

BIOGRAPHICAL SKETCH

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NAME Lee, Sang-Pil	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME SPLEE5			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Seoul National University, Seoul, S. Korea	B.S.	1991	Physics
Seoul National University, Seoul, S. Korea	M.S.	1993	Physics
University of Minnesota, Minneapolis, Minnesota	Ph.D.	2000	Biophysics
University of Minnesota, Minneapolis, Minnesota	Postdoctoral	2001	Biophysics

A. Positions and Honors.

Positions and Employment

1991 - 1993 Research Assistant, Seoul National University, Department of Physics, Seoul, S. Korea
 1995 - 1996 Research Assistant, Michigan State University, Department of Physics, Lansing, Michigan
 1996 - 2000 Research Assistant, University of Minnesota School of Medicine, Minneapolis, Minnesota
 2000 - 2001 Postdoctoral Research Associate, University of Minnesota School of Medicine, Minneapolis, Minnesota
 2001 - 2005 Senior Research Scientist, The Nathan Kline Institute, Orangeburg, New York
 2005 - Present Assistant Professor, Department of Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, Kansas

Awards and Other Professional Activities:

1998 - 1999 ISMRM student stipend award
 2000 RIKEN Brain Science Institute (JAPAN) Summer Program Stipend
 2001 ISMRM student stipend award
 2002 ISMRM member
 2003 ISCBFM bursary award
 2003 International Society for Cerebral Blood Flow and Metabolism member
 2003 Society for Neuroscience member
 2006 Shared Biomedical Research Instrument Grant Award, RI
 2007 KUMC Faculty Travel Awards

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

S.-P. Lee, Y. Kim, C. W. Chung and T. W. Noh, "Application of a bridge circuit for an inductive critical current density measurement of superconducting thin films" Review of Scientific Instruments, 64:8-10 (1993).
 A.C. Silva, **S.-P. Lee**, C. Iadecola, S.-G. Kim, "Early temporal characteristics of cerebral blood flow and deoxyhemoglobin changes during somatosensory stimulation" J Cereb Blood Flow Metab 20: 201-206 (1999).
 A.C. Silva, **S.-P. Lee**, G. Yang, C. Iadecola, S.-G. Kim, "Simultaneous BOLD and perfusion functional MRI during forepaw stimulation in rat" J Cereb Blood Flow Metab 19: 871-879 (1999).
S.-P. Lee, A.C. Silva, K. Ugurbil, and S.-G. Kim, "Diffusion-weighted spin-echo fMRI at 9.4 T: microvascular/tissue contribution to BOLD signal changes" Magn Reson Med 42: 919-928 (1999).
 T.Q. Duong, A.C. Silva, **S.-P. Lee**, S.-G. Kim, "Functional MRI of calcium-dependent synaptic activity: Cross correlation with CBF and BOLD measurements" Magn Reson Med 43: 383-392 (2000).
 R. Gruetter, **S.-P. Lee**, S.-G. Kim, and I.-Y. Choi, "Effect of hypoglycemia on cerebral glucose, glycogen and blood flow" J Neurochem 78 (Suppl. 1):206 (2001).
 I.-Y. Choi, **S.-P. Lee**, S.-G. Kim, R. Gruetter, "In vivo measurements of brain glucose transport using a

