CURRICULUM VITAE

A. Dean Sherry
Distinguished Chair Emeritus, Chemistry & Biochemistry, UT-Dallas 972-883-2907
Professor Emeritus, Advanced Imaging Research Center and Radiology
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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 techniques, applications of ^{13}C and ^{2}H NMR to studies of intermediary metabolism, lanthanide-based MRI contrast agents, lanthanide-macrocyclic complexes, metabolic imaging agents, hyperpolarized substrates and paraCEST agents for molecular imaging.

EXPERIENCE

1971-1972	NIH Postdoctoral Fellow, New Mexico State University
1972-1976	Assistant Professor, University of Texas at Dallas
1975-1980	Visiting Staff Member, Los Alamos Scientific Laboratories
1974-1982	Adjunct Professor of Biochemistry & Biophysics, UT Southwestern Medical Center
1976-1982	Associate Professor, University of Texas at Dallas
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
2005-2019	Director, Advanced Imaging Research Center, UT Southwestern Medical Center
2005-pres	Professor, Advanced Imaging Research Center, UT Southwestern Medical Center
2020-2021	Interim Dean, Natural Sciences & Mathematics, UT Dallas
1997	Scientific Founder, Macrocyclics, Inc.
2002-2005	Cecil & Ida Green Honors Chair in Chemistry, University of Texas at Dallas
2005-2016	Associate Editor, Contrast Media & Molecular Imaging, John Wiley
2005-pres	Distinguished Chair in Systems Biology, University of Texas at Dallas
2010-2014	Deputy Editor, Magnetic Resonance in Medicine
2011	Co-Chair, Imaging in 2020
2012	Co-Chair, Metals in Medicine Gordon Research Conference
2014-2016	Special Assistant to the President of UT Dallas for UT Southwestern Collaborations
2016	Scientific Co-Founder, VitalQuan, LLC
2015-2020	Executive Advisory Committee, US National High Magnetic Field Lab (NHMFL)
2019-2020	Scientific Advisory Board (SAB), EuroBioImaging consortium
2022-	Editorial board, NMR in Biomedicine

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
2011 Fellow, International Society for Magnetic Resonance in Medicine (ISMRM)
2013 Gold Medal Award, World Molecular Imaging Society (WMIS)
2015 Gold Medal Award, International Society for Magnetic Resonance in Medicine (ISMRM)
2015 Fellow, World Molecular Imaging Society (WMIS)
2019 Honorary Doctoral Degree (Doctors Honoris Causa), University of Debrecen, Hungary
2022 Harry Fischer Award for lifetime achievements in Contrast Media research

2023 Fellow, National Academy of Inventors (NAI)

RESEARCH SUPPORT (direct costs only)

Research Corporation, $5,000, June 1973-December 1974
"Lanthanide Complexes as Aqueous NMR Shift Reagents"
Robert A. Welch Foundation, $30,000, May 1974-April 1977
"Lanthanide Ions as Spectroscopic Probes of Metal Binding Sites in Proteins"
National Institutes of Health (RO1), $56,813, April 1974-March 1977
"Lanthanide Ions as Spectroscopic Rulers in Concanavalin A"
Robert A. Welch Foundation, $24,000, June 1977-May 1979
"Nuclear Magnetic Resonance Investigations of Lectin-Cell Interactions"
National Institutes of Health (RO1), $148,235, April 1977-March 1980
"Lanthanide Ions as Probes of Con A-Cell Interactions"
Robert A. Welch Foundation, $42,000, June 1979-May 1982
"Nuclear Magnetic Resonance Investigations of Lectin-Cell Interactions"
National Institutes of Health (RO1), $199,560, April 1980-March 1983
"Carbon-13 Studies of Con A-Cell Receptor Interactions"
Robert A. Welch Foundation, $33,000, June 1982-May 1984
"Lanthanide Chelates as Aqueous NMR Shift Reagents"
National Institutes of Health (RO1), $32,395, July 1983-December 1984
"Carbon-13 Studies of Con A-Cell Receptor Interactions"
Robert A. Welch Foundation, $60,000, June 1984-May 1987
"Lanthanide Chelates as Aqueous Shift Reagents"
Mallinckrodt, Inc., $336,000, January 1986-March 1990
"Development of New Gadolinium MRI Contrast Agents"
Robert A. Welch Foundation, $75,000, June 1987-May 1990
"Lanthanide Chelates as Agueous Shift Reagents"
The Meadows Foundation, $250,000, June 1988-May 1991
"The Study of Intermediary Metabolism in Cells and Organs by NMR Spectroscopy"
National Institutes of Health (RO1), $418,040, July 1988-June 1991
"Intermediary Metabolism in the Heart by NMR Spectroscopy"
Robert A. Welch Foundation, $90,000, June 1990-May 1993
"Chelates for Measurement of Intracellular Ion Concentrations"
Dallas Biomedical Corporation, $87,755, June 1989-July 1990
"Evaluation of Paramagnetic Chelates as MRI Contrast Agents"
National Institutes of Health (RO1), $537,187, July 1991-June 1994
"Intermediary Metabolism in the Heart by NMR Spectroscopy"
Dow Chemical Co., $150,000, January 1993-December, 1995
"Development of Liver MRI Contrast Agents"
Robert A. Welch Foundation, $91,000, June 1993-May 1996
"Chelates for Measurement of Intracellular Ions"
Molecular Biosystems, Inc., $174,764, June 1993-March 1995
"Bi- and Trifunctional DO2A Macrocycles"
National Institutes of Health (RR grant), $250,000, September 1993-August 1998
"New Chelates for Monitoring Intracellular Cations"
National Institutes of Health (RO1), $1,221,072, July 1994-June 1998
"Metabolism in the Heart by NMR Spectroscopy"
Robert A. Welch Foundation, $102,000, June 1996-May 1999

"New Macrocyclic Ligands for Chelating Lanthanides"
Bracco Research, USA, $53,000, March 1996-February 1997
"Synthesis and Characterization of Polymeric Contrast Agents"
Bracco Research, USA, $53,000, March 1997-February 1998
"Synthesis and Characterization of Polymeric Contrast Agents"
National Institutes of Health (RO1), $1,022,696, July 1998-June 2002
"Intermediary Metabolism in the Heart by NMR Spectroscopy"
National Institutes of Health (RR grant), $286,112, Sept 1998-August 2001
"New Ligand Systems for Monitoring Biological Cations by NMR"
Robert A. Welch Foundation, $126,000, June 1999-May 2002
"New Macrocyclic Ligands for Monitoring Extracellular Calcium"
National Institutes of Health (R21/33), $635,314, January 2000-December 2004
"MRI Agents Sensitive to Biological Indicators of Neoplasm"
National Institutes of Health (RR grant), $354,950, August 2001-June 2006
"High Relaxivity, Responsive MR Imaging Agents"
Robert A. Welch Foundation, $150,000, June 2002-May 2005
"Lanthanide DOTA-tetraamide Complexes as Biological Sensors"
State of Texas Advanced Technology Program $150,000, January 2002-December 2004
"MT Contrast Agents: A New Paradigm in Molecular Imaging"
National Institutes of Health (RO1), $1,125,000, July 2002-June 2007
"Metabolism in the Heart by NMR Spectroscopy"
Robert A. Welch Foundation, $180,000, June 2005-May 2008
"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 (RO1 – subcontract from Harvard), $600,000 3-year project
"paraCEST Agents: Optimization for Human Imaging"
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"
Robert A. Welch Foundation, $210,000, June 2008-May 2011
"Lanthanide-based CEST Agents for Metabolic Imaging"
National Institutes of Health (S10 Instrument purchase grant) $421,000, February 2008
"HyperSense DNP System"
National Institutes of Health (R37 MERIT Award), $2,500,000, July 2008-June 2018
"Metabolism in the Heart by NMR Spectroscopy"
Cancer Prevention & Research Institute of Texas (CPRIT), $2,546,241, July 2010 – June 2013
"Novel MRI and MRS Methods for Imaging Cancer Metabolism"
National Institutes of Health (RO1), $1,000,000, August 2011-July 2016
"paraCEST for Molecular Imaging of Cancer by MRI"
Robert A. Welch Foundation, $210,000, June 2011-May 2014
"Lanthanide-based CEST Agents for Metabolic Imaging"
National Institutes of Health (RO1), $1,200,000, 5 year project, March 2011 - January 2016
"paraCEST Agents: Optimization for Human Imaging"
National Institutes of Health (RO1), 1,087,500, Sept 2012 – August 2017
"Imaging Beta Cell Function in Vivo with Zinc Responsive MRI Contrast Agents"
Cancer Prevention & Research Institute of Texas (CPRIT), $1,758,888, March 2014-April 2016
"Novel MRI and MRS Methods for Imaging Cancer Metabolism"

Robert A. Welch Foundation, $225,000, June 2014-May 2017
"Lanthanide-based CEST Agents for Metabolic Imaging"
National Institutes of Health (RO1), $950,000, Jan 2017- Dec 2021
"paraCEST for Molecular Imaging of Cancer by MRI"
Robert A. Welch Foundation, $240,000, June 2017 - May 2020
"Shift reagents for MRI detection of specific metabolites"
National Institutes of Health (RO1), 1,250,000, Sept 2018 – August 2022
"Imaging Beta Cell Function in Vivo with Zinc Responsive MRI Contrast Agents"
Cancer Prevention & Research Institute of Texas (CPRIT), $900,000, March 2018 - Dec 2021
"Imaging glucose-stimulated zinc secretion (GSZS) from the prostate by MRI: A potentially powerful method for early detection of prostate cancer"

PROFESSIONAL PUBLICATIONS

1. "Linear Enthalpy-Spectral Shift Correlations for 2,2,2-Trifluoroethanol", AD Sherry & KF Purcell, J. Phys. Chem., **74**, 3535-3543 (1970).

2. "Steric Hindrance and Solvation Effects in Hydrogen Bonded Adducts", AD Sherry & KF Purcell, J. Amer. Chem. Soc., **92**, 6386-6387 (1970).

3. "Hydrogen Bonding with Sulfur Donors", AD Sherry & KF Purcell, J. Amer. Chem. Soc., **94**, 1848-1853 (1972).

4. "Linear Enthalpy-Spectral Shift Correlations for Perfluoro-t-butanol", AD Sherry & KF Purcell, J. Amer. Chem. Soc., **94**, 1853-1857 (1972).

5. "A Nuclear Magnetic Resonance Study of Histidine-Neodymium(III) Complexes", AD Sherry, ER Birnbaum & DW Darnall, J. Biol. Chem., **247**, 3489-3494 (1972).

6. "A NMR Study of the Interaction of Neodymium(III) with Amino Acids and Carboxylic Acids: An Aqueous Shift Reagent", AD Sherry, C Yoshida, ER Birnbaum & DW Darnall, J. Amer. Chem. Soc., **95**, 3011-3014 (1973).

7. "Proton Relaxation Studies in H_2O-D_2O Mixtures: The Binding of Manganese(II) to Bovine Serum Albumin", AD Sherry, ER Birnbaum & DW Darnall, Analytical Biochemistry, **52**, 415-420 (1973).

8. "Proton Relaxation Rate and Fluorometric Studies of Manganese and Rare Earth Binding to Concanavalin A", AD Sherry & GL Cottam, Arch. Biochem. Biophys., **156**, 665-672 (1973).

9. "Magnetic Resonance Studies of the Formation of the Ternary Phosphoenol pyruvate-Gadolinium-Muscle Pyruvate Kinase Complex", GL Cottam, KM Valentine, BC Thompson & AD Sherry, Biochemistry, **13**, 3532-3537 (1974).

10. "Spectroscopic and Calorimetric Studies of Hydrogen Bonding", in **The Hydrogen Bond - Recent Developments in Theory and Experiments**, North Holland Publishing Company, New York (1976) 1199-1224.

11. "The Activation of Concanavalin A by Lanthanide Ions", AD Sherry, AD Newman & CG Gutz, Biochemistry, **14**, 2191-2196 (1975).

12. "A Simple, One Step Fluorometric Method for the Determination of Nanomolar Concentrations of Terbium", TD Barela & AD Sherry, Analytical Biochemistry, **71**, 351-357 (1976).

13. "Proton and Carbon Lanthanide Induced Shifts in Aqueous Alanine Solutions: Evidence for Structural Changes Along the Lanthanide Series", AD Sherry & E Pascual, J. Amer. Chem. Soc., **99**, 5871-5876 (1977).

14. "Gd(TTHA): An Aqueous Carbon-13 Relaxation Reagent", J Lettvin & AD Sherry, J. Mag. Resonance, **28**, 459-461 (1977).

15. "Calorimetric Study of the Lewis Acid Properties of Coordinatively Unsaturated Organo-Iridium(III) Species", TW Leung, MJ Hintz, LT Chan, AD Sherry & DM Blake, Inorganic Chemistry, **16**, 2606-2612 (1977).

16. "The Sugar Binding Properties of Various Metal Ion Induced Conformations in Concanavalin A", AD Sherry, AE Buck & CA Peterson, Biochemistry, **17**, 2169-2173 (1978).

17. "Fluorescence Properties of Terbium-Alkaline Phosphatase", AD Sherry, S Au-Young & GL Cottam, Arch. Biochem. Biophys., **189**, 277-282 (1978).

18. "Conformational Examination of Uridine Diphosphoglucose Using Lanthanide-Nitrilotriacetate Chelates as Shift Probes", RE London & AD Sherry, Biochemistry, **17**, 3662-3666 (1978).

19. "Metal Ion Induced Conformational Changes in Concanavalin A: Evidence for Saccharide Binding to One Metal Free Structure", CA Stark & AD Sherry, Biochem. Biophys. Research Commun., **87**, 598-604 (1979).

20. "Separation of Contact and Pseudocontact Contributions to ^{13}C Lanthanide Induced Shifts in Non-Axially-Symmetric Lanthanide Ethylenediaminetetraacetate Chelates", AD Sherry, P Yang & LO Morgan, J. Amer. Chem. Soc., **102**, 5755-5759 (1980).

21. "Kinetics of Concanavalin A Activation by Calcium Ions", AD Sherry, MA Lindorfer, P Adams-Stemler & OP Milanes, Cienc. Biol. (Portugal), **5**, 83-85 (1980).

22. "Whole Organism ^{31}P Nuclear Magnetic Resonance Spectroscopy: A Potential Application in Aquatic Toxicology Evaluations", WA Waller & AD Sherry, Bull. Env. Cont. Tox., **26**, 73-78 (1981).

23. "Kinetic and Equilibrium Studies of Concanavalin A Activation by Calcium Ions", AD Sherry, MA Lindorfer, P Adams-Stemler & OA Milanes, Biochemistry, **20**, 3492-3499 (1981).

24. "Lanthanide Ethylenediaminetetra-acetate Chelates as Aqueous Shift Reagents: Evidence for Effective Axial Symmetry in Bidentate Cytidine 5'-Monophosphate and Alanine Complexes", AD Sherry, CA Stark, J Ascenso & CFGC Geraldes, J. Chem. Soc. (Dalton), 2078-2082 (1981).

25. "The Structure of Activation Factor for Phosphofructokinase", K. Uyeda, E. Furuya & AD Sherry, J. Biol. Chem., **256**, 8679-8684 (1981).

26. "Concanavalin A Will Not Assume the Sugar Binding Conformation in the Complete Absence of Metal Ions", S Strazza & AD Sherry, Biochem. Biophys. Research Commun., **106**, 1291-1297 (1982).

27. "Conformational Equilibrium of Demetalized Concanavalin A: A Reexamination of the Kinetics of Its Interaction with Ca^{2+} Ions and Fluorescent Saccharides", SH Koenig, RD Brown, III, CF Brewer & AD Sherry, Biochem. Biophys. Research Commun., **109**, 1047-1053 (1982).

28. "Physical Studies of ^{13}C-Methylated Concanavalin A: pH- and Co^{2+}-Induced Nuclear Magnetic Resonance Shifts", AD Sherry & J Teherani, J. Biol. Chem., **258**, 8663-8669 (1983).

29. "Lanthanide Induced Shift and Relaxation Rate Studies of Aqueous L-Proline Solutions", M Singh, J Reynolds & AD Sherry, J. Amer. Chem. Soc., **1O5**, 4172-4177 (1983).

30. "19-Nor-1O-Ketovitamin D Derivatives: Unique Metabolites of Vitamin D3, Vitamin D2, and 25-Hydroxyvitamin D3", JL Napoli, JL Sommerfield, BC Pramanik, R Gardner, AD Sherry, JJ Partridge, MR Uskokovic & RL Horst, Biochemistry, **22**, 3636-3640 (1983).

31. "^{17}O NMR Studies of Lanthanide Ion-Proline Complexes", AD Sherry & M Singh, J. Less Common Metals, **94**, 343-349 (1983).

32. "Lanthanide Ethylenediaminetetraacetates as Aqueous Shift Reagents: Interaction with Cyclopropane Carboxylic Acid", M Singh & AD Sherry, J. Less Common Metals, **94**, 351-354 (1983).

33. "Methyl Motions in [^{13}C]-Methylated Concanavalin A Studied by ^{13}C Nuclear Magnetic Resonance Techniques", AD Sherry, J Keepers, TL James & J Teherani, Biochemistry, **23**, 3181-3185 (1984).

34. "Amine Inversion in Proteins: A ^{13}C Nuclear Magnetic Study of Proton Exchange and Nitrogen Inversion Rates in [^{13}C]N,N',N",N"'-tetramethyllysine, [^{13}C],N',N",N"'-tetramethyllysine Methyl Ester, and Reductively Methylated Conconavalin A", WJ Goux, J Teherani & AD Sherry, Biophys. Chem., **19**, 363-373 (1984).

35. "Reductive Methylation of the Lysyl Residues in the fd Gene 5 DNA-Binding Protein: CD and ^{13}C NMR Results on the Modified Protein", DM Gray, AD Sherry, J Teherani & JW Kansy, J. Biomol. Struc. and Dynamics, **2**, 77-91 (1984).

36. "Line Width Considerations in ^{33}S Nuclear Magnetic Resonance of Aqueous Samples", P Mahendroo & AD Sherry, Magn. Reson. Chem., **23**, 503-505 (1985).

37. "Metabolic Studies of Pyruvate and Lactate Perfused Guinea Pig Hearts by ^{13}C NMR: Determination of Substrate Preference by Glutamate Isotopomer Distribution", AD Sherry, RL Nunnally & RM Peshock, J. Biol. Chem., **260**, 9272-9279 (1985).

38. "^{13}C NMR Measurements of Flux through Alanine Aminotransferase by Saturation and Inversion Transfer Methods", CR Malloy, AD Sherry & RL Nunnally, J. Magn. Reson., **64**, 243-254 (1985).

39. "Nuclear Magnetic Resonance and Potentiometric Studies of the Protonation Scheme of a Triaza Triacetic Macrocycle and its Complexes with Lanthanum and Lutetium", CFGC Geraldes, MC Alpoim, MPM Marques, AD Sherry & M Singh, Inorg. Chem., **24**, 3876-3881 (1985).

40. "Lanthanide-NOTA Chelates as Aqueous Shift Reagents: Interaction with Cyclopropane Carboxylic Acid", CFGC Geraldes, AD Sherry & M Singh, J. Less Common Metals, **112**, 255-261 (1985).

