

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Scott K. Holland, Ph.D.		Professor of Radiology, Pediatrics, Physics and Biomedical Engineering	
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
Muhlenberg College	BS	1980	Physics
Yale University, New Haven, CT	MS	1982	Eng & Applied Sci
Yale University, New Haven, CT	MPhil	1983	Eng & Applied Sci
Yale University, New Haven, CT	PhD	1985	Eng & Applied Sci

A. Positions and Honors**Positions in chronological order**

- 1985-1986 Research Engineer, Electromagnetic Sciences Laboratory, SRI International, Menlo Park, CA. (Signal Processing)
- 1986-1988 Post Doctoral Research Fellow, Dept. of Diagnostic Radiology, Yale University School of Medicine (NMR Imaging).
- 1988-1994 Assistant Professor of Diagnostic Radiology & Mechanical Engineering Yale University School of Medicine (MRI/Ultrasound).
- 1990-1994 Director: Yale University Center for Ultrasonics and Sonics
- 1994-2001 Associate Professor of Radiology (joint appointment in Pediatrics) University of Cincinnati, College of Medicine
- 1994-2002. Scientific Director, Imaging Research Center, Cincinnati Children's Research Foundation
- 1998-2002. Associate Professor of Physics (adjunct), University of Cincinnati
- 1999-2002 Associate Professor of Neuroscience, University of Cincinnati
- 2001-2002. Associate Professor of Biomedical Engineering (affiliated) University of Cincinnati
- 2002-Pres Professor of Radiology (joint appointment in Pediatrics, Physics, Neuroscience & BME) University of Cincinnati, College of Medicine

NIH Study Sections

- 1999- Pres. *Ad Hoc Member:* Diagnostic Imaging (DMG)
- 2000- Pres. National Cancer Institute(ZCA1-GRB-A)_
- 2001- Pres. NCRR & NICHD Various Special Emphasis Panels
- 2000- 2002 *Regular Member:* Behavioral and Biobehavioral Processes (BBBP3)

Editorial Reviewer: J. Magn. Reson. Imag., Am. J. Neuroradiology, IEEE Trans. Biomed. Eng., Medical Physics (guest ed.), New England J. Med., Science, Child Neuropsych.

Scientific Awards

- 1990 - Society of Magnetic Resonance Imaging - Cum Laude Award for Spectroscopy
- 1991 - American Association of Physicists in Medicine/IPSM Medical Physics Travel Award
- 1991 - Moore Fund Award - Yale College Curriculum Development Award
- 1998 - Derek Harwood Nash Award for best scientific paper - Am. Soc. of Neuroradiology
- *1999 - John A. Kirkpatrick Young Investigator Award for Paper at Society for Pediatric Radiology
Awarded to Raymond Sze, M.D., Clinical Fellow under mentorship