- reversible Michaelis-Menten model and comparison with cerebral blood flow changes during hypoglycemia” *J Cereb Blood Flow Metab* 21:653-663 (2001).
- S.-P. Lee**, T.Q. Duong, C. Iadecola, and S.-G. Kim, “Relative changes of cerebral arterial and venous blood volumes during increased cerebral blood flow: Implications for BOLD fMRI” *Magn Reson Med* 45: 791-800 (2001).
- S.-P. Lee**, A. C. Silva, and S.-G. Kim, “Comparison of diffusion-weighted CBF and spin-echo BOLD fMRI at 9.4 T” *Magn Reson Med* 47:735-741(2002).
- N. Harel, **S.-P. Lee**, T. Nagaoka, D.-S. Kim, S.-G. Kim, “Origin of negative blood oxygenation level-dependent fMRI signals” *J Cereb Blood Flow Metab* 22: 908-917 (2002).
- J. A. Helpern, **S.-P. Lee**, M. F. Falangola, V. V. Dyakin, A. Bogart, K. B. Ardekana, K. Duff, C. Branch, T. Wisniewski, M. J. de Leon, O. Wolf, J. O’Shea, and R. A. Nixon, Magnetic resonance imaging assessment of neuropathology in a transgenic mouse model of Alzheimer’s disease. *Magn Reson Med* 51: 794-798 (2004).
- J. A. Helpern, J. Jensen, **S.-P. Lee**, M.F. Falangola, Quantitative assessment of Alzheimer’s disease, *J Mol Neurosci* 24: 45-8 (2004).
- I.-Y. Choi, **S.-P. Lee**, H. Merkle and J. Shen, Single-shot two-echo technique for simultaneous measurement of GABA and creatine in the human brain in vivo *Magn Reson Med* 51:1115 – 1121 (2004)
- S.-P. Lee**, M. F. Falangola, K. Duff, R. A. Nixon, J. A. Helpern, Visualization of β -Amyloid plaques in a transgenic mouse model of Alzheimer’s disease using MR Microscopy without contrast reagents *Magn Reson Med* 52: 538-544 (2004).
- I.-Y. Choi, **S.-P. Lee** and J. Shen, “In vivo single-shot three-dimensionally localized multiple quantum spectroscopy of GABA in the human brain with improved spectral selectivity” *J Magn Reson* 172:9-16 (2005)
- I.-Y. Choi, **S.-P. Lee** and J. Shen, “Selective homonuclear Hartmann-Hahn transfer method for in vivo spectral editing in the human brain” *Magn Reson Med* 53:503-10 (2005)
- M. F. Falangola, B. A. Ardekani, **S.-P. Lee**, J. S. Babb, A. Bogart, V. V. Dyakin, R. A. Nixon, K. Duff, J. A. Helpern, “Histological localization of Iron in A β plaques of PS/APP Transgenic Mice”, *J Neurosci Methods* 144:91-7 (2005)
- M. F. Falangola, **S.-P. Lee**, R. A. Nixon, K. Duff, J. A. Helpern, Histological co-localization of iron in A β plaques of PS/APP Transgenic Mice, *Neurochem Research* 30:201-5 (2005)
- J. H. Jensen, R. Chandra, A. Ramani, H. Lu, G. Johnson, **S.-P. Lee**, K. Kaczynski, and J. A. Helpern, Magnetic Field Correlation Imaging, *Magn Reson Med* 55(6):1350-61 (2006)
- I.-Y. Choi, **S.-P. Lee**, H. Merkle and J. Shen, “In vivo characterization of GABA distribution in gray and white matters of the human brain using chemical shift imaging of GABA” *NeuroImage*, 33:85-93 (2006)
- I.-Y. Choi, **S.-P. Lee**, M. Garwood and K. Ugurbil, H. Merkle, “Simple partial volume transceive coils for in vivo ^1H MR studies at high magnetic fields” *Concepts in Magnetic Resonance Part B: Magnetic Resonance Engineering* 31B (2):71-85 (2007)
- M. F. Falangola, V. V. Dyakin, **S.-P. Lee**, A. Bogart, J. S. Babb, K. Duff, R. Nixon, and J. A. Helpern, “Quantitative MRI reveals age-associated T2 changes in Mouse Models with progressive AD type amyloidosis” *NMR in Biomedicine* 20(3):343-51 (2007)

C. Research Support

Ongoing Research Support

NIRG-07-60405

Lee (PI)

08/01/07 – 07/31/09

Alzheimer’s Association

Quantitative in vivo measure of an AD drug treatment in transgenic mice

The goal of this study is to quantify the therapeutic effects of a microtubule stabilizing drug “TX-67” on a triple transgenic (3xTg-AD) mouse model of AD using non-invasive MRI techniques.

Role: PI

1 R21DK081079-01

Choi (PI)

04/01/08 – 03/31/10

NIH

Quantitative in vivo biomarkers of oxidative stress in diabetes

The goals of this study are to develop and characterize direct, objective in vivo biomarkers of oxidative stress occurring in diabetes mellitus.

