

Stanford

Ralph Hurd

Sr Res Scientist-Physical, Rad/Radiological Sciences Laboratory

Publications

PUBLICATIONS

- **Investigating the origin of the ^{13}C lactate signal in the anesthetized healthy rat brain *in vivo* after hyperpolarized [1- ^{13}C]pyruvate injection.** *NMR in biomedicine*
Zhu, M., Jhajharia, A., Josan, S., Park, J. M., Yen, Y., Pfefferbaum, A., Hurd, R. E., Spielman, D. M., Mayer, D.
2023: e5073
- **Deuterium metabolic imaging for 3D mapping of glucose metabolism in humans with central nervous system lesions at 3T.** *Magnetic resonance in medicine*
Adamson, P. M., Datta, K., Watkins, R., Recht, L. D., Hurd, R. E., Spielman, D. M.
2023
- **^1H -MRS neurometabolites and associations with neurite microstructures and cognitive functions in amnestic mild cognitive impairment.** *NeuroImage. Clinical*
Gozdas, E., Hinkley, L., Fingerhut, H., Dacorro, L., Gu, M., Sacchet, M., Hurd, R., Hosseini, S. M.
2022; 36: 103159
- **Proton MRS Assessment of Neonatal Brain Metabolism During Cardiopulmonary Bypass (CPB) Surgery.** *NMR in biomedicine*
Spielman, D. M., Gu, M., Hurd, R. E., Riemer, K., Okamura, K., Hanley, F. L.
2022
- **Hyperpolarized NMR study of the impact of pyruvate dehydrogenase kinase inhibition on the pyruvate dehydrogenase and TCA flux in type 2 diabetic rat muscle.** *Pflugers Archiv : European journal of physiology*
Park, J. M., Josan, S., Hurd, R. E., Graham, J., Havel, P. J., Bendahan, D., Mayer, D., Chung, Y., Spielman, D. M., Jue, T.
2021
- **Association between Anterior Cingulate Neurochemical Concentration and Individual Differences in Hypnotizability.** *Cerebral cortex (New York, N.Y. : 1991)*
DeSouza, D. D., Stimpson, K. H., Baltusis, L. n., Sacchet, M. D., Gu, M. n., Hurd, R. n., Wu, H. n., Yeomans, D. C., Willliams, N. n., Spiegel, D. n.
2020
- **Detection of Metabolic Changes using Hyperpolarized C-13 MRI in a Negative F-18-FDG PET Rat Brain Cancer Model**
Lauritzen, M., Datta, K., Merchant, M., Jang, T., Hurd, R., Liu, S., Recht, L., Spielman, D.
SOC NUCLEAR MEDICINE INC.2019
- **Methodological consensus on clinical proton MRS of the brain: Review and recommendations.** *Magnetic resonance in medicine*
Wilson, M., Andronesi, O., Barker, P. B., Bartha, R., Bizzi, A., Bolan, P. J., Brindle, K. M., Choi, I., Cudalbu, C., Dydak, U., Emir, U. E., Gonzalez, R. G., Gruber, et al
2019
- **Pulse sequence considerations for quantification of pyruvate-to-lactate conversion $k(\text{PL})$ in hyperpolarized C-13 imaging** *NMR IN BIOMEDICINE*
Chen, H., Gordon, J. W., Bok, R. A., Cao, P., von Morze, C., van Criekinge, M., Milshteyn, E., Carvajal, L., Hurd, R. E., Kurhanewicz, J., Vigneron, D. B., Larson, P. Z.
2019; 32 (3)
- **Pulse sequence considerations for quantification of pyruvate-to-lactate conversion $k(\text{PL})$ in hyperpolarized ^{13}C imaging.** *NMR in biomedicine*
Chen, H., Gordon, J. W., Bok, R. A., Cao, P., von Morze, C., van Criekinge, M., Milshteyn, E., Carvajal, L., Hurd, R. E., Kurhanewicz, J., Vigneron, D. B., Larson, P. E.
2019: e4052

