Curriculum Vitae (abbreviated version)

A. Dean Sherry
Distinguished Chair in Systems Biology, UT-Dallas 972-883-2907
Professor of Chemistry, UT-Dallas

Director, Advanced Imaging Research Center, UT-Southwestern 214-645-2730
Professor of Radiology, UT-Southwestern
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EDUCATION

B. Sc., Chemistry, Wisconsin State University, LaCrosse, 1967
Ph. D., Inorganic Chemistry, Kansas State University, 1971

FIELDS OF RESEARCH SPECIALIZATION

Biomedical magnetic resonance imaging (MRI) and spectroscopy (MRS)
Gadolinium-based MRI contrast agents (pH and Zn^{2+} sensors)
Hyperpolarized ^{13}C tracers for molecular imaging of cancer
PARACEST agents for molecular imaging of diabetes and cancer

EXPERIENCE

1972-1976	Assistant Professor, University of Texas at Dallas
1975-1980	Visiting Staff Member, Los Alamos Scientific Laboratories
1979-1990	Head, Programs in Chemistry, University of Texas at Dallas
1982-pres.	Professor of Chemistry, University of Texas at Dallas
1983-1984	NIH Senior Fellow, UT Southwestern Medical Center, Dallas
1991-pres.	Professor of Radiology, UT Southwestern Medical Center, Dallas
1997	Scientific Founder, Macrocyclics, Inc.
2002-2005	Cecil & Ida Green Honors Chair in Chemistry, University of Texas at Dallas
2005-pres	Assoc. Editor of the journal "Contrast Media for Molecular Imaging", John Wiley
2005-pres	Distinguished Chair in Systems Biology, University of Texas at Dallas
2005-pres	Director, Advanced Imaging Research Center, UT Southwestern Medical Center

AWARDS, FELLOWSHIPS, SOCIETIES & STUDY SECTIONS

NSF Research Trainee, 1970-1971, Kansas State University
NIH Postdoctoral Fellow, 1971-1972, New Mexico State University
AWU-AEC Summer Faculty Fellowship, 1975, Los Alamos Scientific Lab.
NIH Senior Fellow, 1983-1984, University of Texas Health Science Center
W.T. Doherty Award, 1990, DFW Section of the American Chemical Society
UT-Dallas Chancellor's Council Outstanding Teaching Award, 1994
NIH Study Section Member, Biophysical Chemistry (BBCB), 1999-2003
Advisor for establishing the NIH Imaging Agent Roadmap database
External Advisory Board Member, Molecular Imaging Program, NIH

Current Research Support

Robert A. Welch Foundation, $180,000, June 2008 – May 2011

"Lanthanide-based CEST Agents for Metabolic Imaging"
National Institutes of Health (RO1), $888,750, August 2005-July 2011
"PARACEST for Molecular Imaging of Cancer by MRI"
National Institutes of Health (RR grant), $1,025,000, Sept 2006-August 2011
"Metabolic Imaging Agents"
National Institutes of Health (PPG), $2,027,590, Sept 2006-August 2011
"Targeted and Responsive MR and PET Agents for β-cell Imaging"
National Institutes of Health (RO1 MERIT Award), $2,500,000, July 2008-June 2018
"Intermediary Metabolism in the Heart by NMR Spectroscopy"
CPRIT (multi-investigator award), $2,546,242, August, 2010 – July 2013
"Novel MRI and MRS Methods for Imaging Cancer Metabolism"

360 peer reviewed scientific publications (2010-11 papers listed)

1. "A Multislice Gradient Echo Pulse Sequence for CEST Imaging", WT Dixon, I Hancu, SJ Ratnaker, AD Sherry, RE Lenkinski & DC Alsop, Magn. Reson. Med., **63**, 253–256 (2010).

2. "Hyperpolarized ^{89}Y Complexes as pH Sensitive NMR Probes", AK Jindal, ME Merritt, EH Suh, CR Malloy, AD Sherry & Z Kovacs, J. Amer. Chem. Soc., **132**, 1784-1785 (2010).

3. "A Concentration-Independent Method to Measure Exchange Rates in PARACEST Agents", WT Dixon, J Ren, J Ratnakar, E Vinogradov, RE Lenkinski & AD Sherry, Magn. Reson. Med., 63, 625-632 (2010).