41. "Magnetic Field Dependence of Solvent Proton Relaxation Induced by Gd^{3+} and Mn^{2+} Complexes of Various Polyaza Macrocyclic Ligands: Implications for NMR Imaging", CFGC Geraldes, AD Sherry, RD Brown, III & SH Koenig, Magn. Reson. Med., **3**, 242-250 (1986).

42. "Lanthanum-139 Nuclear Magnetic Resonance Studies of Lanthanum Complexes of Polyaminocarboxylates in Aqueous Solution", CFGC Geraldes & AD Sherry, J. Magn. Reson., **66**, 274-282 (1986).

43. "Nuclear Magnetic Resonance Structural Studies of an Axially Symmetric Lanthanide Ion Chelates in Aqueous Solution", AD Sherry, M Singh & CFGC Geraldes, J. Magn. Reson., **66**, 511-524 (1986).

44. "A NMR Method to Probe the Nature of Liquid Clathrates", LM Barden, EA Babaian, DC Hrncir & AD Sherry, J. Inclusion Phen., **4**, 429-431 (1986).

45. "Carbon Flux through Citric Acid Cycle Pathways in Perfused Heart by ^{13}C NMR Spectroscopy", CR Malloy, AD Sherry, & FMH Jeffrey, FEBS Lett., **212**, 58-62 (1987).

46. "Thermodynamic Study of Lanthanide Complexes of 1,4,7-triazacyclononaneN,N',N"-triacetic acid and 1,4,7,10-tetraazacyclododecane N,N',N",N'"-tetraacetic acid", WP Cacheris, SK Nickle & AD Sherry, Inorg. Chem., **26**, 958-960 (1987).

47. "A NMR Study of Lanthanide-NOTA Chelates as Aqueous Paramagnetic Shift and Relaxation Probes", CFGC Geraldes, MPM Marques & AD Sherry, Inorg. Chim. Acta, **139**, 311-313 (1987).

48. "^{31}P and ^{23}Na NMR Lanthanide Induced Shifts in Axially Symmetric Macrocyclic Phosphonate Complexes", AD Sherry, CFGC Geraldes & WP Cacheris, Inorg. Chim. Acta, **139**, 137-139 (1987).

49. "Organizational Aspects of the Krebs Citric Acid Cycle", PA Srere, B Sumegi & AD Sherry, Biochem. Soc. Symp., **54**, 173-182 (1987).

50. "Propionate Metabolism in the Rat Heart by ^{13}C NMR Spectroscopy", AD Sherry, CR Malloy, RE Roby, A Rajagopal & FMH Jeffrey, Biochem J., **254**, 593-598 (1988).

51. "$Dy(DOTP)^{5-}$: A New, Stable ^{23}Na Shift Reagent", AD Sherry, CR Malloy, FMH Jeffrey, WP Cacheris & CFGC Geraldes, J. Magn. Reson., **76**, 528-533 (1988).

52. "Studies of Intermediary Metabolism in the Heart by ^{13}C NMR Spectroscopy", AD Sherry & CR Malloy, in **NMR Techniques in the Study of Cardiovascular Structure and Function**, Ed. by M Osbakken & J Haselgrove, Futura Publishing Co., Inc., Mount Kisco, NY, pp. 271-287 (1988).

53. "Evaluation of Carbon Flux and Substrate Selection through Alternate Pathways Involving the Citric Acid Cycle of the Heart by ^{13}C NMR Spectroscopy", CR Malloy, AD Sherry & FMH Jeffrey, J. Biol. Chem., **263**, 6964-6971 (1988).

54. "Stability Constants for Gd^{3+} Binding to Model DTPA-conjugates and DTPA-proteins: Implications for Their Use as Magnetic Resonance Contrast Agents", AD Sherry, WP Cacheris & K-T Kuan, Magn. Reson. Med., **8**, 180-190 (1988).

55. "Number of Inner-Sphere Water Molecules in Gd^{3+} and Eu^{3+} Complexes of DTPA-amide and DTPA-ester Conjugates", CFGC Geraldes, AD Sherry, WP Cacheris, K-T Kuan, RD Brown 3rd, SH Koenig & M. Spiller, Magn. Reson. Med., **8**, 191-199 (1988).

56. "Reductive Methylation and ^{13}C NMR Studies of the Lysyl Residues of fd Gene 5 Protein: Lysines 24, 46, and 69 May Be Involved in Nucleic Acid Binding.", LR Dick, AD Sherry, MM Newkirk & DM Gray, J. Biol. Chem., **263**, 18864-18872 (1988).

57. "Evaluation of Polyazamacrocyclic Methylene Phosphonate Chelates of Gd^{3+} ions as MRI Contrast Agents", CFGC Geraldes, RD Brown, III, WP Cacheris, SH Koenig, AD Sherry & M Spiller, Magn. Reson. Med., **9**, 94-104 (1989).

58. "Synthesis, Protonation Sequence and NMR Studies of Polyazamacrocyclic Methylene phosphonates", CFGC Geraldes, AD Sherry & WP Cacheris, Inorg. Chem., **28**, 3336-3341 (1989).

59. "Lanthanide Chelates as Magnetic Resonance Imaging Contrast Agents", A. Dean Sherry, J. Less Common Metals, **149**, 133-141 (1989).

60. "Synthesis and Characterization of the Gd^{3+} Complex of DOTA-Propylamide: A Model DOTA-Protein Conjugate", AD Sherry, RD Brown, III, CFGC Geraldes, SH Koenig, K-T Kuan & M Spiller, Inorg. Chem., **28**, 620-622 (1989).

61. "A Simplified Synthetic Route to Polyaza Macrocycles", F Chavez & AD Sherry, J. Org. Chem., **54**, 2990-2992 (1989).

62. "^{13}C NMR of Methylated Lysines of fd Gene 5 Protein: Evidence for a Conformational Change Involving Lysine 24 upon Binding of a Negatively Charged Lanthanide Chelate", LR Dick, CFGC Geraldes, AD Sherry, CW Gray & DM Gray, Biochemistry, **28**, 7896-7904 (1989).

63. "Shift Reagents in NMR Spectroscopy", AD Sherry & CFGC Geraldes, in **Lanthanide Probes in Life, Chemical, and Earth Sciences**, Ed. by J -CG Bunzli & GR Choppin, Elsevier, New York, pp. 93-126 (1989).

64. "Potentiometry and NMR Studies of 1,5,9-Triazacyclododecane N,N',N"-triacetic Acid and its Metal Ion Complexes", S Cortes, E Brücher, CFGC Geraldes & AD Sherry, Inorg. Chem., **29**, 5-9 (1990).

65. "$Tm(DOTP)^{5-}$: A ^{23}Na Shift Agent for Perfused Rat Hearts", DC Buster, MMCA Castro, CFGC Geraldes, CR Malloy, AD Sherry & TC Siemers, Magn. Reson. Med., **15**, 25-32 (1990).

66. "Influence of Global Ischemia on Intracellular Sodium in the Perfused Rat Heart", CR Malloy, DC Buster, MMCA Castro, CFGC Geraldes, FMH Jeffrey & AD Sherry, Magn. Reson. Med., **15**, 33-44 (1990).

67. "Analysis of the Citric Acid Cycle of the Heart using ^{13}C Isotope Isomers", CR Malloy, AD Sherry & FMH Jeffrey, Amer. J. Physiol. **259**, H987-H995 (1990).

68. "Kinetics of Formation and Dissociation of the 1,4,7-Triazacyclononane N,N',N"-triacetate Complexes of Cerium(III), Gadolinium(III), and Erbium(III) Ions", E Brücher & AD Sherry, Inorg. Chem., **29**, 1555-1559 (1990).

69. "Synthesis and Characterization of a Series of Macrocyclic Chelates Containing Oxygen and Nitrogen Donors: Prospects for use as NMR Shift Agents for Alkali Cations", RM Sink, DC Buster & AD Sherry, Inorg. Chem., **29**, 3645-3649 (1990).

70. "Formation of Carbamates of Taurine and Other Amino Acids During Neutralization of Tissue Extracts with Potassium Carbonate/Bicarbonate", AD Sherry, CR Malloy, FMH Jeffrey, F Chavez & HK Srere, J. Magn. Reson., **89**, 391-398 (1990).

71. "Contribution of Exogenous Substrates to Acetyl-CoA: Measurement by ^{13}C NMR Under Nonsteady-State Conditions", CR Malloy, JR Thompson, FMH Jeffrey & AD Sherry, Biochemistry, **29**, 6756-6761 (1990).

72. "Channeling of TCA Cycle Intermediates in Cultured *Saccharomyces cerevisiae*", B Sumegi, AD Sherry & CR Malloy, Biochemistry, **29**, 9106-9110 (1990).

73. "Interaction of Reductively Methylated Lysyl-Fd Gene 5 Protein with a Negatively Charged Lanthanide Paramagnetic Macrocyclic Chelate or with Oligonucleotides Using ^{13}C NMR", CFGC Geraldes, AD Sherry, LR Dick, CW Gray & DM Gray, in **Bioorganic Chemistry in Healthcare and Technology**, Ed. by U.K. Pandit & F.C. Alderweireldt, Plenum Press, NY, pp 291-294 (1991).

74. "^{13}C NMR: A Simple Yet Comprehensive Method for Analysis of Intermediary Metabolism", FMH Jeffrey, A Rajagopal, CR Malloy & AD Sherry, Trends in Biochemical Sciences, **16**, 5-10 (1991).

75. "The Protonation Scheme of Some Triaza Macrocycles Studied by Potentiometry and NMR Spectroscopy", CFGC Geraldes, AD Sherry, MPM Marques, MC Alpoim & S Cortes, J. Chem. Soc., Perkin Trans. II, 137-146 (1991).

76. "Synthesis, Equilibrium, and Kinetic Properties of the Gadolinium Complexes of Three Triazacyclodecanetriacetate Ligands", E Brücher, S Cortes, F Chavez & AD Sherry, Inorg. Chem., **30**, 2092-2097 (1991).

77. "NOTPME: A ^{31}P NMR Probe for Measurement of Divalent Cations in Biological Systems", R Ramasamy, I Lazar, E Brücher, AD Sherry & CR Malloy, FEBS Lett., **280**, 121-124 (1991).

78. "Hepatobiliary Delivery of Polyaminopolycarboxylate Chelates: Synthesis and Characterization of a Cholic Acid Conjugate of EDTA and Biodistribution and Imaging Studies with Its Indium-111 Chelate", DA Betebener, PL Carney, AM Zimmer, JM Kazikiewicz, E Brücher, AD Sherry & DK Johnson, Bioconjugate Chem., **2**, 117-123 (1991).

79. "Synthesis and Complexation Properties of a New Macrocyclic Polyazapolyphosphinate Ligand, DOTEP", I Lazar, AD Sherry, R Ramasamy, E Brücher & R Kiraly, Inorg. Chem., **30**, 5016-5019 (1991).

80. "Influence of Cardiac Pacing on Intracellular Sodium in the Isolated, Perfused Rat Heart", NB Butwell, R Ramasamy, AD Sherry & CR Malloy, Invest. Radiol., **26**, 1079-1082 (1991).

81. "Is There Tight Channelling in the Krebs Tricarboxylic Acid Cycle Metabolon?", B Sumegi, AD Sherry, CR Malloy, C Evans & PA Srere, Biochem. Soc. Trans., **19**, 1002-1005 (1991).

82. "N,N',N"-Tris(methoxymethyl)-1,4,7-triazacyclononane: A New Synthetic Tool for the Synthesis of Tris-N-substituted 1,4,7-Triazacyclononane Derivatives", I Lazar & AD Sherry, Chem. Commun., 1252-1253 (1991).

83. "The Role of α-Ketoacid Dehyrogenase Complexes in the Organization of the Mitochondrial Matrix", B Sumegi, Z Porpaczy, P Srere & AD Sherry, in **Biochemistry and Physiology of Thiamine Diphospate Enzymes**, VCH Press, New York (1991) pp. 232-241.

84. "The Solution Structure of $LnDOTP^{5-}$ Complexes: A Comparison of Lanthanide Induced Paramagnetic Shifts with the MMX Energy Minimized Structure", CFGC Geraldes, AD Sherry & G Kiefer, J. Magn. Reson., **97**, 290-304 (1992).

85. "Synthesis, Characterization, and ^{23}Na NMR Shift Studies of a Novel Dysprosium(III) Crown Ether Texaphyrin", JL Sessler, TD Mody, R Ramasamy & AD Sherry, New J. Chem., **16**, 541-544 (1992).

86. "Nuclear Magnetic Relaxation Dispersion Profiles for Aqueous Solutions Containing a Series of GdNOTA Analogues", CFGC Geraldes, RD Brown, III, E Brücher, SH Koenig, AD Sherry & M Spiller, Magn. Reson. Med., **27**, 284-295 (1992).

87. "Regulatory Consequences of Organization of Citric Acid Cycle Enzymes", B Sumegi, Z Porpacsy, MT McCammon, AD Sherry, CR Malloy & PA Srere, in **Current Topics in Cellular Regulation: From Metabolite to Metabolism to Metabolon**, Ed. by ER Stadtman & PB Chock, Vol. 33, Academic Press, New York (1992) pp 249-260.

88. "Synthesis and Complexation Properties of a New Tetraazatricarboxylate Ligand", CFGC Geraldes, E Brücher, S Cortes, SH Koenig & AD Sherry, J. Chem. Soc. Dalton Trans., 2517-2521 (1992).

89. "NMR and Potentiometric Studies of 1,4,7-Triazacyclononane-N,N',N"-tris(methylene phosphonate monoethyl ester) and its Complexes with Metal Ions", I Lazar, R Ramasamy, E Brücher, CFGC Geraldes & AD Sherry, Inorg. Chim. Acta, **195**, 89-93 (1992).

90. "Optimized Synthesis, Structure, and Solution Dynamics of 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylenephosphonic acid) (DOTP)", I Lazar, DC Hrncir, WD Kim, GE Kiefer & AD Sherry, Inorg. Chem., **31**, 4422-4424 (1992).

91. "The Metabolism of [3-^{13}C]Pyruvate in TCA Cycle Mutants of Yeast", B Sumegi, MT McCammon, AD Sherry, DA Keys, L McAlister-Henn & PA Srere, Biochemistry, **31**, 8720-8725 (1992).

92. "*In vivo* ^{23}Na MR Imaging and Spectroscopy of Rat Brain During $TmDOTP^{5-}$ Infusion", N Bansal, MJ Germann, I Lazar, CR Malloy & AD Sherry, J. Magn. Reson. Imaging, **2**, 385-391 (1992).

93. "Direct Observation of Lactate and Alanine by Proton Double Quantum Spectroscopy in Rat Hearts Supplied with [3-^{13}C]Pyruvate", P Zhao, AD Sherry, CR Malloy & EE Babcock, FEBS Lett., **303**, 247-250 (1992).

94. "Alterations in Substrate Utilization in the Reperfused Myocardium: A Direct Analysis by ^{13}C NMR", AD Sherry, CR Malloy, P Zhao & JR Thompson, Biochemistry, **31**, 4833-4837 (1992).

95. "Sulfomethylation of Di-, Tri-, and Polyazamacrocycles: A New Route to Entry of Mixed Side-Chain Macrocyclic Chelates", AD Sherry & J van Westrenen, Bioconj. Chem. **3**, 524-532 (1992).

96. "Determination of Chloride Potential in Perfused Rat Hearts by NMR Spectroscopy", R Ramasamy, P Zhao, WL Gitomer, AD Sherry & CR Malloy, Amer. J. Physiol. **263**, H1958-H1962 (1992).

97. "Substrate Metabolism in the Citric Acid Cycle of the Heart by ^{13}C NMR", in **Cardiovascular Magnetic Resonance Spectroscopy**, Ed. by S Schaefer & R Balaban, Kluwer Academic Publishers, Chp. 10, pp. 153-168 (1992).

98. "Analysis of Mitochondrial Function by ^{13}C NMR in Intact Tissues", CR Malloy, AD Sherry & FMH Jeffrey, in **Methods in Toxicology**, Ed. by LH Lash & DP Jones, Academic Press, Vol 2, pp. 127-145 (1993).

99. "Effect of Lidocaine on Contracture, Intracellular Sodium and pH in the Ischemic Rat Heart", NB Butwell, R Ramasamy, I Lazar, AD Sherry & CR Malloy, Amer. J. Physiol., **264**, H1884-H1889 (1993).

100. "^{13}C NMR Methods for the Analysis of Citric Acid Cycle Metabolism in the Heart", CR Malloy, AD Sherry & FMH Jeffrey, in **Cardiovascular Applications of Magnetic Resonance**, Ed. by G.M. Pohost, Futura Publishing Co., Inc., Chp. 20 (1993).

101. "^{13}C Propionate Oxidation in Wild-Type and Citrate Synthase Mutant **Esherichia coli**: Evidence for Multiple Pathways of Propionate Utilization", CT Evans, B Sumegi, PA Srere, AD Sherry & CR Malloy, Biochem. J. **291**, 927-932 (1993).

102. "$TmDOTP^{5-}$ as a ^{23}Na NMR Shift Reagent for the *In Vivo* Rat Liver", N Bansal, M Germann, V Seshan, GT Shires III, CR Malloy & AD Sherry, Biochemistry, **32**, 5638-5643 (1993).

103. "Sources of Acetyl-CoA Entering the Tricarboxylic Acid Cycle as Determined by Analysis of Succinate ^{13}C Isotopomers", JG Jones, AD Sherry, FMH Jeffrey, CJ Storey & CR Malloy, Biochemistry, **32**, 12240-12244 (1993).

104. "Relaxometry, Animal Biodistribution, and Magnetic Resonance Imaging Studies of Some New Gadolinium(III) Macrocyclic Phosphinate and Phosphonate Monoester Complexes", CFGC Geraldes, AD Sherry, I Lazar, A Miseta, P Bogner, E Berenyi, B Sumegi, GE Kiefer, K McMillan, F Maton and RN Muller, Magn. Reson. Med., **30**, 696-703 (1993).

105. "Synthesis and Complexation Properties of 1,4,7-Triazacyclononane-1,4,7-Tris (2-methylacetate)", E Brücher, SL Stefan, DR Allen & AD Sherry, Radiochim Acta, **61**, 207-212 (1993).

106. "Synthesis and X-ray Crystal Structure of Three Polyazamacrocylces having Sulfonate Pendant Groups", J van Westeren, AD Sherry, WD Kim, AE Vivian & DC Hrncir, J. Crystal. and Spectros. Res., **23**, 885-890 (1993).

107. "$TmDOTP^{5-}$ as an *in vivo* ^{23}Na Shift Reagent", AD Sherry, CR Malloy, NB Butwell, N Bansal & Z-F Xia, Mol. Environ. Intra and Extracell. Sodium, International Workshop on MRI & MRS, Okazaki, Japan (1993).

108. "Evidence for Orientation Conserved Transfer in the TCA Cycle in *Saccharomyces cerevisiae*: ^{13}C NMR Studies", B Sumegi, AD Sherry, CR Malloy & PA Srere, Biochemistry, **32**, 12725-12729 (1993).

109. "Effects of Amino Acids on Substrate Selection, Anaplerosis, and Left Ventricular Function in the Ischemic Reperfused Rat Heart", ME Jessen, TE Kovarik, FMH Jeffrey, AD Sherry, CJ Storey, RY Chao, WS Ring & CR Malloy, J. Clin. Invest., **92**, 831-839 (1993).

110. "Preferential Elimination of Pivalate with Supplemental Carnitine via Formation of Pivaloylcarnitine in Man", B Melegh, B Sumegi & AD Sherry, Xenobiotica, **23**, 1255-1261 (1993).

