

Principal Investigator
(Last, First, Middle):

Chen, Junjie, Sc.D.

BIOGRAPHICAL SKETCH

NAME Chen, Junjie	POSITION TITLE
eRA COMMONS USER NAME JUNJIECHEN	Research Instructor

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
Tsinghua University, Beijing, China	B.S.	1997	Electrical Engineering
Washington University in St. Louis	M.S.	2001	Biomedical Engineering
Washington University in St. Louis	Sc.D.	2005	Biomedical Engineering
Washington University in St. Louis	Post-Doc	2005	Internal Medicine

A. RESEARCH INTEREST

Magnetic resonance imaging (MRI)

- Diffusion MRI
- ^1H and ^{19}F Molecular MRI using perfluorocarbon nanoparticles

Retinal Diseases

- Oxygen induced retinopathy
- Retinal hypoxic/ischemic injury and neuron degeneration
- Choroidal melanoma

Nanomedicine

- Detection of angiogenesis using $\alpha_v\beta_3$ -integrin targeted nanoparticles
- Targeted drug delivery for anti-angiogenesis therapy

B. POSITIONS AND HONORS

Positions and Employment

1997 - 1999 Research assistant, Electrical Engineering, Tsinghua University, P.R. China.
2005 - 2005 Postdoctoral associate, Washington University School of Medicine, St. Louis, MO
2005 – 2008 Staff Scientist, Washington University School of Medicine, St. Louis, MO.
2008 – present Research Instructor, Washington University School of Medicine, St. Louis, MO

Affiliations and Honors

2001 - 2007 Member of International Society of Magnetic Resonance in Medicine
2002 - 2005 Student Travel Award, International Society of Magnetic Resonance in Medicine
2005 Student Travel Award, Society of Molecular imaging

Invited Talks

2005 By Professor Igor Efimov, Department of Biomedical Engineering, Washington University in St. Louis.
2007 By Professor Natalia Trayanova, Institute for Computational Medicine, Johns Hopkins University
2007 Speaker, Nanotechnology and the Life Sciences Symposium, Saint Louis, Missouri

Review Responsibilities

NMR in Biomedicine
Magnetic Resonance in Medicine
Journal of Neuroscience Research
International Journal of Nanomedicine

C. PEER-REVIEWED PUBLICATIONS (IN CHRONOLOGICAL ORDER)

1. Lanza GM, Winter PM, Caruthers SD, Hughes M, Wallace K, Marsh J, Cyrus T, **Chen J**, Neubauer AM, Schmieder A, Hu G, Gaffney PJ, Wickline SA. *Paramagnetic fluorocarbon nanoparticles*. Wiley Interdisciplinary Reviews: Nanomedicine. In review.
2. Southworth R, Megan K, **Chen J**, Zhang H, Zhang L, Razavi R, Lanza GM, Wickline SA. *Glomerulitis induced by Western diet in ApoE-null mice quantified with in vivo targeting of biomarker-directed nanobeacons*. Circ Res. In review.
3. Waters EA, **Chen J***, Yang X, Zhang H, Neumann R, Arbeit J, Lanza GM, Wickline SA. *Specific detection of the binding of molecularly targeted perfluorocarbon nanoparticles using ¹⁹F diffusion weighted MR spectroscopy*. Magn Reson Med. Accepted
4. **Chen J***, Wang Q, Zhang H, Yang X, Wang J, Berkowitz BA, Wickline SA, Song SK. *In vivo quantification of T1, T2, and apparent diffusion coefficient in the mouse retina at 11.74T*. Magn Reson Med. 2008, 59:731-738 .
5. Ripplinger CM, Li W, Hadley J, **Chen J**, Rothenberg F, Lombardi R, Wickline SA, Marian AJ, Efimov IR. *Enhanced transmural fiber rotation and connexin 43 heterogeneity are associated with an increased upper limit of vulnerability in a transgenic rabbit model of human hypertrophic cardiomyopathy*. Circ Res 2007;101(10):1049-1057.
6. Partlow KC, **Chen J**, Brant JA, Neubauer AM, Meyerrose TE, Creer MH, Nolte JA, Caruthers SD, Lanza GM, Wickline SA. *¹⁹F magnetic resonance imaging for stem/progenitor cell tracking with multiple unique perfluorocarbon nanobeacons*. FASEB J 2007;21(8):1647-1654.
7. Winter PM, Cai K, **Chen J**, Adair CR, Kiefer GE, Athey PS, Gaffney PJ, Buff CE, Robertson JD, Caruthers SD, Wickline SA, Lanza GM. *Targeted PARACEST nanoparticle contrast agent for the detection of fibrin*. Magn Reson Med 2006;56(6):1384-1388.
8. Liu W, Ashford MW, **Chen J**, Watkins MP, Williams TA, Wickline SA, Yu X. *MR tagging demonstrates quantitative differences in regional ventricular wall motion in mice, rats, and men*. Am J Physiol Heart Circ Physiol 2006;291(5):H2515-2521.
9. **Chen J**, Liu W, Zhang H, Lacy L, Yang X, Song SK, Wickline SA, Yu X. *Regional ventricular wall thickening reflects changes in cardiac fiber and sheet structure during contraction: quantification with diffusion tensor MRI*. Am J Physiol Heart Circ Physiol 2005;289(5):H1898-1907.
10. Liu W, **Chen J**, Ji S, Allen JS, Bayly PV, Wickline SA, Yu X. *Harmonic phase MR tagging for direct quantification of Lagrangian strain in rat hearts after myocardial infarction*. Magn Reson Med 2004;52(6):1282-1290.
11. Winter PM, Caruthers SD, Yu X, Song SK, **Chen J**, Miller B, Bulte JW, Robertson JD, Gaffney PJ, Wickline SA, Lanza GM. *Improved molecular imaging contrast agent for detection of human thrombus*. Magn Reson Med 2003;50(2):411-416.
12. **Chen J**, Song SK, Liu W, McLean M, Allen JS, Tan J, Wickline SA, Yu X. *Remodeling of cardiac fiber structure after infarction in rats quantified with diffusion tensor MRI*. Am J Physiol Heart Circ Physiol 2003;285(3):H946-954.
13. Yu X, Song SK, **Chen J**, Scott MJ, Fuhrhop RJ, Hall CS, Gaffney PJ, Wickline SA, Lanza GM. *High-resolution MRI characterization of human thrombus using a novel fibrin-targeted paramagnetic nanoparticle contrast agent*. Magn Reson Med 2000;44(6):867-872.

