**Curriculum Vitae**

**NAME:** Douglas L. Rothman B.A., Ph.D.

**BORN:** Sept 5, 1959, New York, New York

**EDUCATION:**

B.A.Cum Laude. Physics with High Honors, Middlebury College, June 1981

Thesis: A Mathematical Model of the Acoustical Component of Hearing in Noctuid Moths

Ph.D.with Distinction. Molecular Biology and Biophysics, Yale University, Dec. 1987

Thesis: “Application of Multipulse 1H and 13C to Measure In Vivo Rates of Metabolism”. Advisor: Robert G. Shulman

**CAREER**

Co-Director Magnetic Resonance Research Center 2010-present

Professor Biomedical Engineering 2003-present

Professor Diagnostic Radiology 2003-present

Co-Director Section of Bioimaging Sciences (Diag Radiology) 2001-present

Director MRS Research, Dept of Diagnostic Radiology 2001-present

Director Magnetic Resonance Research Center 2003- 2009

Associate Professor Dept. ot Diagnostic Radiology 2001-2003

without term

Assistant Director General Clinical Research Center 2003-2005

Director Magnetic Resonance Center 1995-2003.

Lecturer, Molecular Biophysics and Biochemistry. 1995 -2001

Associate Professor Dept of Diagnostic Radiology 1998-1999

Investigator Track

Associate Professor Internal Medicine (Endocrine) 1994-1998

Adjunct in Research

Assistant Professor, Internal Medicine (Endocrine) 1989-1994

Post-doctoral Associate Laboratory of Robert G. Shulman 1988-1989

Technical Director Laboratory of Robert G. Shulman 1987-1988

Graduate Student Molecular Biophysics and Biochem 1981-1987

 Yale University. Advisor R.G. Shulman

**PROFESSIONAL HONORS AND RECOGNITION**

Editorial Board, Journal of Cerebral Blood Flow and Metabolism 2012

Associate Editor, Frontiers in Neuroenergetics 2008- present

Fellow of the International Society for Magnetic Resonance in Medicine 2002

Associate Editor. NMR in Biomedicine 1999- 2005

FIRST Award, National Institute of Health 1994 - 1999

NIH Graduate Student Training Grant 1981-1985

**Funding History**

**Active Grants/Contracts**

**Principle Investigator**

SIG 11S10OD010613-01 04/01/2012 - 03/31/2013

NIH $599,200

Console for 4T Human MR System

1 R01 AG034953-01A1 07/01/2010 - 06/30/2014

NIH $282,931

13C MRS Studies of Human Brain Mitochondrial Metabolism in Healthy Aging

2 R01 AG21094-06 A1 09/01/2008 – 06/30/2013 NCE

Subcontract from UMASS (J Kent Braun PI) $29,995

 Skeletal Muscle Fatigue in Older Adults

**Completed**

**Principal Investigator**

R01NS051854 09/30/04-07/31/10

13C MRS Studies of Brain Metabolic Adaptations in Diabetes

Source: NIH-NINDS

Funding::$321,846 year 5 direct costs.

R01 NS37527-01 7/01/03-6/30/08.

13C MRS studies of the glutamate/glutamine neurotransmitter cycle in Human Brain

Source: NIH-NINDS

Funding $225,000 year 1 direct costs.

1 R01EB00473-01A1 (Duncan PI, Rothman Proj 1 Leader) 04/15/02 - 03/31/07

Bioimaging and Intervention in Neocortical Epilepsy

Source: NIH-NIBIB BRP

Funding: Year 1 directs. $112,000 MRS Project (Rothman Project Head), $1,092,767 overall (J Duncan PI);

Consortium with 5R01AG021094-02 (Kent-Braun, J. P.I. U. Mass) 9/30/02 - 6/30/07

31P MRS Measurements of Muscle Metabolism

Source: NIH-NIA

Funding: $49,246 year 1 direct costs.

JDRF Hypoglycemia Center (Sherwin PI, Rothman PI Proj 2) 01/01/00-12/31/05

CNS effects and prevention of hypoglycemia in human type 1 diabetes.

Source: Juvenile Diabetes Research Foundation

Funding (Project 2): $194,161 year 1 direct costs.