111. "^{13}C Isotopomer Analysis of Intact Tissue using $\{^{13}C\}$Homonuclear Decoupling" AD Sherry, P Zhao, A Wiethoff & CR Malloy, Magn. Reson. Med., **31**, 374-379 (1994).

112. "Lipoamide Influences Substrate Selection in Postischemic Perfused Rat Hearts" B Sumegi, NB Butwell, CR Malloy & AD Sherry, Biochem. J., **294**, 109-113 (1994).

113. "A method for obtaining ^{13}C isotopomer populatons in ^{13}C-enriched glucose", JG Jones, GL Cottam, BC Miller, AD Sherry & CR Malloy, Analy Biochem, **217**, 148-152 (1994).

114. "Orientation Conserved Transfer of Symmetric Krebs Cycle Intermediates in Mammalian Tissue", AD Sherry, B Sumegi, B Miller, GL Cottam, S. Gavva, JG Jones & CR Malloy, Biochemistry, **33**, 6268-6275 (1994).

115. "Cardiac Metabolism", AD Sherry & CR Malloy in **NMR in Physiology and Medicine**, Edited by RJ Gillies, Academic Press, New York , Chapter 26, pp 439-449 (1994).

116. "*In vivo* Studies of Cellular Energy State, pH and Sodium in Rat Liver After Thermal Injury", Z Xia, JW Horton, P Zhao, N Bansal, EE Babcock, AD Sherry & CR Malloy, J. Appl. Physiol., **76**, 1507-1511 (1994).

117. "NMR Study of the Inclusion Complex Formed Between γ-Cyclodextrin and $TmDOTP^{5-}$", AD Sherry, R Zarzycki & CFGC Geraldes, Magn. Reson. Chem., **32**, 361-365 (1994).

118. "A ^{13}C Isotopomer N.M.R.. Method for Monitoring Incomplete beta-Oxidation of Fatty Acids in Intact Tissue ", SR Gavva, AJ Wiethoff, P Zhao, CR Malloy & AD Sherry, Biochem. J. **303**, 847-853 (1994).

119. "Effects of Oxidant Exposure on Substrate Utilization and High-Energy Phosphates in Isolated Rat Hearts", KP Burton, JG Jones, TH Le, AD Sherry & CR Malloy, Circ. Res., **75**, 97-104 (1994).

120. "^1H NMR Detection of Lactate and Alanine in Perfused Rat Hearts during Global and Low Pressure Ischemia", P Zhao, CJ Storey, EE Babcock, CR Malloy & AD Sherry, Magn. Reson. Med., **33**, 53-60 (1995).

121. "$TmDOTP^{5-}$ as a ^{23}Na Shift Reagent for the *In Vivo* Kidney", V Seshan, MJ Germann, P Preisig, CR Malloy, AD Sherry & N Bansal, Magn. Reson. Med., **34**, 25-31 (1995).

122. "Direct Evidence that Perhexiline Modifies Myocardial Substrate Utilization from Fatty Acid to Lactate", FMH. Jeffrey, L Alvarez, V Diczku, AD. Sherry & CR Malloy, J. Cardiovas. Pharm., **25**, 469-472 (1995).

123. "A General Synthesis of 1,7-Disubstituted 1,4,7,10-Tetraazacyclododecanes", Z Kovacs & AD Sherry, J. Chem. Soc., Chem. Commun., 185-186 (1995).

124. "Synthesis, Crystal Structure and Potentiometry of Pyridine Containing Tetraaamacrocyclic Ligands with Acetate Pendant Arms", WD Kim, DC Hrncir, GE Kiefer & AD Sherry, Inorg. Chem., **34**, 2225-2232 (1995).

125. "Relaxometry, Luminescence Measurement, Electrophoresis and Animal Biodistribution of Lanthanide (III) Complexes of Some Polyazamacrocyclic Acetates Containing Pyridine", WD Kim, GE Kiefer, F Maton, K McMillan, RN Muller & AD Sherry, Inorg. Chem., **34**, 2233-2243 (1995).

126. "Preparation, Physico-chemical Characterization, and Relaxometry Studies of Various Gadolinium(III)-DTPA-bis(amide) Derivatives as Potential Magnetic Resonance Contrast Agents", CFGC Geraldes, AM Urbano, MC Alpoim, AD Sherry, K-T Kuan, R. Rajagopalan, F Maton & RN Muller, Magn. Reson. Imaging, **13**, 401-420 (1995).

127. "NMR Conformational Study of the Lanthanide(III) Complexes of DOTA in Aqueous Solution", MPM Marques, CFGC Geraldes, AD Sherry, AE Merbach, H Powell, D Pubanz, S Aime & M Botta, J. Alloys and Compounds, **225**, 303-307 (1995).

128. "Synthesis of Ester-Derivatives of 1,4,7-triazacyclononane-1,4,7-tris(methylenephosphonic acid) and 1,4,7-triazacyclononane-1,4,7-tris(methylenephosphinic acid:)", I Lazar & AD Sherry, Synthesis, 453-457 (1995).

129. "The Cooperative Behavior of Krebs Tricarboxylic Acid Cycle Enzymes", PA Srere, CR Malloy, A.D. Sherry & B Sumegi, in **Adv. Mol. and Cell. Biol.**, Ed. by K Brindle, JAI Press Inc., Greenwich, Conn, Vol 11, pp. 125-145 (1995).

130. "Nuclear Magnetic Relaxation Dispersion Studies of Water-Soluble Gadolinium(III) Texaphyrin Complexes", CFGC Geraldes, AD Sherry, P Vallet, F Maton, RN Muller, TD Mody, G Hemmi & JL Sessler, J. Magn. Reson. Imaging, **5**, 725-729 (1995).

131. "Substrate Selection in the Isolated Working Rat Heart: Effects of Reperfusion, Afterload and Concentration", FMH Jeffrey, V Diczku, AD Sherry & CR Malloy, Basic Res. Cardiol. **90**, 388-396 (1995).

132. "A General Synthesis of Mono- and Di-substituted 1,4,7-Triazacyclononanes", Z Kovacs & AD Sherry, Tetrahedron Lett., **36**, 9269-9272 (1995).

133. "The Design of Macrocyclic Ligands for Monitoring Magnesium in Tissue by ^{31}P NMR", J van Haveren, L DeLeon, R Ramasamy, J van Westrenen & AD Sherry, NMR Biomed., **8**, 197-205 (1995).

134. "Are Substrates Channeled in the Krebs Citric Acid Cycle?", PA Srere, RD Brodeur, CR Malloy, AD Sherry & B Sumegi, in **Adv. Mol. Cell. Biol.**, Vol. 15A, Ed. by EE Bittar, B Danielsson, & L Bülow, JAI Press Inc., Greenwich, Conn., pp. 263-271 (1996).

135. "^{7}Li, ^{6}Li, ^{23}Na, ^{133}Cs Multinuclear NMR Studies of Adducts Formed with the Shift Reagent, TmDOTP^{5-}", J Ren & AD Sherry, Inorg. Chim. Acta, **246**, 331-341 (1996).

136. "Cardioprotective Effects of 70-kDa Heat Shock Protein in Transgenic Mice", NB Radford, M Fina, IJ Benjamin, RW Moreadith, KH Graves, P Zhao, S Gavva, A Wiethoff, AD Sherry, CR Malloy & RS Williams, Proc. Natl. Acad. Sci. USA, **93**, 2339-2342 (1996).

137. "Synthesis and Characterization of 1,4,7-Triazacyclononane Derivatives with Methylphosphinate and Acetate Side Chains for Monitoring Free Mg^{2+} by ^{31}P and ^{1}H NMR Spectroscopy", J Huskens & AD Sherry, J. Amer. Chem. Soc., **118**, 4396-4404 (1996).

138. "Effects of Different Oxidative Insults on Intermediary Metabolism in Isolated Perfused Hearts" JG Jones, TH Le, CJ Storey, AD Sherry, CR Malloy & KP Burton, Free Radical Biol. Med., **20**, 515-523 (1996).

139. "Channelling in the Krebs Tricarboxylic Acid Cycle", PA Srere, AD Sherry, CR Malloy & B Sumegi, in **Channelling in Intermediary Metabolism**, Ed. by L. Agius & H.S.A. Sherratt, Portland Press Research Monogram IX, Portland Press, London, pp. 201-209 (1996).

140. "Contribution of Various Substrates to Total Citric Acid Cycle Flux and Anaplerosis as Determined by ^{13}C Isotopomer Analysis and O_2 Consumption in the Heart", CR Malloy, JG Jones, FMH Jeffrey, ME Jessen & AD Sherry, MAGMA, **4**, 35-46 (1996).

141. "^{13}C Isotopomer Model for Estimation of Anaplerotic Substrate Oxidation via Acetyl-CoA", FMH Jeffrey, CJ Storey, AD Sherry & CR Malloy, Am. J. Physiol., **271**, E788-E799, (1996).

142. "Substrate Selection Early After Reperfusion of Ischemic Regions in the Working Rabbit Heart", MA Soloman, FMH Jeffrey, CJ Storey, AD Sherry & CR Malloy, Magn. Reson. Med., **35**, 820-826 (1996).

143. "TmDOTP^{5-}: A Substance for NMR Temperature Measurements *in vivo*", CS Zuo, J Bowers, KR Metz, T Nosaka, AD Sherry & ME Clouse, Magn. Reson. Med., **36**, 955-959 (1996).

144. "NMR Determination of Crystal Field Parameters and Electron-Spin Correlation Times for the LnDOTP^{5-} Complexes", J Ren & AD Sherry, J. Magn. Reson., **111B**, 178-182 (1996).

145. "Oxidation of Acetate in Rabbit Skeletal Muscle: Detection by ^{13}C NMR Spectroscopy *In Vivo*", L Szczepaniak, EE Babcock, CR Malloy & AD Sherry, Magn. Reson. Med., **36**, 451-457 (1996).

146. "Characterization of Lanthanide(III)-DOTP Complexes: Thermodynamics, Protonation, and Coordination to Alkali Metal Ions" AD Sherry, J Ren, J Huskens, E Brücher, E Toth, CFGC Geraldes, MMCA Castro, & WP Cacheris, Inorg. Chem., **35**, 4604-4612 (1996).

147. "The Formation and Dissociation Kinetics of the Mg^{2+} Complex of 1,4,7-Triazacyclo nonane-1,4,7-tris(methylene methylphosphinic acid)" J Huskens & AD Sherry, Inorg. Chem., **35**, 5137-5143 (1996).

148. "Effects of Ischemia on Intracellular Sodium and Phosphates in the *in vivo* Rat Liver" Z Xia, JW Horton, P Zhao, EE Babcock, AD Sherry & CR Malloy, J. Appl. Physiol., **81**, 1395-1403 (1996).

149. "Isotopic Methods for Probing Organization of Cellular Metabolism" AD Sherry & CR Malloy, Cell Biochem. & Funct., **14**, 259-268 (1996).

150. "No Replenishment of Carnitine from Trimethyllysine during Pivalate-Induced Carnitine Ester Loss in Children", B Melegh, M Pap, G Székely, DA Gage, AD Sherry & LL Bieber, J. Nutri. Biochem., **8**, 147-151 (1997).

151. "Determination of Acetyl-CoA Enrichment in Rat Heart and Skeletal Muscle by ^{1}H Nuclear Magnetic Resonance Analysis of Glutamate in Tissue Extracts", JG Jones, J Hansen, AD Sherry, CR Malloy & RG Victor, Analy. Biochem. **249**, 201-206 (1997).

152. "Relationship Between Energetic, Ionic, and Functional Status in the Perfused Rat Heart Following Thermal Injury: A ^{31}P and ^{23}Na NMR Study" ZF Xia, JW Horton, P Zhao, C Lin, AD Sherry & CR Malloy, J. Surgical Res. **69**, 212-219 (1997).

153. "MR Imaging and Spectroscopy Applications of Lanthanide Complexes with Macrocyclic Phosphonate and Phosphonate Ester Complexes", AD Sherry, J. Alloys and Cmpds, **249**, 153-157 (1997).

154. "Influence of Vanadate on Glycolysis, Intracellular Sodium, and pH in Perfused Rat Hearts", CFGC Geraldes, MMCA Castro, R Ramasamy & AD Sherry, J. Mol. Cell. Biochem., **170**, 53-64 (1997).

155. "Alkaline Earth and Lanthanide(III) Complexes of Ligands Based Upon 1,4,7,10-Tetraazacyclo dodecane-1,7-bis(acetic acid)" J Huskens, DA Torres, Z Kovacs, JP Andre, CFCG Geraldes & AD Sherry, Inorg. Chem., **36**, 1495-1503 (1997).

156. "Ion-Pairing of $Co(en)_3^{3+}$ with the ^{23}Na Shift Reagent, $TmDOTP^{5-}$", J Ren, CS Springer, Jr. & AD Sherry, Inorg. Chem., **36**, 3493-3498 (1997).

157. "Evaluation of Triple Quantum-Filtered ^{23}Na NMR Spectroscopy in the in Situ Rat Liver",V Seshan, AD Sherry & N Bansal, Magn. Reson. Med., **38**, 821-827 (1997).

158. "NMR Studies of the Lanthanide(III) Complexes of 1,4,7,10-Tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid mono(2,2,2-trifluoroethyl) ester)" WD Kim, GE Kiefer, J Huskens & AD Sherry, Inorg. Chem., **36**, 4128-4134 (1997).

159. "pH-Controlled Selective Protection of Polyaza Macrocycles", Z Kovacs & AD Sherry, Synthesis, 759-763 (1997).

160. "The Determination of Magnesium in Human Blood Plasma by ^{31}P Magnetic Resonance Spectroscopy Using a Macrocyclic Reporter Ligand", J Huskens, M Main, CR Malloy & AD Sherry, Biochim. Biophys. Acta, **1336**, 434-444 (1997).

161. "Discrimination Between Mg^{2+} and Ca^{2+} by 1,4,7-Tris(2-hydroxyalkyl)-1,4,7-triazacyclo-nonane Ligands", J Huskens & AD Sherry, J. Chem. Soc., Chem. Commun., 845-846 (1997).

162. "Measurement of Gluconeogenesis and Pyruvate Recycling in the Rat Liver: A Simple Analysis of Glucose and Glutamate Isotopomers during Metabolism of [1,2,3-$^{13}C_3$]Propionate", JG Jones, R Naidoo, AD Sherry, BC Miller, FMH Jeffrey, GL Cottam & CR Malloy, FEBS Lett., **412**, 131-137 (1997).

163. "Determination of Intracellular Sodium Concentration in the Perfused Mouse Liver by ^{31}P and ^{23}Na Magnetic Resonance Spectrocopy", J-M Colet, J Makos, CR Malloy & AD Sherry, Magn. Reson. Med., **39**, 155-159 (1998).

164. "Coordination Chemistry and Molecular Mechanics Study of the Magnesium(II) and Calcium(II) Complexes of Trisubstituted 1,4,7-Triazacyclononane Derivatives", J Huskens & AD Sherry, J. Chem. Soc. Dalton Trans., 177-184 (1998).

165. "^{13}C Isotopomer Analysis: A NMR Method to Probe Metabolic Pathways Intersecting in the Citric Acid Cycle", AD Sherry & CR Malloy in ***In Vivo* ^{13}C NMR,** Edited by P.-M. Robitaille & L. Berliner, Springer-Verlaige, Chapter 2, pp. 59-97 (1998).

166. "Effects of Dichloroacetate on Mechanical Recovery and Oxidation of Physiologic Substrates After Ischemia and Reperfusion in the Isolated Heart", C Barak, MK Reed, SP Maniscalco, AD Sherry, CR Malloy & M Jessen, J. Cardiovasc. Pharm., **31**, 336-344 (1998).

167. "Effects of Aminooxyacetate on Glutamate Compartmentation and TCA Kinetics in Rat Hearts", AD Sherry, P Zhao, AJ Wiethoff, FMH Jeffrey & CR Malloy, Amer. J. Physiol., **274**, H591-H599 (1998).

168. "Dissociation of Intracellular Sodium from Contractile State in Guinea-Pig Hearts Treated with Ouabain", NB Radford, JD Makos, R Ramasamy, AD Sherry & CR Malloy, J. Mol. Cell Cardiol., **30**, 639-647 (1998).

169. "NMR Conformational Study of Diamagnetic complexes of Some Triaza-triacetate Macrocycles", CFGC Geraldes, MPM Marques & AD Sherry, Inorg. Chim. Acta, **273**, 288-298 (1998).

170. "Synthesis, Potentiometry, and NMR Studies of Two New 1,7-Disubstituted Tetraazacyclododecanes and Their Complexes Formed with Lanthanide, Alkaline Earth, Mn^{2+} and Zn^{2+} Ions", L Burai, J Ren, Z Kovacs, E Brücher & AD Sherry, Inorg. Chem., **37**, 69-75 (1998).

171. "NMR Temperature Measurements Using a Paramagnetic Lanthanide Complex", CS Zuo, KR Metz, Y Sun, & AD Sherry, J. Magn. Reson., **133**, 53-60 (1998).

172. "Measurement of Hepatic Glucose Output, Krebs Cycle and Gluconeogenic Fluxes by NMR Analysis of a Single Plasma Glucose Sample", JG Jones, RA Carvalho, BA Franco, AD Sherry, & CR Malloy, Analy. Biochem., **263**, 39-45 (1998).

173. "^{13}C NMR Measurements of Human Gluconeogenic Fluxes After Ingestion of [U-^{13}C]Propionate, Phenylacetate, and Acetaminophen", JG Jones, MA Solomon, AD Sherry, FMH Jeffrey & CR Malloy, Amer. J. Physiol., **275**, E843-E852 (1998).

174. "^{39}K NMR Measurement of Intracellular Potassium During Ischemia in the Perfused Guinea Pig Heart", NB Radford, EE Babcock, A Richman, L Szczepaniak, CR Malloy & AD Sherry, Magn. Reson. Med., **40**, 544-550 (1998).

175. "The *In Vivo* Behavior of Copper-64 Labeled Azamacrocyclic Complexes", TM Jones-Wilson, KA Deal, CJ Anderson, DW McCarthy, Z Kovacs, RJ Motekaitis, AD Sherry, AE Martell & MJ Welch, Nucl. Med. Biol., **25**, 523-530 (1998).

176. "Distribution of $TmDOTP^{5-}$ in Rat Tissues: $TmDOTP^{5-}$ *versus* $CoEDTA^{-}$ as Markers of Extracellular Tissue Space", JD Makos, CR Malloy & AD Sherry, J. Appl. Physiol., **85**, 1800-1805 (1998).

177. "Quantitation of Intracellular [Na^{+}] *in vivo* by using $TmDOTP^{5-}$ as an NMR Shift Reagent and Extracellular Marker", PM Winter, V Seshan, JD Makos, AD Sherry, CR Malloy & N Bansal, J. Appl. Physiol., **85**, 1806-1812 (1998).

178. "^{13}C Isotopomer Analysis of Glutamate by Heteronuclear Multiple Quantum Coherence-Total Correlation Spectroscopy (HMQC-TOCSY)", RA Carvalho, FMH Jeffrey, AD Sherry & CR Malloy, FEBS Lett., **440**, 382-386 (1998).

179. "Multiple-Quantum-Filtered ^{23}Na NMR Spectroscopy of the Isolated, Perfused Rat Liver", J-M Colet, N Bansal, CR Malloy & AD Sherry, Magn. Reson. Med., **41**, 1127-1135 (1999).

