

Liyang (Sarah) Cui, PhD

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EDUCATION

Stanford University, Stanford, CA, USA 2016-present
Postdoctoral Fellow, Department of Radiology, Stanford University
Research Mentor: Professor Jianghong Rao

University of Toronto, Toronto, ON, Canada 2011-2015

Peking University Health Science Center, Beijing, China 2010-2011

PhD, Radiation Medicine

Research Mentor: Professor Gang Zheng, Professor Fan Wang

Jilin University, Jilin, China 2006-2010

BSc, Dual majors: Biology & Chemistry, Summa Cum Laude

Research Mentor: Professor Xueqi Fu, Professor Lirong Teng

RESEARCH EXPERIENCE

Jianghong Rao Lab, Stanford University, Stanford, CA

Postdoctoral Fellow, Jan 2016-present

Design and develop various reactive oxygen species (ROS) nanosensors based on fluorescence resonance transfer and chemiluminescence resonance energy transfer. Quantify the generation of different ROS species during radiation therapy with these sensors. Investigate the ROS generated by systemic immunity after radiation therapy.

Gang Zheng Lab, University of Toronto, Toronto, ON, Canada

Collaborative PhD program, 2011-2015

Designed multifunctional porphyrin-based nanoparticle for cancer theranostics. Preclinical translational studies of porphyrin-incorporated high-density lipoprotein mimetic structure in the diagnosis and therapeutic intervention of glioblastoma and head and neck cancer.

Edmond H. Fischer Signal Transduction Laboratory, Jilin University, China

Research Assistant, Jul 2007- Nov 2008

Isolated and investigated a *Caenorhabditis elegans* homology of the enzymes designated myotubularin.

National Basic Experimental Teaching Demonstration Center, Jilin University, China

Undergraduate Research Assistant, Dec 2008-Dec 2009

Established the extraction method for the active component in the herbal medicine Huidouba. Investigated the therapeutic efficacy of the purified herbal extract for type II diabetes.

TEACHING EXPERIENCE

Lab Course

Immunology, College of Life Science, Jilin University

Mentoring

Advised two undergraduate students, one visiting graduate student on independent research projects.

PUBLICATIONS

Cui L, Rao J. Semiconducting Polymer Nanoparticles as Photoacoustic Molecular Imaging Probes. *Wiley Interdiscip Rev Nanomed Nanobiotechnol* (2017) Mar; 9(2).

Jin CS, Overchuk M, Cui L, Wilson BC, Bristow RG, Chen J, Zheng G. Nanoparticle-enabled selective destruction of prostate tumor using MRI-guided focal photothermal therapy. *Prostate*. 2016 Sep;76(13):1169-81

Ni NC*, Jin CS*, Cui L*, Shao Z, Wu J, Li SH, Weisel RD, Zheng G, Li RK. Non-invasive Macrophage Tracking Using Novel Porphyrin Nanoparticles in the Post-myocardial Infarction Murine Heart. *Mol Imaging Biol*. 2016 Aug;18(4):557-68. *authors contribute equally to this work.

Muhanna N*, Cui L*, Chan H, Burgess L, Jin CS, MacDanold TD, Huynh E, Wang F, Chen J, Irish JC, Zheng G. Multimodal Image-Guided Surgical and Photodynamic Interventions in Head and Neck Cancer: From Primary Tumor to Metastatic Drainage. *Clin Cancer Res* (2016) Feb; 15;22(4):961-70. *authors contribute equally to this work, cover article.

Cui L, Chen J, Zheng G. Porphyrin Nanoparticle for Cancer Imaging and Phototherapy. *HANDBOOK OF PHOTODYNAMIC THERAPY: Updates on Recent Applications of Porphyrin-Based Compounds*, (2016): 273-293, World Scientific (Book Chapter).

Cui L, Tokarz D, Cisek R, Ng KK, Wang F, Chen J, Barzda V, Zheng G. Organized Aggregation of Porphyrins in Lipid Bilayer for Third Harmonic Generation Microscopy. *Angew Chem Int Ed Engl* (2015) Nov 16; 54(47):13928-32.

Muhanna N, Jin CS, Huynh E, Chan H, Qiu Y, Jiang W, Cui L, Burgess L, Akens MK, Chen J, Irish JC, Zheng G. Phototheranostic Porphyrin Nanoparticles Enable Visualization and Targeted Treatment of Head and Neck Cancer in Clinically Relevant Models. *Theranostics*. 2015 Oct 18;5(12):1428-43.

Muhanna N, MacDonald TD, Chan H, Jin CS, Burgess L, Cui L, Chen J, Irish JC, Zheng G. Multimodal nanoparticle for primary tumor delineation and lymphatic metastasis mapping in a head-and-neck cancer rabbit model. *Adv Healthc Mater* (2015) Aug 18; (4):2164-2169

Cui L, Lin Q, Jin CS, Jiang W, Huang H, Muhanna, Irish JC, Wang F, Chen J, Zheng G. A PEG-free Biomimetic Porphyrin Nanoplatform for Personalized Cancer Theranostics. *ACS Nano* (2015) Apr 28; 9(4):4484-95.