B. Publications related to current proposal (selected from 65)

1. Holland, S.K., Plante, E. and Byars, A.M., "Changing Representation of Language Processes in the Brain with Age". Society for Research in Child Development, Tampa, FL, 2003.
2. Holland, S.K. and Voss, S.D., "Developing a Basic Research Program in Pediatric Radiology". Soc. Pediatric Radiology, San Francisco, CA, 46:2003.
1. Holland, S.K. "Language Development: Behavioral and Imaging Studies", NIH Conference on Pediatric Functional Imaging : Cognitive Domains and Paradigms with High Clinical Relevance, , Washington, DC, May 24-26, 2004.
2. Strakowski, S.M., Adler, C.M., Holland, S.K., Mills, N. and DelBello, M.P., "A Preliminary Fmri Study of Sustained Attention in Euthymic, Unmedicated Bipolar Disorder". *NeuroPsychoPharmacology*, 29:1-10, 2004.
3. Schmithorst, V.J. and Holland, S.K., "Comparison of Three Methods for Generating Group Statistical Inferences from Independent Component Analysis of Functional Magnetic Resonance Imaging Data". *J Magn Reson Imaging*, 19:365-8, 2004.
4. Schmithorst, V.J. and Holland, S.K., "Event-Related fMRI Technique for Auditory Processing with Hemodynamics Unrelated to Acoustic Gradient Noise". *Magn Reson Med*, 51:399-402, 2004.
5. Schmithorst, V.J. and Holland, S.K., "The Effect of Musical Training on the Neural Correlates of Math Processing: A Functional Magnetic Resonance Imaging Study in Humans". *Neurosci Lett*, 354:193-6, 2004.
6. Szaflarski, J.P., Holland, S.K., Schmithorst, V.J. and Dunn, R.S., "High-Resolution fMRI at 3t in Healthy and Epilepsy Subjects: Hippocampal Activation with Picture Encoding Task". *Epilepsy and Behavior*, 5:244-52, 2004.
7. Bickle, J., Avison, C.M., Schmithorst, V.J., Landreth, A. and Holland, S.K., "Bridging the Cognitive-Cellular Neuroscience Gap Empirically: A Study Combining Physiology, Modelling and fMRI." *Journal of Experimental and Theoretical Artificial Intelligence*, 15:2003.
8. *Wilke, M. and Holland, S.K., "Variability of Gray and White Matter During Normal Development: A Voxel-Based MRI Analysis". *Neuroreport*, 14:1887-90, 2003.
9. *Wilke, M., Holland, S.K. and Ball, W.S., Jr., "Language Processing During Natural Sleep in a 6-Year-Old Boy, as Assessed with Functional Mr Imaging". *AJNR Am J Neuroradiol*, 24:42-4, 2003.
10. *Wilke, M., Holland, S.K., Myseros, J.S., Schmithorst, V.J. and Ball, J., W.S., "Functional Magnetic Resonance Imaging in Pediatrics". *NeuroPediatrics*, 24:42-4, 2003.
11. *Wilke, M., Schmithorst, V.J. and Holland, S.K., "Normative Pediatric Brain Data for Spatial Normalization and Segmentation Differs from Standard Adult Data". *Magn Reson Med*, 50:749-57, 2003.
12. *Wilke, M., Sohn, J.H., Byars, A.W. and Holland, S.K., "Bright Spots: Correlations of Gray Matter Volume with IQ in a Normal Pediatric Population". *Neuroimage*, 20:202-15, 2003.
40. Byars, A.W., Holland, S.K., Strawsburg, R.H., Bommer, W., Dunn, R.S., Schmithorst, V.J. and Plante, E., "Practical Aspects of Conducting Large-Scale Functional Magnetic Resonance Imaging Studies in Children". *J Child Neurol*, 17:885-90, 2002.
13. *Wilke, M., Schmithorst, V.J. and Holland, S.K., "Assessment of Spatial Normalization of Whole-Brain Magnetic Resonance Images in Children". *Hum Brain Mapp*, 17:48-60, 2002.
14. Holland, S.K., Plante, E., Weber, A.M., Strawsburg, R.H., Schmithorst, V.J. and Ball, W.S., Jr., "Normal Brain Activation Patterns in Children Performing a Verb Generation Task". *Neuroimage*, 14:837-43, 2001.
15. *Schmithorst, V., Dardzinski, B.J. and Holland, S.K., "Simultaneous Correction of Ghost and Geometrical Distortion Artifacts in Using a Multiecho Echo Reference Scan". *IEEE Trans on Medical Imag*, 20:535-9, 2001.
3. Holland, S.K., Strawsburg, R.H. and Weber, A.M., "Functional Magnetic Resonance Imaging of Children with Epilepsy". American Epilepsy Pediatric Symposium: Brain Imaging Techniques in Children with Epilepsy, Orlando, 1999.
4. Holland, S.K., "Functional MR Imaging in the Evaluation of Language Disorders in Childhood". *ASNR*, Atlanta, 38:213, 2000.
5. Holland, S.K., Plante, E. and Byars, A.M., "Application of Neuroimaging in Language Research". IX Intl. Cong. For the Study of Child Language and the 22nd Annual Symp. on Res. Child Language Disorders, Madison, WI, 2002.

