

BIOGRAPHICAL SKETCH

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

| NAME | | POSITION TITLE | |
|--|---------------------------|--|---------------------------|
| Cohen, Mark S. | | Director of MR Functional Activation Imaging Professor of Neurology, Radiology and Psychiatry | |
| 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 |
| Stanford University, Stanford, CA | B.A. | 1979 | Human Biology |
| Massachusetts Institute of Technology | | 1977 – 1978 | Electrical Engineering |
| Rockefeller University, New York, NY | Ph.D. | 1985 | Neurobiology and Behavior |

A. Positions and Honors.**Positions and Employment**

| | |
|----------------|---|
| 1979 – 1980 | Research Assistant, Stanford University, Stanford, CA |
| 1984 – Present | President, Clear View Designs, Inc. |
| 1985 – 1988 | MR Applications Scientist, Siemens Medical Systems, Inc. |
| 1988 – 1990 | Senior Application Scientist, Advanced NMR Systems, Woburn, MA |
| 1990 – 1993 | Dir., High Speed Imaging Laboratory and Tech. Dir., Clinical NMR, MGH-NMR Center, Charlestown, MA |
| 1990 – 1991 | Instructor of Radiology, Harvard Medical School, Boston, MA |
| 1992 – 1993 | Assistant Professor of Radiology, Harvard Medical School, Boston, MA |
| 1993 – 2001 | Associate Professor of Neurology & Radiological Sciences, UCLA Medical School |
| 2001 – Present | Professor of Neurology & Radiological Sciences, UCLA Medical School |

Other Experience and Professional Memberships

| | |
|----------------|---|
| 1994 – 1997 | Board of Directors; International Society for Magnetic Resonance in Medicine |
| 1994 – 1997 | Chairman, Education Committee; Society of Magnetic Resonance |
| 1993 – 1998 | Associate Editor; Journal of Magnetic Resonance Imaging |
| 1993 – 1997 | Board of Directors; Society for Magnetic Resonance Imaging |
| 2002 – Present | Board of Directors, Institute for Magnetic Resonance Safety, Education and Research |

B. Selected peer-reviewed publications (in chronological order).

1. Brady TJ, **Cohen MS**, Weisskoff RM, Rosen BR. Equipment requirements to facilitate contrast-enhanced MR imaging. *Magnetic Resonance in Medicine* 1991;22:273-279; discussion 280-271.
2. Bleier AR, Jolesz FA, **Cohen MS**, Weisskoff RM, Dalcanton JJ, Higuchi N, Feinberg DA, Rosen BR, McKinstry RC, Hushek SG. Real-time magnetic resonance imaging of laser heat deposition in tissue. *Magnetic Resonance in Medicine* 1991;21:132-137.
3. Belliveau JW, Kennedy DN Jr, McKinstry RC, Buchbinder BR, Weisskoff RM, **Cohen MS**, Vevea JM, Brady TJ, Rosen BR. Functional mapping of the human visual cortex by magnetic resonance imaging. *Science* 1991;254:716-719.
4. Belliveau JW, **Cohen MS**, Weisskoff RM, Buchbinder BR, Rosen BR. Functional studies of the human brain using high-speed magnetic resonance imaging. *Journal of Neuroimaging* 1991;1:36-41.
5. Reimer P, Saini S, Hahn PF, Mueller PR, Brady TJ, **Cohen MS**. Techniques for high-resolution echo-planar MR imaging of the pancreas. *Radiology* 1992;182:175-179.
6. Reimer P, Kwong KK, Weisskoff R, **Cohen MS**, Brady TJ, Weissleder R. Dynamic signal intensity changes in liver with superparamagnetic MR contrast agents. *Journal of Magnetic Resonance Imaging* 1992;2:177-181.
7. Poncelet BP, Wedeen VJ, Weisskoff RM, **Cohen MS**. Brain parenchyma motion: measurement with cine echo planar MR imaging. *Radiology* 1992;185:645-651.