Consortium with NIH , ( J. Pan. PI, AECOM) 2/1/02-1/31/2005

MRS Studies of Ketone Metabolism

Source NIH

Funding: $23,420 year 1 direct costs.

Goals: To support the MRS work of Dr Pan on the 4T system at the MRRC

NIH R01 NS37527-01 4/1/98-3/31/03.

D.L. Rothman P.I.

13C MRS studies of the glutamate/glutamine neurotransmitter cycle in Human Brain

Source NIH NINDS

First Year Directs: $229,225

Japan Foundation for Aging and Health 1/1/01 – 1/1/02

Improvements in the MRS measurement of [4-13C] glutamate and metabolic modeling of 13C MRS data from human brain

Source: Japan Foundation for Aging and Health

Funding: $41,686 year one directs.

R29 NIH R29 NS3216-01 . 5/1/94-4/30/99

1H NMR Measurements of GABA

Year 1: $53,195

Funding Source NIH-NINDS

Funding: $53,195 year 1 direct costs.

**Training Grants**

NIH 5T32NS07416-05 1 1/1/01 - 6/30/03.

Neuroimaging Sciences Training Program

 Source NIH-NINDS

Funding: $133,000 year 02/03 direct costs.

Goals: Interdisciplinary training program in neuroimaging and biomedical research in psychiatry and neurology

**Equipment Awards**

Yale YCCI Equipment Award 07/01/08

Acquisition of an upgraded gradient set for a 4T human MR system

Source: NIH – YCCI equipment

Funding: $186,000

NIH 1S10RR023073-01 8/01/06 – 3/1/07

Acquisition of a 7T human MR system for the development of ultra high resolution MRS

Source: NIH- NCRR

Funding: $2,000,000

NIH RR11995-01 06/01/02

Proposal for a 11.74T Magnet for MRS/MRI studies of transgenic mice

Source: NIH-NCRR

Funding: $500,000

Keck Foundation 7/1/00

Proposal for a 4T Human MR System for Studies of Metabolism

Source: W.M. Keck Foundation

Funding: $1,000,000

NIH RR11995-01 7/1/98 – 6/30/99

Spectroscopy Console and Gradients for 7T NMR System

Source: NIH- NCRR

Funding: $311,000

.

**Educational/Mentorship Activities**

**Courses**

**Primary or Co-Primary Instructor**

Bioimaging and Biosensing BENG 410 2001–2011

Fundamentals of Neuroimaging BENG 485 2007 –2011

Advanced Biochemical Control MB&B 746a 1997

Biomedical Applications of NMR MB & B 745b 1994- 1996

**Lecturer**

Physics of Medical Imaging BENG 421b/821b 2012

Science of Modern TechnologyPHY 050 01 2010,2011

BME Senior Seminar BENG 481 2010,2011

BME senior Seminar BENG 481 2004-2008

Science and Modern Technology PHYS S100 01 2009

Molecular Mechanisms of Disease MB&B 800a 1999-2001

Topics in Biophysical Chemistry Chem 1999

Biomedical Applications of NMR MB&B 745b 1991-1993

 **Research Faculty Supervisor/ co-supervisor**

Doug Befroy 2009 - 2010

Henk deFeyter 2010 - present

Christoph Juchem 2009 - 2011

LiHong Jiang 2008- present

**Postdoctoral/Medical Fellows Supervised**

**Primary Advisor**: Jong Hee Hwang Ph.D. (1992 – 1994), Fahmeed Hyder Ph.D (1997-1999),), Jun Shen Ph.D. (1996- 1999), Robin de Graaf Ph.D. (1999-2001), Vincent Lebon Ph.D. ( 2002-2004), Fawzi Boumezbeur Ph.D (2007-2009), Henk DeFeyter Ph.D. ( 2008 – 2010), Natasa. Mateljevic Ph.D. (2009-2010)

**Co-Primary Advisor** David Martin Ph.D. (1996), Christoph Juechem Ph.D. (2007- 2009), Anant Patel Ph.D. (2004- 2007), Lihong Jiang Ph.D. (2005- 2008)

**Ph.D. Thesis Research Supervised**

**Primary/co-Primary Advisor**:

Kevin Koch Physics (2007) Removal of magnetostatic artifacts from in-vivo magnetic resonance images and spectra at ultra-high magnetic field strengths.