180. "A Novel pH Sensitive MRI Contrast Agent", S Zhang, K Wu & AD Sherry, Angew. Chem. Int. Ed., **38**, 3192-3194 (1999).

181. "A Macrocyclic Reporter Ligand for Mg^{2+}: Analytical Implications for Clinical Magnesium Determinations", R Corbett, A Baptista, A Laptook & AD Sherry, Magnesium Res., **12**, 79-88 (1999).

182. "A Convenient Synthesis of 1,4,7,10,13-pentaazacyclopentadecane", Z Kovacs, EA Archer, MK Russell & AD Sherry, Synth. Commun., **29**, 2817-2822 (1999).

183. "Multiple-Bond ^{13}C-^{13}C Spin-Spin Coupling Provides Complimentary Information in a ^{13}C NMR Isotopomer Analysis of Glutamate", RA Carvalho, EE Babcock, FMH Jeffrey, AD Sherry & CR Malloy, Magn. Reson. Med., **42**, 197-200 (1999).

184. "New Route to Macrocyclic-Based Phosphonate Acetoxymethyl(AM)-Esters: Synthesis, Cell Loading, and ^{31}P NMR", MR Chavez, Z Kovacs, & AD Sherry, in **Biomedical Imaging: Reporters, Dyes & Instrumentation**, Edited by DJ Bornhop, CH Contag & EM Sevick-Muracia, Proc. SPIE, Vol. 3600, pp 99-106 (1999).

185. "Use of a Single ^{13}C NMR Resonance of Glutamate for Measuring Oxygen Consumption in Intact Tissue", FMH Jeffrey, A Reshetov, CJ Storey, RA Carvalho, AD Sherry & CR Malloy, Amer. J. Physiol., **277**, E1111-E1121 (1999).

186. "Kinetics of Cyclocreatine and Na^+ Cotransport in Human Breast Cancer Cells: Mechanism of Activity", N Maril, H Degani, E Rushkin, AD Sherry & M Cohn, Am. J. Physiol. **277**, C708-C716 (1999).

187. "Comparison of the Distribution of Magnesium in Plasma Determined by Size Exclusion Chromatography and ^{31}P NMR Spectroscopy", A Batista, R Corbett, S Tidor, E Castleman, A Laptook, & AD Sherry, Magnesium Research, **13**, 3-9 (2000).

188. "Spectroscopic Study of the Hydration Equilibria and Water Exchange Dynamics of Lanthanide(III) Complexes of 1,7-bis(carboxymethyl)-1,4,7,10-tetraazacyclododecane (DO2A)" F Yerly, FA Dunand, É Tóth, A Figueirinha, Z Kovacs, AD Sherry, CFGC Geraldes & AE Merbach, Eur. J. Inorg. Chem., 1001-1006 (2000).

189. "Quantitation of Gluconeogenesis by ^{2}H NMR Analysis of Plasma Glucose Following Injestion of ^2H_2O", JG Jones, RA Carvalho, AD Sherry & CR Malloy, Anal. Biochem., **277**, 121-126 (2000).

190. "TmDOTA$^-$: A Sensitive Probe for MR Thermometry *in vivo*", CS Zuo, A Mahmood, & AD Sherry, J Magn Reson., **151**, 101-106 (2001).

191. "Lanthanide-DOTA-bis(amide) Complexes: Direct NMR Evidence for Differences in Water Molecule Exchange Rates for Coordination Isomers", S Zhang, Z Kovacs, S Burgess, S Aime, E Terreno & AD Sherry, Chem. Eur. J., **7**, 288-296 (2001).

192. "^{1}H and ^{17}O NMR Detection of A Lanthanide-bound Water Molecule at Ambient Temperatures in Pure Water as Solvent", S Zhang, K Wu, MC Biewer, and AD Sherry, Inorg. Chem., **40**, 4284-4290 (2001).

193. "^{13}C Isotopomer Analysis of Glutamate by J-Resolved Heteronuclear Single Quantum Coherence Spectroscopy", SC Burgess, RA Carvalho, ME Merritt, JG Jones, CR Malloy & AD Sherry, Anal. Biochem. **289**, 187-195 (2001).

194. "Stability and Toxicity of Contrast Agents", E Brücher & AD Sherry, Chapter 6 in **The Chemistry of Contrast Agents in Medical Magnetic Resonance Imaging**, edited by AE Merbach & É Tóth, John Wiley, New York (2001).

195. "Gd^{3+} Complexes with Slowly Exchanging Bound Water Molecules May Offer Advantages in the Design of Functional MRI Agents", S Zhang, K Wu & AD Sherry, Invest. Radiol., **36**, 82-86 (2001).

196. "A Novel Europium(III)-Based MR Contrast Agent", S Zhang, PA Winter, K Wu & AD Sherry, J. Amer. Chem. Soc. **123**, 1517-1518 (2001).

197. "Comparison of Different Methods for Structural Analysis of Lanthanide Induced NMR Shifts: A Case of Lanthanide(III) Cryptates", CFGC Geraldes, S Zhang, C Platas, T Rodriguez-Blas, A de Blas & AD Sherry, J. Alloys Compds, **323-324**, 824-827 (2001).

198. "An Integrated ^{2}H and ^{13}C NMR Study of Gluconeogenesis and TCA Cycle Flux in Humans", JG Jones, MA Solomon, SM Cole, AD Sherry & CR Malloy, Amer. J. Physiol., **281**, E848-E856 (2001).

199. "NMR Indirect Dectection of Glutamate to Measure Citric Acid Cycle Flux in the Insolated, Perfused Mouse Heart", SC Burgess, EE Babcock, FMH Jeffrey, AD Sherry & CR Malloy, FEBS Lett., **505**, 163-167 (2001).

200. "TCA Cycle Kinetics in the Rat Heart by Analysis of ^{13}C Isotopomers Using Indirect $^{1}H\{^{13}C\}$ Detection", RA Carvalho, P Zhao, CB Wiegers, FMH Jeffrey, CR Malloy & AD Sherry, Amer. J. Physiol., **281**, H1413-H1421 (2001).

201. "Synthesis and NMR Studies of New DOTP-like Lanthanide(III) Complexes Containing a Hydrophobic Substituent on One Phosphonate Side-Arm", X Li, S Zhang, P Zhao, Z Kovacs & AD Sherry, Inorg. Chem., **40**, 6572-6579 (2001).

202. "The Gd^{3+} Complex of a Fatty Acid Analog of DOTP Binds to Multiple Albumin Sites with Variable Water Relaxivities", P Caravan, MT Greenfield, X Li & AD Sherry, Inorg. Chem. **40**, 6580-6587 (2001).

203. "Glycogen Targeting Subunits and Glucokinase Differentially Affect Pathways of Glycogen Metabolism and Their Regulation in Hepatocytes", R Yang, L Cao, R Gasa, MJ Brady, AD Sherry & CB Newgard, J. Biol. Chem., **277**, 1514-1523 (2002).

204. "^{13}C Isotopomer Analysis of Glutamate by Tandem Mass Spectrometry", FMH Jeffrey, JS Roach, CJ Storey, AD Sherry & CR Malloy, Anal. Biochem., **300**, 192-205 (2002).

205. "Hepatic Gluconeogenesis and Krebs Cycle Fluxes in a CCl_4 Model of Acute Liver Failure", RA Carvalho, JG Jones, C McKuirk, AD Sherry & CR Malloy, NMR in Biomed., **15**, 45-51 (2002).

206. "^{13}C NMR Isotopomer Analysis Reveals a Connection between Pyruvate Cycling and Glucose-Stimulated Insulin Secretion (GSIS)", D Lu, H Mulder, P Zhao, SC Burgess, M Valentin Jensen, S Kamzolova, CB Newgard, & AD Sherry, Proc. Natl. Acad. Sci. USA, **99**, 2708-2713 (2002).

207. "Analysis of Lanthanide Induced NMR Shifts using a Crystal Field Independent Method: Application of Complexes of Tetraazamacrocyclic Ligands", J Ren, S Zhang, AD Sherry & CFGC Geraldes, Inorg. Chim. Acta, **339**, 273-282 (2002).

208. "The Amide Protons of a Ytterbium(III)-DOTA-tetraamide Complex Act as Efficient Antennae for Transfer of Magnetization to Bulk Water", S Zhang, L Michaudet, S Burgess & AD Sherry, Angew. Chem. Int. Ed., **41**, 1919-1924 (2002).

209. "Unusually Sharp Dependence of Water Exchange Rate *versus* Lanthanide Ionic Radii for a Series of Tetra-amide Complexes", S Zhang, K Wu & AD Sherry, J. Amer. Chem. Soc., **124**, 4226-4227 (2002).

210. "Magnetic Resonance Imaging Detects a Specific Peptide-Protein Binding Event", LM De León, A Weiner, S Zhang, Z Kovacs, TJ Kodadek & AD Sherry, J. Amer., Chem. Soc. **124**, 3514-3515 (2002).

211. "Dy^{3+} Complexes as High Field T_2 Contrast Agents: Influence of Water Exchange Rates", L Vander Elst, S Zhang, AD Sherry, S Laurent, F Botteman & RN Muller, Acad. Radiol., **9**, S297-S299 (2002).

212. "*In vivo* Magnetic Resonance Imaging of Tissue pH Using a Novel pH-sensitive Contrast Agent, GdDOTA-4AmP" N Raghunand, S Zhang, AD Sherry & RJ Gillies, Acad. Radiol., **9**, S481-S483 (2002).

213. "Stimulus/secretion Coupling Factors in Glucose-stimulated Insulin Secretion: Insights gained from a multidisciplinary approach." CB Newgard, D Lu, MV Jensen, J Schissler, A Boucher, SC Burgess, & AD Sherry, Diabetes, **51**(Suppl. 3), S389-S393 (2002).

214. "Advances in the Design of Responsive and Targeted Lanthanide Complexes as Diagnostic and Therapeutic Agents", M Woods, S Zhang, Z Kovacs, AD Sherry, in Advances in Supramolecular Chemistry, G. Gokel, Editor, Cerberus Press, South Miami, Fl, Vol. 9, pp 1-38 (2003).

215. *"In Vivo* Behavior of Copper-64-Labeled Methanephosphate Tetraazamacrocyclic Ligands", X Sun, M Wuest, Z Kovacs, AD Sherry, R Motekaitis, Z Wang, AE Martell, MJ Welch, & CJ Anderson, J. Biol. Inorg. Chem., **8**, 217-225 (2003).

216. "Renal & Systemic pH Imaging by Contrast-Enhanced MRI", N Raghunand, C Howison, AD Sherry, S Zhang & RJ Gillies, Magn. Reson. Med., **49**, 249-257 (2003).

217. "Mechanisms by Which Liver-Specific PEPCK Knockout Mice Preserve Euglycemia During Starvation", P She, SC Burgess, M Shiota, P Flakoll, EP Donahue, CR Malloy, AD Sherry & MA Magnuson, Diabetes, **52**, 1649-1654 (2003).

218. "Synthesis and Luminescence Studies of Aryl Substituted Tetraamide Complexes of Europium(III): A New Approach to pH Responsive Luminescent Europium Probes", M Woods & AD Sherry, Inorg. Chem., **42**, 4401-4408 (2003).

219. "Comparison of Crystal Field Dependent and Independent Methods to Analyze Lanthanide Induced NMR Shifts in Axially Symmetric Complexes. Part II. Systems with a C_4 Symmetry Axis", CFGC Geraldes, S Zhang & AD Sherry, Bioinorg. Chem. Applic., **1**, 1-23 (2003).

220. "An Improved and Versatile Synthetic Route to 6,7:13,14-Dibenzo-1,8,4,11-dioxadiazacyclotetradecane", M Woods & AD Sherry, Inorg. Chim. Acta, **351**, 395-398 (2003).

221. "Targeted Complexes of Lanthanide(III) ions as Therapeutic and Diagnostic Pharmaceuticals", M Woods, Z Kovacs & AD Sherry, J. Supramol. Chem., **2**, 1-15 (2003).

222. "Increased Hepatic Fructose-2,6-bisphosphate After an Oral Glucose Load does not Affect Gluconeogenesis", ES Jin, K Uyeda, T Kawaguchi, SC Burgess, CR Malloy & AD Sherry, J. Biol. Chem., **278**, 28427-28433 (2003).

223. "Noninvasive Evaluation of Liver Metabolism by ^{2}H and ^{13}C NMR Isotopomer Analysis of Human Urine", SC Burgess, B Weis, JG Jones, E Smith, ME Merritt, D Margolis, AD Sherry & CR Malloy, Anal. Biochem., **312**, 228-234 (2003).

224. "Physical characteristics of lanthanide complexes that act as magnetization transfer (MT) contrast agents", S Zhang & AD Sherry, J Solid State Chem. **171**, 38-43 (2003).

225. "Analysis of Gluconeogenic Pathways *in vivo* by Distribution of ^{2}H in Plasma Glucose: Comparison of NMR and Mass Spectrometry", SC Burgess, M Nuss, V Chandramouli, DS Hardin, M Rice, BR Landau, CR Malloy & AD Sherry, Analy. Biochem., **318**, 321-324 (2003).

226. "pH Sensitive Modulation of the Second Hydration Sphere in Lanthanide(III) Tetraamide-DOTA Complexes: A Novel Approach to Smart MR Contrast Media", M Woods, S Zhang, VH Ebron & AD Sherry, Chem Eur J, **9**, 4634-4640 (2003).

227. "PARACEST Agents: Modulating MRI Contrast *via* Water Proton Exchange" S Zhang, M Merritt, DE Woessner, RE Lenkinski & AD Sherry, Accts Chem. Res., 36, 783-790 (2003).

228. "Sources of Plasma Glucose by Automated Bayesian Analysis of ^{2}H NMR Spectra", ME Merritt, GL Bretthorst, AD Sherry & CR Malloy, Magn. Reson. Med., **50**, 659-663 (2003).

229. "Silencing of Phosphonate-Gadolinium MRI Contrast by Hydroxyapatite Binding", FC Alves, P Donato, AD Sherry, A Zaheer, S Zhang, AJM Lubag, ME Merritt, RE Lenkinski, JV Frangioni, M Neves, MIM Prata, AC Santos, JJP de Lima & CFGC Geraldes, Invest. Radiol., **38**, 750–760 (2003).

230. "Towards the Rational Design of MRI Contrast Agents: Isolation of Two Coordination Isomers of Lanthanide DOTA-type Complexes", M Woods, Z Kovacs, S Zhang & AD Sherry, Angew. Chem. Int. Ed., **42**, 5889-5892 (2003).

231. "A Paramagnetic CEST Agent for Imaging Glucose by MRI", S Zhang, R Trokowski & AD Sherry, J. Amer. Chem. Soc., **125**, 15288-15289 (2003).

232. "A Synthetic Route to Cell Permeable Macrocyclic-Based Phosphonate Acyloxymethyl Esters", MR Chavez, P Zhao, Z Kovacs & AD Sherry, Lett. Org. Chem., **1**, 194-200 (2004).

233. "Analytical Solutions for ^{13}C Isotopomer Analysis of Complex Metabolic Conditions: Substrate Oxidation, Multiple Pyruvate Cycles and Gluconeogenesis" AD Sherry, FMH Jeffrey & CR Malloy, Metabolic Engineering, **6**, 12-24 (2004).

234. "Solid-Phase Synthesis of DOTA-Peptides", LM De León-Rodriguez, Z Kovacs, GR Dieckmann & AD Sherry: Chem. Eur. J. 10, 1149-1155 (2004).

235. "Comparison of Crystal Field Dependent and Independent Methods to Analyze Lanthanide Induced NMR Shifts in Axially Symmetric Complexes. Part I. Systems with C_3 Symmetry", CFGC Geraldes, S Zhang & AD Sherry, Inorg. Chim. Acta, **357**, 381-395 (2004).

236. "Glucose Production, Gluconeogenesis, and Hepatic Tricarboxylic Acid Cycle Fluxes Measured by Nuclear Magnetic Resonance Analysis of a Single Glucose Derivative", ES Jin, JG Jones, M Merritt, SC Burgess, CR Malloy & AD Sherry, Analy. Biochem., **327**, 149-155 (2004).

237. "Compartmentation of Glycolysis and Glycogenolysis in the Perfused Rat Heart", RA Carvalho, N Anousis, P Zhao, CR Malloy & AD Sherry, NMR Biomed., 17, 51-59 (2004).

238. "Glucose Production Pathways in Patients with HIV-Associated Lipodystrophy by ^{2}H and ^{13}C NMR of Plasma and Urine", BC Weis, D Margolis, SC Burgess, ME Merritt, H Wise, AD Sherry & CR Malloy, Magn. Reson. Med., **51**, 649-654 (2004).

239. "A ^{13}C Isotopomer Kinetic Analysis of Cardiac Metabolism: Influence of Altered Cytosolic Redox and Extracellular [Ca^{2+}]", RA Carvalho, TB Rodrigues, P Zhao, FMH Jeffrey, CR Malloy & AD Sherry, Amer. J. Physiol., **287**, H889-H895 (2004).

240. "Solution Dynamics and Stability of Lanthanide(III) *S*-2-(*p*-nitrobenzyl)DOTA Complexes", M Woods, Z Kovacs, R Kiraly, E Brücher, S Zhang & AD Sherry, Inorg. Chem., **43**, 2845-2851 (2004).

241. "Synthesis, Relaxometric and Photophysical Properties of a New pH Responsive MRI Contrast Agent: The Effect of Other Ligating Groups on Dissociation of a *p*-Nitrophenolic Pendant Arm", M Woods, GE Kiefer, S Bott, A Castillo-Muzquiz, C Eshelbrenner, L Michaudet, K McMillan, SDK Mudigunda, D Ogrin, G Tircsó, S Zhang, P Zhao & AD Sherry, J. Amer. Chem. Soc., **126**, 9248-9256 (2004).

242. "Concurrent ^{31}P NMR and Fiber-optic Based Oxygen Consumption Measurements in Perfused Rat Hearts", P. Zhao, Y. Zhao, AD Sherry & P. Pantano, Methods Enzymol., Methods Enzymol., **391**, 735-746 (2004).

243. "Biochemical Mechanism of Lipid-Induced Impairment of Glucose-Stimulated Insulin Secretion and Reversal with a Malate Analogue", A Boucher, D Lu, SC Burgess, S Telemaque-Potts, MV Jensen, H Mulder, M-Y Wang, RH Unger, AD Sherry & CB Newgard, J. Biol. Chem., **279**, 27263-27271 (2004).

244. "Understanding of Basic Mechanisms of β-Cell Function and Survival: Prelude to New Diabetes Therapies", CB Newgard, HE Hohmeier, D Lu, MV Jensen, VV Tran, G Chen, SC Burgess, & AD Sherry, Cell Biochem. & Biophysics, **40**, 159-168 (2004).

245. "Toward the Design of MR Agents for Imaging β-cell Function", M Woods, S Zhang & AD Sherry, Curr. Med. Chem. – Immun., Endocrine. & Metabolic Agents, **4**, 349-369 (2004).

246. "TCA Cycle Turnover and Serum Glucose Sources by Automated Bayesian Analysis of NMR Spectra," in Bayesian Inference and Maximum Entropy Methods in Science and Engineering, ME Merritt, SC Burgess, FMH Jeffrey, AD Sherry, CR Malloy & GL Bretthorst, edited by Erickson G., Zhai Y., American Institute of Physics, Melbourne, NT 314-322, (2004).