8. Kwong KK, Belliveau JW, Chesler DA, Goldberg IE, Weisskoff RM, Poncelet BP, Kennedy DN, Hoppel BE, **Cohen MS**, Turner R, et al. Dynamic magnetic resonance imaging of human brain activity during primary sensory stimulation. *Proceedings of the National Academy of Science USA* 1992;89:5675-5679.
9. Hahn PF, Saini S, **Cohen MS**, Goldberg M, Reimer P, Mueller PR. An aqueous gastrointestinal contrast agent for use in echo-planar MR imaging. *Magnetic Resonance in Medicine* 1992;25:380-383.
10. Crawley AP, **Cohen MS**, Yucel EK, Poncelet B, Brady TJ. Single-shot magnetic resonance imaging: applications to angiography. *Cardiovascular and Interventional Radiology* 1992;15:32-42.
11. **Cohen MS**, Rosen BR, Brady TJ. Ultrafast MRI permits expanded clinical role. *MR* 1992;26-37.
12. **Cohen MS**. Functional Magnetic Resonance Imaging of the Human Brain. *Epilepsia* 1992;33:2.
13. Belliveau JW, Kwong KK, Kennedy DN, Baker JR, Stern CE, Benson R, Chesler DA, Weisskoff RM, **Cohen MS**, Tootell RB, Fox PT, Brady TJ. Magnetic resonance imaging mapping of brain function. Human visual cortex. *Investigative Radiology* 1992;27 (Suppl 2):S59-S65.
14. Weisskoff RM, **Cohen MS**, Rzedzian RR. Nonaxial whole-body instant imaging. *Magnetic Resonance in Medicine* 1993;29:796-803.
15. Reimer P, Saini S, Hahn PF, **Cohen MS**, Brady TJ. [The clinical use of echoplanar MR tomography in the detection of focal liver lesions. The results of a quantitative study]. *Rofo Fortschr Geb Rontgenstr Neuen Bildgeb Verfahr* 1993;159:16-21.
16. Goldberg MA, Yucel EK, Saini S, Hahn PF, Kaufman JA, **Cohen MS**. MR angiography of the portal and hepatic venous systems: preliminary experience with echoplanar imaging. *AJR Am J Roentgenol* 1993;160:35-40.
17. Goldberg M, Hahn P, Saini S, **Cohen MS**, Reimer P, Brady T, Mueller P. Value of T1 and T2 relaxation times from echoplanar MR imaging in the characterization of focal hepatic lesions. *AJR Am J Roentgenol* 1993;160:1011-1017.
18. **Cohen MS**, Fordham J. Developments In Magnetic Resonance Imaging. *Investigative Radiology* 1993;28(Suppl4):S32-S37.
19. **Cohen MS**. Echo Planar Magnetic Resonance Angiography. *Magn Reson Imaging Clin N Am* 1993;1:359-365.
20. Aronen HJ, **Cohen MS**, Belliveau JW, Fordham JA, Rosen BR. Ultrafast imaging of brain tumors. *Topics in Magnetic Resonance Imaging* 1993;5:14-24.
21. Saini S, Reimer P, Hahn PF, **Cohen MS**. Echoplanar MR imaging of the liver in patients with focal hepatic lesions: quantitative analysis of images made with various pulse sequences. *AJR Am J Roentgenol* 1994;163:1389-1393.
22. Reimer P, Saini S, Kwong KK, **Cohen MS**, Weissleder R, Brady TJ. Dynamic gadolinium-enhanced echo-planar MR imaging of the liver: effect of pulse sequence and dose on enhancement. *Journal of Magnetic Resonance Imaging* 1994;4:331-335.
23. Reimer P, Saini S, Hahn PF, Brady TJ, **Cohen MS**. Clinical application of abdominal echoplanar imaging (EPI): optimization using a retrofitted EPI system. *J Comput Assist Tomogr* 1994;18:673-679.
24. **Cohen MS**, Bookheimer SY. Localization of brain function using magnetic resonance imaging. *Trends in Neuroscience* 1994;17:268-277.
25. Huang-Hellinger F, Breiter HC, McCormack G, **Cohen MS**, Kwong KK, Sutton J, Savoy RL, Weisskoff RM, Davis TL, Baker J, Belliveau JW, Rosen BR. Simultaneous Functional Magnetic Resonance Imaging and Electrophysiological Recording. *Human Brain Mapping* 1995;3:13-23.
26. Disler DG, **Cohen MS**, Krebs DE, Roy SH, Rosenthal DI. Dynamic Evaluation of Exercising Leg Muscle in Healthy Subjects with Echo Planar MR Imaging: Work Rate and Total Work Determine Rate of T2 Change. *Journal of Magnetic Resonance Imaging* 1995;5:588-593.
27. **Cohen MS**, Kosslyn SM, Breiter HC, DiGirolamo GJ, Thompson WL, Bookheimer SY, Belliveau JW, Rosen BR. Changes in Cortical Activity During Mental Rotation: A mapping study using functional magnetic resonance imaging. *Brain* 1996;119:89-100.
28. **Cohen MS**. Functional MRI: A Phrenology for the 1990's? *Journal of Magnetic Resonance Imaging* 1996;6:273-74.
29. Breiter HC, Rauch SL, Kwong KK, Baker JR, Weisskoff RM, Kennedy DN, Kendrick AD, Davis TL, Jiang A, **Cohen MS**, Stern CE, Belliveau JW, Baer L, O'Sullivan RL, Savage CR, Jenike MA, Rosen BR. Functional magnetic resonance imaging of symptom provocation in obsessive-compulsive disorder. *Archives of General Psychiatry* 1996;53:595-606.
30. **Cohen MS**. Quantitative Assessment of Perfusion by Magnetic Resonance. *Neurology Network Commentary* 1997;1:315-319.
31. **Cohen MS**. Parametric analysis of fMRI data using linear systems methods. *NeuroImage* 1997;6:93-103.
32. **Cohen MS**, DuBois RM. Stability, repeatability, and the expression of signal magnitude in functional magnetic resonance imaging. *Journal of Magnetic Resonance Imaging* 1999;10:33-40.