- **Comparison of dynamic brain metabolism during antegrade cerebral perfusion versus deep hypothermic circulatory arrest using proton magnetic resonance spectroscopy.** *The Journal of thoracic and cardiovascular surgery*
Hanley, F. L., Ito, H. n., Gu, M. n., Hurd, R. n., Riemer, R. K., Spielman, D. n.
2019
- **Reversed metabolic reprogramming as a measure of cancer treatment efficacy in rat C6 glioma model.** *PloS one*
Datta, K. n., Lauritzen, M. H., Merchant, M. n., Jang, T. n., Liu, S. C., Hurd, R. n., Recht, L. n., Spielman, D. M.
2019; 14 (12): e0225313
- **PKM2 activation sensitizes cancer cells to growth inhibition by 2-deoxy-D-glucose** *ONCOTARGET*
Tee, S., Park, J., Hurd, R. E., Brimacombe, K. R., Boxer, M. B., Massoud, T. F., Rutt, B. K., Spielman, D. M.
2017; 8 (53): 90959–68
- **PKM2 activation sensitizes cancer cells to growth inhibition by 2-deoxy-D-glucose.** *Oncotarget*
Tee, S. S., Park, J. M., Hurd, R. E., Brimacombe, K. R., Boxer, M. B., Massoud, T. F., Rutt, B. K., Spielman, D. M.
2017; 8 (53): 90959-90968
- **In vivo assessment of intracellular redox state in rat liver using hyperpolarized [1-C-13]Alanine** *MAGNETIC RESONANCE IN MEDICINE*
Park, J. M., Khemtong, C., Liu, S., Hurd, R. E., Spielman, D. M.
2017; 77 (5): 1741-1748
- **C]Alanine.** *Magnetic resonance in medicine*
Park, J. M., Khemtong, C., Liu, S., Hurd, R. E., Spielman, D. M.
2017; 77 (5): 1741-1748
- **GABA editing with macromolecule suppression using an improved MEGA-SPECIAL sequence.** *Magnetic resonance in medicine*
Gu, M., Hurd, R., Noeske, R., Baltusis, L., Hancock, R., Sacchet, M. D., Gotlib, I. H., Chin, F. T., Spielman, D. M.
2017
- **Hyperpolarized (13) C-lactate to (13) C-bicarbonate ratio as a biomarker for monitoring the acute response of anti-vascular endothelial growth factor (anti-VEGF) treatment.** *NMR in biomedicine*
Park, J. M., Spielman, D. M., Josan, S., Jang, T., Merchant, M., Hurd, R. E., Mayer, D., Recht, L. D.
2016; 29 (5): 650-659
- **Volumetric spiral chemical shift imaging of hyperpolarized [2-(13) c]pyruvate in a rat c6 glioma model.** *Magnetic resonance in medicine*
Park, J. M., Josan, S., Jang, T., Merchant, M., Watkins, R., Hurd, R. E., Recht, L. D., Mayer, D., Spielman, D. M.
2016; 75 (3): 973-984
- **Handheld Electromagnet Carrier for Transfer of Hyperpolarized Carbon-13 Samples** *MAGNETIC RESONANCE IN MEDICINE*
Shang, H., Skloss, T., Von Morze, C., Carvajal, L., Van Crickinge, M., Milshteyn, E., Larson, P. E., Hurd, R. E., Vigneron, D. B.
2016; 75 (2): 917-922
- **Assessing inflammatory liver injury in an acute CCl4 model using dynamic 3D metabolic imaging of hyperpolarized [1-C-13]pyruvate** *NMR IN BIOMEDICINE*
Josan, S., Billingsley, K., Orduna, J., Park, J. M., Luong, R., Yu, L., Hurd, R., Pfefferbaum, A., Spielman, D., Mayer, D.
2015; 28 (12): 1671-1677
- **Assessing inflammatory liver injury in an acute CCl4 model using dynamic 3D metabolic imaging of hyperpolarized [1-(13) C]pyruvate.** *NMR in biomedicine*
Josan, S., Billingsley, K., Orduna, J., Park, J. M., Luong, R., Yu, L., Hurd, R., Pfefferbaum, A., Spielman, D., Mayer, D.
2015
- **Hyperpolarized 13C NMR observation of lactate kinetics in skeletal muscle.** *journal of experimental biology*
Park, J. M., Josan, S., Mayer, D., Hurd, R. E., Chung, Y., Bendahan, D., Spielman, D. M., Jue, T.
2015; 218: 3308-3318
- **The feasibility of assessing branched-chain amino acid metabolism in cellular models of prostate cancer with hyperpolarized [1-(13)C]-ketoisocaproate.** *Magnetic resonance imaging*
Billingsley, K. L., Park, J. M., Josan, S., Hurd, R., Mayer, D., Spielman-Sun, E., Nishimura, D. G., Brooks, J. D., Spielman, D.
2014; 32 (7): 791-795

