

BIOGRAPHICAL SKETCH

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NAME Cohen, Mark S.	POSITION TITLE Director, MR Functional Activation Imaging Professor, Psychiatry, Neurology, Radiology, Biomedical Physics, Psychology		
eRA COMMONS USER NAME cohen2			
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, New York	Ph.D.	1985	Neurobiology and Behavior

A. Positions and Honors.Positions and Employment

1979-1980 Research Assistant, Stanford University, Stanford, CA
 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 Lab; 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- Professor of Psychiatry, Biomedical Physics, Neurology & Radiology, UCLA Med. School
 2004- Professor of Psychology, UCLA College of Arts and Sciences

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- Board of Directors, Institute for Magnetic Resonance Safety, Education and Research

B. Selected peer-reviewed publications

MS Cohen, RM Weisskoff, RR Rzedzian and HL Kantor "Sensory stimulation by time-varying magnetic fields." Magn Reson Med **14**(2): 409, 1990.
 JW Belliveau, DN Kennedy, RC McKinstry, BR Buchbinder, RM Weisskoff, **MS Cohen**, JM Vevea, TJ Brady and BR Rosen "Functional mapping of the human visual cortex by magnetic resonance imaging." Science **254**(5032): 716, 1991.
 AR Bleier, FA Jolesz, **MS Cohen**, RM Weisskoff, JJ Dalcanton, N Higuchi, DA Feinberg, BR Rosen, RC McKinstry and SG Hushek "Real-time magnetic resonance imaging of laser heat deposition in tissue." Magn Reson Med **21**(1): 132, 1991.
MS Cohen and RM Weisskoff "Ultra-fast imaging." Magn Reson Imag **9**(1): 1, 1991.
 B Rosen, J Belliveau, B Buchbinder, K Kwong, L Porkka, R Fisel, R Weisskoff, M Neuder, H Aronen, **MS Cohen**, et al., "Contrast agents and cerebral hemodynamics." Magn Reson Med **19**: 285, 1991.
 KK Kwong, JW Belliveau, DA Chesler, IE Goldberg, RM Weisskoff, BP Poncelet, DN Kennedy, BE Hoppel, **MS Cohen**, et al. "Dynamic magnetic resonance imaging of human brain activity during primary sensory stimulation." Proc Natl Acad Sci U S A **89**(12): 5675, 1992.
MS Cohen "Echo Planar Magnetic Resonance Angiography." Magn Reson Imaging Clin N Am **1**(2): 359, 1993.
 RM Weisskoff, **MS Cohen** and RR Rzedzian "Nonaxial whole-body instant imaging." Magn Reson Med **29**(6): 796, 1993.
MS Cohen and SY Bookheimer "Localization of brain function using magnetic resonance imaging." Trends Neurosci **17**(7): 268, 1994.
 F Huang-Hellinger, HC Breiter, G McCormack, **MS Cohen**, KK Kwong, J Sutton, RL Savoy, RM Weisskoff, TL Davis, J Baker, JW Belliveau and BR Rosen "Simultaneous Functional Magnetic Resonance Imaging and Electrophysiological Recording." Human Brain Mapping **3**: 13, 1995.