*, co-first author

D. RESEARCH SUPPORT.

Active:

R21 EY018914 **Chen** (PI) 03/01/2008-02/30/2010
National Institutes of Health
MRI biomarkers of angiogenesis and cell injury in retinopathy of prematurity
To develop MRI techniques for assessment of retinal vasculature and retinal cell integrity in neonatal rat. To Specifically detect hypoxia induced retinal angiogenesis using molecular MRI in a rat model of ROP. To early detect retinal hypoxia induced cell injury using diffusion weighted MRI in a rat model of ROP.

R01 HL073646 Wickline (PI) 07/15/2004-6/30/2009
National Institutes of Health
Methods in Molecular Imaging and Targeted Therapeutics
The long-range goal is to produce a targeted nanoparticle contrast agent characterized by: 1) flexible targeting options depending on the binding ligand selected, 2) flexible imaging choices based on contrast mechanism best suited to the pathology question, and 3) flexible opportunities for local delivery of therapeutic agents coupled directly with image-based quantification of local nanoparticle deposition.

U54 CA119342 Wickline and Lanza (PI) 09/30/2005-08/31/2010
National Institutes of Health
The Siteman Center of Cancer Nanotechnology Excellence at Washington University
Project 1 - Neovascular-Directed Nanoparticles for Detection, Characterization and Treatment of Neoplasia with MRI (Lanza)

Philips Medical Systems (Wickline) 08/01/1998-11/01/2009
Phillips Medical Systems
Research and Magnetic Resonance Imaging System Agreement
The goal is to implement cardiac MRI for clinical cardiac diagnosis. (Collaborator)

Completed

Beginning Grant-in-Aid, 0660057Z **Chen** (PI) 01/01/2006-12/31/2007
American Heart Association
Phenotypic characterization of cardiomyopathy in dystrophic mice using diffusion tensor MRI
The study will investigate alterations in myocardial fiber and sheet structure at different stages of x-linked cardiac myopathy in mouse.

RO1, HL082729-01A1, Trayanova, NA (PI) 02/01/2007-01/31/2011
NIH
Defibrillation Mechanisms in Infarcted Hearts
The study will investigate the defibrillation mechanisms in infarcted hearts through sophisticated computer modeling. (Collaborator)

Pre-doctoral Fellowship Grant, 0315249Z **Chen** (PI) 07/01/2003-12/31/2004
American Heart Association
Characterization of Structural Remodeling in Post-Infarct Myocardium with MRI.
The study characterized dynamic changes in myocardial fiber and sheet structure from diastole to systole in control and post-infarct rat heart using diffusion tensor MRI.