- **Dynamic metabolic imaging of hyperpolarized [2-(13) C]pyruvate using spiral chemical shift imaging with alternating spectral band excitation.** *Magnetic resonance in medicine*
Josan, S., Hurd, R., Park, J. M., Yen, Y., Watkins, R., Pfefferbaum, A., Spielman, D., Mayer, D.
2014; 71 (6): 2051-2058
- **Hyperpolarized [1,4-C-13]-diethylsuccinate: a potential DNP substrate for in vivo metabolic imaging** *NMR IN BIOMEDICINE*
Billingsley, K. L., Josan, S., Park, J. M., Tee, S. S., Spielman-Sun, E., Hurd, R., Mayer, D., Spielman, D.
2014; 27 (3): 356-362
- **Clinical Proton MR Spectroscopy in Central Nervous System Disorders** *RADIOLOGY*
Oz, G., Alger, J. R., Barker, P. B., Bartha, R., Buzzi, A., Boesch, C., Bolan, P. J., Brindle, K. M., Cudalbu, C., Dincer, A., Dydak, U., Emir, U. E., Frahm, et al
2014; 270 (3): 658-679
- **Frequency correction method for improved spatial correlation of hyperpolarized C-13 metabolites and anatomy** *NMR IN BIOMEDICINE*
Cunningham, C. H., Viqueira, W. D., Hurd, R. E., Chen, A. P.
2014; 27 (2): 212-218
- **In vivo investigation of cardiac metabolism in the rat using MRS of hyperpolarized [1-(13) C] and [2-(13) C]pyruvate.** *NMR in biomedicine*
Josan, S., Park, J. M., Hurd, R., Yen, Y., Pfefferbaum, A., Spielman, D., Mayer, D.
2013; 26 (12): 1680-1687
- **Exchange-Linked Dissolution Agents in Dissolution-DNP C-13 Metabolic Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Hurd, R. E., Spielman, D., Josan, S., Yen, Y., Pfefferbaum, A., Mayer, D.
2013; 70 (4): 936-942
- **Effects of isoflurane anesthesia on hyperpolarized (13)C metabolic measurements in rat brain.** *Magnetic resonance in medicine*
Josan, S., Hurd, R., Billingsley, K., Senadheera, L., Park, J. M., Yen, Y., Pfefferbaum, A., Spielman, D., Mayer, D.
2013; 70 (4): 1117-1124
- **Effects of Isoflurane Anesthesia on Hyperpolarized C-13 Metabolic Measurements in Rat Brain** *MAGNETIC RESONANCE IN MEDICINE*
Josan, S., Hurd, R., Billingsley, K., Senadheera, L., Park, J. M., Yen, Y., Pfefferbaum, A., Spielman, D., Mayer, D.
2013; 70 (4): 1117-1124
- **Measuring mitochondrial metabolism in rat brain in vivo using MR Spectroscopy of hyperpolarized [2-(13) C]pyruvate.** *NMR in biomedicine*
Park, J. M., Josan, S., Grafendorfer, T., Yen, Y., Hurd, R. E., Spielman, D. M., Mayer, D.
2013; 26 (10): 1197-1203
- **Metabolic Imaging of Patients with Prostate Cancer Using Hyperpolarized [1-C-13]Pyruvate** *SCIENCE TRANSLATIONAL MEDICINE*
Nelson, S. J., Kurhanewicz, J., Vigneron, D. B., Larson, P. E., Harzstark, A. L., Ferrone, M., Van Criekinge, M., Chang, J. W., Bok, R., Park, I., Reed, G., Carvajal, L., Small, et al
2013; 5 (198)
- **Perfusion and diffusion sensitive C-13 stimulated-echo MRSI for metabolic imaging of cancer** *MAGNETIC RESONANCE IMAGING*
Larson, P. E., Hurd, R. E., Kerr, A. B., Pauly, J. M., Bok, R. A., Kurhanewicz, J., Vigneron, D. B.
2013; 31 (5): 635-642
- **In vivo measurement of aldehyde dehydrogenase-2 activity in rat liver ethanol model using dynamic MRSI of hyperpolarized [1-(13) C]pyruvate.** *NMR in biomedicine*
Josan, S., Xu, T., Yen, Y., Hurd, R., Ferreira, J., Chen, C., Mochly-Rosen, D., Pfefferbaum, A., Mayer, D., Spielman, D.
2013; 26 (6): 607-612
- **Metabolic response of glioma to dichloroacetate measured in vivo by hyperpolarized C-13 magnetic resonance spectroscopic imaging** *NEURO-ONCOLOGY*
Park, J. M., Recht, L. D., Josan, S., Merchant, M., Jang, T., Yen, Y., Hurd, R. E., Spielman, D. M., Mayer, D.
2013; 15 (4): 433-441
- **Hyperpolarized 13C metabolic imaging using dissolution dynamic nuclear polarization** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Hurd, R. E., Yen, Y., Chen, A., Ardenkaer-Larsen, J. H.
2012; 36 (6): 1314-1328