Role: Co-Investigator

No Number

Burns (PI)

01/01/08 – 12/31/09

Dana Foundation

Intranasal Insulin and Memory in Early Alzheimer's Disease

The goal of the project is to examine the neural response to intranasal insulin using functional MRI (fMRI).

Role: Co-Investigator

KU Center for Research Michaelis (PI)

01/01/08 – 12/31/08

Prime sponsor- KC Area Life Sciences Inst.

(subaward to KUMCRI)

Mitochondria and Oxidative Stress in Brain: Ethanol, Aging, Glutamine Interaction

The major goal of this project is to investigate mitochondrial function in response to alcohol-induced oxidative stress in the transgenic mouse brain that overexpress the gene for glutamate dehydrogenase 1 (GLUD1) only in central nervous system neurons using *in vivo* MRI/MRS.

Role: Co-Investigator

1 R21 HD050534-01A2 Savage (PI)

05/15/07 – 04/30/09

NIH

Predicting Response to Memory Training in TBI with fMRI

The goals of this project are to use fMRI and a verbal memory paradigm to examine predictors of cognitive and daily functioning in individuals with traumatic brain injury.

Role: Co-Investigator

0860041Z

Cirstea (PI)

01/01/08 – 12/31/09

American Heart Association – Heartland

Multimodal Neuroimaging in Stroke Motor Rehabilitation

The goals of this project are to understand the relationship between changes in biological properties of remote motor areas and functional motor recovery following an intervention in patients with focal brain damage using combined magnetic resonance spectroscopy and functional magnetic resonance imaging.

Role: Co-investigator

1 R21 NS052355

Frost (PI)

07/01/07 – 06/30/09

NIH/NINDS

An Experimental Model of White Matter Infarct

The goal of this project is to develop an animal model for white matter infarct to study the underlying mechanisms of subcortical ischemic stroke, neuronal reorganization leading to motor recovery, and the evaluation of therapeutic interventions.

Role: Co-Investigator

Completed Research Support

No Number

Choi (PI)

08/01/07 - 03/31/08

GCRC CReFF Pilot Grant (NCRR NIH, 1M01RR023940-01 General Clinical Research Center, PI: B. F. Atkinson)

Hyperglycemia and oxidative stress in the human brain with diabetes

Specific Aims: The major goal of this study is to characterize non-invasive biomarkers of oxidative stress in the living brains of type 2 diabetic patients.

Role: Principal Investigator

No Number

Choi (PI)

04/01/05 - 12/31/07

American Health Assistance Foundation

Antioxidant defense in Alzheimer's brain *in vivo*

This project aims to investigate the effect of Alzheimer's disease on the regional distribution of cerebral GSH content in the human brain *in vivo*, which may provide a quantitative measure of oxidative stress in Alzheimer's disease.

Role: Co-Investigator

No Number Lee (PI) 01/01/06 – 12/31/06
University of Kansas Medical Center Research Institute
Shared Biomedical Research Instrument Grant Award
Role: Principal Investigator

8 R01 EB0031504 Choi (PI) 09/07/99 - 08/31/05
NIH/NIBIB
Multiple quantum chemical shift imaging of GABA in brain
Specific Aims: To develop chemical shift imaging techniques for mapping GABA concentrations and homo-nuclear editing techniques for measuring GABA synthesis rate in the brain *in vivo*.
Role: Co-Investigator

0655759Z Brooks (PI) 07/01/06 – 6/30/08
AHA-Heartland
Arm Movement Patterns in Stroke: Neural Substrates
The major goals of this project are characterize brain plasticity in a motor task in stroke patients using magnetic resonance spectroscopy and functional magnetic resonance imaging.
Role: Co-Investigator

No Number White (PI) 08/01/07 – 07/31/08
Children's Mercy Hospital (sub)
Prime sponsor-KC Area Life Sciences
Transgene Therapy for Cardiomyopathy in DMD Mouse Model
The goal of this project is to develop novel treatment strategies for cardiomyopathy in muscular dystrophy.
Role: Co-Investigator