

CURRICULUM VITAE

Robert E. Lenkinski, Ph.D.

PERSONAL INFORMATION

Name: Robert E. Lenkinski, Ph.D.
Place of Birth: Mildorf, Germany
Year Of Birth: 1947
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EDUCATION

<u>Year</u>	<u>Degree</u>	<u>Field of Study</u>	<u>Institution</u>
1968	B.Sc.	Chemistry	University of Toronto, Toronto, Canada
1973	Ph.D.	Chemistry	University of Houston, Houston, TX

POSTDOCTORAL TRAINING

<u>Year(s)</u>	<u>Training</u>	<u>Specialty/Discipline</u>	<u>Institution</u>
1973-1975	Fellowship	Postdoctoral Fellow- Isotope Research	Weizmann Institute of Science, Rehovot, Israel

FACULTY ACADEMIC APPOINTMENTS

<u>Year(s)</u>	<u>Academic Title</u>	<u>Academic Department</u>	<u>Academic Institution</u>
1975-1976	Visiting Assistant Professor	Chemistry	University of Houston, Houston, TX
1976-1980	Research Assistant Professor	Psychology and Biophysics	University of Illinois College of Medicine, Chicago, IL
1978-1980	Assistant Professor	Biochemistry	University of Alabama in Birmingham, AL
1979-1979	Visiting Assistant Professor	Chemistry, Isotope Section	Weizmann Institute of Science, Rehovot, Israel
1980-1986	Associate Professor	Chemistry	University of Guelph, Guelph, Canada
1987-1994	Associate Professor	Radiological Science	University of Pennsylvania School of Medicine, Philadelphia, PA
1994-1999	Professor	Radiological Science	University of Pennsylvania School of Medicine, Philadelphia, PA
1999-2011	Professor	Radiology	Harvard Medical School, Boston MA
2011-now	Tenured Professor	Radiology (Primary)	University of Texas Southwestern Medical School, Dallas, TX
2011-now	Tenured Professor	Advanced Imaging Research Center (Secondary)	University of Texas Southwestern Medical School, Dallas, TX
2013-now	Tenured Professor	Biomedical Engineering Graduate Program	University of Texas Southwestern Graduate School of Biomedical Sciences, Dallas, TX

HONORS AND AWARDS

<u>Year</u>	<u>Name of Award</u>	<u>Awarding Organization</u>
1970	Outstanding Initiate	Alpha Chi Sigma, University of Houston
1971	Sigma Xi	
1972	Outstanding Teaching Fellow	University of Houston

1997	Fellow	International Society of Magnetic Resonance in Medicine
1999	Luigi Mastroianni Clinical Innovator Award	University of Pennsylvania School of Medicine
2011	Jan and Bob Pickens Distinguished Professorship in Medical Science	UT Southwestern Medical Center
2011	Charles A. and Elizabeth Ann Sanders Chair in Translational Research	UT Southwestern Medical Center
2011	CPRIT Cancer Scholar in Residence	UT Southwestern Medical Center

APPOINTMENTS AT HOSPITALS AND AFFILIATED INSTITUTIONS

<u>Year(s)</u>	<u>Hospital Position</u>	<u>Hospital Dept/Division</u>	<u>Hospital Institution</u>
1999-2006	Director of Experimental Radiology	Radiology	Beth Israel Deaconess Medical Center, Boston, MA
2005-2011	Co-Director (with John V. Frangioni)	Center for Molecular Imaging	Beth Israel Deaconess Medical Center, Boston, MA
2005-2011	Co-Director (with John V. Frangioni)	Longwood Small Animal Imaging Facility	Beth Israel Deaconess Medical Center, Boston, MA
2006-2011	Director of Research	Radiology	Beth Israel Deaconess Medical Center, Boston, MA

OTHER PROFESSIONAL POSITIONS

<u>Year(s)</u>	<u>Position Title</u>	<u>Institution</u>
1976-1980	Associate Scientist, Comprehensive Cancer Center	University of Alabama, Birmingham