- **Metabolite kinetics in C6 rat glioma model using magnetic resonance spectroscopic imaging of hyperpolarized [1-13C]pyruvate** *MAGNETIC RESONANCE IN MEDICINE*
Park, J. M., Josan, S., Jang, T., Merchant, M., Yen, Y., Hurd, R. E., Recht, L., Spielman, D. M., Mayer, D.
2012; 68 (6): 1886-1893
- **Application of hyperpolarized [1-13C]lactate for the in vivo investigation of cardiac metabolism** *NMR IN BIOMEDICINE*
Mayer, D., Yen, Y., Josan, S., Park, J. M., Pfefferbaum, A., Hurd, R. E., Spielman, D. M.
2012; 25 (10): 1119-1124
- **Fast volumetric imaging of ethanol metabolism in rat liver with hyperpolarized [1-13C]pyruvate** *NMR IN BIOMEDICINE*
Josan, S., Spielman, D., Yen, Y., Hurd, R., Pfefferbaum, A., Mayer, D.
2012; 25 (8): 993-999
- **Simultaneous investigation of cardiac pyruvate dehydrogenase flux, Krebs cycle metabolism and pH, using hyperpolarized [1,2-C-13(2)]pyruvate in vivo** *NMR IN BIOMEDICINE*
Chen, A. P., Hurd, R. E., Schroeder, M. A., Lau, A. Z., Gu, Y., Lam, W. W., Barry, J., Tropp, J., Cunningham, C. H.
2012; 25 (2): 305-311
- **Generating Super Stimulated-Echoes in MRI and Their Application to Hyperpolarized C-13 Diffusion Metabolic Imaging** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Larson, P. E., Kerr, A. B., Reed, G. D., Hurd, R. E., Kurhanewicz, J., Pauly, J. M., Vigneron, D. B.
2012; 31 (2): 265-275
- **Spin tagging for hyperpolarized C-13 metabolic studies** *JOURNAL OF MAGNETIC RESONANCE*
Chen, A. P., Hurd, R. E., Cunningham, C. H.
2012; 214: 319-323
- **Spectral-spatial excitation for rapid imaging of DNP compounds** *NMR IN BIOMEDICINE*
Lau, A. Z., Chen, A. P., Hurd, R. E., Cunningham, C. H.
2011; 24 (8): 988-996
- **Quantification of in vivo metabolic kinetics of hyperpolarized pyruvate in rat kidneys using dynamic C-13 MRSI** *NMR IN BIOMEDICINE*
Xu, T., Mayer, D., Gu, M., Yen, Y., Josan, S., Tropp, J., Pfefferbaum, A., Hurd, R., Spielman, D.
2011; 24 (8): 997-1005
- **C-13 MR reporter probe system using dynamic nuclear polarization** *NMR IN BIOMEDICINE*
Chen, A. P., Hurd, R. E., Gu, Y., Wilson, D. M., Cunningham, C. H.
2011; 24 (5): 514-520
- **In vivo MRSI of hyperpolarized [1-C-13]pyruvate metabolism in rat hepatocellular carcinoma** *NMR IN BIOMEDICINE*
Darpolar, M. M., Yen, Y., Chua, M., Xing, L., Clarke-Katzenberg, R. H., Shi, W., Mayer, D., Josan, S., Hurd, R. E., Pfefferbaum, A., Senadheera, L., So, S., Hofmann, et al
2011; 24 (5): 506-513
- **Dynamic and High-Resolution Metabolic Imaging of Hyperpolarized [1-C-13]-Pyruvate in the Rat Brain Using a High-Performance Gradient Insert** *MAGNETIC RESONANCE IN MEDICINE*
Mayer, D., Yen, Y., Takahashi, A., Josan, S., Tropp, J., Rutt, B. K., Hurd, R. E., Spielman, D. M., Pfefferbaum, A.
2011; 65 (5): 1228-1233
- **Detection of Inflammatory Arthritis by Using Hyperpolarized C-13-Pyruvate with MR Imaging and Spectroscopy** *RADIOLOGY*
MacKenzie, J. D., Yen, Y., Mayer, D., Tropp, J. S., Hurd, R. E., Spielman, D. M.
2011; 259 (2): 414-420
- **Application of double spin echo spiral chemical shift imaging to rapid metabolic mapping of hyperpolarized [1-C-13]-pyruvate** *JOURNAL OF MAGNETIC RESONANCE*
Josan, S., Yen, Y., Hurd, R., Pfefferbaum, A., Spielman, D., Mayer, D.
2011; 209 (2): 332-336
- **Multi-channel metabolic imaging, with SENSE reconstruction, of hyperpolarized [1-C-13] pyruvate in a live rat at 3.0 tesla on a clinical MR scanner** *JOURNAL OF MAGNETIC RESONANCE*
Tropp, J., Lupo, J. M., Chen, A., Calderon, P., McCune, D., Grafendorfer, T., Ozturk-Isik, E., Larson, P. E., Hu, S., Yen, Y., Robb, F., Bok, R., Schulte, et al