33. **Cohen MS**, Baird D. Why Trade?: How zones of trade support epistemic stability. *Perspective on Science* 1999;7:231-254.
34. Goldman R, Stern J, Engel J, **Cohen MS**. Acquiring Simultaneous EEG and Functional MRI. *Clinical Neurophysiology* 2000;111:1974-1980.
35. Gaillard WD, Bookheimer SY, **Cohen MS**. The use of fMRI in neocortical epilepsy. *Adv. Neurology* 2000;84:391-404.
36. DuBois RM, **Cohen MS**. Spatiotopic organization in human superior colliculus observed with fMRI. *NeuroImage* 2000;12:63-70.
37. **Cohen MS**, DuBois RM, Zeineh MM. Rapid and effective correction of RF inhomogeneity for high field magnetic resonance imaging. *Hum Brain Mapping* 2000;10:204-211.
38. **Cohen MS**. A data compression method for image time series. *Human Brain Mapping* 2000;12:20-24.
39. Bookheimer SY, Strojwas MH, **Cohen MS**, Saunders AM, Pericak-Vance MA, Mazziotta JC, Small GW. Patterns of brain activation in people at risk for Alzheimer's disease [see comments]. *New England Journal of Medicine* 2000;343:450-456.
40. Oh SY, Poukens V, **Cohen MS**, Demer JL. Structure-function correlation of laminar vascularity in human rectus extraocular muscles. *Invest Ophthalmol Vis Sci* 2001;42:17-22.
41. **Cohen MS**. Real-time functional magnetic resonance imaging. *Methods* 2001;25:201-220.
42. **Cohen MS**. Practical aspects in the design of mind reading instruments. *American Journal of Neuroradiology* 2001.
43. Arnold JB, Liow JS, Schaper KA, Stern JJ, Sled JG, Shattuck DW, Worth AJ, **Cohen MS**, Leahy RM, Mazziotta JC, Rottenberg DA. Qualitative and quantitative evaluation of six algorithms for correcting intensity nonuniformity effects. *NeuroImage* 2001;13:931-943.
44. Kroger JK, Sabb FW, Fales CL, Bookheimer SY, **Cohen MS**, Holyoak KJ. Recruitment of anterior dorsolateral prefrontal cortex in human reasoning: a parametric study of relational complexity. *Cerebral Cortex* 2002;12:477-485.
45. Goldman RI, Stern JM, Engel J Jr, **Cohen MS**. Simultaneous EEG and fMRI of the alpha rhythm. *Neuroreport* 2002;13:2487-2492.
46. Glahn D, Kim J, **Cohen MS**, Poutanen V-P, Therman S, Bava S, Van Erp T, Manninen M, Huttunen M, Lönngqvist J, Standertskjöld-Nordenstam C, Cannon T. Maintenance and Manipulation in Spatial Working Memory: Dissociations in the Lateral Prefrontal Cortex. *NeuroImage* 2002;17:201-213.
47. Sicotte NL, Voskuhl RR, Bouvier S, Klutch R, **Cohen MS**, Mazziotta JC. Comparison of Multiple Sclerosis Lesions at 1.5 and 3.0 Tesla. *Investigative Radiology* 2003;38:423-427.

C. Research Support

Ongoing Research Support

5 R01 DA13054-03 Cohen (PI)

08/20/1999 – 07/31/2003

NIH/NIDA

Real-Time Imaging of Mental Activity

This grant funds the development and characterization of a novel software tool set for the immediate analysis of functional MRI and other medical images. It will take advantage of novel approaches to computation that enables both multi-platform interoperability and rapid execution.

