CV of Shanrong Zhang

Senior Manager
Pre-Clinical Imaging Core
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July 14th, 2021

1. PERSONAL DATA

Name Shanrong Zhang, Ph.D.

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2. EDUCATION

Sep. 1st 1990 – Oct. 15th, 1995 PhD – Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, P.R. China
Advisors: Profs. Jiazuan Ni and Fengkui Pei
"NMR Studies of Lanthanide Coordination Chemistry"

Sep. 1st, 1983 – Jul. 31st, 1987 Bachelor of Science, Chemistry
Hanzhong Normal College

3. EXPERTISE

a. Small animal MRI techniques, including the experimental design, the hands-on data acquisition and the image data analysis.
b. Expertise in Varian/Agilent VnmrJ 4.0 imaging pulse sequence programming.
c. Expertise in Bruker ParaVision 6.0.1 imaging pulse sequence programming.
d. Excellent hands-on skills (15+ years) in handling rodents (mouse and rat), including *i.v.*, *s.c.*, *i.m.*, and *i.p.* injection, anesthesia, respiratory / ECG gating, and etc.
e. Strong background in MRI contrast agents, from design, development, to in vivo application.
f. Excellent skills in nuclear magnetic resonance spectroscopy (NMR), including multi-nuclear (^{1}H, ^{17}O, ^{31}P, ^{19}F, ^{23}Na, etc) and multi-dimensional (2D) NMR.
g. Excellent skills in using neuroimaging processing software, such as FSL, ANTs, Brain Connectivity Network, ITK-SNAP, ImageJ, DSIstudio.

h. Familiar with the statistical and data analysis techniques, such as Matlab, ImageJ, Origin, Excel, and etc.
i. Had some experience with other *in vivo* biomedical imaging techniques, such as the optical imaging and micro-CT imaging.

4. POSTGRADUATE TRAINING

Nov. 8th, 1997 – Mar. 31st, 2003 Postdoc Associate of Dr. A. Dean Sherry group, Department of Chemistry University of Texas at Dallas
"Lanthanide complexes for biomedical usages"

5. STAFF AND FACULTY POSITIONS

Jun. 9th, 2019 – current Senior Manager, Pre-Clinical Imaging Core, Center for Biometric Analysis, The Jackson Laboratory, Bar Harbor, ME, USA

Dec. 9th, 2019 – Jun. 8th, 2021 Pre-Clinical Imaging Scientist, Center for Biometric Analysis, The Jackson Laboratory, Bar Harbor, ME, USA

Jan. 1st, 2013 – Dec. 4th, 2019 Manager of UT-SAIR (Small Animal Imaging Resource), Sr. Research Engineer, Mouse MRI Core, Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA

Jan. 3rd, 2011 – Dec. 30th, 2012 Research Scientist, Simons Comprehensive Cancer Center, University of Texas Southwestern Medical Center, Dallas, TX
"New Responsive Contrast agents for MRI Cancer imaging"

Sep. 1st, 2004 – Dec. 15th, 2010 Research Assistant Professor, Department of Radiology University of Washington, Seattle, WA, USA
"Novel contrast agents for multi-modality applications"

Apr. 1st, 2003 – Aug 27th, 2004 Research Scientist, Department of Radiology
University of Texas Southwestern Medical Center, Dallas, TX
"Novel contrast agents for MRI molecular imaging"

Oct. 16th, 1995 – Oct. 30th, 1997 Assistant Researcher, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, P. R. China
"NMR studies of lanthanide complexes"

6. HONORS

May, 2002 E. K. Zavoisky Stipend, International Society of Magnetic Resonance in Medicine

Oct, 1995 Excellent Doctoral Fellow, Chinese Academy of Sciences

7. PROFESSIONAL ORGANIZATIONS

Jan. 1st, 2021 – current	Member of International Society of Magnetic Resonance in Medicine (ISMRM)
Jan. 1st, 2016 – Dec. 30th, 2016	Member of International Society of Magnetic Resonance in Medicine (ISMRM)
Jan. 1st, 2004 – Dec. 30th, 2010	Member of International Society of Magnetic Resonance in Medicine (ISMRM)