2011; 208 (1): 171-177

- **Cerebral dynamics and metabolism of hyperpolarized [1-C-13]pyruvate using time-resolved MR spectroscopic imaging** *JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM*
Hurd, R. E., Yen, Y., Tropp, J., Pfefferbaum, A., Spielman, D. M., Mayer, D.
2010; 30 (10): 1734-1741
- **In vivo application of sub-second spiral chemical shift imaging (CSI) to hyperpolarized C-13 metabolic imaging: Comparison with phase-encoded CSI** *JOURNAL OF MAGNETIC RESONANCE*
Mayer, D., Yen, Y., Levin, Y. S., Tropp, J., Pfefferbaum, A., Hurd, R. E., Spielman, D. M.
2010; 204 (2): 340-345
- **Metabolic Imaging in the Anesthetized Rat Brain Using Hyperpolarized [1-C-13] Pyruvate and [1-C-13] Ethyl Pyruvate** *MAGNETIC RESONANCE IN MEDICINE*
Hurd, R. E., Yen, Y., Mayer, D., Chen, A., Wilson, D., Kohler, S., Bok, R., Vigneron, D., Kurhanewicz, J., Tropp, J., Spielman, D., Pfefferbaum, A.
2010; 63 (5): 1137-1143
- **T-2 relaxation times of C-13 metabolites in a rat hepatocellular carcinoma model measured in vivo using C-13-MRS of hyperpolarized [1-C-13]pyruvate** *NMR IN BIOMEDICINE*
Yen, Y., Le Roux, P., Mayer, D., King, R., Spielman, D., Tropp, J., Pauly, K. B., Pfefferbaum, A., Vasamawala, S., Hurd, R.
2010; 23 (4): 414-423
- **Kinetic modeling of hyperpolarized C-13(1)-pyruvate metabolism in normal rats and TRAMP mice** *JOURNAL OF MAGNETIC RESONANCE*
Zierhut, M. L., Yen, Y., Chen, A. P., Bok, R., Albers, M. J., Zhang, V., Tropp, J., Park, I., Vigneron, D. B., Kurhanewicz, J., Hurd, R. E., Nelson, S. J.
2010; 202 (1): 85-92
- **In Vivo Carbon-13 Dynamic MRS and MRSI of Normal and Fasted Rat Liver with Hyperpolarized C-13-Pyruvate** *MOLECULAR IMAGING AND BIOLOGY*
Hu, S., Chen, A. P., Zierhut, M. L., Bok, R., Yen, Y., Schroeder, M. A., Hurd, R. E., Nelson, S. J., Kurhanewicz, J., Vigneron, D. B.
2009; 11 (6): 399-407
- **Design of spectral-spatial outer volume suppression RF pulses for tissue specific metabolic characterization with hyperpolarized C-13 pyruvate** *JOURNAL OF MAGNETIC RESONANCE*
Chen, A. P., Leung, K., Lam, W., Hurd, R. E., Vigneron, D. B., Cunningham, C. H.
2009; 200 (2): 344-348
- **Application of Subsecond Spiral Chemical Shift Imaging to Real-Time Multislice Metabolic Imaging of the Rat In Vivo after Injection of Hyperpolarized C-13(1)-Pyruvate** *MAGNETIC RESONANCE IN MEDICINE*
Mayer, D., Yen, Y., Tropp, J., Pfefferbaum, A., Hurd, R. E., Spielman, D. M.
2009; 62 (3): 557-564
- **In Vivo Measurement of Ethanol Metabolism in the Rat Liver Using Magnetic Resonance Spectroscopy of Hyperpolarized [1-C-13]Pyruvate** *MAGNETIC RESONANCE IN MEDICINE*
Spielman, D. M., Mayer, D., Yen, Y., Tropp, J., Hurd, R. E., Pfefferbaum, A.
2009; 62 (2): 307-313
- **Imaging Considerations for In Vivo C-13 Metabolic Mapping Using Hyperpolarized C-13-Pyruvate** *MAGNETIC RESONANCE IN MEDICINE*
Yen, Y., Kohler, S. J., CHEN, A. P., Tropp, J., Bok, R., Wolber, J., Albers, M. J., Gram, K. A., Zierhut, M. L., Park, I., Zhang, V., Hu, S., Nelson, et al
2009; 62 (1): 1-10
- **Generation of hyperpolarized substrates by secondary labeling with [1,1-C-13] acetic anhydride** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Wilson, D. M., Hurd, R. E., Keshari, K., Van Criekinge, M., Chen, A. P., Nelson, S. J., Vigneron, D. B., Kurhanewicz, J.
2009; 106 (14): 5503-5507
- **In vivo hyperpolarized C-13 MR spectroscopic imaging with H-1 decoupling** *JOURNAL OF MAGNETIC RESONANCE*
Chen, A. P., Tropp, J., Hurd, R. E., Van Criekinge, M., Carvajal, L. G., Xu, D., Kurhanewicz, J., Vigneron, D. B.
2009; 197 (1): 100-106
- **Blood flow and metabolic regulation in seal muscle during apnea** *JOURNAL OF EXPERIMENTAL BIOLOGY*
Ponganis, P. J., Kreutzer, U., Stockard, T. K., Lin, P., Sailasuta, N., Tran, T., Hurd, R., Jue, T.

2008; 211 (20): 3323-3332

● **Hyperpolarized C-13 Lactate, Pyruvate, and Alanine: Noninvasive Biomarkers for Prostate Cancer Detection and Grading** *CANCER RESEARCH*

Albers, M. J., Bok, R., Chen, A. P., Cunningham, C. H., Zierhut, M. L., Zhang, V. Y., Kohler, S. J., Tropp, J., Hurd, R. E., Yen, Y., Nelson, S. J., Vigneron, D. B., Kurhanewicz, et al
2008; 68 (20): 8607-8615

● **DNP-hyperpolarized C-13 magnetic resonance metabolic imaging for cancer applications** *APPLIED MAGNETIC RESONANCE*

Nelson, S. J., Vigneron, D., Kurhanewicz, J., Chen, A., Bok, R., Hurd, R.
2008; 34 (3-4): 533-544

● **Pulse sequence for dynamic volumetric imaging of hyperpolarized metabolic products** *JOURNAL OF MAGNETIC RESONANCE*

Cunningham, C. H., Chen, A. P., Lustig, M., Hargreaves, B. A., Lupo, J., Xu, D., Kurhanewicz, J., Hurd, R. E., Pauly, J. M., Nelson, S. J., Vigneron, D. B.
2008; 193 (1): 139-146

● **Feasibility of using hyperpolarized [1-C-13]lactate as a substrate for in vivo metabolic C-13 MRSI studies** *MAGNETIC RESONANCE IMAGING*

Chen, A. P., Kurhanewicz, J., Bok, R., Xua, D., Joun, D., Zhang, V., Nelson, S. J., Hurd, R. E., Vigneron, D. B.
2008; 26 (6): 721-726

● **Compressed sensing for resolution enhancement of hyperpolarized C-13 flyback 3D-MRSI** *JOURNAL OF MAGNETIC RESONANCE*

Hu, S., Lustig, M., Chen, A. P., Crane, J., Kerr, A., Kelley, D. A., Hurd, R., Kurhanewicz, J., Nelson, S. J., Pauly, J. M., Vigneron, D. B.
2008; 192 (2): 258-264

● **Hyperpolarized c-13 spectroscopic imaging of the TRAMP mouse at 3T - Initial experience** *MAGNETIC RESONANCE IN MEDICINE*

Chen, A. P., Albers, M. J., Cunningham, C. H., Kohler, S. J., Yen, Y., Hurd, R. E., Tropp, J., Bok, R., Pauly, J. M., Nelson, S. J., Kurhanewicz, J., Vigneron, D. B.
2007; 58 (6): 1099-1106