Laura Sacolick BME (2008) Method Development in in-vivo NMR Spectroscopy and Spectroscopic Imaging

James Schafer INP (2008) Mixture encoding in the olfactory bulb probed with fMRI

**Medical Student Research Supervised**

**Primary/co-Primary Advisor**

Arian Smith M.D. 2002 - Comparison of calibrated BOLD and electrical activity measurements in the rodent brain.

**Undergraduate Thesis Research Supervised**

**Primary/Co Advisor:**

Zara Herskovits (M.B.+ B, 1997/98) - Anapleurotic flux rate in rat brain.

Richard Liu (BME 2002),

 Shirley Wang (BME 2002/2003) – Effect of hypoxia on glycolytic enzyme expression.

Jason Tucciarone (Union College, 2006) -

Allison Polland (BME 2007) - Development of non invasive bedside MR measurements of Na concentration

Willy Cass (BME 2008) – Analysis of 1H MRS spectra of human muscle lipids

Nimit Jain (BME 2012) – Development of a method to measure the liver TCA cycle rate

**External Reader**: Department of Physics. Middlebury College, 1990.

**Faculty Mentorship**

**K01/K08 Awards or equivalent (mentor or co mentor)**

Raimund Herzog Asst. Prof. Dept. of Medicine 2010 -2015

Paul Maciewski Asst. Prof. Dept. of Psychiatry 2003- 2008

Graeme Mason, Assoc. Prof. Dept. of Psychiatry 2002-2007

Gerard Sanacora, Asst. Prof. Dept. of Psychiatry 1999- 2004

Neill Epperson, Asst. Prof. Dept. of Psychiatry 1999- 2004

Ai-Ling Lin Asst. Prof U. Texas HealthScience Center 2012-2017

**K02 Awards or equivalent (mentor or co mentor)**

Neill Epperson, Asso. Prof. Department of Psychiatry 2004-2009

Jane Kent Braun Asso. Prof. Dept of Exercise Physiology U. Mass 2004- 2010

Alan Dardik Asst. Prof Dept of Vascular Surgery 2006 – 2011

**CTSA Scholar Awards**

Mentor/co-Mentor

Career Oversight Committee

Irina Esterlis Asst. Prof Dept. Psychiatry 2012-2014

**Presentations**

**Conferences, Symposia, Workshops (2002 – 2012)**

63 13C MRS studies of neuronal and glial energetics and neurotransmitter cycling/ Society for Neuroscience NIDA mini –Convention. New Orleans, LA. October 12, 2012.

62 13C and 1H[13C] MRS Studies of Neuroenergetics and Neurotransmision. Third International Workshop on Metabolic Imaging. Philadelphia July 25, 2012

61 Energy Budget of Glucose Oxidation for Neuronal Signaling. (presented by Fahmeed Hyder) Symposium: Alternate Brain Energy Substrates in Relation to What, Where, and When of Functional Energetics. Joint meeting of the European and International Society of Neurochemistry. Athens Greece, Sept 1, 2011.

60 What are we actually measuring with MRS? Human Brain Mapping. Quebec City Canada June 27, 2011

59 13C MRS of Substrate Specific Neuroenergetics. International School of Magnetic Resonance and Brain Function: IX workshop. Erice, Sicily. May 31, 2011.

58 Components of functionalbrain activity and their energy demands (w Fahmeed Hyder). International School of Magnetic Resonance and Brain Function: IX workshop. Erice, Sicily. May 30, 2011.

57 13C MRS Studies of Neuroenergetics and Neurotransmission. Symposium on Translational Imaging CEA MIR Center Paris France, June 3 – 4, 2010.

56 Study of Alternate Substrates and Healthy Aging by 13C MRS. Symposium for Quantitative Neuroscience using Magnetic Resonance Yale School of Medicine March, 2010

55 1H and 13C MRS Studies of Neurotransmitter Metabolism. Second International Workshop on Hyperpolarized 13C and its Application to Metabolic Imaging. Philadelphia, Pennsylvania July 24,2009

54 1H and 13C MRS Studies of Neurotransmitter Cycling and Neuroenergetics. ISMRM Workshop on MR Spectroscopy & Neurotransmitter Function in Neuropsychiatric Disorders. Quebec City, Quebec. Nov 2008

53 What Can and Can’t Functional Spectroscopy Reveal About Neuronal Metabolism and Neurotransmission? Presentation to the Current Issues in Brain Function Study Group. 16th Annual Scientific meeting of the International Society of Magnetic Resonance in Medicine. Toronto, Ontario, Canada. May 2008

52 13C MRS Methods for Studying Neurotransmitter Cycling and Neuroenergetics. ISMRM Workshop on Cerebral Perfusion and Function: Novel Techniques and Applications. Salvador, Brazil. July 28 – Aug. 1, 2007.