8. RESEARCH FUNDING

Accomplished:

02/01/2007 – 03/31/2011	PI, Department of Defense, US Army, "Dual-modality contrast agents for MRI and micro-CT imaging of prostate cancer"
01/01/2009 – 06/30/2010	PI, Provost Bridge Fund, UW, "Smart MRI Contrast Agent"
05/01/2006 – 04/30/2008	PI, Royalty Research Funds, UW, "Novel MRI Thermometry Based upon PARACEST Agents"

9. BIBLIOGRAPHY *(Selected among 83+ peer-reviewed articles)*

(1) Selvaraj, UM, et al. Brain, Behavior, and Immunity, **2021**, 95: 502-13. "Delayed diapedesis of CD8 T cells contributes to long-term pathology after ischemic stroke in male mice" (I am the 6th coauthor).

(2) Tiwari, V., et al. Magn. Reson. Med., **2020**, 84(3): 1152-60. "In vivo MRS measurement of 2-hydroxyglutarate in patient-derived IDH-mutant xenograft mouse models versus glioma patients" (I am the 8th coauthor).

(3) Ratnaker, S.J., et al. Angew Chem. Int. Ed., **2020**, 59(48): 21671-76. "A Frequency-Selective pH-Responsive paraCEST Agent". (I am the 4th coauthor)

(4) Li, H-D., et al. JCI Insight, **2020**, 5(14): e138829. "A PoleP286R mouse model of endometrial cancer recapitulates high mutational burden and immunotherapy response". (I am the 10th coauther)

(5) Gong, K. et al. Nat. Cancer, **2020**, 1: 394-409. "EGFR inhibition triggers and adaptive response by co-opting antiviral signaling pathways in lung cancer". (I am the 14th coauther).

(6) Carter, A.M., et al. PNAS, **2020**, 117(31): 18401-11. "Phosphoprotein-based Biomarkers as Predictors for Cancer Therapy" (I am the 9th coauthor)

(7) Kikuchi, K.; Ishimatsu, K.; Zhang, S.; Dimitrov, I.E.; Honda, H.; Sherry, A.D.; Takahashi, M. Contrast Media & Molecular Imaging, **2018**, 3141789. "Presaturation Power Adjusted Pulsed CEST: A Method to Increase Independence of Target CEST Signal"

(8) Martins, A.F.; Jordan, V.C.; Bochner, F.; Chirayil, S.; Paranawithana, N.; Zhang, S.; Lo, S-T.; Wen, X.; Zhao, P.; Neeman, M.; Sherry, A.D. JACS, **2018**, 140(50): 17456 - 64. "Imaging Insulin Secretion from Mouse Pancreas by MRI Is Improved by Use of a Zinc-Responseive MRI Sensor with Lower Affinity for Zn2+ Ions"

(9) Gong, K., et al. J. Clin. Invest., **2018**, 128(6): 2500 - 18. "TNF-driven adaptive response mediates resistance to EGFR inhibition in lung cancer" (I am the 14th coauthor)

(10) Selvaraj, U. M.; Zuurbier, K. R.; Whoolery, C. W.; Plautz, E. J.; Chambliss, K. L.; Kong, X.; Zhang, S.; Kim, S. H.; Katzenellenbogen, B. S.; Katzenellenbogen, J. A.; Mineo, C.; Shaul, P. W.; Stowe, A. M. Endocrinology, **2018**, 159(11): 3848 - 59. "Selective Nonnuclear Estrogen Receptor Activation Decreases Stroke Severity and Promotes Functional Recovery in Female Mice"

(11) Park, S.K.; Rosenthal, T.R.; Williams, J.S.; Shelton, J.M.; Takahashi, M.; Zhang, S.; Bobulescu, I.A. J. Invest. Med., **2018**, 66: 1037 - 44. "Metabolic and Cardiovascular Effects of Chronic Mild Hyperuricemia in Rodents"