● **Double spin-echo sequence for rapid spectroscopic imaging of hyperpolarized C-13** *JOURNAL OF MAGNETIC RESONANCE*

Cunningham, C. H., Chen, A. P., Albers, M. J., Kurhanewicz, J., Hurd, R. E., Yen, Y., Pauly, J. M., Nelson, S. J., Vigneron, D. B.
2007; 187 (2): 357-362

● **Optimization of fast spiral chemical shift imaging using least squares reconstruction: Application for hyperpolarized C-13 metabolic imaging** *MAGNETIC RESONANCE IN MEDICINE*

Levin, Y. S., Mayer, D., Yen, Y., Hurd, R. E., Spielman, D. M.
2007; 58 (2): 245-252

● **In vivo (13)carbon metabolic imaging at 3T with hyperpolarized C-13-1-pyruvate** *MAGNETIC RESONANCE IN MEDICINE*

Kohler, S. J., Yen, Y., Wolber, J., CHEN, A. P., Albers, M. J., Bok, R., Zhang, V., Tropp, J., Nelson, S., Vigneron, D. B., Kurhanewicz, J., Hurd, R. E.
2007; 58 (1): 65-69

● **High-speed 3T MR spectroscopic imaging of prostate with flyback echo-planar encoding** *JOURNAL OF MAGNETIC RESONANCE IMAGING*

Chen, A. P., Cunningham, C. H., Ozturk-Isik, E., Xu, D., Hurd, R. E., Kelley, D. A., Pauly, J. M., Kurhanewicz, J., Nelson, S. J., Vigneron, D. B.
2007; 25 (6): 1288-1292

● **Fast metabolic imaging of systems with sparse spectra: Application for hyperpolarized C-13 imaging** *MAGNETIC RESONANCE IN MEDICINE*

Mayer, D., Levin, Y. S., Hurd, R. E., Glover, G. H., Spielman, D. M.
2006; 56 (4): 932-937

● **High-resolution 3D MR spectroscopic imaging of the prostate at 3 T with the MLEV-PRESS sequence** *MAGNETIC RESONANCE IMAGING*

Chen, A. P., Cunningham, C. H., Kurhanewicz, J., Xu, D., Hurd, R. E., Pauly, J. M., Carvajal, L., Karpodinis, K., Vigneron, D. B.
2006; 24 (7): 825-832

● **TE-averaged two-dimensional proton spectroscopic imaging of glutamate at 3 T** *NEUROIMAGE*

Srinivasan, R., Cunningham, C., Chen, A., Vigneron, D., Hurd, R., Nelson, S., Pelletier, D.
2006; 30 (4): 1171-1178

● **Design of flyback echo-planar readout gradients for magnetic resonance spectroscopic imaging** *MAGNETIC RESONANCE IN MEDICINE*

Cunningham, C. H., Vigneron, D. B., CHEN, A. P., Xu, D., Nelson, S. J., Hurd, R. E., Kelley, D. A., Pauly, J. M.
2005; 54 (5): 1286-1289

● **Sequence design for magnetic resonance spectroscopic imaging of prostate cancer at 3T** *MAGNETIC RESONANCE IN MEDICINE*