- HC Breiter, SL Rauch, KK Kwong, JR Baker, RM Weisskoff, DN Kennedy, AD Kendrick, TL Davis, A Jiang, **MS Cohen**, CE Stern, JW Belliveau, L Baer, RL O'Sullivan, CR Savage, MA Jenike and BR Rosen "Functional magnetic resonance imaging of symptom provocation in obsessive-compulsive disorder." Arch Gen Psychiatry **53**(7): 595, 1996.
- MS Cohen**, SM Kosslyn, HC Breiter, GJ DiGirolamo, WL Thompson, SY Bookheimer, JW Belliveau and BR Rosen "Changes in Cortical Activity During Mental Rotation: A mapping study using functional magnetic resonance imaging." Brain **119**: 89, 1996.
- MS Cohen** "Parametric analysis of fMRI data using linear systems methods." Neuroimage **6**(2): 93, 1997.
- MS Cohen** and RM DuBois "Stability, repeatability, and the expression of signal magnitude in functional magnetic resonance imaging." J Magn Reson Imaging **10**(1): 33, 1999.
- SY Bookheimer, MH Strojwas, **MS Cohen**, AM Saunders, MA Pericak-Vance, JC Mazziotta and GW Small "Patterns of brain activation in people at risk for Alzheimer's disease." N Engl J Med **343**(7): 450, 2000.
- MS Cohen**, RM DuBois and MM Zeineh "Rapid and effective correction of RF inhomogeneity for high field magnetic resonance imaging." Hum Brain Mapping **10**(4): 204, 2000.
- RM DuBois and **MS Cohen** "Spatiotopic organization in human superior colliculus observed with fMRI." Neuroimage **12**(1): 63, 2000.
- WD Gaillard, SY Bookheimer, **MS Cohen** "The use of fMRI in neocortical epilepsy." Adv Neurol **84**: 391, 2000.
- R Goldman, J Stern, J Engel and **MS Cohen** "Acquiring Simultaneous EEG and Functional MRI." Clinical Neurophysiology **111**(11): 1974, 2000.
- MS Cohen** "A data compression method for image time series." Hum Brain Mapp **12**(1): 20, 2001.
- MS Cohen** "Real-time functional magnetic resonance imaging." Methods **25**(2): 201, 2001.
- DC Glahn, J Kim, **MS Cohen**, et al., "Maintenance and manipulation in spatial working memory: dissociations in the prefrontal cortex." Neuroimage **17**(1): 201, 2002.
- RI Goldman, JM Stern, J Engel, Jr. and **MS Cohen** "Simultaneous EEG and fMRI of the alpha rhythm." Neuroreport **13**(18): 2487, 2002.
- JK Kroger, FW Sabb, CL Fales, SY Bookheimer, **MS Cohen** and KJ Holyoak "Recruitment of anterior dorsolateral prefrontal cortex in human reasoning: a parametric study of relational complexity." Cereb Cortex **12**(5): 477, 2002.
- E Martinez-Montes, PA Valdes-Sosa, F Miwakeichi, RI Goldman and **MS Cohen** "Concurrent EEG/fMRI analysis by multiway Partial Least Squares." Neuroimage **22**(3): 1023, 2004.
- LL Altshuler, S Bookheimer, MA Proenza, J Townsend, F Sabb, A Firestone, G Bartzokis, J Mintz, J Mazziotta and **MS Cohen** "Increased amygdala activation during mania: a functional magnetic resonance imaging study." Am J Psychiatry **162**(6): 1211, 2005.
- LL Altshuler, SY Bookheimer, J Townsend, MA Proenza, N Eisenberger, F Sabb, J Mintz and **MS Cohen** "Blunted Activation in Orbitofrontal Cortex During Mania: A Functional Magnetic Resonance Imaging Study." Biol Psychiatry **58**(10): 763, 2005.
- R Bhideyasiri, JM Bronstein, S Sinha, SE Krahl, S Ahn, EJ Benhke, **MS Cohen**, R Frysinger, FG Shellock "Bilateral Neurostimulation Systems Used for Deep Brain Stimulation." Magn Reson Imag **23**(4): 549, 2005.
- TD Cannon, DC Glahn, J Kim, TG Van Erp, K Karlsgodt, **MS Cohen**, KH Nuechterlein, S Bava and D Shirinyan "Dorsolateral prefrontal cortex activity during maintenance and manipulation of information in working memory in patients with schizophrenia." Arch Gen Psychiatry **62**(10): 1071, 2005.
- MF Green, D Glahn, SA Engel, KH Nuechterlein, F Sabb, M Strojwas and **MS Cohen** "Regional brain activity associated with visual backward masking." J Cogn Neurosci **17**(1): 13, 2005.
- KH Karlsgodt, D Shirinyan, TG van Erp, **MS Cohen** and TD Cannon "Hippocampal activations during encoding and retrieval in a verbal working memory paradigm." Neuroimage **25**(4): 1224, 2005.
- A Mendrek, J Monterosso, SL Simon, M Jarvik, A Brody, R Olmstead, CP Domier, **MS Cohen**, M Ernst and ED London "Working memory in cigarette smokers: Comparison to non-smokers and effects of abstinence." Addict Behav **tbd**, 2005.
- J Xu, A Mendrek, **MS Cohen**, et al., "Brain activity in cigarette smokers performing a working memory task: effect of smoking abstinence." Biol Psychiatry **58**(2): 143, 2005.