4. "Advantages of macromolecular to nanosized chemical-exchange saturation transfer agents for MRI applications", Y Wu, M Evbuomwan, M Melendez, A Opina & AD Sherry, Future Medicinal Chemistry, **2**, 351-366 (2010).

5. "Bimodal MR-PET Agent for Quantitative pH Imaging", L Frullano, C Catana, T Benner, AD Sherry & P Caravan, Angew. Chem. Internat. Ed., **49**, 2382-2384 (2010).

6. "Competition of pyruvate with physiological substrates for oxidation by the heart: Implications for studies with hyperpolarized [1-^{13}C]pyruvate, KX Moreno, SM Sabelhaus, ME Merritt, AD Sherry & CR Malloy, Amer. J. Physiol., **298**, H1556-H1564 (2010).

7. "Alternatives to Gadolinium-based MRI Metal Chelates", S. Viswanathan, Z. Kovacs, SJ Ratnakar, KN Green & AD Sherry, Chem. Rev., **110**, 2960-3018 (2010).

8. "Improved synthesis of DOTA-tetraamide ligands for lanthanide(III) ions: A tool for increasing the repertoire of potential PARACEST contrast agents for MRI and/or fluorescent sensors, LM DeLeon-Rodriguez, S Viswanathan & AD Sherry, Contrast Media & Mol. Imaging, **5**, 121-125 (2010).

9. "Activation of a PARACEST agent for MRI through selective outer-sphere interactions with phosphate diesters", C-H Huang, J Hammell, SJ Ratnakar, AD Sherry & JR Morrow, Inorg. Chem., **49**, 5963-5970 (2010).

10. "Multifunctional Polymeric Scaffolds for Enhancement of PARACEST Contrast Sensitivity and Performance: The Effects of Random Copolymer Variations" Y Wu, P Zhao, G Kiefer & AD Sherry, Macromolecules, 43, 6616-6624 (2010).

11. "The Population of SAP and TSAP Isomers in Cyclen-Based Lanthanide(III) Chelates is Substantially Affected by Solvent", KJ Miller, AA Saherwala, B Webber, Y Wu, AD Sherry & M Woods, Inorg. Chem., **49**, 8662-8664 (2010).

12. "A responsive europium)III) chelate that provides a direct readout of pH by MRI", Y Wu, TC Soesbe, GE Kiefer, P Zhao & AD Sherry, J. Amer. Chem. Soc., **132**, 14002-14003 (2010).

13. "^{1}H MRS of intramyocellular lipids in soleus muscle at 7T: Spectral simplification by using long echo times without water suppression", Magn. Reson. Med., **64**, 662-671 (2010).

14. "MRI detection of VEGFR2 *in vivo* using a low molecular weight peptoid-$(Gd)_8$-dendron for targeting", LM DeLeon-Rodriquez, A Lubag, DG Udugamasooriya, B Proneth, RA Brekken, X Sun, T Kodadek & AD Sherry, J. Amer. Chem. Soc., **132**, 12829-12831 (2010).

15. "Strategies for labeling Proteins with PARACEST Agents", O Vasalatiy, P Zhao, M Woods, A Marconescu , A Castillo-Muzquiz, P Thorpe, GE Kiefer & AD Sherry, Bioorg & Med. Chem., **19**, 1106-1114 (2011).

16. "Effect of ^{13}C enrichment in the glassing matrix on dynamic nuclear polarization of [1-^{13}C]pyruvate", L Lumata, Z Kovacs, CR Malloy, AD Sherry & ME Merritt, Phys Med. Biol., 56, N1-N8 (2011).

17. "Europium(III) DOTA-derivatives having ketone donor pendant arms display dramatically slower water exchange", KN Green, S Viswanathan, FA Rojas-Quijano, Z Kovacs & AD Sherry, Inorg. Chem., **50**, 1648-1655 (2011).

18. "Off-Resonance Saturation MRI of Superparamagnetic Nanoprobes: Theoretical Models and Experimental Validations" C Khemtong, O Togao, J Ren, C Kessinger, M Takahashi, AD Sherry & J Gao, J. Magn. Reson., **209**, 53–60 (2011).