247. "Impaired TCA cycle activity in mouse livers lacking cytosolic phosphoenolpyruvate carboxykinase", SC Burgess, N Hausler, M Merritt, C Storey, A Milde, S Koshy, J Lindner, MA Magnuson, CR Malloy & AD Sherry, J. Biol Chem., **279**, 48941-48949 (2004).

248. "Cyclen-based Phenylboronate Ligands and their Eu^{3+}- complexes for Sensing Glucose by MRI", R Trokowski, S Zhang & AD Sherry, Bioconj. Chem., **15**, 1431-1440 (2004).

249. "Engineering Lanthanide Complexes with Controlled Water Exchange Rates for Magnetic Resonance Imaging", M Woods & AD Sherry, IEEE Engineering in Medicine and Biology, **7**, 5254-5257 (2004).

250. "Bifunctional Chelators: An Important Tool in the Development of Inorganic Pharmaceuticals", M Woods & AD Sherry, Chimica Oggi-Chemistry Today, **23**, 31-34 (2005).

251. "Chemistry for DOTA Peptide Labeling at Phenylalanine Residues: On the Road to Preparing peptide Ligand Tagged Libraries", LM De León-Rodríguez, Z Kovacs & AD Sherry, Lett Org Chem, **2**, 160-164 (2005).

252. "Numerical Solution of the Bloch Equations Provides Insights into the Optimal Design of PARACEST Agents for MRI", DE Woessner, S Zhang, ME Merritt & AD Sherry, Magn. Reson. Med., **53**, 790-799 (2005).

253. "Modulation of the Lifetime of Water Bound to Lanthanide Metal Ions in Complexes with Ligands Derived from 1,4,7,10-Tetraazacyclododecane Tetraacetate (DOTA)", S Zhang, X Jiang & AD Sherry, Helv. Chim. Acta, **88**, 923-935 (2005).

254. "Metabolic Networks in the Liver by ^{2}H and ^{13}C NMR" In Metabolomics by In Vivo NMR, Edited by RG Shulman & DA Rothman, John Wiley & Sons, Ltd., West Sussex, England, Chapter 12, pp 159-174 (2005).

255. "Inhibition of Cardiac Lipoprotein Utilization by Transgenic Overexpression of Angptl4 in the Heart", X Yu, SC Burgess, H Ge, KK Wong, RH Nassem, DJ Garry, AD Sherry, CR Malloy, JP Berger, C Li, Proc Natl Acad Sci USA, **102**, 1767-1772 (2005).

256. "Effect of Murine Strain on Metabolic Pathways of Glucose Production after Brief or Prolonged Fasting" SC Burgess, FMH Jeffrey, C Storey, A Milde, N Hausler, ME Merritt, H Mulder, C Holm, AD Sherry & CR Malloy, Amer. J. Physiol., **289**, E53-E61 (2005).

257. "Differing Mechanisms of Hepatic Glucose Overproduction in Triiodothyronine-Treated Rats *versus* Zucker Diabetic Fatty Rats by NMR Analysis of Plasma Glucose" ES Jin, SC Burgess, ME Merritt, AD Sherry & CR Malloy, Amer. J. Physiol., **288**, E654-E662 (2005).

258. "Comparison of [3,4-$^{13}C_2$]Glucose to [6,6-$^{2}H_2$]Glucose as a Tracer for Glucose Turnover by Nuclear Magnetic Resonance" ES Jin, JG Jones, SC Burgess, ME Merritt, AD Sherry & CR Malloy, Magn. Reson. Med., **53**, 1479-1483 (2005).

259. "On Resonance Low B_1 Pulses for Imaging of the Effects of PARACEST Agents", E Vinogradov, S Zhang, A Lubag, JA Balschi, AD Sherry and RE Lenkinski, J. Magn. Reson., **176**, 54-63 (2005).

260. "Water Exchange is the Key Parameter in the Design of Next-Generation MRI Agents", AD Sherry, S Zhang & M Woods, ACS Symposium Series 903 (2005).

261. "Selective Sensing of Zn^{2+} with a Novel PARACEST Agent", R Trokowski, J Ren, FK Kalman & AD Sherry, Angew. Chem. Int. Ed., **44**, 6920-6923 (2005).

262. "MRI Thermometry Based on PARACEST Agents", S Zhang, CR Malloy & AD Sherry, J. Amer. Chem. Soc., **127**, 17572-17573 (2005).

263. "Structural and Chiroptical Properties of the Two Coordination Isomers of YbDOTA-type Complexes", L Di Bari, G Pescitelli, AD Sherry & M Woods, Inorg. Chem. **44**, 8391-8398 (2005).

264. "Towards the Rational Design of Contrast Agents: A Practical Approach to the Synthesis of Gadolinium Complexes that Exhibit Optimal Water Exchange", M Woods, M Botta, J Wang & AD Sherry, J. Chem Soc., Dalton Trans., 3829-3837 (2005).

265. "High Resolution pH_e Imaging of Rat Glioma Using pH-dependent Relaxivity", ML Garcia-Martin, GV Martinez, N Raghunand, AD Sherry, S Zhang & RJ Gillies, Magn. Reson. Med., **55**, 309-315 (2006).

266. "Effects of Insulin and Cytosolic Redox State on Glucose Production Pathways in the Isolated Perfused Mouse Liver by Integrated ^{2}H and ^{13}C NMR", N Hausler, J Browning, M Merritt, C Storey, A Milde, FMH Jeffrey, AD Sherry, CR Malloy & SC Burgess, Biochem. J., **394**, 465-473 (2006).

267. "A Pyruvate Cycling Pathway Involving Cytosolic NADP-dependent Isocitrate Dehydrogenase Regulates Glucose-stimulated Insulin Secretion." S Ronnebaum, O Ilkayeva, SC Burgess, D Lu, JW Joseph, RD Stevens, TC Becker, AD Sherry, CB Newgard, & MV Jensen, J. Biol. Chem., **281**, 30593-30602 (2006).

268. "Catalytic effects of Apoferritin Interior Surface Residues on Water Exchange in Lanthanide Complexes", O Vasalatiy, P Zhao, S Zhang, S Aime & AD Sherry, Contrast Media & Mol Imaging, **1**, 1-5 (2006).

269. "Diminished Hepatic Gluconeogenesis via Defects in Tricarboxylic Acid Cycle Flux in Peroxisome Proliferator-activated Receptor Gamma Coactivator-1Alpha (PGC-1alpha)-deficient Mice", SC Burgess, TC Leone, AR Wende, MA Croce, Z Chen, AD Sherry, CR Malloy & BN Finck, Diabetes, J. Biol. Chem. 281, 19000-19008 (2006).

270. "Europium(III) Macrocyclic Complexes with Alcohol Pendant Groups as Chemical Exchange Saturation Transfer (CEST) Agents" M Woods, DE Woessner, P Zhao, A Pasha, M-Y Yang, C-H Huang, O Vasalitiy, JR Morrow, AD Sherry" J. Amer. Chem. Soc. **128**, 10155-10162 (2006).

271. "Paramagnetic Lanthanide Complexes as PARACEST Agents for Medical Imaging", M Woods, DE Woessner & AD Sherry, Chem Soc Rev, **35**, 500-511 (2006).

272. "Storage and Oxidation of Long Chain Fatty Acids in the C57/BL6 Mouse Heart as Measured by NMR Spectroscopy", KA Stowe, SC Burgess, M Merritt, AD Sherry, CR Malloy, FEBS Lett., **580**, 4282-4287 (2006).

273. "Compensatory Responses to Pyruvate Carboxylase Suppression in Islet β-cells: Preservation of Glucose-Stimulated Insulin Secretion", MV Jensen, JW Joseph, O Ilkaveva, SC Burgess, D Lu, S Ronnebaum, M Odegaard, TC Becker, AD Sherry & CB Newgard, J. Biol. Chem. **281**, 22342-22351 (2006).

274. "Equilibrium and Formation/Dissociation Kinetics of Some Lanthanide(III)-PCTA Complexes", G Tircsó, Z Kovács, & A D Sherry, Inorg. Chem., **45**, 9269-9280 (2006).

275. "Sensitivity Enhancement of Multidimensional NMR experiments by Paramagnetic Relaxation Effect", S Cai, C Seu, Z Kovacs, AD Sherry & Y Chen, J. Am. Chem. Soc., **128**, 13474-13478 (2006).

276. "Multifunctional Polymeric Micelles as Cancer-Targeted, MRI-Ultrasensitive Drug Delivery Systems", N Nasongkla, E Bey, J Ren, H Ai, C Khemtong, JG Setti, SF Chin, AD Sherry, DA Boothman, J Gao, Nano Letters, **6**, 2427-2430 (2006).

277. "A Bridge to Coordination Isomer Selection in Lanthanide(III) DOTA-tetraamide Complexes", J Vipond, M Woods, P Zhao, G Tircso, J Ren, GE Kiefer, Z Kovacs & AD Sherry, Inorg. Chem., **46**, 2584-2595 (2007).

278. "PARACEST agents for Molecular Imaging" in **Molecular & Cellular MR Imaging**, Edited by J Bulte & M Modo, AD Sherry & M Woods, CRC Press, Chapter 6, pp. 101-122 (2007).

279. "Role of Excess Glycogenolysis in Fasting Hyperglycemia Among Prediabetic and Diabetic Zucker (*fa/fa*) Rats", ES Jin, B-H Park, AD Sherry & CR Malloy, Diabetes, **56**, 777-785 (2007).

280. "MRI Detection of Glycogen *In Vivo* Using Chemical Exchange Saturation Transfer Imaging (glycoCEST)", PCM van Zijl, CK Jones, J Ren, CR Malloy & AD Sherry, Proc. Natl. Acad. Sci., USA, **104**, 4359-4364 (2007).

281. "Cytosolic Phosphoenolpyruvate CarboxyKinase does not Solely Control the Control the Rate of Hepatic Gluconeogenesis in the Intact Mouse Liver", SC Burgess, T He, Z Yan, J Lindner, AD Sherry, CR Malloy, JD Browning & MA Magnuson, Cell Metabolism, **5**, 313-320 (2007).

282. "Spectral Properties of a Bifunctional PARACEST Europium Chelate: An Intermediate for Targeted Imaging Applications", C Adair, M Woods, P Zhao, A Pasha, PM Winter, GM Lanza, P Athey, AD Sherry, GE Kiefer, Contrast Media & Mol Imaging **2**, 55-58 (2007).

283. "Potentiometric and Relaxometric Properties of Gadolinium-based MRI Contrast Agent for Sensing Tissue pH", FK Kálmán, M Woods, P Jurek, M Spiller, P Caravan, G Tircsó, R Király, E Brücher & AD Sherry, Inorg. Chem., **46**, 5260-5270 (2007).

284. "MRI detection of Paramagnetic Chemical Exchange Effects in mice kidneys *in vivo*", E. Vinogradov, H He, A Lubag, JA Balschi, AD Sherry & RE Lenkinski, Magn Reson Med., **58**, 650-655 (2007).

285. "Normal Flux through ATP-Citrate Lyase or Fatty Acid Synthase Is Not Required for Glucose-stimulated Insulin Secretion", JW Joseph, ML Odegaard, SM Ronnebaum, SC Burgess, J Muehlbauer, AD Sherry & CB Newgard, J Biol Chem, **282**, 31592-31600 (2007).

286. "Synthesis and Characterization of DOTA-(amide)$_4$ Derivatives: Equilibrium and Kinetic Behavior of Their Lanthanide(III) Complexes", A Pasha, G Tircso, ET Benyo, E Brücher & AD Sherry, Eur J Inorg Chem, 4340-4349 (2007).

287. "Albumin-binding PARACEST Agents", MM Ali, M Woods, EH Suh, Z Kovacs, G Tircsó, P Zhao, V Kodibagkar & AD Sherry, J. Biol. Inorg. Chem., **12**, 855-865 (2007).

288. "Dipolar Cross-relaxation Modulates Signal Amplitudes in the ^{1}H NMR Spectrum of Hyperpolarized [^{13}C]formate", ME Merritt, C Harrison, W Mander, CR Malloy & AD Sherry, J. Magn. Reson., **189**, 280-285 (2007).

289. "Hyperpolarized ^{13}C Allows a Direct Measure of Flux through a Single Enzyme-Catalyzed Step by NMR", ME Merritt, C Harrison, C Storey, FMH Jeffrey, AD Sherry & CR Malloy, Proc. Natl. Acad. Sci., USA, **104**, 19773-19777 (2007).

290. "Hyperpolarized ^{89}Y Offers the Potential of Direct Imaging of Metal ions in Biological Systems by Magnetic Resonance", ME Merritt, C Harrison, Z Kovacs, P Kshirsagar, CR Malloy & AD Sherry, J. Amer. Chem. Soc., **129**, 12942-12943 (2007).

291. "Modulation of Water Exchange in Europium(III) DOTA-tetraamide Complexes *via* Electronic Substituent Effects", SJ Ratnakar, M Woods, AJM Lubag, Z Kovács & AD Sherry, J. Amer. Chem. Soc., **130**, 6-7 (2008).

292. "Towards the Rational Design of MRI Contrast Agents: Electron spin Relaxation is Largely Unaffected by the Coordination Geometry of Gadolinium(III) DOTA-type Complexes", A Borel, JF Bean, RB Clarkson, L Helm, L Moriggi, AD Sherry & Mark Woods, Chem. Eur. J., **14**, 2658-2667 (2008).

293. "Labeling of Adenovirus Particles with PARACEST Agents", O Vasalatiy, R Gerard, P Zhao, X Sun & AD Sherry, Bioconj. Chem., **19**, 598-606 (2008).

294. "The Detection Limit of a Gd^{3+}-based T_1 Agent is Substantially Reduced When Targeted to a Protein Microdomain", K Hanaoka, AJM Lubag, A Castillo-Muzquiz, T Kodadek & AD Sherry, J. Magn. Reson. Imaging, **26**, 608-617 (2008).

295. "Advances in Molecular Imaging of Pancreatic Beta Cells", M Lin, A Lubag, MJ McGuire, SY Seliounine, EN Tsyganov, PP Antich, AD Sherry, KC Brown & X Sun, Frontiers in Bioscience, **13**, 4558-4575 (2008).

296. "Nephrogenic Systemic Fibrosis: A Chemical and Rational Perspective", NM Rofsky, AD Sherry and RE Lenkinski, Radiology, **247**, 608-612 (2008).

297. "Chronic Suppression of Acetyl CoA Carboxylase 1 in Beta-Cells Impairs Insulin Secretion via Inhibition of Glucose Rather Than Lipid Metabolism", SM Ronnebaum, JW Joseph, O Ilkayeva, SC Burgess, D Lu, TC Becker, AD Sherry & CB Newgard, J. Biol. Chem., **283**, 14248-14256 (2008).

298. "Synthesis, Potentiometric, Kinetic, and NMR Studies of 1,4,7,10-Tetraazacyclododecane-1,7-bis(acetic acid)-4,10-bis(methylenephosphonic acid) (DO2A2P) and its Complexes with Ca(II), Cu(II), Zn(II) and Lanthanide(III) Ions", FK Kalman, Z Baranyai, I Toth, I Bányai, R Király, E Brücher, S Aime, X Sun, AD Sherry, & Z Kovács, Inorg. Chem., **47**, 3851-3862 (2008).

299. "Size-Induced Enhancement of Chemical Exchange Saturation Transfer (CEST) Contrast in Liposomes", JM Zhao, Y Har-el, MT McMahon, J Zhou, AD Sherry, G Sgouros, JW Bulte, PCM van Zijl, J. Amer. Chem. Soc., **130**, 5178-5184 (2008).

300. "Synthesis and Relaxometric Studies of a Dendrimer-Based pH-Responsive MRI Contrast Agent", MM Ali, M Woods, P Caravan, ACL Opina, M Spiller, JC Fettinger & AD Sherry, Chem. Eur. J., **14**, 7250-7258 (2008).

301. "Composition of Adipose Tissue and Marrow Fat in Humans by ^{1}H NMR at 7T", J Ren, I Dimitrov, AD Sherry & CR Malloy, J. Lipid Res, **49**, 2055-2062 (2008).

302. "Imaging the Tissue Distribution of Glucose in Liver using a PARACEST Sensor", J Ren, S Zhang, R Trokowski, C Storey, A Milde, CR Malloy & AD Sherry, Magn. Reson. Med., **60**, 1047-1055 (2008).

303. "Chemical Exchange Saturation Transfer Contrast Agents for Magnetic Resonance Imaging**".** AD Sherry & M Woods, Ann. Rev. Biomed. Eng., **10**, 391-411 (2008).

304. "The Effect of the Amide Substituent on the Biodistribution and Tolerance of Lanthanide(III) DOTA-Tetraamide Derivatives", P Caravan, CFGC Geraldes, MT Greenfield, GE Kiefer, M Lin, K McMillan, MIM Prata, AC Santos, AD Sherry, X Sun, J Wang, M Woods, S Zhang & P Zhao, Invest. Radiol., **43**, 861-870 (2008).

305. "Inhibition of Carbohydrate Oxidation during the First Minute of Reperfusion after Brief Ischemia: NMR Detection of Hyperpolarized $^{13}CO_2$ and $H^{13}CO_3^-$", ME Merritt, C Harrison, C Storey, AD Sherry & CR Malloy, Magn. Reson. Med., **60**, 1029-1036 (2008).

306. "Silencing of Cytosolic or Mitochondrial Isoforms of Malic Enzyme has no Effect on Glucose-Stimulated Insulin Secretion from Rodent Islets", SM Ronnebaum, MV Jensen, HE Hohmeier, SC Burgess, YP Zhou, S Qian, D Macneil, A Howard, N Thronberry, O Ilkayeva, D Lu, AD Sherry & CB Newgard, J Biol Chem., **283**, 28909-28917 (2008).

307. "Polymeric PARACEST Agents for Enhancing MRI Contrast Sensitivity", Y Wu, Y Zhou, O Ouari, M Woods, P Zhao, TC Soesbe, GE Kiefer & AD Sherry, J. Amer. Chem. Soc., **130**, 13854-13855 (2008).

308. "Metabolic Cycling in Control of Glucose-stimulated Insulin Secretion", MV Jensen, JW Joseph, SM Ronnebaum, SC Burgess, AD Sherry & CB Newgard, Am. J. Physiol., **295**, E1287-E1297 (2008).

309. **"**Synthesis and Evaluation of Lanthanide Ion DOTA-tetraamide Complexes Bearing Peripheral Hydroxyl Groups", A Pasha, M Lin, G Tircso, M Woods, GE Kiefer, AD Sherry & X Sun, J. Biol. Inorg. Chem., **14**, 421-438 (2009).

310. "Orientation of Lipid Strands in the Extracellular Compartment of Muscle: Effect on Quantitation of Intramyocellular Lipids" A Khuu, J Ren, I Dimitrov, DE Woessner, J Murdoch, AD Sherry & CR Malloy, Magn. Reson. Med., **61**, 16-21 (2009).

311. "I*n vivo* Off-Resonance Saturation Magnetic Resonance Imaging of $\alpha_v\beta_3$-Targeted Superparamagnetic Nanoparticles", C Khemtong, CW Kessinger, J Ren, EA Bey, S-G Yang, JS Guthi, DA Boothman, AD Sherry & J Gao, Cancer Res., **69**, 1651-1658 (2009).