51 Condition Dependent Usage of Energy Substrates in the Human Brain. Brain’07 and BrainPET’07. Osaka, Japan. May, 2007.

50 MRS Studies of Neurotransmitter Metabolism: Implications for fMRI and Relevance for Studying Mental Disorders. NIH Workshop on Optimizing fMRI Approaches to Adolescent Mental Disorders Washington DC August 18-19th, 2006.

49 Potential of MR Functional Imaging to Study Pancreatic Beta Cell Function. NIH Workshop on Imaging the Pancreatic Beta Cell Washington DC 2006.

48 13C MRS Studies of Brain Functional Neuroenergetics: Methods and Findings. ISMRM Workshop on MR Spectroscopy in Neuropsychiatric Disorders. Banff, Alberta, Canada. Oct 15-17, 2006.

47 Validation of MRS Measurements of Neuronal/Glial Glutamate Trafficking. 36th Annual Meeting of the Society of Neurochemistry Madison Wisconsin June 2005.

46 MRS Studies of Brain Function: From Molecules to Humans. Thirteenth Yale Workshop on Adaptive and Learning Systems. Yale University. New Haven, CT. June 1, 2005.

45 Presentation of Bioimaging and Intervention in Neorcortical Epilepsy. NIH Bioengineering research Partnership Fourth Annual Grantee Meeting. Bethesda, MD. Jul 29-30y, 2004

44 High Field 1H MRS Measurements of Neurotransmitter Metabolism. 10th Annual Meeting of the British Chapter of ISMRM Edinburgh Scotland. Sept 1-3, 2004.

43 Energetic Costs of Neurotransmitter Turnover Gordon Conference on Brain Energy Metabolism and Blood Flow. Colby College, Waterville, ME, Aug 8-13 2004.

42. Potential Applications of 13C MRS Spectroscopy in Drug Development. Dean's Workshop on "Magnetic Research Imaging (MRI): First in aSeries on Structural/Functional Bioimaging" Yale Uiversity Schoolf of Medicine. New Haven, CT. May 6, 2004

41 Development of MR Spectroscopy to Study the Biochemistry of Epilepsy: Methods and Hypotheses. (w O.A.C. Petroff). Yale/Pfizer Bioimaging Alliance Research Symposium. Yale School of Medicine, July 2003.

40 Potential Applications of 13C MRS Spectroscopy in Drug Development Symposium on MR in Drug Development. Eli Lilly Sponsor. Indianapolis, Indiana November 13-14, 2003. Lilly symposium.

39 In Vivo MRS methods for studying muscle and liver metabolism in diabetes. International Society of Magnetic Resonance in Medicine Workshop on Dynamic Spectroscopy. And Measurements of Physiology, Metabolism, and Function. Orlando Fla. Sept 6-8, 2003

38 *In Vivo* MRS Studies of Glutamate and GABA Neurotransmitter Cycling (w Kevin Behar). Symposium Honoring Robert Shulman’s Contributions to Biological NMR. Yale University School of Medicine June 2003.

37 “Magnetic Resonance and Its Application in Drug Discovery and Development” Society of Neuroimaging in Drug Development (SNIDD) Lehigh University July 21-22, 2003.

36 MRS – Seeing is Believing. ADA Session: MRS is Seeing Believing? How Good is In Vivo NMR Data? American Diabetes Association’s 63rd Scientific Sessions in New Orleans, Louisiana on June 13-17, 2003.

35 Relevance of neuron/glial coupling for pathophysiology and fMRI: Evidence from In Vivo M RS. International Congress of Schizophrenia Research , Colorado Springs Colorado April 2003

34 Can fMRI Provide a Surrogate Measure of Glutamate Neurotransmission? University of Alabama Birmingham Functional Imaging Symposium, Nov 2002.