- Cunningham, C. H., Vigneron, D. B., Marjanska, M., CHEN, A. P., Xu, D., Hurd, R. E., Kurhanewicz, J., Garwood, M., Pauly, J. M.
2005; 53 (5): 1033-1039
- **Evidence of elevated glutamate in multiple sclerosis using magnetic resonance spectroscopy at 3 T** *BRAIN*
Srinivasan, R., Sailasuta, N., Hurd, R., Nelson, S., Pelletier, D.
2005; 128: 1016-1025
 - **H-1 MR spectroscopy using TE averaged PRESS: A more sensitive technique to detect neuro degeneration associated with Alzheimer's disease** *MAGNETIC RESONANCE IN MEDICINE*
Hancu, I., Zimmerman, E. A., Sailasuta, N., Hurd, R. E.
2005; 53 (4): 777-782
 - **Control of respiration and bioenergetics during muscle contraction** *AMERICAN JOURNAL OF PHYSIOLOGY-CELL PHYSIOLOGY*
Chung, Y. R., Mole, P. A., Sailasuta, N., Tran, T. K., Hurd, R., Jue, T.
2005; 288 (3): C730-C738
 - **Design of symmetric-sweep spectral-spatial RF pulses for spectral editing** *MAGNETIC RESONANCE IN MEDICINE*
Cunningham, C. H., Vigneron, D. B., CHEN, A. P., Xu, D., Hurd, R. E., Sailasuta, N., Pauly, J. M.
2004; 52 (1): 147-153
 - **In vivo 2D J-resolved magnetic resonance spectroscopy of rat brain with a 3-T clinical human scanner** *NEUROIMAGE*
Adalsteinsson, E., Hurd, R. E., Mayer, D., Sailasuta, N., SULLIVAN, E. V., Pfefferbaum, A.
2004; 22 (1): 381-386
 - **A comparative study of myo-inositol quantification using LCmodel at 1.5 T and 3.0 T with 3 D H-1 proton spectroscopic imaging of the human brain** *MAGNETIC RESONANCE IMAGING*
Srinivasan, R., Vigneron, D., Sailasuta, N., Hurd, R., Nelson, S.
2004; 22 (4): 523-528
 - **Measurement of brain glutamate using TE-averaged PRESS at 3T** *MAGNETIC RESONANCE IN MEDICINE*
Hurd, R., Sailasuta, N., Srinivasan, R., Vigneron, D. B., Pelletier, D., Nelson, S. J.
2004; 51 (3): 435-440
 - **Proton HR-MAS spectroscopy and quantitative pathologic analysis of MRI/3D-MRSI-targeted postsurgical prostate tissues** *MAGNETIC RESONANCE IN MEDICINE*
Swanson, M. G., Vigneron, D. B., Tabatabai, Z. L., Males, R. G., Schmitt, L., Carroll, P. R., James, J. K., Hurd, R. E., Kurhanewicz, J.
2003; 50 (5): 944-954
 - **Detection of myoglobin desaturation in *Mirounga angustirostris* during apnea** *AMERICAN JOURNAL OF PHYSIOLOGY-REGULATORY INTEGRATIVE AND COMPARATIVE PHYSIOLOGY*
Ponganis, P. J., Kreutzer, U., Sailasuta, N., Knower, T., Hurd, R., Jue, T.
2002; 282 (1): R267-R272
 - **N-acetylaspartate - A marker of neuronal integrity** *ANNALS OF NEUROLOGY*
SULLIVAN, E. V., Adalsteinsson, E., Spielman, D. M., Hurd, R. E., Pfefferbaum, A.
2001; 50 (6): 823-823
 - **Single-voxel oversampled J-resolved spectroscopy of in vivo human prostate tissue** *MAGNETIC RESONANCE IN MEDICINE*
Swanson, M. G., Vigneron, D. B., Tran, T. K., Sailasuta, N., Hurd, R. E., Kurhanewicz, J.
2001; 45 (6): 973-980
 - **O-2 and respiration in exercising human muscle - The regulation of oxidative phosphorylation in vivo** *OXYGEN SENSING: MOLECULE TO MAN*
Jue, T., Chung, Y., Mole, P., Tran, T. K., Kreutzer, U., Sailasuta, N., Hurd, R.
2000; 475: 769-783
 - **Very selective suppression pulses for clinical MRSI studies of brain and prostate cancer** *MAGNETIC RESONANCE IN MEDICINE*
Tran, T. K., Vigneron, D. B., Sailasuta, N., Tropp, J., Le Roux, P., Kurhanewicz, J., Nelson, S., Hurd, R.
2000; 43 (1): 23-33
 - **Myoglobin desaturation with exercise intensity in human gastrocnemius muscle** *AMERICAN JOURNAL OF PHYSIOLOGY-REGULATORY INTEGRATIVE AND COMPARATIVE PHYSIOLOGY*

- Mole, P. A., Chung, Y. R., Tran, T. K., Sailasuta, N., Hurd, R., Jue, T.
1999; 277 (1): R173-R180
- **Comparative analysis of NMR and NIRS measurements of intracellular PO₂ in human skeletal muscle** *AMERICAN JOURNAL OF PHYSIOLOGY-REGULATORY INTEGRATIVE AND COMPARATIVE PHYSIOLOGY*
Tran, T. K., Sailasuta, N., Kreutzer, U., Hurd, R., Chung, Y. R., Mole, P., Kuno, S., Jue, T.
1999; 276 (6): R1682-R1690
 - **Spatial distribution of deoxymyoglobin in human muscle: an index of local tissue oxygenation** *NMR IN BIOMEDICINE*
Tran, T. K., Sailasuta, N., Hurd, R., Jue, T.
1999; 12 (1): 26-30
 - **Myoglobin and O₂ consumption in exercising human gastrocnemius muscle** *OXYGEN TRANSPORT TO TISSUE XXI*
Jue, T., Tran, T. K., Mole, P., Chung, Y. R., Sailasuta, N., Hurd, R., Kreutzer, U., Kuno, S.
1999; 471: 289-294
 - **Proton spectroscopy without water suppression: The oversampled J-resolved experiment** *MAGNETIC RESONANCE IN MEDICINE*
Hurd, R. E., Gurr, D., Sailasuta, N.
1998; 40 (3): 343-347
 - **Decoupling theory and practice II. State of the art: In vivo applications of decoupling** *NMR IN BIOMEDICINE*
Freeman, D. M., Hurd, R.
1997; 10 (8): 381-393
 - **Automated shimming for deuterated solvents using field profiling** *JOURNAL OF MAGNETIC RESONANCE*
Sukumar, S., Johnson, M. O., Hurd, R. E., vanZijl, P. C.
1997; 125 (1): 159-162
 - **Imaging of shifted stimulated echoes and multiple spin echoes** *MAGNETIC RESONANCE IN MEDICINE*
Mori, S., Hurd, R. E., vanZijl, P. C.
1997; 37 (3): 336-340
 - **Quantitation of automated single-voxel proton MRS using cerebral water as an internal reference** *MAGNETIC RESONANCE IN MEDICINE*
Soher, B. J., Hurd, R. E., Sailasuta, N., Barker, P. B.
1996; 36 (3): 335-339
 - **Impact of differential linearity in gradient-enhanced NMR** *JOURNAL OF MAGNETIC RESONANCE SERIES A*
Hurd, R. E., Deese, A., Johnson, M. O., Sukumar, S., Van zijl, P. C.
1996; 119 (2): 285-288
 - **What do customers want? Discussion** *JOURNAL AMERICAN WATER WORKS ASSOCIATION*
STANFORD, M. J., Dearness, T., Schrieber, J., Hurd, R. E., Buckingham, A. M., Lam, B. N.
1996; 88 (3): 26-?
 - **SHORT TE PHOSPHORUS SPECTROSCOPY USING A SPIN-ECHO PULSE** *MAGNETIC RESONANCE IN MEDICINE*
Lim, K. O., Pauly, J., Webb, P., Hurd, R., Macovski, A.
1994; 32 (1): 98-103
 - **AUTOMATED SINGLE-VOXEL PROTON MRS - TECHNICAL DEVELOPMENT AND MULTISITE VERIFICATION** *MAGNETIC RESONANCE IN MEDICINE*
WEBB, P. G., Sailasuta, N., Kohler, S. J., Raidy, T., Moats, R. A., Hurd, R. E.
1994; 31 (4): 365-373
 - **PROTON-DETECTED N-15 NMR-SPECTROSCOPY AND IMAGING** *JOURNAL OF MAGNETIC RESONANCE SERIES B*
Freeman, D., Sailasuta, N., Sukumar, S., Hurd, R. E.
1993; 102 (2): 183-192
 - **GRADIENT-ENHANCED HMQC AND HSQC SPECTROSCOPY - APPLICATIONS TO N-15-LABELED MNT REPRESSOR** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Vuister, G. W., Boelens, R., Kaptein, R., Hurd, R. E., John, B., vanZijl, P. C.
1991; 113 (25): 9688-9690