Role: PI

5 R01 EY12722-03 Cohen (PI)

05/15/2000 – 04/30/2004

NIH/NEI

fMRI of Inverted Vision: Plasticity of Visuospatial Maps

This research is designed to assess the plastic changes in cortex that we hypothesize occur in the face of grossly distorted visual input from inverting goggles. Functional MRI will be used to derive retinotopic, spatiotopic and auditory maps following semi-chronic exposure to the inverting device.

Role: PI

5 R21 DA13627-02 Cohen (PI)

06/25/2001 – 05/31/2004

NIH

Enabling Technologies in fMRI and Cigarette Smoking

This project centers on the design of a system for the controlled delivery of cigarette smoke to subjects during functional Magnetic Resonance Imaging, and the characterization of the drug delivery and the responses of the human brain to _____

Principal Investigator/Program Director (Last, First, Middle):

cigarette smoke. We will look at both global and local signal changes from the smoke per se, and at local changes in BOLD responses to external stimuli as a function of the cigarette exposure.

Role: PI

1 R21 DA15549-01 Cohen (PI)

06/01/2002 – 05/31/2004

NIH

Simultaneous Electrophysiology and Functional MRI

This project proposes the development of methods to record extracellular potentials during functional MRI in order to understand better the coupling between BOLD signals and cellular activity.

Role: PI

5 R01 AG 13308-08 Small (PI)

09/01/2000 – 08/31/2005

NIH/NIA

Functional MRI for Early Diagnosis of Alzheimer's Disease

This grant funds a longitudinal extension of our earlier work correlating changes in the pattern of fMRI activation with neuropsychological measures of cognitive and memory decline in a population of older individuals who are genetically at risk for Alzheimer's Disease, based on the presence of the APOE4 allele. The continued study will also utilize newly developed high-resolution fMRI methods and software for the anatomical analysis of both activation loci and morphological changes associated with the disease.

Role: Co-PI

5 R01 MH043292-13 Green (PI)

05/01/2001 – 4/30/2006

NIH

Early Visual Processing in Schizophrenia

To study the phenomenon and physiology of Visual Backward Masking and its differences in normal and schizophrenic populations. The study includes experimentation using functional MRI to elucidate the specific brain structures implicated in the masking phenomenon.

Role: Co-PI

5 R01 DA014093:03 London (PI)

09/30/2001 – 4/30/2004

NIH-NIDA

Nicotine Withdrawal, Smoking and Cognition: an fMRI Study

We will use functional imaging by MRI to understand the changes in attention and working memory that have been detected in smokers as a function of abstinence and satiety. This grant will be transferred from Mark Cohen to Dr. Edythe London, as PI.

Role: Co-PI

009088-001:02 Marder (PI)

07/01/2001 – 09/30/2003

Veterans Affairs (VA Administration VA Med. Cntr.)

IPA Agreement

The MIRECC is dedicated to improving the long-term functional outcome of individuals with psychotic disorders through innovative research, clinical care and educational programs. The center consists of a Neuroimaging core, a Data core, a Neuroscience unit, a Treatment unit, a Health Services unit and an Education unit.

Role: Co-PI

2 U19 HD35470:06R Sigman (PI)

09/23/2002 – 05/31/2007

NIH/NICHHD

Determinants of Social Communication Skills in Autism

The purpose of this program project is to determine the biological and environmental contributors to social communication deficits and skills in autism. This project will investigate genetic, brain mechanisms, and environmental factors with a focus both on differentiating autistic individuals from others and also on accounting for individual differences within the autistic group.

Role: Co-PI

Principal Investigator/Program Director (Last, First, Middle):

5 P01 NS02808:41 Engel (PI)

09/30/2000 – 08/31/2005

NIH/NINDS

Clinical Research Program for the Partial Epilepsies

The goal is to provide the clinical expertise and environment to support the research subprojects of the Clinical Neuropsychology Program, which is dedicated to achieving important new knowledge of human epilepsy and to contribute significantly to basic understanding of seizure disorders as well as their surgical and pharmacological treatment.

5 R01 EY11862:04R Engel (PI)

09/30/1999 – 09/30/2004

NIH/NEI

Color Processing in Human Cortex

This project uses functional MRI to identify populations of neurons in cortex that support color vision. Neural responses will be measured for stimuli that reveal stages in the perception of color. These responses will be compared to behavioral measures, help in to clarify the stages of cortical processing that result in color perception. Dr. Cohen will provide expertise in pulse sequence and surface coil development, and data analysis techniques.

Role: Co-PI