MAJOR ADMINISTRATIVE AND LEADERSHIP POSITIONS

<u>Year(s)</u>	<u>Position Title</u>	<u>Institution</u>	<u>Scope</u>
2000-2006	Associate Chief for Academic Affairs, Department of Radiology	Beth Israel Deaconess Medical Center, Boston, MA	Departmental
2006-2011	Vice Chairman, Department of Radiology	Beth Israel Deaconess Medical Center, Boston, MA	Departmental
2011-now	Vice Chairman, Department of Radiology	University of Texas Southwestern Medical Center, Dallas, TX	Departmental

COMMITTEE SERVICE

Departmental

<u>Year(s)</u>	<u>Position Title</u>	<u>Name of Committee</u>	<u>Institution/Organization</u>
1996-1999	Member	Appointments and Promotions Committee, Department of Radiology	University of Pennsylvania
1999-2011	Chair	Research Committee, Department of Radiology	Beth Israel Deaconess Medical Center
2001-2011	Member	Executive Committee of the Department of Radiology	Beth Israel Deaconess Medical Center
2011-now	Member	Executive Leadership Committee, Department of Radiology	UT Southwestern Medical Center
2011-now	Member	Promotion & Tenure Committee, Department of Radiology	UT Southwestern Medical Center

Hospital

<u>Year(s)</u>	<u>Position Title</u>	<u>Name of Committee</u>	<u>Institution/Organization</u>
2003-2011	Member	Research Advisory Committee	Beth Israel Deaconess Medical Center
2004-2006	Member	Executive Committee, Center for Vascular Biology	Beth Israel Deaconess Medical Center
2004-2011	Member	Committee on Senior Appointments	Beth Israel Deaconess Medical Center
2004-2011	Member	Committee for Faculty Development	Beth Israel Deaconess Medical Center

2008-2011	Member	Committee on Research Space	Beth Israel Deaconess Medical Center
2011-now	Member	Six Year Strategic Planning Committee	UT Southwestern Medical Center

Institution

<u>Year(s)</u>	<u>Position Title</u>	<u>Name of Committee</u>	<u>Institution/Organization</u>
2004-2007	Member	Sub-committee of Professors	Harvard Medical School

National

<u>Year(s)</u>	<u>Position Title</u>	<u>Name of Committee</u>	<u>Institution/Organization</u>
1990-1992	Member	Basic Science Council	Society of Magnetic Resonance Imaging
1992-1993	Member	Program Committee	Society of Magnetic Resonance in Medicine
1993-1998	Member	Committee on Nomenclature and Phantom Development	American College of Radiology
1993-1998	Member	Committee on Technology Assessment	American College of Radiology
1994-1996	Member	Board of Trustees	International Society of Magnetic Resonance in Medicine
1995-1998	Chair	Safety Committee	International Society of Magnetic Resonance in Medicine
2000-2005	Chair	Audit Committee	International Society of Magnetic Resonance in Medicine
2004-2007	Member	Corporate Relations Committee	International Society of Magnetic Resonance in Medicine
2011-2015	Member	Annual Program Committee	International Society of Magnetic Resonance in Medicine

PROFESSIONAL SOCIETIES

<u>Year(s)</u>	<u>Society Name</u>
1969-now	Alpha Chi Sigma
1986-1973	American Chemical Society
1986-now	International Society of Magnetic Resonance in Medicine
1989-now	Radiological Society of North America
1989-now	American Association for the Advancement of Science

GRANT REVIEW ACTIVITIES

<u>Year(s)</u>	<u>Name of Committee</u>	<u>Organization</u>
1999-2002	Member, Shared Instrumentation Grants Study Section	National Institutes of Health
2004	Chairperson, Special Emphasis Study Section for Epigenetics in Schizophrenia	National Institute of Mental Health
2005	Chairperson, Special Emphasis Panel ZRG1 DIG	National Institutes of Health
2005	Member, NCI Panel D PO1 Cluster Review	National Institutes of Health
2005	Member Review Panel for Clinical Trials in Prostate Cancer	Department of Defense
2006	Chairperson, Special Emphasis Study Section ZRG1 DIG-F (50)	National Institutes of Health
2006	Member, Special Emphasis Study Section ZRG1 SBIB-K	National Institutes of Health
2007	Member, Shared Instrumentation Grants Study Section	National Institutes of Health
2007	Member, Special Emphasis Study Section ZRG1 MEDI	National Institutes of Health
2008-2014	Member, MEDI-A Study Section	National Institutes of Health