- **EFFICIENT DETECTION OF C-ALPHA-H-HN CORRELATIONS IN PROTEINS USING GRADIENT-ENHANCED N-15 HMQC TOCSY** *JOURNAL OF MAGNETIC RESONANCE*
John, B. K., Plant, D., Heald, S. L., Hurd, R. E.
1991; 94 (3): 664-669
- **A PROCEDURE FOR USING PROTON MAGNETIC-RESONANCE-IMAGING TO DETERMINE STEREOTAXIC COORDINATES OF THE MONKEYS BRAIN** *JOURNAL OF NEUROSCIENCE METHODS*
REBERT, C. S., Hurd, R. E., Matteucci, M. J., Delapaz, R., Enzmann, D. R.
1991; 39 (2): 109-113
- **NOVEL METHOD FOR DETECTION OF PURE-PHASE, DOUBLE-ABSORPTION LINESHAPES IN GRADIENT-ENHANCED SPECTROSCOPY** *JOURNAL OF MAGNETIC RESONANCE*
Hurd, R. E., John, B. K., Plant, H. D.
1991; 93 (3): 666-670
- **3-DIMENSIONAL GRADIENT-ENHANCED RELAY-EDITED PROTON SPECTROSCOPY, GREP-HMQC-COSY** *JOURNAL OF MAGNETIC RESONANCE*
Hurd, R. E., John, B. K.
1991; 92 (3): 658-668
- **PROTON EDITING AND IMAGING OF LACTATE** *NMR IN BIOMEDICINE*
Hurd, R. E., Freeman, D.
1991; 4 (2): 73-80
- **GRADIENT-ENHANCED PROTON-DETECTED HETERONUCLEAR MULTIPLE-QUANTUM COHERENCE SPECTROSCOPY** *JOURNAL OF MAGNETIC RESONANCE*
Hurd, R. E., John, B. K.
1991; 91 (3): 648-653
- **A DOUBLE QUANTUM COHERENCE TRANSFER PROTON NMR-SPECTROSCOPY TECHNIQUE FOR MONITORING STEADY-STATE TUMOR LACTIC-ACID LEVELS INVIVO** *MAGNETIC RESONANCE IN MEDICINE*
Freeman, D. M., Sotak, C. H., Muller, H. H., Young, S. W., Hurd, R. E.
1990; 14 (2): 321-329
- **GRADIENT-ENHANCED SPECTROSCOPY** *JOURNAL OF MAGNETIC RESONANCE*
Hurd, R. E.
1990; 87 (2): 422-428
- **METABOLITE SPECIFIC PROTON MAGNETIC-RESONANCE IMAGING** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Hurd, R. E., Freeman, D. M.
1989; 86 (12): 4402-4406
- **F-19 RELAXATION RATE ENHANCEMENT AND FREQUENCY-SHIFT WITH GD-DTPA** *INVESTIGATIVE RADIOLOGY*
RATNER, A. V., Quay, S., Muller, H. H., Simpson, B. B., Hurd, R., Young, S. W.
1989; 24 (3): 224-227
- **DETECTION OF TUMORS WITH F-19 MAGNETIC-RESONANCE IMAGING** *INVESTIGATIVE RADIOLOGY*
RATNER, A. V., Muller, H. H., BRADLEY SIMPSON, B., Johnson, D. E., Hurd, R. E., Sotak, C., Young, S. W.
1988; 23 (5): 361-364
- **F-19 MAGNETIC-RESONANCE IMAGING OF THE RETICULOENDOTHELIAL SYSTEM** *MAGNETIC RESONANCE IN MEDICINE*
RATNER, A. V., Hurd, R., Muller, H. H., BRADLEY SIMPSON, B., Pitts, W., Shibata, D., Sotak, C., Young, S. W.
1987; 5 (6): 548-554