19. "Investigations into whole water, prototropic and amide proton exchange in lanthanide(III) DOTA-tetraamide chelates", M Woods, A Pasha, G Tircso, S Chowdhury, G Kiefer, DE Woessner and AD Sherry, Dalton Trans., **40**, 6759-6764 (2011).

20. "*In vivo* determination of human breast fat composition by ^{1}H MRS at 7T", IE Dimitrov, D Douglas, J Ren, NB Smith, AG Webb, AD Sherry & CR Malloy, Magn. Reson. Med., in press.

21. "DNP by thermal mixing under optimized conditions yields >60,000-fold enhancement of ^{89}Y NMR signals" LL Lumata, AK Jindal, ME Merritt, CR Malloy, AD Sherry & Z Kovacs, J. Amer. Chem. Soc., **133**, 8673-8680 (2011).

22. "On-bead combinatorial synthesis and imaging of CEST agents to identify factors that influence water exchange", R Napolitano, TC Soesbe, L DeLeon-Rodriguez, AD Sherry, & D. Gomika Udugamasooriya, J. Amer. Chem. Soc., **133**, 13023-13030 (2011).

23. "BDPA: An efficient polarizing agent for fast dissolution dynamic nuclear polarization NMR spectroscopy" LL Lumata, SJ Ratnakar, AK Jindal, ME Merritt, A Comment, CR Malloy, AD Sherry & Z Kovacs, Chem. Eur. J., **17**, 10825-10827 (2011).

24. "Could ^{13}C MRI Assist Clinical Decision-Making for Patients with Heart Disease?" CR Malloy, ME Merritt & AD Sherry, NMR in Biomed., in press.

25. "T_2 exchange agents: a new class of MRI contrast agents that shorten water T_2 by chemical exchange rather than relaxation", TC Soesbe, ME Merritt, KN Green, FA Rojas-Quijano & AD Sherry, Magn. Reson. Med., in press.

26. "Non-invasive ^1H MRS detection of acetate metabolism in human skeletal muscle", J. Ren, CR Malloy & AD Sherry, Magn. Reson. Med., in press.

27. "Imaging Glucose Stimulated Insulin Secretion (GSIS) *in vivo* using a Zn^{2+}-responsive MRI Contrast Agent", AJM Lubag, LM De Leon-Rodriguez, SC Burgess & AD Sherry, Proc. Natl. Acad. Sci., ASAP (in print online).

28. **"**TmDOTA-tetraglycinate encapsulated liposomes as pH-sensitive LIPOCEST agents", ACL Opina, KB Ghaghada, P Zhao, GE Kiefer, A Annapragada & AD Sherry, PlosOne, in press.

29. "Transfer of Hyperpolarization from Long T_1 Storage Nuclei to Short T_1 Neighbors Using FLOPSY-8", K Moreno, C Harrison, AD Sherry, CR Malloy & ME Merritt, J. Magn. Reson., in press.

30. "Towards the Rational Design of MRI Contrast Agents: δ-Substitution of Lanthanide(III) NB-DOTA-Tetraamide Chelates Influences but Does Not Control Coordination Geometry", CE Carney, AD Tran, J Wang, MC Schabel, AD Sherry & M Woods, Chem. Eur. J., 17, 10372-10378 (2011).

31. "The Chemistry of Contrast Agents in Medical Magnetic Resonance Imaging" edited by Merbach, Toth and Helm, Chapter 5 entitled "Stability and Toxicity of Contrast Agents"**,** Ernő Brücher, Gyula Tircsó, Zsolt Baranyai, Zoltan Kovács and A. Dean Sherry, John Wiley, in press.

31 issued patents (most recent listed)

1. "Paramagnetic Metal ion-based Macrocyclic Magnetization Transfer (MT) Contrast Agents and Method of Use", A.D. Sherry, S. Zhang & K. Wu, **U.S. Patent 6,875,419**, Filed: Nov. 20, 2001, Issued: April 5, 2005.

2. "Lactate Dehydrogenase as a Novel Target and Reagent for Diabetes Therapy", Christopher Newgard, Mette Jensen, A. Dean Sherry & Shawn Burgess, UTSD: 0984. Filed: January 21, 2003.

3. "Measurement of Gluconeogenesis and Intermediary Metabolism Using Stable Isotopes", J. Jones, A.D. Sherry, C.R. Malloy, **US Patent 7,256,047**, Issued: Aug 14, 2007.