C. Research Support

Ongoing Research Support

1 R01 DA 15179 London, Edythe (PI)

07/01/2003 – 06/30/2006

NIH-NIDA

Early methamphetamine Abstinence: fMRI and Cognition

The major goal of this project is to use functional magnetic resonance imaging (fMRI) to delineate the abnormalities in the brain circuits of methamphetamine abusers that underlie the cognitive deficits that they exhibit.

ROLE: Investigator

5 R01 MH043292-13 Green, Michael (PI)

05/01/2001 - 04/30/2006

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: Investigator

2 U19 HD35470:06R Sigman, Marian (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: Investigator

R01 MH65079 Cannon, Tyrone (PI)

12/01/2002 – 11/30/2007

NIMH

Working Memory and Social Functioning in Schizophrenia

Uses fMRI to evaluate neural systems involved in working memory and their relation to the development of schizophrenia in adolescents at risk and to functional outcome in a parallel group of first-episode schizophrenic patient.

ROLE: Investigator

P50 MH066286 Cannon, Tyrone (PI)

07/01/2003 – 06/30/2008

NIMH

Encoding and Retrieval Processes in Long-Term Memory

As one project in a multi-project Center grant, uses fMRI to evaluate neural systems involved in episodic memory in longitudinal studies of prodromal adolescents and first-episodes schizophrenia patients to isolate deterioration in these systems and their relation to social deterioration in the prodromal and early phase of schizophrenia.

ROLE: Investigator (Nuechterlein, Center PI)

1P20 RR020750:01

09/28/2004-7/31/2007

NIH/NCRR Bilder, Robert (PI)

Cognitive Phenotyping for Neuropsychiatric Therapeutics

TYPE DESCRIPTION OF GRANT

Role: Investigator

The exploratory Center for Cognitive Phenomics (CCP) aims to accelerate identification and efficient measurement of cognitive phenotypes across syndromes and across species to advance interdisciplinary research on neuropsychiatric therapeutics.

Role: Investigator

5R01DA015059 Brody (PI)

10/01/2002-09/30/2006

NIDA

Treatments for Nicotine Dependence: Brain Mechanisms

Using as interventions, bupropion HCl, practical group counseling, or placebo, this study seeks to determine changes in regional cerebral metabolic activation during presentation of cigarette-related cues from pre- to post-treatment, to determine changes in cue-induced cigarette craving from pre- to post- treatment, to determine changes in regional metabolism in the neural state from pre- to post- treatment and to determine pre- treatment regional brain metabolic predictors of response treatment.

Role: Investigator

Completed Research Support

5 R01 EY11862:04R Engel, Steven (PI)

09/30/1999 – 09/29/2005

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: Investigator

5 R01 AG 13308-08 Small, Gary (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 an 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: Investigator

5 R21 DA13627-02 Cohen, Mark (PI)

06/25/2001 - 05/31/2005

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 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: Principal investigator

1 R21 DA15549-01 Cohen, Mark (PI)

06/01/2002-05/31/2005

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: Principal Investigator

5 R01 EY12722-03 Cohen, Mark (PI)

05/15/2000 - 04/30/2005

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: Principal Investigator.