Jin CS*, Cui L*, Wang F, Chen J, Zheng G. Targeting-triggered Porphysome Nanostructure Disruption for Activatable Photodynamic Therapy. *Adv Healthc Mater* (2014) Aug; 3(8): 1240-9. *authors contribute equally to this work, cover article.

Ma T, Sun X, Cui L, Gao L, Wu Y, Liu H, Zhu Z, Wang F, Liu Z. Molecular Imaging Reveals Trastuzumab-Induced Epidermal Growth Factor Receptor Downregulation in Vivo. *J Nucl Med*. (2014) Apr 14;55(6):1002-1007

Dong C, Zhao H, Yang S, Shi J, Huang J, Cui L, Zhong L, Jin X, Li F, Liu Z, Jia B, Wang F. (99m)Tc-labeled dimeric octreotide peptide: a radiotracer with high tumor uptake for single-photon emission computed tomography imaging of somatostatin receptor subtype 2-positive tumors. *Mol Pharm*. (2013) Aug 5;10(8):2925-33.

Shi J, Cui L, Jia B, Liu Z, He P, Dong C, Jin X, Zhao H, Li F, Wang F. Technetium 99m-labeled VQ peptide: a new imaging agent for the early detection of tumors or premalignancies. *Mol Imaging*. (2013) Jul-Aug;12(5):318-26.

Cui L, Liu Z, Jin X, Jia B, Li F, Wang F. Evaluation of ¹⁸⁸Re-MAG2-RGD-bombesin for potential prostate cancer therapy. *Nucl Med Biol* (2013) Feb; 40(2): 182-9

Liu Z, Huang J, Dong C, Cui L, Jin X, Jia B, Zhu Z, Li F, Wang F. ^{99m}Tc-labeled RGD-BBN peptide for small-animal SPECT/CT of lung carcinoma. *Mol Pharm*. (2012) May 7;9(5):1409-17

Liu Z, Cui L, Liu X, Wang F. Noninvasive small-animal PET of trastuzumab-mediated EGFR down-regulation with ⁶⁸Ga-Vec(Fab')₂. *J Nucl Med*, May 2012 (53 s1): 342

Liu Z, Huang J, Dong C, Cui L, Jia B, Wang F. Small-animal SPECT/CT of lung carcinoma with ^{99m}Tc-labeled RGD-BBN peptide. *J Nucl Med*, May 2012 (53 s1): 1712

Dong C, Zhao H, Cui L, Shi J, Huang J, Yang S, Liu Z, Jia B, Wang F. Preparation and evaluation of ^{99m}Tc-labeled dimeric Tyr³-Octreotide in the AR42J tumor model. *J Nucl Med*, May 2011 (52 s1): 1472

Huang J, Cui L, Wang F, Liu Z. PET tracers based on (86)Y. *Curr Radiopharm*. (2011) Apr;4(2):122-30.

PATENTS

Ultra small porphyrin vesicles. *US patent*, WO 2015192215 A1

Huidouba extract and preparation method and pharmaceutical use. *Chinese patent*, CN101390882

Huidouba traditional Chinese medicine composite preparation for treating wound, cut trauma, scald and burn. *Chinese patent*, CN101390958

Huidouba extract traditional Chinese medicine preparation for treating diabetes. *Chinese patent*, CN101391076

AWARDS AND HONORS

Graduate Scholarship, Joint Research Fund for Overseas Natural Science of China 2014-2015

First Prize of the Scholarship, Peking University 2010-2012

National Scholarship 2009

First Prize of the Scholarship/Honor Student 2008

National Endeavor Fellowship 2007

SELECTED PRESENTATIONS AND INVITED TALKS (of 8)

Cui L, Lin Q, Jiang W, Ding L, Chen J, Zheng G. Porphyrin-lipid assembled HDL-like nanovesicles for fluorescence imaging and PDT treatment of orthotopic brain glioma tumor. *International Conference on Porphyrins and Phthalocyanines, Istanbul* (2014)

Cui L, Ng KK, Dave N, Chen J, Zheng G. Porphyrin-based Built-in Sensor for Imaging Liposomal Nanoparticle Integrity and Drug Release. *World Molecular Imaging Congress, Savannah* (2013)

Cui L, Zhang Y, Zhao H, Shi J, Yang Z, Liu Z, Jia B, Wang F. Evaluation of ¹¹¹In-CHX-A"-DTPA-3H11 in Nude Mice Bearing HT29 Human Colon Cancer Xenograft. *1st Sino-American Conference on Nuclear Medicine* (2011)

SERVICES

Associate Editor, *Clinical Radiology & Imaging Journal*

Journal Reviewer, *RSC advances, Theranostics, Contrast Media & Molecular Imaging, Medicine, African Journal of Traditional, Complementary and Alternative Medicines.*