**Educational Courses**

13 Dealing With Macromolecules. (for Kevin Behar) MR Spectroscopy: Frontier Methodology and Applications Teaching Session. International Society of Magnetic Resonance in Medicine. Kyoto, Japan. May 2004

12 *In Vivo* 13C and 15N MRS and Kinetic Analysis. MR Spectroscopy: Frontier Methodology and Applications Teaching Session. International Society of Magnetic Resonance in Medicine. Kyoto, Japan. May 2004

11 *In Vivo* 13C and 15N MRS and Kinetic Analysis MR Spectroscopy: Frontier Methodology and Applications Teaching Session ISMRM April 2003

**Universities, Institutes, Foundations, Corporations**

28 “Noninvasive Investigation of Intact Human Systems Using Magnetic Resonance Imaging and Spectroscopy". Human Imaging Group Symposium. University of Mass. Amherst. Amherst MA. June, 2010.

27 1H and 13C MRS Studies of Neurotransmitter Cycling and Energetics. Department of Radiology. University of Pittsburg. Pittsburg, Pennsylvania. April, 2007.

26 Overview of Magnetic Resonance Spectroscopy Research. Pierce Foundation. New Haven, CT. Sept 2006.

25 13C MRS Studies of Diabetes in Humans and Rodent Models. Pfizer Inc. Ann Arbor, MI. Oct, 2006.

24 Application of MRS technology to study metabolic alterations in diabetes. Pfizer Inc. Groton, CT. July 2005.

23 MRS Investigations of The Glutamate / Glutamine and GABA / Glutamine Cycle Albert Einstein College of Medicine. Dept. of Biophysics March 2002.

**Professional Service**

**Grant Reviews (2012 – 2002)**

**National Institute of Health**

352012/10 ZRG1 SBIB-!(04) M Member conflict CMIP and MEDI July 2012

34 ZRG1 SBIB-X(21)I Shared Instrumentation S10 June 2012

33 Neuroscience Opthamology and Imaging Science Study section

 Ad hoc reviewer (Edden R01) May 2012

32 2012/05 ZRG1 SBIB-Q (04) M Member Conflict: CMIP and MEDI Feb 2012

31 2012/05 ZRG1 EMNR-Q (50) RRFA-OD11-003: Specialized Centers of

 Research (SCOR) on Sex Differences (Pre Reviewer) Jan 2012

30 ZEB1 OSR-E (M2) P NIBIB P411 P41 EB013598-01Hyperpolarized

 MRI Technology Resource Center Vigneron PI. Mar, 2011

29 ZRG1 SBIB-N (40)Review for 2P41 RR015241-11 Center for

Quantitative Functional Imaging Van Zijl PI Feb, 2011

28. ZRG1 SBIB Q30 Shared Instrument S10 July 2010

27. ZRG1 SBIB D30 Shared Instrument S10 July 2010

26. Cutting-Edge Basic Research Awards (CEBRA) program NIDA March 2010

25. RFA-OD-09-003.(RC1 Challenge Grants) July 2009

24. ZRG1 SBIB D31 High End Instrument S10 June 2009

23. ZRG1 SBIB D30 Shared Instrumentation S10 June 2009

22. ZRG1 SBIB-N(30) Hig End Shared Instrument Jan 2008

21. ZRG1 SBIB-N 30 I NCRR Shared Instrumentation:Imaging Sep 2006

20. ZDK1 GRB-8 J2 NIDDK Special Emphasis Panel on Ancilary Studies Nov 2005

 Obesity. Ad Hoc reviewer

19. Neurological Sciences and Disorders Ad Hoc Reviewer for R01 DK0751280 June 2005

Raichle PI

18. Neurological Sciences and Disorders Ad Hoc Reviewer for R01 DK0751280 Nov 2004

Raichle PI

17. RG1 SRB40 P41 Leigh PI Mar 2004

16. NCI ZCA2 SRRB-D(M2) PAR03-125Novel Technologies for In Vivo Imaging

(SBIR/STTR) April 2004

15. CSR Special Emphasis Panel ZRG1 RB 51 and 52 for PAR 01-101 Mar 2003

In vivo Imaging Technology/Phased innovation.

