderson, R. Marois, E.R. Colson, B.S. Peterson, C.C. Duncan, R.A. Ehrenkranz, K.C. Schneider, J.C. Gore, and L.R. Ment. "Neonatal auditory activation detected by functional magnetic resonance imaging" Magnetic Resonance Imaging <u>19</u>, 1-5, 2001.
- B.S. Peterson, A.W. Anderson, R. Ehrenkranz, L.H. Staib, M. Tageldin,, E. Colson, J.C. Gore, C.C. Duncan, R. Makuch, and L.R. Ment. "Regional brain volumes and their later neurodevelopmental correlates in term and preterrm infants." Pediatrics 111: 939-948 (2003).
- Z. Ding, J.C. Gore, A.W. Anderson. "Classification and quantification of neuronal fiber pathways using diffusion tensor magnetic resonance imaging." Magn. Reson. Med. 49: 716-721 (2003).
- Z. Ding, J.C. Gore, A.W. Anderson. "Reduction of noise in diffusion tensor images using anisotropic smoothing." Magn Reson Med, 53(2), 485-90 (2005).
- A.W. Anderson. "Measurement of fiber orientation distributions using high angular resolution diffusion imaging." Magn Reson Med 54: 1194-1206 (2005).
- Y. Lu, A. Aldroubi, J.C. Gore, A.W. Anderson, Z. Ding. "Improved fiber tractography with Bayesian tensor regularization." Neuroimage 31: 1061-1074 (2006).
- A.W. Anderson, R.A. Heptulla, N. Driesen, D. Flanagan, P.A. Goldberg, T.W. Jones, F. Rife, H. Sarofin, W. Tamborlane, R. Sherwin, J.C. Gore. "Effects of hypoglycemia on human brain activation measured with fMRI." Magn Reson Imaging 24: 693-697 (2006).
- H.K. Jeong, A.W. Anderson. "Characterizing fiber directional uncertainty in diffusion tensor MRI." Magn Reson Med 60: 1408-1421 (2008). PMID: 19025907.

X Hong, LR Arlinghaus, A Anderson. "Spatial Normalization of the Fiber Orientation Distribution Based on High Angular Resolution Diffusion Imaging Data." Magn Reson Med 61: 1520-1527 (2009). PMID: 19353649.

- X Wu, Q Xu, L Xu, J Zhou, AW Anderson, Z Ding. "Genetic white matter fiber tractography with global optimization." J Neurosci Methods 184(2): 375-379 (2009). PMID: 19666052.
- N Davis, CJ Cannistraci, BP Rogers, JC Gatenby, LS Fuchs, AW Anderson, JC Gore. "Aberrant functional activation in school age children at-risk for mathematical disability: a functional imaging study of simple arithmetic skill" Neuropsychologia 47: 2470-2479 (2009). PMID: 19410589.
- N Davis, CJ Cannistraci, BP Rogers, JC Gatenby, LS Fuchs, AW Anderson, JC Gore. "The neural correlates of calculation ability in children: an fMRI study" Magn Reson Imaging 27: 1187-1197 (2009). PMID: 19570639.

C. Research Support **Ongoing Research Support**

R01 NS58639 Anderson, AW (PI) NIH/NINDS

The Biological Basis of Diffusion MRI of the Brain

The aim of this project is to investigate the correspondence between diffusion MRI and tissue microstructure by making direct comparisons of MRI and light microscopy of brain tissue sections. Role: PI

R01 EB000461 Gore, JC (PI) NIH/NIBIB

Integrated Imaging of Brain Function at 7 Tesla

The aim of this project is to develop improved methods for brain imaging using very high strength magnetic resonance imaging.

Role: Project leader and steering committee member

P30 HD15052-29 Dykens, E (PI) NIH/NICHD

Eunice Kennedy Shriver Intellectual and Developmental Disability Research Center This grant provides core support for the Eunice Kennedy Shriver Intellectual and Developmental Disability Research Center at Vanderbilt University.

Role: Director of Core D, Clinical Neurosciences Services.

R01 MH073028 Park, S (PI) NIH/NIMH

Etiology of Working Memory Deficit in Schizophrenia The aims of this project are to identify the factors that are central to working memory deficits in schizophrenia, their neural correlates and effects of working memory deficits on social function. Role: Co-investigator.

Aschner, JL (PI) 07/01/2006-07/30/2010 (no cost ext) The Gerber Foundation Neurodevelopment and Manganese in Parenterally-fed infants and Young Children This project aims to assess brain manganese deposition and its neurodevelopmental effects in infants and young children receiving Mn supplementation in parenteral nutrition. Role: Co-investigator.

Completed Research Support

R01 EB002777 Anderson, AW (PI) NIH/NIBIB Improved Imaging of Brain White Matter

07/27/2009-06/30/2014

12/01/2007-11/30/2011

02/01/2008-01/31/2013

08/17/2006-07/31/2011

10/01/2003-07/31/2009

This project aims to develop and evaluate new diffusion MRI techniques for analysis of white matter fibers in the brain. Role: PI

Independent Investigator Award Anderson, AW (PI) 09/15/2004-03/14/2007 The National Alliance for Research on Schizophrenia and Depression White Matter Structural Abnormalities in Schizophrenia This project aims to improve the characterization of white matter abnormalities in schizophrenia using functional and diffusion MRI techniques. Role: PI

P01 HD046261 Gore, JC (PI) 10/01/2003-09/30/2008 NIH/NICHD & DoED Imaging the cerebral networks in mathematical processing This is an imaging study of mathematical processing and response to intervention in school children with learning disabilities. Role: Co-investigator

R21 ES013730 Aschner, JL (PI) NIH/NIEHS Brain Mn deposition in high risk neonates 06/08/2006-05/31/2008

The aim of this study is to use MRI to identify neonatal populations that are at increased risk of excessive brain manganese (Mn) deposition as a result of Mn supplementation in total parenteral nutrition. Role: Co-investigator.