312. "Evidence for Reverse Flux through Pyruvate Kinase in Skeletal Muscle", ES Jin, AD Sherry & CR Malloy, Amer. J. Physiol., **296**, E748-E757 (2009).

313. "Comprehensive Metabolic Analysis for Understanding of Disease Mechanisms" CB Newgard, RD Stevens, BR Wenner, SC Burgess, O Ilkayeva, MJ Muehlbauer, AD Sherry & JR Bain, Genomic and Personalized Medicine, **1**, 180-192 (2009).

314. "(S)-5-(p-nitrobenzyl)-PCTA, a Promising Bifunctional Ligand with Advantageous Metal Ion Complexation Kinetics", G Tircso, E Tircsone-Benyo, EH Suh, P Jurek, GE Kiefer, AD Sherry & Z Kovacs, Bioconjugate Chemistry, **20**, 565-575 (2009).

315. "A New Gadolinium-based MRI Zinc Sensor", AC Esqueda, JA López, G Andreu-de-Riquer, JC Alvarado-Monzón, J Ratnakar, AJM Lubag, AD Sherry & LM De León-Rodríguez, J. Amer. Chem. Soc., **131**, 11387-11391 (2009).

316. "Modulation of Water Exchange in EuDOTA-tetraamide Complexes: Considerations for *in vivo* Imaging of PARACEST Agents", T Mani, G Tircsó, O Togao, P Zhao, T Soesbe, M Takahashi & AD Sherry, Contrast Media & Mol Imaging, **4**, 183-191 (2009).

317. "Responsive MRI Agents for Sensing Metabolism *in vivo***"** LM De Leon-Rodriguez, AJM Lubag, CR Malloy, GV Martinez, RJ Gillies & AD Sherry, Accts. Chem. Res., **42**, 948-957 (2009).

318. "Off-resonance saturation magnetic resonance imaging of superparamagnetic polymeric micelles" C Khemtong,, CW Kessinger, , O Togao,, J Ren, , M Takahashi, & AD Sherry , J Gao, Conf Proc IEEE Eng Med Biol Soc, 4095-4097 (2009).

319. "Primer on Gadolinium Chemistry", AD Sherry, P Caravan & RE Lenkinski, J. Magn. Reson. Imag., **30**, 1240-1248 (2009).

320. "NMR Characterization of Lanthanide(III) Complexes of Tetraazatetrakisphosphinato and Tetraazatetrakisphophonato Ligands", GA Pereira, L Ball, AD Sherry, JA Peters and CFGC Geraldes, Helv. Chim. Acta, **92**, 2532-2551 (2009).

321. "Effect of the Regiochemistry of Butyl Amide Substituents on the Solution-State Structures of Lanthanide(III) DOTA-tetraamide complexes", T Mani, M Woods, P Zhao, G Tircsó & AD Sherry, Inorg. Chem., **48**, 10338-10345 (2009).

322. "Nanoassembled Capsules as Delivery Vehicles for Large Payloads of High Relaxivity Gd^{3+} Agents", SE Plush, M Woods, Y Zhou, SB Kadali & MS Wong & AD Sherry, J. Amer. Chem. Soc., **131**, 15918-15923 (2009).

323. "Lanthanide(III) Complexes of tris(amide)-PCTA Derivatives as Potential Bimodal Magnetic Resonance and Optical Imaging Agents", FA Rojas-Quijano, ET Benyó, G Tircsó, FK Kálmán, Z Baranyai, S Aime, AD Sherry & Z Kovács, Chem. Eur. J., **15**, 13188-13200 (2009).

324. "Multi-Frequency PARACEST Agents Based on Europium(III)-DOTA-Tetraamide Ligands", S Viswanathan, SJ Ratnakar, KN Green, Z Kovacs, LM De León & AD Sherry, Angew. Chem. Int. Ed., **48**, 9330-9333 (2009).

325. "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).

326. "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).

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

328. "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).

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

330. "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).

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

332. "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).

333. "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).

334. "CEST and PARACEST MR Contrast Agents", I Hancu, WT Dixon, M Woods, E Vinogradov, AD Sherry & RE Lenkinski, Acta Radiologica, **51**, 910-923 (2010).

335. "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).

336. "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).

337. "Polymeric PARACEST MRI Contrast Agents as Potential Reporters for Gene Therapy", Y Wu, C Carney, M Denton, E Hart, P Zhao, DN Streblow, AD Sherry & M Woods, Org. Biomol. Chem., **8**, 5333-5338 (2010).

338. "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).

339. "^{1}H MRS of Intramyocellular Lipids in Soleus Muscle at 7T: Spectral Simplification by Using Long Echo Times without Water Suppression", J Ren, AD Sherry & CR Malloy, Magn. Reson. Med., **64**, 662-671 (2010).

340. "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).

341. "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).

342. "The 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**: N85-N92 (2011).

343. "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).

344. "A Lanthanide Complex with Dual Biosensing Properties: CEST (Chemical Exchange Saturation Transfer) and BIRDS (Biosensor Imaging of Redundant Deviation in Shifts) with Europium DOTA-Tetraglycinate", D Coman, GE Kiefer, DL Rothman, AD Sherry & F Hyder, NMR in Biomed., **24**, 1216-1225 (2011).

345. "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).

346. "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).

347. DNP by Thermal Mixing under Optimized Conditions Yields >60 000-fold Enhancement of (89)Y NMR Signal" LL Lumata, AK Jindal, ME Merritt, CR Malloy, AD Sherry & Z Kovacs, J. Amer. Chem. Soc., **133**, 8673-8680 (2011).

348. "On-Bead Combinatorial Synthesis and Imaging of Chemical Exchange Saturation Transfer Magnetic Resonance Imaging 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).

349. "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).

350. "Could ^{13}C MRI Assist Clinical Decision-Making for Patients with Heart Disease?" CR Malloy, ME Merritt & AD Sherry, NMR in Biomed., **24**, 973-979 (2011).

351. "T_2 Exchange Agents: A New Class of Paramagnetic MRI Contrast Agent that Shortens Water T_2 by Chemical Exchange Rather than Relaxation", TC Soesbe, ME Merritt, KN Green, FA Rojas-Quijano & AD Sherry, Magn. Reson. Med., **66**, 1697-1703 (2011).

352. "Flux Through Hepatic Pyruvate Carboxylase and Phosphoenolpyruvate Carboxykinase Detected by Hyperpolarized ^{13}C Magnetic Resonance", ME Matthew , C Harrison, AD Sherry, CR Malloy SC Burgess, Proc. Natl. Acad. Sci. USA, **108**, 19084-9 (2011).

353. "The pH Sensitivity of –NH Exchange in LnDOTA-tetraamide Complexes Varies with Amide Substituent", ACL Opina, Y Wu, P Zhao, GE Kiefer & AD Sherry, Contrast Media Mol Imaging, **6**: 459-64 (2011).

354. "Noninvasive MRI of β-cell function using a Zn^{2+}-responsive contrast agent", AJ Lubag, LM De Leon-Rodriguez, SC Burgess, &AD Sherry, Proc. Natl. Acad. Sci. USA, **108**, 18400-18405 (2011).

355. "TmDOTA-tetraglycinate encapsulated liposomes as pH-sensitive lipoCEST agents", ACL Opina, KB Ghaghada, P Zhao, GE Kiefer, A Annapragada & AD Sherry, PLoS One **6**: e27370. (2011).

356. "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., **213**, 187-191 (2011).

357. "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).

358. "Imaging the Extracellular pH of Tumors by MRI after Injection of a Single Cocktail of T_1 and T_2 Contrast Agents", GV Martinez, X Zhang, ML García-Martín, DL Morse, M Woods, AD Sherry & RJ Gillies, NMR in Biomed., **24**, 1380-1391 (2011).

359. "In Vivo Determination of Human Breast Fat Composition by ^{1}H Magnetic Resonance Spectroscopy at 7T". IE Dimitrov, D Douglas D, J Ren, NB Smith, AG Webb, AD Sherry, & Malloy CR, **67**:20-26 (2012).

360. "Using frequency-labeled exchange (FLEX) transfer to separate out conventional magnetization transfer effects from exchange transfer effects when detecting PARACEST agents", C-Y Lin, NN Yadav, JI Friedman, J Ratnakar, AD Sherry, PCM van Zijl, Magn Reson Med, **67**, 906-911 (2012).

361. "SWIFT-CEST: A New Method to Overcome T_2 Shortening Caused by PARACEST Contrast Agents", TC Soesbe, O Togao, M Takahashi & AD Sherry, Magn. Reson. Med., **68**, 816-821 (2012).

362. "pCEST: Positive contrast using chemical exchange saturation transfer", E Vinogradov, TC Soesbe, JA Balschi, AD Sherry and RE Lenkinski, J Magn Reson, **215**, 64-73 (2012).

363. "Nanoparticle-based PARACEST agents: The quenching effect of silica nanoparticles on the CEST signal from surface conjugated chelates", OM Evbuomwan, ME Merritt, GE Kiefer & AD Sherry, Contrast Media & Mol. Imaging, **7**, 19-25 (2012).

364. "Amphiphilic EuDOTA-tetraamide complexes form micelles with enhanced CEST sensitivity", OM Evbuomwan, GE Kiefer & AD Sherry, J. Biol. Inorg. Chem., **2012**, 2126-2134.

365. "Comparison of kinetic models for analysis of pyruvate-to-lactate exchange by hyperpolarized ^{13}C NMR", C Harrison, C Yang, A Jindal, RJ DeBerardinis, MA Hooshyar, ME Merritt, AD Sherry and CR Malloy, NMR in Biomed, **25**, 1286–1294 (2012).

366. "Synthesis and Characterization of a Hypoxia-Sensitive MRI Probe", F Rojas-Quijano, G Tircso, E Tircsone Benyo, Z Baranyai, H Hoang, F Kalman, P Gulaka, V Kodibagkar, S Aime, Z Kovács, AD Sherry, Chem Eur J, **18**, 9669-9676 (2012).

367. "Europium(III) DOTA-tetraamide Complexes as Redox Active MRI Sensors", J Ratnakar, S Viswanathan, Z Kovács, K Green, A Jindal & AD Sherry, J Amer Chem Soc, **134**, 5798-5800 (2012).

368. "A second generation MRI contrast agent for imaging zinc ions *in vivo*", LM De León-Rodríguez, AJM Lubag, JA López, G Andreu-de-Riquer, JC Alvarado-Monzón & AD Sherry, MedChemComm, **3**, 480-483 (2012).

369. "Fast dissolution dynamic nuclear polarization NMR of ^{13}C-enriched ^{89}Y-DOTA complex: Experimental and theoretical considerations", L Lumata, ME Merritt, CR Malloy, AD Sherry & Z Kovacs, Appl. Magn. Reson., **43**, 69-79 (2012).

370. "Impact of Gd^{3+} on DNP of [1-^{13}C]Pyruvate Doped with Trityl OX063, BDPA, or 4-oxo-TEMPO", L Lumata, ME Merritt, CR Malloy, AD Sherry & Z Kovács, J. Phys. Chem. A, **116**, 5129-5138 (2012).

371. "Molecular Imaging and Cancer Management: PET and MR Agents for Molecular Imaging of Cancer Metabolism", Y Wu, X Sun & AD Sherry, in **Principles of Molecular Diagnostics and Personalized Cancer Medicine***,* edited by Dongfeng Tan, MD, and Henry Lynch, MD, Lippincott, Williams & Wilkins, Philadelphia, 2012, Chapter 20, pp. 233-246.

372. "Imaging free zinc levels *in vivo* – what can be learned?", L DeLeon-Rodriquez, AJM Lubag & AD Sherry, Inorganica Chemica Acta, **393**, 12-23 (2012).

373. **"**Dynamic Monitoring of Carnitine and Acetylcarnitine in the Trimethylamine Signal after Exercise in Human Skeletal Muscle by 7T ^{1}H MRS, J Ren, S Lakoski, RG Haller, AD Sherry & CR Malloy, Magn Reson Med, **69**, 7-17 (2013).

374. "^{13}C NMR for Analysis of Metabolic Pathways", CR Malloy, E Maher, I Marin-Valencia, B Mickey, RJ DeBerardinis & AD Sherry, in **Methodologies for Metabolomics**, edited by NW Lutz, JV Sweedler, RA Wevers, Cambridge University Press, 2013, pp. 415-445.

375. "Stability and Toxicity of Contrast Agents"**,** E Brücher, G Tircsó, Z Baranyai, Z Kovács & AD Sherry (2013) in **Chemistry of Contrast Agents in Medical Magnetic Resonance Imaging**, 2nd Edition, edited by AE Merbach, E Toth and L Helm, Chapter 5, pp. 157-208, John Wiley & Sons, NY.

376. “Advantages of paramagnetic CEST complexes having slow-to-intermediate water exchange properties as responsive MRI agents”, TC Soesbe, Y Wu & AD Sherry, NMR Biomed, **26**, 829-838 (2013).

377. “The importance of water exchange rates in the design of responsive agents for MRI”, AD Sherry & Y Wu, Curr. Opin. Chem. Biol., **288**, 2914-2922 (2013).

378. “Electron spin resonance studies of trityl OX063 at a concentration optimal for DNP**”,** L Lumata, Z Kovacs, AD Sherry, CR Malloy, S Hill, J van Tol, L Yu, L Song & ME Merritt, Physical Chemistry Chemical Physics, **15**, 9800-9807 (2013).

379. “CEST: From basic principles to application, challenges and opportunities”, E Vinogradov, AD Sherry & RE Lenkinski, J. Magn. Reson., **229**, 155-172 (2013).

380. "Evidence for Transaldolase Activity in the Isolated Heart Supplied with [U-$^{13}C_3$]glycerol", ES Jin, AD Sherry & CR Malloy, J. Biol. Chem., **288**, 2914-2922 (2013).

381. “Dissolution DNP-NMR spectroscopy using galvinoxyl as a polarizing agent”, LL Lumata, ME Merritt, CR Malloy, AD Sherry, J van Tol, L Song & Z Kovacs, J. Magn. Reson., **227**, 14-19 (2013).

382. “Multi-Chromatic pH-Activatable ^{19}F-MRI Nanoprobes with Binary ON/OFF pH Transitions and Chemical Shift Barcodes”, X Huang, G Huang, S Zhang, K Sagiyama, O Togao, Y Wang, Y Li, M Takahashi, AD Sherry & J Gao, Angew Chem Int Ed., **52**, 8074-8078 (2013).

383. “Metabolism of Glycerol, Glucose and Lactate in the Citric Acid Cycle Prior to Incorporation into Hepatic Triglycerides”, ES Jin, AD Sherry & CR Malloy, J. Biol. Chem., **288**, 14488-14496 (2013).

384. “A europium(III)-based PARACEST agent for sensing singlet oxygen by MRI”, B Song, Y Wu, M Yu, P Zhao, C Zhou, GE Kiefer, & AD Sherry, Dalton Trans., **2013**, 8066 - 8069.

385. “A Novel Class of Polymeric pH-Responsive MRI CEST Agents”, S Zhang, K Zhou, M Takahashi, AD Sherry, & J Gao, Chem. Commun., **49**, 6418-6420 (2013).

386. “Noninvasive Monitoring of Lactate Dynamics in Human Forearm Muscle after Exhaustive Exercise by ^{1}H Magnetic Resonance Spectroscopy at 7 Tesla”, J Ren, AD Sherry & CR Malloy, Magn Reson Med, **70**, 610-619 (2013).

387. "Characterization of lung cancer by amide proton transfer (APT) imaging: An in-vivo study in an orthotopic mouse model", PLOS one, O Togao, CW Kessinger, G Huang, TC Soesbe, K Sagiyama, I Dimitrov, AD Sherry, J Gao & M Takahashi, PLoS One 2013 Oct 15;8(10):e77019.

388. “Modulation of CEST Images in Vivo by T_1 Relaxation: A New Approach in the Design of Responsive PARACEST Agents”, SJ Ratnakar, TC Soesbe, L Lumata, QN Do, S Viswanathan, C-Y Lin, AD Sherry & Z Kovacs, J Amer Chem Soc, **135**, 14904-14907 (2013).

389. “*In vivo* chemical exchange saturation transfer imaging allows early detection of therapeutic response in glioblastoma”, K Sagiyama, T Mashimo, O Togao, V Vemireddy, KJ Hatanpaa, MA Maddie, EA Maher, AD Sherry, RM Bachoo, & M Takahashi, Proc Natl Acad Sci, **111**, 4542-4547 (2014).

390. "The stereochemistry of amide side-chains containing carboxyl groups influences water exchange rates in EuDOTA-tetraamide complexes", T Mani, ACL Opina, P Zhao, M Evbuomwan, N Milburn, G Tircso, C Kumas & AD Sherry, J Biol Inorg Chem, **19**, 161-171 (2014).

391. "Simultaneous steady-state and dynamic ^{13}C NMR can differentiate alternative routes of pyruvate metabolism in living cancer cells", C Yang, C Harrison, ES Jin, DT Chuang, AD Sherry, CR Malloy, ME Merritt & RJ DeBerardinis, J. Biol. Chem., **289**, 6212-6224 (2014).

392. "*In vivo* imaging of paraCEST agents using frequency labeled exchange transfer MRI", C-Y Lin, N Yadav, J Ratnakar, AD Sherry and PCM van Zijl, Magn Reson Med, **71**, 286-293 (2014).

393. "GdDO3NI, a nitroimidazole based T_1 MR contrast agent allows in vivo non-invasive high-resolution imaging of tumor hypoxia", PK Gulaka, F Rojas-Quijano, Z Kovacs, RP Mason, AD Sherry & VD Kodibagkar, J Biol Inorg Chem, **19**, 271-279 (2014).

394. "Maximizing T_2-exchange in DyDOTA-$(amide)_X$ chelates: Fine-tuning the water molecule exchange rate for enhanced T_2 contrast in MRI", TC Soesbe, SJ Ratnakar, M Milne, S Zhang, QN Do, Z Kovacs & AD Sherry, Magn Res Med, **71**, 1179-1185 (2014).

395. "CEST and PARACEST agents for molecular imaging", OM Evbuomwan, AD Sherry, S Aime & E Terreno in **The Chemistry of Molecular Imaging**, Edited by Nicholas J. Long and Wing-Tak Wong, Chapter 10, pp. 225-243, J. Wiley & Sons, 2014.

396. "Redox- and hypoxia-responsive MRI contrast agents", QN Do, JS Ratnakar, Z Kovacs & AD Sherry, ChemMedChem, 9, 1116-1129 (2014).

397. "The presence of fast-exchanging proton species in aqueous solutions of paraCEST agents can impact rate constants measured for slower exchanging species when fitting CEST spectra to the Bloch equations", OM Evbuomwan, J Lee, M Woods & AD Sherry, Inorg Chem, 53, 10012-10014 (2014).

398. "Propionate Stimulates Pyruvate Oxidation in the Presence of Acetate", C Purmal, B Kucejova, AD Sherry, SC Burgess, CR Malloy & ME Merritt, Amer. J. Physiol., **307**, H1134-H1141 (2014).

399. "Interaction between the Pentose Phosphate Pathway and Gluconeogenesis from Glycerol in the Liver", ES Jin, AD Sherry & CR Malloy, J. Biol. Chem., **289**, 32593-32603 (2014).

400. "The ratio of acetate-to-glucose oxidation in astrocytes from a single ^{13}C NMR spectrum of cerebral cortex", I Marin-Valencia, MA Hooshyar, K Pichumani, AD Sherry & CR Malloy, J Neurochem, **132**, 99-109 (2015).