C. Research Support

- R01 HD38578 (Holland, S) 02/01/00 – 01/30/05
NIH/NIDCD
“fMRI of Normal Language Development in Children”
GOAL: Functional MRI of normal cortical activation patterns associated with language functions throughout development in children ages 5-18.
- R01 DC05311 (Holland, S.) 07/01/01 – 05/30/04 (NCE)
NIH
“fMRI of Pediatric Cochlear Implant Candidates”
GOAL: A feasibility study to determine whether functional MRI of auditory stimulation in deaf toddlers and children with and without sedation might be useful as an evaluation tool for selecting candidates for cochlear implantation.
- Health Resources and Services Administration Grant (Holland, S.) 03/01/03 – 02/28/04
“Functional and Physiological Imaging of Brain Development”
GOAL: This project includes personnel and equipment needed to translate basic research in functional brain imaging of development into clinical applications.
- NS N01-9-2316 (Ball, W.) 09/01/99 – 08/31/04
NIH/NIBIB
Role: Collaborator
“Pediatric Study Centers for a MRI Study of Normal Brain Development”
GOAL: Multicenter contract with NIH to acquire data in support of a NIH database of normal anatomical images of 500 children from ages 5 to 18 years.
- S10 RR17211 (Holland, S.) 10/01/02 – 09/31/04 (NCE)
NIH
“High End Instrumentation – 7T MRI Scanner for Small Animals/Development Disorders”
GOAL: This is a high-end shared instrumentation grant for the purchase of a 7 Tesla MRI scanner for use in animal models of development disorder.
- T32 EB01656 (Ball, W.) 09/20/03 – 03/30/08
NIH
Role: Associate Program Director
“Neuroimaging Training in Pediatrics and Brain Development”
GOAL: NIH training grant for support of students and fellows in the development and use of MR imaging methods in study of childhood diseases and development. Dr. Holland is the director of the post-doctoral program.
- T32 Training (Lehman, M.: Univ. of Cincinnati) 2000 – 2003
NIH/NINDS
Role: Mentor
“Training Program in the Neurosciences”
GOAL: NIH training grant for support of students in the neurosciences program at University of Cincinnati College of Medicine. Dr. Holland is a faculty member in the program and teaches and mentors students in the Ph.D. program.
- Theodore & Vada Stanley Foundation (Strakowski, S.: Univ. of Cincinnati) 01/02/01 – 12/31/05
Role: Collaborator
“Stanley Foundation Center for Studies of Bipolar Disorder”

C. Research Support continued:

GOAL: To apply modern MRI and MRS methods in brain to improve understanding of bipolar and develop non-invasive means of monitoring potential treatments.

R01 HD-01-006 (Michaud, L.)

12/01/01 – 11/30/03

NIH

Role: Collaborator

“Clinical Trials Planning Grant”

GOAL: The purpose of the Clinical Trail Planning Grant is to provide support for the organization of an effective research group and development of elements essential for a successful clinical trial. CHMC Pediatric Rehabilitation will use this grant to develop a plan and a research team for pursuing the use of fMRI in evaluation of constraint therapies for rehabilitation of pediatric traumatic brain injury patients.

P01 ES011261 (Lanphear, B – PI, Cecil, K. – PI Project 5)

11/01/01 – 10/31/06

NIH

Role Project 5: Collaborator

“Study of Prevalent Neurotoxicants in Children”

GOAL: Use advanced MR neuroimaging methods, including MR spectroscopy and functional MRI, to quantitate correlation of alterations in brain function with perinatal childhood lead exposure.

K23 HD NS01467 (Byars, A.)

04/01/02 – 04/30/07

NIH

Role: Mentor

“Functional Language Organization in Childhood Stroke”

GOAL: Compare cortical distributions of language functions in children with perinatal stroke and later childhood strokes in the left and middle cerebral artery distribution using fMRI. Compare stroke cortical reorganization patterns in these children to a population of normal, age-matched controls.

K23 MH63373 (DelBello, M.: Univ. of Cincinnati)

05/01/02 – 04/30/07

NIH

Role: Advisor

“Brain Abnormalities in Adolescents with Bipolar Disorder”

GOAL: This NIMH Mentored Patient-Oriented Career Development (K23) Award application is to support Dr. Melissa DelBello’s developing expertise in the study of the developmental psychobiology of bipolar disorder. During the course of this award, I will advise Dr. DelBello in the use of neuroimaging methods in her development as an independent investigator.

K23 MH64086

12/01/02 – 11/31/07

NIH

Role: Advisor

“Neurophysiology of Working Memory in Bipolar Disorder”

GOAL: This NIMH Mentored Patient-Oriented Career Development (K23) Award application is to support Dr. Caleb Adler’s developing expertise of the neurophysiology of working memory of bipolar disorder using fMRI methods. During the course of this award, I will advise Dr. Adler in the use of neuroimaging methods in his development as an independent investigator.

The Neurosciences Institute (Szaflarski, J.: Univ. of Cincinnati)

01/01/03 – 12/30/03

Role: Co-Investigator

“EEG-Triggered fMRI in Patients with Intractable Complex Partial Seizures”

GOAL: This is a seed grant from the Cincinnati Health Alliance Neurosciences Institute. The goal is to provide initial funding to purchase hardware for EEG-triggered fMRI scanning and to install it on the new 4.0 T Varian MRI system at the Univ. of Cincinnati. Dr. Holland’s role is to consult on minimizing image artifacts from the interaction of the EEG electronics and the MRI system.