

## FACULTY & STAFF

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- Primary Faculty
- Associated Faculty
- Research Associates
- Research Staff
- Administrative Staff
- Locations & Addresses

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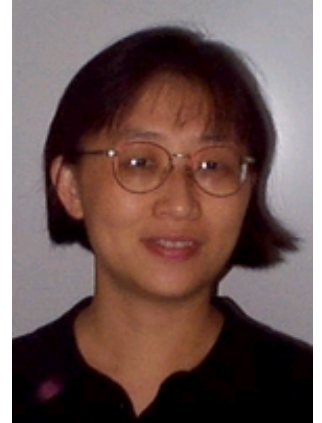
SEARCH BME :

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### Selected links:

- [Cardiovascular Research and Imaging Laboratory](#)
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- [Curriculum Vitae \(PDF Version\)](#)
- [Curriculum Vitae \(HTML Version\)](#)
- [PubMed Citations >>](#)
- [Case Center for Imaging Research >>](#)

### Research Summary

My laboratory is devoted to the integrative study of the cardiovascular system. The focus of research in my laboratory is to develop magnetic resonance imaging (MRI) and spectroscopy (MRS) techniques for phenotypic characterization of cardiovascular diseases in both humans and animal models, and to apply these techniques to elucidate the structure-function and energy-function relationships in diseased hearts. We are interested in both basic science and translational clinical research that combines the state-of-the-art NMR technology with molecular biology approaches to explore the mechanisms of myocardial remodeling in diseased hearts. Currently, we are investigating the myocardial remodeling processes in genetically manipulated mouse models, muscular dystrophy and diabetes in particular.

### Recent Publications

- Zhou L, Yu X, Cabrera ME, Stanley WC, Role of cellular compartmentation in the metabolic response to stress: mechanistic insights from computational models, *NYAS* in press, 2006 (invited review)
- 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.* 291:H2515-H2521, 2006.
- Chung J, Abraszewski P, Yu X, Liu W, Krainik AJ, Ashford M, Caruthers SJ, McGill JB, Wickline SA, Paradoxical increase in ventricular torsion and systolic torsion rate in type I diabetic patients under tight glycemic control, *JACC*, 47:384-390, 2006.
- Zhou L, Stanley WC, Sidel GM, Yu X, Cabrera ME, Regulation of lactate production at the onset of ischemia is independent of mitochondrial NADH/NAD<sup>+</sup>: insights from in silico studies, *J. Physiology*, 569:925-937, 2005.
- 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.* 289:H1898-H1907, 2005.
- Ashford MW, Liu W, Lin SJ, Abraszewski P, Caruthers SD, Connolly AM, Yu X, Wickline SA,

Occult cardiac myofiber dysfunction in dystrophin-deficient children revealed by cardiac magnetic resonance strain imaging, *Circulation* 112:2462-2467,2005.

- Liu W, Chen J, Ji S, Allen JS, Bayly PV, Wickline SA, Yu X, HARP MRI tagging for direct quantification of Lagrangian strain in rat hearts after myocardial infarction, *Magn. Reson. Med.* 52:1282-1290, 2004.
- Morawski AM, Winter PM, Yu X, Fuhrhop RM, Scott MJ, Hockett F, Robertson JD, Gaffney PJ, Lanza GM, Wickline SA, Quantitative "magnetic resonance immunocytochemistry" with ligand-targeted 19F nanoparticles, *Magn. Reson. Med.* 52:1255-1262, 2004.

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