401. "Limitations of detection of anaplerosis and pyruvate recycling from metabolism of [1-^{13}C]acetate", Letter to the editor, SC Burgess, ME Merritt, JG Jones, JD Browning, AD Sherry & CR Malloy, Nature Medicine, 21, 108-109 (2015).

402. "Hyperpolarized Pyridine Derivatives as pH-sensitive ^{15}N MRI Probes", W Jiang, L Lumata, W Chen, S Zhang, Z Kovacs, CR Malloy, AD Sherry, & C Khemtong, Scientific Reports, **5**, 9104 (2015).

403. "Production of hyperpolarized $^{13}CO_2$ from [1-^{13}C]pyruvate in perfused liver does reflect total anaplerosis but is not a reliable biomarker of glucose production", KX Moreno, CL Moore, SC Burgess, AD Sherry, CR Malloy & ME Merritt, Metabolomics, **5**, 1144-1156 (2015).

404. “Hyperpolarized ^{13}C NMR detects rapid drug-induced changes in cardiac metabolism”, C Khemtong, NR Carpenter, LL Lumata, ME Merritt, KX Moreno, Z Kovacs, CR Malloy & AD Sherry, Magn Reson Med, **74**, 312–319 (2015).

405. “^{68}Ga-HP-DO3A-nitroimidazole: a promising agent for PET detection of tumor hypoxia”, Y Wu, G Hao, X Sun, D Saha, D Zhao & AD Sherry, Contrast Media Molecular Imaging, **10**, 465-472 (2015).

406. “Exchange Kinetics by Inversion Transfer (EKIT): Integrated Analysis of the Phosphorus Metabolite Kinetic Exchanges in Resting Human Skeletal Muscle at 7T, J Ren, B Yang, AD Sherry & CR Malloy, Magn Reson Med, **73**, 1359-1369 (2015).

407. “Amplification of magnetization exchange effects by band inversion of multiple ^{31}P NMR signals provides a rapid, convenient method to measure ATP synthesis rates in resting human skeletal muscle at 7T”, J Ren, AD Sherry & CR Malloy, Magn Reson Med, **74**, 1505–1514 (2015).

408. "Molecular Platform for Design and Synthesis of Targeted Dual-modality Imaging Probes", A Kumar, S Zhang, G Hao, G Hassan, S Ramezani, K Sagiyama, S-T Lo, M Takahashi, AD Sherry, O Oz, Z Kovács & X Sun, Bioconj Chem, **26**, 549-558 (2015).

409. “Mitochondrial metabolism mediates oxidative stress and inflammation in fatty liver”, S Satapati, B Kucejova, JAG Duarte, JA Fletcher, L Reynolds, NE Sunny, T He, LA Nair, K Livingston, X Fu, ME Merritt, AD Sherry, CR Malloy, JM Shelton, J Lambert, EJ Parks, I Corbin, MA Magnuson, JD Browning & SC Burgess, J Clin Invest. **125**, 4447-4462 (2015).

410. “Nuclear spin hyperpolarization of the solvent using signal amplification by reversible exchange (SABRE)”, KX Moreno, K Nasr, M Milne, AD Sherry & WJ Goux, J Magn Reson, **257**, 15-23 (2015).

411. “Kinetic modeling and constrained reconstruction of hyperpolarized [1-^{13}C]-pyruvate offers improved metabolic imaging of tumors”, JA Bankson, CM Walker, MS Ramirez, W Stefan, D Fuentes, ME Merritt, J Lee, VC Sandulache, Y Chen, L Phan, P-C Chou, A Rao, M-H Lee, D Schellingerhout, CA Conrad, CR Malloy, AD Sherry, SY Lai & JD Hazle, Cancer Res., **75**, 4708-4717 (2015).

412. "Basic MR Relaxation Mechanisms & Contrast Agent Design", LM De León-Rodríguez, AF Martins, M Pinho, NM Rofsky & AD Sherry, J Magn Reson Imaging, **42**, 545-565 (2015).

413. “Amplifying the Sensitivity of Zinc(II)-Responsive MRI Contrast Agents by Altering Water Exchange Rates”, J Yu, AF Martins, C Preihs, V Clavijo-Jordan, P Zhao, Y Wu, K Nasr, GE Kiefer & AD Sherry, J. Amer. Chem. Soc., **137**, 14173-14179 (2015).

414. “A pH-responsive MRI agent that can be activated beyond the tissue magnetization transfer window”, X Wang, Y Wu, TC Soesbe, J Yu, P Zhao, GE Kiefer & AD Sherry, Angew Chem Int Ed Engl., **54**, 8662-8664 (2015).

415. “^{31}P MRS of healthy human brain: ATP synthesis rates, metabolite concentrations, pH, and T_1 relaxation times”, J Ren, AD Sherry & CR Malloy, NMR Biomed., **28**, 1455-1462 (2015).

416. “Lactate contributes to glyceroneogenesis and glyconeogenesis in skeletal muscle by reversal of pyruvate kinase”, ES Jin, AD Sherry & CR Malloy, J Biol Chem., **290**, 30486-30497 (2015).

417. "Metabolism of Hyperpolarized [1-^{13}C]pyruvate through Alternate Pathways in Rat Liver", E. Jin, KX Moreno, J-X Wang, L Fidelino, ME Merritt, AD Sherry & CR Malloy, NMR Biomed, **29**, 466-476 (2016).

418. "A Simple Approach to Evaluate the Kinetic Rate Constant for ATP Synthesis in Resting Human Skeletal Muscle at 7T", J Ren, AD Sherry & CR Malloy, NMR in Biomed., **29**, 1240-1248 (2016).

419. "pH imaging of mouse kidneys *in vivo* using a frequency-dependent paraCEST agent", Y Wu, S Zhang, TC Soesbe, J Yu, E Vinogradov, RE Lenkinski & AD Sherry AD, Magn Reson Med., **75**, 2432-2441 (2016).

420. "Breaking the barrier to slow water exchange rates for optimal magnetic resonance detection of paraCEST agents", WS Fernando, AR Martins, P Zhao, Y Wu, GE Kiefer, C Platas-Iglesias & AD Sherry, Inorg. Chem., **55**, 3007-3014 (2016).

421. "Oxidative conversion of a europium(II)-based T_1 agent into a europium(III)-based paraCEST agent that can be detected in vivo by magnetic resonance imaging", AM Funk, V Clavijo Jordan, AD Sherry, SJ Ratnakar & Z Kovacs, Angew Chem. Int. Ed., **55**, 5024-5027 (2016).

422. "Accelerated chemical shift imaging of hyperpolarized ^{13}C metabolites", J-X Wang, ME Merritt, AD Sherry, & CR Malloy, Magn Reson Med, **76**, 1033-1038 (2016).

423. "Zinc-sensitive MRI contrast agent detects differential release of Zn(II) ions from the healthy versus malignant mouse prostate," MV Clavijo-Jordan, S-T Lo, S Chen, C Preihs, S Chirayil, S Zhang, W-H Li, P Kapur, LM De Leon-Rodriguez, AJM Lubag, NM Rofsky & AD Sherry, Proc Natl Acad Sci, USA, **113**, E5464-E5471 (2016).

424. "Biochemical specificity in human cardiac imaging by ^{13}C magnetic resonance imaging", CR Malloy & AD Sherry, Circulation Research, **119**, 1146-1148 (2016).

425. "Unexpected changes in the population of coordination isomers for the lanthanide ion complexes of DOTMA-tetraglycinate", C Kumas, WS Fernando, P Zhao, GE Kiefer, AR Martins, C Platas-Iglesias & AD Sherry, Inorg. Chem., **55**, 9297-9305 (2016).

426. "An oral load of [$^{13}C_3$]glycerol and blood NMR analysis detects fatty acid esterification, pentose phosphate pathway and glycerol metabolism through the tricarboxylic acid cycle in human liver", ES Jin, AD Sherry & CR Malloy, J Biol Chem, **291**, 19031-19041 (2016).

427. "Integrating ^{13}C Isotopomer Methods with Hyperpolarization for a Comprehensive Picture of Metabolism", AD Sherry & CR Malloy (2016) in *Handbook of Magnetic Resonance Spectroscopy In Vivo: MRS Theory, Practice and Applications*, Bottomley, P.A. and Griffiths, J.R. (eds). John Wiley & Sons Ltd, Chichester, UK, pp 679-698.

428. "Toward 20T magnetic resonance for human brain studies: opportunities for discovery and neuroscience rationale", TF Budinger, MD Bird, L Frydman, JR Long, TH Mareci, WD Rooney, B Rosen, JF Schenck, VD Schepkin, AD Sherry, DK Sodickson, CS Springer, KR Thulborn, K Ugurbil, & LL Wald, MAGMA, **29**, 617-639 (2016).

429. "A general chemical shift decomposition method for hyperpolarized ^{13}C metabolite magnetic resonance imaging", J-X Wang, ME Merritt, AD Sherry & CR Malloy, Magn Reson Chem, DOI 10.1002/mrc.4435 (2016).

430. "The relationship between NMR chemical shifts of thermally polarized and hyperpolarized ^{89}Y complexes and their solution structures", Y Xing, AK Jindal, M Regueiro-Figueroa, M Le Fur, N Kervarec, P Zhao, Z Kovacs, L

Valencia, P Pérez-Lourido, R Tripier, D Esteban-Gómez, C Platas-Iglesias & AD Sherry, Chem. Eur. J., **22**, 16657-16667 (2016).

431. "Impact of Ho^{3+}-doping on ^{13}C dynamic nuclear polarization using trityl OX063 free radical", A Kiswandhi, P Niedbalski, C Parish, P Kaur, A Martins, L Fidelino, C Khemtong, L Song, AD Sherry & L Lumata, Phys Chem Chem Phys, **18**, 21351-21359 (2016).

432. "Early discovery and investigations of paraCEST agents in Dallas", AD Sherry, Chapter 4 in *Chemical Exchange Saturation Transfer Imaging: Advances and Applications*, Ed. by MT McMahon, AA Gilad, JWM Bulte & PCM van Zijl, Pan Stanford Publishing Pte. Ltd., 2017.

433. "paraCEST agents: Design, Discovery, and Implementation", M Milne, Y Wu & AD Sherry, Chapter 11 in *Chemical Exchange Saturation Transfer Imaging: Advances and Applications*, Ed. by MT McMahon, AA Gilad, JWM Bulte & PCM van Zijl, Pan Stanford Publishing Pte. Ltd., 2017.

434. "Efficient ^{31}P band inversion transfer approach for measuring creatine kinase activity, ATP synthesis, and molecular dynamics in the human brain at 7T", J Ren, AD Sherry & CR Malloy, Magn Reson Med, **78**, 1657-1668 (2017).

435. "Oxidation of [U-^{13}C]glucose in the Human Brain at 7T under Steady State Conditions", S Cheshkov, IE Dimitrov, V Jakkamsetti, L Good, D Kelly, K Rajasekaran, RJ DeBerardinis, JM Pascual, AD Sherry & CR Malloy, Magn Reson Med, **78**, 2065-2071 (2017).

436. "Measuring cerebral glucose metabolism in the healthy mouse using hyperpolarized ^{13}C magnetic resonance", M Mishkovsky, B Anderson, M Karlsson, MH Lerche, AD Sherry, R Gruetter, Z Kovacs, & A Comment, Science Reports, **7**, 1179 (2017).

437. "Influence of Dy^{3+} and Tb^{3+} Doping on ^{13}C Dynamic Nuclear Polarization", P Niedbalski, C Parish, A Kiswandhi, L Fidelino, C Khemtong, Z Hayati, L Song, A Martins, AD Sherry & L Lumata, J Chem Phys, 146, 014303 (2017).

438. "Crosslinked shells for nano-assembled capsules: a new encapsulation method for smaller Gd^{3+}-loaded capsules with exceedingly high relaxivities", A Farashishiko, SE Plush, KB Maier, AD Sherry & M Woods, Chemical Commun., in press (2017).

439. "Hyperpolarized δ-[1-^{13}C]gluconolactone as a probe of the pentose phosphate pathway", KX Moreno, CE Harrison, ME Merritt, Z Kovacs, CR Malloy, & AD Sherry, NMR Biomed, **30**: e3713 (2017).

440. "Imaging extracellular lactate *in vitro* and *in vivo* using CEST MRI and a paramagnetic shift reagent", L Zhang, A Martins, Y Mai, P Zhao, A Funk, V Clavijo-Jordan, S Zhang, W Chen, Y Wu & AD Sherry, Chem. Eur. J., **23**, 1752-1756 (2017).

441. "On-bead combinatorial synthesis and imaging of europium(III)-based paraCEST agents aids in identification of chemical features that enhance CEST sensitivity", J Singh, V Rustagi, S Zhang, AD Sherry & DG Udugamasooriya, Magn. Reson. Chem., **55**, 747-753 (2017).

442. "Zinc as an Imaging Biomarker of Prostate Cancer", S-T Lo, AF Martins, V Clavijo-Jordan & AD Sherry, Israel J. Chem. **57**, 854 –861 (2017).

443. "The rate of lactate production from glucose in hearts is not altered by per-deuteration of glucose", AM Funk, BL Anderson, X Wen, T Hever, C Khemtong, Z Kovacs, AD Sherry, & CR Malloy, J Magn Reson, **284**, 86-93 (2017).

444. "Transition Metal Doping Reveals Link between Electron T_1 Reduction and ^{13}C Dynamic Nuclear Polarization Efficiency", P Niedbalski. C Parish, Q Wang, Z Hayati, L Song, AF Martins, AD Sherry & L Lumata, J Phys Chem A. **121**, 9221-9228 (2017).

445. "Presaturation power adjusted pulsed (PPAP)-CEST: A method to increase independence of target CEST signals", K Kikuchi, K Ishimatsu, S Zhang, T Mashimo, IE Dimitrov1, AD Sherry & M Takahashi, Contrast Media & Mol. Imaging, 3141789 (2018).

446. "Protonation of carboxyl groups in EuDOTA-tetraamide complexes catalyzes prototropic exchange and quenching of the CEST signal", L Zhang, OM Evbuomwan, M Tieu, P Zhao, AF Martins & AD Sherry, Phil Trans A, Math Phys Eng Sci, 375 (2017).

447. "Lanthanide-based T_{2ex} and CEST complexes provide insights into the design of pH sensitive MRI agents", L Zhang, AF Martins, P Zhao, Y Wu, G Tircso & AD Sherry, Angew Chem Int Ed., **56**, 16626-16630 (2017).

448. "Enantiomeric recognition of D- and L-lactate by CEST with the aid of a paramagnetic shift reagent", L Zhang, AF Martins, P Zhao, D Esteban-Gómez, C Platas-Iglesias, M Tieu & AD Sherry, J Amer Chem Soc, **139**, 17431-17437 (2017).

449. "Imaging insulin secretion from the mouse pancreas by MRI is improved by use of a zinc-responsive MRI sensor with lower affinity for Zn^{2+} ions", AF Martins, V Clavijo-Jordan, F Bochner, S Chirayil, N Paranawithana, S Zhang, S-T Lo, X Wen, P Zhao, M Neeman, & AD Sherry, J. Am. Chem. Soc., **140**, 17456–17464 (2018).

450. "Nitroxyl Modified Tobacco Mosaic Virus as a Metal-Free High-Relaxivity MRI and EPR Active Superoxide Sensor", M Dharmarwardana, AF Martins, Z Chen, PM Palacios, C Novak, RP Welch, S Li, MA Luzuriaga, L Bleris, BS Pierce, AD Sherry & JJ Gassensmith, Molecular Pharmaceutics, **15**, 2973-2983 (2018).

451. "A Novel Inhibitor of Pyruvate Dehydrogenase Kinase Stimulates Myocardial Carbohydrate Oxidation in Diet-Induced Obesity", C-Y Wu, S Satapati, W Gui, RM Wynn, G Sharma, M Lou, X Qi, SC Burgess, CR Malloy, C Khemtong, AD Sherry, DT Chuang, & ME Merritt, J. Biol. Chem., **293**, 9604-9613 (2018).

452. "Unveiling a hidden ^{31}P signal that co-resonates with extracellular inorganic phosphate by outer-volume-suppression and localized ^{31}P MRS in the human brain at 7T", J Ren, T Shang, AD Sherry & CR Malloy, Magn Reson Med. 80, 1289-1297 (2018).

453. "Advances in gadolinium-based MRI contrast agent designs for monitoring biological processes *in vivo*", J Lux & AD Sherry, Curr. Opin. Chem. Biol., **45**, 1-10 (2018).

454. "tcaSIM: A simulation program for optimal design of ^{13}C tracer experiments for analysis of metabolic flux by NMR and mass spectrometry", JR Alger, AD Sherry & CR Malloy, Current Metabolomics, **6**, 176-187 (2018).

455. "Probing carbohydrate metabolism using hyperpolarized ^{13}C-labeled molecules", J Singh, EH Suh, G Sharma, C Khemtong, AD Sherry, & Zoltan Kovacs, NMR in Biomed., e4018 (2018).

456. "Esterase-catalyzed production of hyperpolarized ^{13}C-enriched carbon dioxide in tissues for measuring pH", NR Maptue, W Jiang, C Harrison, AM Funk, G Sharma, CR Malloy, AD Sherry & C Khemtong, ACS Sensors, **3**, 2232-2236 (2018).

457. “Metabolism of hyperpolarized ^{13}C-acetoacetate to β-hydroxybutyrate detects real-time mitochondrial redox and dysfunction in heart tissue”, W Chen, G Sharma, W Jiang, NR Maptue, CR Malloy, AD Sherry & C Khemtong, NMR in Biomed., 32, e4091 (2019).

458. “A responsive MRI contrast agent for detection of excess copper(II) ions in mouse liver”, NN Paranawithana, AF Martins, V Clavijo-Jordan, P Zhao, S Chirayil, G Meloni & AD Sherry, J Amer Chem Soc, **141**, 11009-11018 (2019).

459. “In vivo assessment of increased oxidation of branched-chain amino acids in glioblastoma”, EH Suh, EP Hackett, RM Wynn, DT Chuang, B Zhang, W Luo, AD Sherry & JM Park, Sci. Reports, **9**, 340 (2019).

460. “Effects of Deuteration on Transamination and Oxidation of Hyperpolarized ^{13}C-Pyruvate in the Isolated Heart”, AM Funk, X Wen, T Hever, NR Maptue, C Khemtong, AD Sherry & CR Malloy, J. Magn Reson., **301**, 102-108 (2019).

461. “Modular ^{31}P wideband inversion transfer for integrative analysis of adenosine triphosphate metabolism, T1 relaxation and molecular dynamics in skeletal muscle at 7T”, J. Ren, AD Sherry & CR Malloy CR, Magn Reson Med. **81**, 3440-3452 (2019).

462. “Synchrotron radiation X-Ray fluorescence elemental mapping in healthy versus malignant prostate tissues provides new insights into glucose-stimulated zinc trafficking in the prostate as discovered by MRI”, V Clavijo Jordan, A Al-Ebraheem, T Geraki, E Dao, AF Martins, S Chirayil, M Farquharson & AD Sherry, Inorg. Chem. **58**, 13654−13660 (2019).

463. ”Real-time hyperpolarized ^{13}C magnetic resonance detects increased pyruvate oxidation in PDH2/4 double knockout livers”, G Sharma, C-Y Wu, RM Wynn, W Gui, CR Malloy, AD Sherry, DT Chuang, & C Khemtong, Sci. Reports, 9: 16480 (2019).