14. CSR Special Review Panel ZDK1 GRB8 for (RFA) DK-02-007 Dec 2002

" Obesity/Nutrition Research Centers"

13. NCI PAR 01-101 and 102 "Development of Novel Technologies for In

Vivo Imaging", Nov 2002

12. ZCA1 SRBB-9 (O1) NCI PAR 01-101 and 102 "Development of Novel

Technologies for In Vivo Imaging", June 2002

11

**Program Reviews**

National Institute of Health

NINDS Board of Scientific Counsellors review Ad Hoc Member June 2008

(Programs of Koretsky and Dujn)

**Foundations**

Welcome Trust Senior Fellowship Program Mar 2012

Brain Tumor Funding Collaborative Feb 2011

Brain Tumor Funding Collaborative Oct 2009

James McDonnell Foundation Ad Hoc reviewer 2000 - 2011

**Foreign Government Agencies**

French Ministry of Research IBISA Program Oct 2011

Netherlands Org for Health Research and Development Oct 2010

French Ministry of Research IBiSA Program June 2010

**NIH Center Awards**

YCCI Pilot Projects Utilizing Imaging Core Technologies and Just-in-Time Pilots Jan 2011

YCCI Development of Novel Clinical and Translational Methodologies Dec 2010

YCCI  Basic Science Collaboration Pilot Reviews Sept 2010

Yale YCCI Pilot Project Utilizing Core Technologies committee Dec 2009

Yale YCCI Development of Novel Clinical and Translational Methodologies Sept 2009

 Pilot Projects committee

Yale Univ. Liver Center Pilot Award reviewer April 2008

Yale Univ. YCCI Scholar awards committee Sept 2007

Yale Univ. YCCI Development of Novel Clinical Aug 2007

and Translational Methodologies Award comittee

Vanderbilt U GCRC Pilot Award\ March 2005

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**Societies**

Member, International Society of Magnetic Resonance in Medicine 1984-2012`

Governing committee, Dynamic NMR Study Group. International 2000

Society of Magnetic Resonance in Medicine

Member, Society of Neurochemistry 1998/99

**Journals**

**Editor**

Editorial Board Journal of Cerebral Blood Flow and Metabolism 2012

Associate Editor Frontiers of Neuroenergetics 2009- present.

Associate Editor. NMR in Biomedicine 1999- 2004

**Reviewer for** American Journal Of Physiology ,Biophysical Journal, Biological Psychiatry, Cell Metabolism, Cerebral Cortex, Current Biology, Journal of Biological Chemistry, Journal of Cerebral Blood Flow and Metabolism, Journal of Clinical Endocrinology and Metabolism, Journal of Clinical Investigation, Journal of Magnetic Resonance, Journal of Magnetic Resonance in Medicine, Journal of Magnetic Resonance Imaging, Journal of Neurochemistry, Journal of Neuroscience, Jounral of Neuroscience Methods, Neuroimage, NMR in Biomedicine, Plos one, Proceedings of the National Academy of Science (USA), Psychiatric Research

**Advisory Committees**

Advisory Board. Brain Tumor Funders Collaborative 2009- 2012

Global Imaging Unit advisory committee Glaxo Smith Kline 2012

MRS Expert Advisory Group for Track-On HD 2011, 2012

Advisory Committee Cancer Metabolism Glaxo Smith Kline2011, 2012

National Advisory Committee for the "Center for Brain Imaging and 2000

Behavioral Health". Vanderbilt University. Nashville, TN.

Ad Hoc Consultant to the Congressionally-Established Diabetes Research 2000

 Working Group NIDDK Conquering Diabetes: A Strategic Plan for the

21st Century Report Summary and Recommendation 2000

Advisory Committee for Magnetic Resonance Center Albert Einstein 1999

 School of Medicine

**Professional Affiliations**

International Society of Magnetic Resonance in Medicine 1990-present

Society of Neurochemistry 1998/1999

Dynamic NMR Study Group. International Society of Magnetic Resonance in Medicine 1995-present.