(12) Hajarnis, S.; Lakhia, R.; Yheskel, M.; Williams, D.; Sorourian, M.; Liu, X.; Aboudehen, K.; Zhang, S.; Kersjes, K.; Galasso, R.; Li, J.; Kaimal, V.; Lockton, S.; Davis, S.; Flaten, A.; Johnson, J. A.; Holland, W. L.; Kusminski, C. M.; Scherer, P. E.; Harris, P. C.; Trudel, M.; Wallace, D. P.; Igarashi, P.; Lee, E. C.; Androsavich, J. R.; Patel, V. Nat. Commun., **2017**, 8: 14395. "MicroRNA-17 Family Promotes Polycystic Kidney Disease Progression through Modulation of Mitochondrial Metabolism"

(13) Yu, M.; Zhou C.; Liu, L.; Zhang, S.; Sun, S.; Hankins, J.; Sun, X.; Zheng, J. Angew. Chem. Int. Ed., **2017**, 56(15), 4314 - 9. "Interactions of Renal-Clearable Gold Nanoparticles with Tumor Microenvironments: Vasculature and Acidity Effects"

(14) Moon, J.; Zhou, H.; Zhang, L.; Tan, W.; Liu, Y.; Zhang, S.; Morlock, L. K.; Bao, X.; Palecek, S. P.; Feng, J.; Williams, N. S.; Amatruda, J. F.; Olson, E. N.; Bassel-Duby, R.; Lum, L. PNAS, **2017**, 114(7): 1649 - 54. "Blockade to Pathological Remodeling of Infarcted Heart Tissue Using a Porcupine Antagonist"

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(17) Singh, J.; Rustagi, V.; Zhang, S.; Sherry, A. D.; Udugamasooriya, D. G. Magn. Res. Chem. **2017**, 55(8): 747 - 53. "On-bead combinatorial synthesis and imaging of europium(III)-based paraCEST agents aids in identification of chemical features that enhance CEST sensitivity"

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(26) Huang, X.; Huang, G.; Zhang, S.; Sagiyama, K.; Togao, O.; Ma, X.; Wang, Y.; Li, Y.; Soesbe, T.C.: Sumer, B.; Takahashi, M.; Sherry, A.D.; Gao, J. Angew Chem. Int. Ed., **2013**, 52(31): 8074 - 78. "Multi-Chromatic pH-Activatable F-19-MRI Nanoprobes with Binary ON/OFF pH Transitions and Chemical-Shift Barcodes"

(27) Zhou, K.; Liu, H.; Zhang, S.; Huang, X.; Wang, Y.; Huang, G.; Sumer, B.; Gao, J. *Journal of the American Chemical Society*, **2012**, 134(18): 7803 - 11. "Multicolored pH-Tunable and Activatable Fluorescence Nanoplatform Responsive to Physiologic pH Stimuli"

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(34) Zhang, S, Malloy, CR., Sherry, AD. *Journal of the American Chemistry Society,* **2005**, 127: 17572 - 3. "MRI Thermometry Based on PARACEST Agents"

(35) Zhang, S, Jiang X, Sherry, AD. *Helvetica Chimica Acta*, **2005**, 88: 923 - 35. "Modulation of the lifetime of water bound to lanthanide metal ions in complexes with ligands derived from 1,4,7,10-tetraazacyclododecane tetraacetate (DOTA)"

(36) Sherry, AD, Zhang, S, Woods, M. *ACS Symposium Series – Medical Inorganic Chemistry*, **2005**, 903: 151 - 65. "Water Exchange Is the Key Parameter in the Design of Next-generation MRI Agents"

(37) Vinogradov, E., Zhang, S., Lubag, A., Balschi, J.A., Sherry, A.D., Lenkinski, R.E. *Journal of Magnetic Resonance*, **2005**, 176: 54-63. "On-resonance low B_1 pulses for imaging of the effects of PARACEST agents"

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(40) Trokowski, R.; Zhang, S.; Sherry, A. D. *Bioconjugate Chemistry,* **2004**, 15(6), 1431- 40. "Cyclen-Based Phenylboronate Ligands and Their Eu^{3+} Complexes for Sensing Glucose by MRI"

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(42) Zhang, S.; Merritt, M.; Weossner, D.E.; Lenkinski, R.E.; Sherry, A.D. *Accounts of Chemical Research*, **2003**, 36, 783-790. "PARACEST Agents: Modulating MRI Contrast *via* Water Proton Exchange"