464. “Active Pyruvate Dehydrogenase and Impaired Gluconeogenesis in Orthotopic Hepatomas of Rats”, MH Lee, RJ DeBerardinis, X Wen, IR Corbin, AD Sherry, CR Malloy & ES Jin, Metabolism,101:153993 (2019).

465. "Mitochondrial Substrate Utilization Regulates Cardiomyocyte Cell Cycle Progression", AC Cardoso, NT Lam, JJ Savla, Y Nakada, AHM Pereira, A Elnwasany, I Menendez-Montes, EL Ensley, UB Petric, G Sharma, AD Sherry, CR Malloy, C Khemtong, MT Kinter, WLW Tan, CG Anene-Nzelu, R Sik-Yin Foo, NUN Nguyen, S Li, MS Ahmed, WM Elhelaly, S Abdisalaam, A Asaithamby, C Xing, M Kanchwala, G Vale, KM Eckert, MA Mitsche, JG McDonald, JA Hill, L Huang, PW Shaul, LI Szweda & HA Sadek, Nature Metabolism, 2,167-178 (2020).

466. “Glycine by MR spectroscopy is an imaging biomarker of glioma aggressiveness” Tiwari V, Daoud EV, Gao A, Zhang S, An Z, Ganji SK, Raisanen JM, Lewis CM, Askari P, Baxter J, Levy M, Dimitrov I, Thomas BP, Pinho MC, Madden CJ, Pan E, Patel TR, DeBerardinis RJ, Sherry AD, Mickey BE, Malloy CR, Maher EA, Choi C. Neuro Oncol. 22,1018-1029 (2020).

467. "Lactate Dehydrogenase A Governs Cardiac Hypertrophic Growth in Response to Hemodynamic Stress", C Dai; Q Li; HI May; C Li; G Zhang; G Sharma; AD Sherry; CR Malloy; C Khemtong; Y Zhang; Y Deng; TG Gillette; J Xu; DT Scadden & ZV Wang, Cell Reports, 2020, 32(9): 108087. doi: 10.1016/j.celrep.2020.108087.

468. “Quantitative measurement of redox state in human brain by ^{31}P MRS at 7T with spectral simplification and inclusion of multiple nucleotide sugar components in data analysis” J Ren, CR Malloy & AD Sherry, Magn Reson Med. 2020; 10.1002/mrm.28306. doi:10.1002/mrm.28306

469. "A frequency-selective pH-responsive paraCEST agent", SJ Ratnakar, S Chirayil, AM Funk, S Zhang, JF Queiró, CFGC Geraldes, Z Kovacs & AD Sherry, Angew Chem Int Ed., **59**, 21671-21676 (2020).

470. "Comparison of the Equilibrium, Kinetic and Relaxation Properties of the DOTA and DOTA-amide Derivative Complexes", G Tircsó, ET Benyó, Z Garda, J Singh, R Trokowski, E Brücher, AD Sherry, É Tóth & Z Kovács, (2020) J Inorg Biochem, 206:111042. doi: 10.1016/j.jinorgbio.2020.111042.

471. "Hyperpolarized ^{15}N-labeled, deuterated tris(pyridylmethyl)amine-$_{d6}$ as an MRI sensor of freely available Zn^{2+} in tissues", EH Suh, JM Park, L Lumata, AD Sherry & Zoltan Kovacs, Commun Chem, **3**, 185 (2020).

472. "Imaging tissue physiology in vivo by use of metal ion-responsive MRI contrast agents", P Khalighinejad, D Parrott & AD Sherry, Pharmaceuticals,13: 268 (2020).

473. "The Roles of ZnT1 and ZnT4 in Glucose-Stimulated Zinc Secretion in Prostate Epithelial Cells", S-T Lo, D Parrott, MV Clavijo Jordan, DB Joseph, D Strand, U-G Lo, H Lin, A Darehshouri, & AD Sherry, Mol Imag & Biol, **23**, 230-240 (2021).

474. "New Insights into Metabolic Regulation from Hyperpolarized ^{13}C MRS/MRI Studies", AD Sherry & CR Malloy, in Dynamic Hyperpolarized NMR, Handbook of Modern Biophysics, 1st Edition, pp. 181-203, Edited by T. Jue and Dirk Mayer, Springer, 2021.

475. "In vivo ZIMIR imaging of mouse pancreatic islet cells show oscillatory insulin secretion", S Chen, Z Huang, H Kidd, M Kim, EH Suh, S Xie, EH Ghazvini Zadeh, Y Xu, P Scherer, AD Sherry & WH Li, Frontiers in Endocrinology, 12, 613964 (2021).

476. "MRI detection of glucose-stimulated zinc secretion in the enlarged dog prostate as a potential method for differentiating prostate cancer from benign prostatic hyperplasia", P Khalighinejad. D Parrott, V Clavijo Jordan, S Chirayil, C Preihs, NM Rofsky, Y Xi & AD Sherry, Investigative Radiology, **56**, 450-457 (2021).

477. "Characterization and compensation of f_0 inhomogeneity artifact in spiral hyperpolarized ^{13}C imaging of the human heart", GD Reed, J Ma, JM Park, RF Schulte, CE Harrison, AP Chen, S Pena, J Baxter, K Derner, M Tai, J Raza, J Liticker, RG Hall II, AD Sherry, VG Zaha & CR Malloy, Magn Reson Med, **86**, 157-166 (2021).

478. "Manganese(II)-based responsive contrast agent detects glucose-stimulated zinc secretion from the mouse pancreas and prostate by MRI", S Chirayil, V Clavijo Jordan, AF Martins, N Paranawithana, SJ Ratnakar & AD Sherry, Inorg Chem, **60**, 2168-2177 (2021).

479. "Analysis of steady-state carbon tracer experiments using Akaike information criteria", JR Alger, A Minhajuddin, AD Sherry & CR Malloy, Metabolomics, 17, 61 (2021). https://doi.org/10.1007/s11306-021-01807-1.

480. "Feasibility and repeatability of dynamic ^{13}C MR spectroscopy for assessing cerebral pyruvate metabolism in humans". J Ma, MC Pinho, CE Harrison, J Chen, C Sun, RS Hashoian, EP Hackett, J Liticker, J Ratnakar, GD Reed, AP Chen, JR Alger, AD Sherry, CR Malloy, SM Wright, CJ Madden & JM Park, J Cereb Blood Flow Metab, submitted.

481. "Imaging β-cell function in the pancreas of non-human primates using a zinc-sensitive MRI contrast agent", V Clavijo Jordan, CDG Hines, LT Gantert, S Wang, S Conarello, C Preihs, S Chirayil, M Klimas, JL Evelhoch & AD Sherry, Frontiers Endocrinology, **12**, 641722 (2021) doi: 10.3389/fendo.2021.641722.

482. ^{31}P MRS of the healthy human brain at 7T detects multiple hexose derivatives of uridine diphosphate glucose, J Ren, CR Malloy & AD Sherry, NMR Biomed. **34**, e4511 (2021).

483. ^{31}P MRS of healthy human brain: Measurement of guanosine diphosphate mannose at 7T. J Ren & AD Sherry, NMR Biomed., **34**, e4576 (2021).

484. "Detection of glucose-derived D- and L-lactate in cancer cells by use of a chiral NMR shift reagent", EH Suh, CFGC Geraldes, S Chirayil, R Ayala, R Deberardinis & AD Sherry, Cancer & Metabolism, **9**, 38 (2021).

485. "Co-polarized [1-^{13}C]pyruvate and [1,3-$^{13}C_2$]acetoacetate provide a simultaneous view of cytosol and mitochondrial redox in a single experiment", G Sharma, X Wen, NR Maptue, T Hever, CR Malloy, AD Sherry & C Khemtong, ACS Sensors, , **6**, 3967-3977 (2021).

486. "^{13}C-labeled diethyl ketoglutarate derivatives as hyperpolarized probes of 2-ketoglutarate dehydrogenase activity", J J Singh, EH Suh, G Sharma, J Chen, E Hackett, X Wen, AD Sherry, C Khemtong, CR Malloy, JM Park, & Z Kovacs, Analysis & Sensing, **1**, 156-160 (2021).

487. "Review and Consensus Recommendations on Clinical APT-weighted Imaging Approaches at 3T: Application to Brain Tumors", J Zhou, M Zaiss, L Knutsson, PZ Sun, SS Ahn, S Aime, P Bachert, JO Blakeley, K Cai, MA Chappell, M Chen, D Gochberg, S Gorke, H-Y Heo, S Jiang, T Jin, S-G Kim, J Laterra, D Paech, MD Pagel, JE Park, R Reddy, A Sakata, S Sartoretti-Schefer, AD Sherry, SA Smith, GJ Stanisz, P Sundgren, O Togao, M Vandsburger, Z Wen, Y Wu, Y Zhang, W Zhu, Z Zu & PCM van Zijl, Magn. Reson. Med., 88, 546-574 (2022).

488. "Imaging β-cell function using a zinc-responsive MRI contrast agent may identify first responder islets", B Thapa, EH Suh, D Parrott, P Khalighinejad, G Sharma, S Chirayil & AD Sherry, Front. Endocrinol.,12, 809867 (2022).

489. "Dynamic ^{13}C MR spectroscopy as an alternative to imaging for assessing cerebral metabolism using hyperpolarized pyruvate in humans", J Ma, MC Pinho, CE Harrison, J Chen, C Sun, EP Hackett, J Liticker, J Ratnakar, GD Reed, AP Chen, AD Sherry, CR Malloy, SM Wright, CJ Madden & JM Park, Magn Reson Med. **87**, 1136-1149 (2022).

490. "Micro-synchrotron radiation x-ray fluorescence (μ-SRXRF) for trace metal imaging in the development of MRI contrast agents for prostate cancer imaging", E Dao, MV Clavijo Jordan, K Geraki, AF Martins, S Chirayil, AD Sherry & MJ Farquharson, J Trace Elem Med & Biol., 74, 127054 (2022).

491. "Prospects and limitations of paraCEST agents serving as biological reporters in vivo", AD Sherry, D Delli Castelli, S Aime, NMR Biomed., e4698 (2022).

492. "GdHP-DO3A-nitroimidazole, a T_1 MRI contrast agent for detecting tumor hypoxia *in vivo*", X Wang, J Wansapura, L Liu, E Poeta, Y Zhong, D Saha, S Chirayil & AD Sherry, in preparation.

493. "Hyperpolarized bicarbonate produced at the level of PEPCK is partially quenched by paramagnetic Mn(II) in its active site", EH Sul, J Singh, Z Kovacs, T Holyoak, others, & AD Sherry, in preparation.

494. "Recent Progress in Analysis of Intermediary Metabolism by ex vivo ^{13}C NMR", CR Malloy, AD Sherry, J Alger, & E Jin, NMR Biomed, e4817 (2022).

495. “MRI Methods for Imaging Beta-Cell Function in the Rodent Pancreas”, P Khalighinejad, EH Suh, & AD Sherry, Methods Mol Biol. 2592, 101-111 (2023).

496. “Investigations into the signaling pathways involving glucose stimulated zinc secretion (GSZS) from prostate epithelial cells in vitro and in vivo”, D Parrott, EH Suh, P Khalighinejad, V Clavijo Jordan, I Arreola, ST Lo, & AD Sherry, Mol Imaging Biol, 2023 Apr 25. doi: 10.1007/s11307-023-01821-w.

497. “Amide Proton Transfer (APT) Imaging of Hepatocellular Carcinoma Signals an Effective Therapeutic Response Well in Advance of Tumor Shrinkage”, X Wang, K Ishimatsu, J Li, X Wen, W Ou, A Anwar, J Chaudhary, M Takahashi, AD Sherry & IR Corbin, Cancer Research, submitted.

PATENTS

1. "Gadolinium Chelates as NMR Contrast Agents", **U.S. Patent 4,639,365** Filed: Oct. 18, 1984 Issued: Jan 27, 1987.

2. "Triazamacrocyclic NMR Contrast Agents and Methods for Their Use", **U.S. Patent 4,983,376** Filed: Dec. 28, 1988 Issued: Jan. 8, 1991.

3. "Zeolite-Enclosed Transition and Rare Earth Metal Ions as Contrast Agents for the Gastrointestinal Tract", K Balkus, AD Sherry & S Young, **U.S. Patent 5,122,363** Filed: Dec. 7, 1990 Issued: Jun. 16, 1992.

4. "Method of Determining Sources of Acetyl-CoA Under Nonsteady-State Conditions", with CR Malloy & FMH Jeffrey, **U.S. Patent 5,413,917** Filed: July 18, 1990 Issued: May 9, 1995.

5. "NMR Contrast Agents and Methods For Their Use", **U.S. Patent 4,983,376** Filed: Dec. 28, 1988 Issued: January 8, 1991.

6. "Using Polyazamacrocyclic Compounds for Intracellular Measurement of Metal Ions Using MRS", AD Sherry, I Lazar, E Brücher & R Ramasamy, **U.S. Patent 5,188,816** Filed: November 26, 1991 Issued: February 23, 1993.

7. "Polyazamacrocycles for Complexation of Metal Ions", AD Sherry, I Lazar, E Brücher & R Ramasamy, **U.S. Patent 5,342,606** Filed: November 19, 1990 Issued: Aug. 30, 1994.

8. "Synthesis if Polyazamacrocyles with More Than One Type of Side-Chain Chelating Group (MRI methods)", AD Sherry & J van Westrenen, **U.S. Patent 5,316,757** Filed: December 13, 1991 Issued: May 31, 1994.

9. "Synthesis if Polyazamacrocyles with More Than One Type of Side-Chain Chelating Group (Synthetic method, composition)", AD Sherry & J van Westrenen, **U.S. Patent 5,428,155** Filed: May 27, 1994 Issued: June 27, 1995.

10. "Carboxamide Modified Polyamine Chelators and Radioactive Complexes Thereof for Conjugation to Antibodies", WJ Kruper, Jr., WA Fordyce & AD Sherry, **U.S. Patent 5,310,535** Filed: Apr. 24, 1992 Issued: May 10, 1994.

11. "Alkyl Phosphonate Polyazamacrocyclic Chelates for MRI", AD Sherry & G Kiefer, **U.S. Patent 5,362,476** Filed: July 13, 1992; Issued: Nov. 8, 1994.

12. "Molecular Sieve-Enclosed Transition and Rare Earth Metal Ions as Contrast Agents for the Gastrointestinal Tract", S Young, K Balkus, & AD Sherry, **U.S. Patent 5,429,814** Filed: December 7, 1990. Issued: July 4, 1995.

13. "^{13}C Isotopomer Analysis in Intact Tissues using {^{13}C}Homonuclear Decoupling", AD Sherry, CR Malloy, & P Zhao, **U.S. Patent 5,597,548.** Filed: 7/3/95. Issued: 1/28/97.

14. "Polyazamacrocyclic Compounds for Complexation of Metal Ions", AD Sherry, I Lazar, E Brücher & R Ramasamy, **European Patent Issued**, 10/23/96.

15. "Polyazamacrocyclic Compounds for Complexation of Metal Ions", AD Sherry & GE Kiefer, **European Patent Issued**, 11/21/97.

16. "Phosphorylated Polyazamacrocyclic Compounds for Complexation of Metal Ions", AD Sherry & GE Kiefer, **U.S. Patent 5,630,997**. Filed: 11/8/94 Issued: May 20, 1997.

17. "Molecular Sieve-Enclosed Transition and Rare Earth Metal Ions as Contrast Agents for the Gastrointestinal Tract", S Young, K Balkus, & AD Sherry, **Japanese Patent** Issued: November 7, 1997.

18. "Molecular Sieve-Enclosed Transition and Rare Earth Metal Ions as Contrast Agents for the Gastrointestinal Tract", S Young, K Balkus, & AD Sherry, **Singapore Patent 9607688-0** Issued: November 14, 1997.

19. "Determination of Intracellular Sodium and Potassium Ions by NMR", AD Sherry, CR Malloy & N Bansal, **U.S. Patent 5,951,473**. Filed: 5/24/94; Issued: 9/14/99.

20. "Methods for Determining Gluconeogenesis, Anapleurosis, and Pyruvate Recycling", J Jones, AD Sherry, FMH Jeffrey, GL Cottam & CR Malloy, **U.S. Patent 6,329,208**. Filed: July 16, 1998; Issued: December 11, 2001.

21. "Polyazamacrocyclofluoromonoalkylphosphonic Acids and Their Complexes for use as Contrast Agents", AD Sherry & GE Kiefer, **European Patent Issued**, 10/27/98.

22. "Carboxamide Modified Polyamine Chelators and Radioactive Complexes Thereof for Conjugation to Antibodies", WJ Kruper, Jr., WA Fordyce & AD Sherry, **U.S. Patent 5,739,322.** Filed: Apr. 13, 1995 Issued: April 14, 1998.

23. "pH Sensitive MRI Contrast Agents", AD Sherry, S Zhang & K Wu, **U.S. Patent 6,746,662**. Filed: Feb. 9, 2000; Issued Jun. 8, 2004.

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

25. "Measurement of Gluconeogenesis and Intermediary Metabolism Using Stable Isotopes", J Jones, AD Sherry, CR Malloy, **US Patent 7,256,047**, Issued: Aug 14, 2007.

26. "Improved Process for Making a Chelating Agent for Labeling Biomolecules using Preformed Active Esters", Z Kovacs, DS Mudigonda & AD Sherry, **U.S. Patent 6,838,557**, Filed: Nov 2002, Issued: Jan 4, 2005.

27. "Preformed Carboxylated Active Ester for Labeling Biomolecules", Z Kovacs, DS Mudigonda & AD Sherry, **U.S. Patent 6,852,854**, Filed Nov 2002, Issued: Feb 8, 2005.

28. "Process for making a chelating agent for labeling biomolecules using preformed active esters", Z Kovacs, DS Mudigonda & AD Sherry, **U.S. Patent 6,838,557**, Filed Nov. 2002, Issued: Jan 4, 2005.

29. "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.

30. "Selection of Coordination Geometry to Adjust Water Exchange Rates of Paramagnetic Metal Ion-Based Macrocyclic Contrast Agents", AD Sherry, M Woods & Z Kovacs, US Patent Filed: July 2003.

31. "Bifunctional polyazamacrocyclic chelating agents", Z Kovacs, Garry E Kiefer, Corinne Bensimon, A Dean Sherry, Gyula Tirsco, PCT Int. Appl, WO 2007104135 (2007); US Patent 0202521 A1, Issued: August 13, 2009.

32. "Hyperpolarized 89-ytrrium and methods relating thereto", Z Kovacs, ME Merritt, and AD Sherry, U.S. Patent App. Serial No. 12/576,743, filed October, 2009; **US Patent 8,697,034** Issued: April 15, 2014.

33. "New gadolinium-based contrast agents for sensitive detection of Zn(II) ions with MRI", C Preihs, J Yu, V Clavijo-Jordan, Y Wu, K Nasr and AD Sherry, WO 2015142583 A1, filed March 11, 2015, PCT/US2015/019928.

34. "Zinc sensors for in vivo imaging of beta-cell function by MRI", AF Martins, S Chirayil, MV Clavijo-Jordan, AD Sherry, US Patent: 2019/0031640 A1, Issued: Jan. 31, 2019.

35. "Manganese-based sensors to detect zinc ions in vivo with MRI", S Chirayil, AF Martins, MV Clavijo-Jordan, AD Sherry, US Patent 16/658,471, approved for issuance.