**University Service**

**Engineering/Arts and Sciences**

Dept BME Faculty Search Diversity officer 2008- present

Dept BME Faculty Search committee 2000 –2010

BME graduate education committee 2004 2008

**Medical School**

YCCI/CTSA Career Oversight Committee 2012-2014

Senior Appt. and Promo. Committee 2012

Co Director MRRC 2010-present

YCCI Science and Safety Committee Meeting 2010-present

Diagnostic Radiology Appointment and Promotions 2000-present

Committee

YSM Board of Permanent Officers 2000 - present

MRRC Advisory Committee 2002 - present

MRRC safety committee 2002 – present

Director of MRS Research, Dept of Diagnostic Rad. 2000 – present

Dept Psychiatry Neuroimaging search committee 2010 -2011

Diagnostic Radiology Trans Neuroscience search committee 2006 -2010

Director, MRRC 2002- 2010

Diagnostic Radiology trans cardiac imager search committee 2006 - 2009

Term Appt. and Prom comm. . 2004 -2006

Assistant Director General Clinical Research Center 2003- 2005

School of Medicine Scholar Awards Committee 2001- 2005

PET Search Committee, co-chair 2002-2003

Radiology Pfizer Planning Committee 2002 -2003

GCRC MAC Committee 2001-2003

Diagnostic Radiology Research Management Committee 1998-2000

Diagnostic Radiology MR Scanner Committee 1998- 2000

Congress Avenue Building Magnet Committee 1998-2003

Director, MRC 1995-2002

Magnetic Resonance Center Advisory Committee 1994 -2002

Operating Committee, MRC 1993-1996

Safety Committee, MRC 1993-1996

**Patents**

US Patent # 4,678,995 Apparatus and method for determining the presence of substances in a sample by NMR and producing an NMR image thereof. Avison; Malcolm J. (New Haven, CT); Hetherington; Hoby P. (New Haven, CT); Jue; Thomas H. (Branford, CT); Rothman; Douglas L. (New Haven, CT)

**Publications**

**Peer Reviewed Articles**

**Original Research Articles**

231 Jacob Z, Li H, Makaryus R, Zhang S, Reinsel R, Lee H, Feng T, Rothman DL, Benveniste H. Metabolomic Profiling of Children’s Brains Undergoing General Anesthesia with Sevoflurane and Propofol. Anesthesiology in press

230 Beneviste H, Zhang S, Reinsel R, Li H, Lee H, Rebecchi M, Moore W, Christoffer J, Rothman DL, Bilfingers TV. Brain metabolomic profiles of lung cancer patients prior to treatment characterized by proton magnetic resonance spectroscopy. Int J Clin Exp Med. 5(2):154-164, 2012.

229 Chowdbury G, Behar KL, Cho W, Rothman DL, Sancora G. Demonstration of Ketamine Effects on amino acid neurotransmitter metabolism in awake rats using 1H-13C NMR spectroscopy. Biological Psychiatry. 71(11):1022-1025 (2012) June.

228 Juchem C**,** Nixon TW; McIntyre S; Boer VO, Rothman DL, de Graaf RA. Dynamic Multi-Coil Shimming of the Human Brain at 7 Tesla. Journal of Magnetic Resonance. 212(2):280-8, 2011, Oct.

227 Jiang LH, Mason GF, de Graaf RA, Rothman DL, Behar KL. Effect of hyperketonimea on cortical substrate oxidation in the fasted anaesthetized rat in vivo. Journal of Cerebral Blood Flow & Metabolism. 31(12):2313-23, 2011 Dec.

226 Coman D, Kiefer GE, Rothman DL, Sherry AD, Hyder F. A lanthanide complex with dual biosensing properties: CEST and BIRDS with EuDOTA-(gly)4-. NMR in Biomedicine 24(10):1216-25, 2011 Dec.

225 Juchem C, Brown PB, Nixon TW, McIntyre S, Rothman DL, de Graaf, RA. Multi-Coil Shimming of the Mouse Brain. Mag. Reson. Med. 66(3):893-900, 2011, Sept.

224 Boumezbeur F. Mason GF. de Graaf RA. Behar KL. Cline GW. Shulman GI. Petersen KF, Rothman DL. 13C MRS Measurements of Human Brain Lactate Transport and Metabolism . Journal of Neuroscience 30(42):13983-91, 2010 Oct.

223 Juchem C. Nixon TW. McIntyre S. Rothman DL. de Graaf RA. Magnetic field homogenization of the human prefrontal cortex with a set of localized electrical coils Magnetic Resonance in Medicine. 63(1):171-80, 2010.