(43) Zhang, S.; Sherry, A.D. *J. Solid State Chem.*, **2003**, 171(1-2): 38-43. "Physical Characteristics of Lanthanide Complexes that act as Magnetization Transfer (MT) Contrast Agents"

(44) Woods, M.; Zhang, S.; Ebron, V.H.; Sherry, A.D. *Chem. Eur. J.,* **2003**, 9(19), 4634-40. "pH-sensitive modulation of the second hydration sphere in lanthanide (III) tetraamide DOTA complexes: a novel approach to smart MR contrast media"

(45) Woods, M.; Kovacs, Z.; Zhang, S.; Sherry, A.D. *Angewandte Chemistry International Edition*, **2003**, 42(47), 5889-5892. "Towards the Rational Design of MRI Contrast Agents; Isolation of the Two Coordination Isomers of Lanthanide DOTA-type Complexes"

(46) Raghunand, H.; Howison, C.; Sherry, A.D.; Zhang, S.; Gillies, R.J. *Magnetic Resonance in Medicine*, **2003**, 49(2): 249-257. "Renal and Systemic pH Imaging by Contrast-enhanced MRI"

(47) Geraldes, C.G.F.C.; Zhang, S.; Sherry, A.D. *Bioinorganic Chemistry and Applications,* **2003**, 1(1): 1-23. "Comparison of Crystal Field Dependent and Independent Methods to Analysis Lanthanide Induced Shifts in Axially Symmetric Complexes: Part II. Systems with a C_4 symmetry"

(48) Alves, F.C.; Donato, P.; Sherry, A.D.; Zaheer, A.; Zhang, S.; Lubag, A.J.M.; Merritt, M.E.; Lenkinski, R.E.; Frangioni, J.V.; Neves, M.; Prata, M.I.M.; Santos, A.C.; De Lima, J.J.P.; Geraldes, C.G.F.C. *Investigative Radiology,* **2003**, 38(12): 750-60. "Silencing of phosphonate-gadolinium magnetic resonance imaging contrast by hydroxyapatite binding"

(49) Zhang, S.; Michaudet, L.; Burgess, S.; Sherry, A.D. *Angewandte Chemistry International Edition*, **2002**, 41(11): 1919-1921. "The amide protons of a ytterbium(III)-DOTA-tetraamide complex act as efficient antennae for transfer of magnetization to bulk water"

(50) Zhang, S.; Wu, K.; Sherry, A.D. *Journal of the American Chemistry Society*, **2002**, 124(16): 4226-4227. "Unusually Sharp Dependence of Water Exchange Rate *versus* Lanthanide Ionic Radii for a Series of Tetra-amide Complexes"

(51) De Leon, L.M.; Ortiz, A.; Weiner, A.L.; Zhang, S.; Kovacs, Z.; Kodadek, T.; Sherry, A.D. *Journal of the American Chemistry Society*, **2002**, 124(14): 3514-3515. "Magnetic Resonance Imaging Detects a Specific Peptide-protein Binding Event"

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(53) Raghunand, N.; Zhang, S.; Sherry, A.D.; Gilles, R.J. *Academica Radiology*, **2002**, 9: s481-s483. "*In Vivo* Magnetic Resonance Imaging of Tissue pH by Using a Novel pH-Sensitive Contrast Agent, GdDOTA-4AmP"

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(56) Zhang, S.; Wu, K.; Sherry, A.D. *Investigative Radiology*, **2001**, 36: 82-86. "Gd^{3+} Complexes with Slowly Exchanging Bound Water Molecules May Offer Advantages in the Design of Functional MRI Agents"

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10. Others (Patents):

(1) Sherry, A.D; Zhang, S.; Wu, K. *US Patent,* US6,746,662 (Date of Patent: Jun. 8, **2004** "pH-sensitive MRI contrast agents"

(2) Sherry, A.D; Zhang, S.; Wu, K. *US Patent*, US6,875,419 (Date of Patent: Apr. 5, **2005** "Paramagnetic metal ion-based macrocyclic magnetization transfer contrast agents and method of use"