222 Boumezbeur F. Mason GF. de Graaf RA. Behar KL. Cline GW. Shulman GI. Rothman DL. Petersen KF. Altered brain mitochondrial metabolism in healthy aging as assessed by in vivo magnetic resonance spectroscopy. Journal of Cerebral Blood Flow & Metabolism. 30(1):211-21, 2010, Jan.

221 Mitchell CS. Savage DB. Dufour S. Schoenmakers N. Murgatroyd P. Befroy D. Halsall D. Northcott S. Raymond-Barker P. Curran S. Henning E. Keogh J. Owen P. Lazarus J. Rothman DL. Farooqi IS. Shulman GI. Chatterjee K. Petersen KF. Resistance to thyroid hormone is associated with raised energy expenditure, muscle mitochondrial uncoupling, and hyperphagia. Journal of Clinical Investigation. 120(4):1345-54, 2010.

220 Fitzgerald TN. Muto A. Fancher TT. Brown PB. Martin KA. Muhs BE. Rothman DL. Constable RT. Sampath S. Dardik A. Surgically implantable magnetic resonance angiography coils improve resolution to allow visualization of blood flow dynamics.Annals of Vascular Surgery. 24(2):242-53, 2010.

219 Patel AB. de Graaf RA. Rothman DL. Behar KL. Mason GF. Evaluation of cerebral acetate transport and metabolic rates in the rat brain in vivo using 1H-[13C]-NMR. Journal of Cerebral Blood Flow & Metabolism. 30(6):1200-13, 2010 Jun.

218 Juchem C. Nixon TW. McIntyre S. Rothman DL. de Graaf RA.Magnetic field modeling with a set of individual localized coils. Journal of Magnetic Resonance. 204(2):281-9, 2010.

217 Shen J, Rothman DL, Behar KL, Xu S. Determination of the Glutamate-Glutamine Cycling Flux Using Two-Compartment Dynamic Metabolic Modeling Is Sensitive toAstroglial Dilution Volume. 29(1):108-118. Jan 2009.

216 Chahboune H. Ment LR. Stewart WB. Rothman DL. Vaccarino FM. Hyder F. Schwartz ML. Hypoxic injury during neonatal development in murine brain: correlation between in vivo DTI findings and behavioral assessment. Cerebral Cortex. 19(12):2891-901, 2009.

215 Shulman RG. Hyder F. Rothman DL. Proceedings of the National Academy of Sciences of the United States of America. Baseline brain energy supports the state of consciousness. 106(27):11096-101, 2009

214 Jiang L. Herzog RI. Mason GF. de Graaf RA. Rothman DL. Sherwin RS. Behar KL. Recurrent antecedent hypoglycemia alters neuronal oxidative metabolism in vivo. Diabetes. 58(6):1266-74, 2009

213 de Graaf RA. Chowdhury GM. Brown PB. Rothman DL. Behar KL. In situ 3D magnetic resonance metabolic imaging of microwave-irradiated rodent brain: a new tool for metabolomics research. Journal of Neurochemistry. 109(2):494-501, 2009

212 Shulman RG, Hyder FH, Rothman, DL. Brain Energy Supports the State of Consciousness. Psyche. 15:2, 2009.

211 Maciejewski PK. Rothman DL. Proposed cycles for functional glutamate trafficking in synaptic neurotransmission. Neurochemistry International. 52(4-5):809-25, 2008 Mar-Apr.

210 de Graaf RA. Brown PB. Rothman DL. Behar KL. Natural abundance 17O NMR spectroscopy of rat brain in vivo. Journal of Magnetic Resonance. 193(1):63-7, 2008

209 Nixon TW. McIntyre S. Rothman DL. de Graaf RA. Compensation of gradient-induced magnetic field perturbations. Journal of Magnetic Resonance. 192(2):209-17, 2008

208 Befroy DE. Petersen KF. Dufour S. Mason GF. Rothman DL. Shulman GI. Increased substrate oxidation and mitochondrial uncoupling in skeletal muscle of endurance-trained individuals. Proceedings of the National Academy of Sciences of the United States of America. 105(43):16701-6, 2008

207 Chowdhury GM. Banasr M. de Graaf RA. Rothman DL. Behar KL. Sanacora G.Chronic riluzole treatment increases glucose metabolism in rat prefrontal cortex and hippocampus. Journal of Cerebral Blood Flow & Metabolism. 28(12):1892-7, 2008

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