2008-2014	Member, MEDI Study Section	National Institutes of Health
2010-2014	Member, DTSC Study Section	National Institutes of Health
2011	Chairperson, ZRG1 SBIB-N (40) Study Section	National Institutes of Health

EDITORIAL ACTIVITY

Editor/Associate Editor

<u>Year(s)</u>	<u>Journal Name</u>	<u>Editorial Role</u>
1999-now	Academic Radiology	Deputy Editor

Editorial Board

<u>Year(s)</u>	<u>Journal Name</u>	<u>Editorial Role</u>
2000-now	Journal of Magnetic Resonance Imaging	Consulting Editor

Reviewer (All Types)

<u>Year(s)</u>	<u>Journal Name</u>	<u>Editorial Role</u>
1989-now	Radiology	Reviewer
1989-now	Journal of Magnetic Resonance Imaging	Reviewer
1990-now	Magnetic Resonance in Medicine	Reviewer

REPORT OF TECHNOLOGICAL AND OTHER SCIENTIFIC INNOVATIONS

<u>Year(s)</u>	<u>Innovation/Patent Title</u>	<u>Role</u>	<u>Status</u>
1994	Kressel HY, Rhinehart EJ, Schnall MD, Lenkinski RE, Imai Y, Inventors. Externally moveable intracavity probe for MRI imaging and spectroscopy. U.S. Patent Number 5,307,814. 1994.		
1994	Schnall MD, Lenkinski RE, Kressel HY, Pollack HM, Claiborne TC, Mistic GJ, Welsh TR, Rhinehart EJ, Inventors. Intracavity probe and interface device for MRI imaging and spectroscopy. U.S. Patent Number 5,348,010. 1994.		
1995	Rhinehart EJ, Kressel HY, Schnall MD, Lenkinski RE, Milestone B, Inventors. Probe for MRI imaging and spectroscopy particularly in the cervical region. U.S. Patent Number 5,451,232. 1995.		
1995	Lenkinski RE, Kressel HY, Inventors. Flexible surface coils for use in nuclear magnetic resonance imaging. U.S. Patent Number 5,435,302. 1995.		
1995	Schnall MD, Lenkinski RE, Kressel HY, Pollack HM, Inventors. Intracavity probe and interface device for MRI imaging and spectroscopy. U.S. Patent Number 5,476,095. 1995.		
2009	Frangioni JV, Bernstein J, Rosen JJ, Lenkinski RE, Inventors. Micro-scale resonant devices and methods for use. U.S. Patent Number 20090027280. 2009.		
2011	Alsop DC, Vinogradov E, Grant AK, Lenkinski RE, Inventors. Imaging agents for use in Magnetic Resonance blood flow/perfusion imaging. U.S. Patent Number 20110040173. 2011.		
2011	Vinogradov E, Lenkinski RE, Inventors. Positive Magnetic Resonance Imaging contrast methods and apparatus using chemical exchange saturation transfer. U.S. Patent Number 20110221440. 2011.		
2014	Koceski S, Shterev F, Ciambirione D, Lenkinski L, Lenkinski RE, Inventors. System and method for three-dimensional nerve segmentation using Magnetic Resonance Imaging. U.S. Patent Number 20140328529. 2014.		
2014	Alsop DC, Vinogradov E, Grant AK, Lenkinski RE, Inventors. Imaging agents for use in Magnetic Resonance blood flow/perfusion imaging. U.S. Patent Number 20140079641. 2014.		

BIBLIOGRAPHY OF SCHOLARLY PUBLICATIONS

Original Research Articles

- 1 Gansow OA, Willcott MR, Lenkinski RE. Carbon Magnetic Resonance - Signal Assignment by Alternately Pulsed Nuclear

- Magnetic Resonance and Lanthanide-Induced Chemical Shifts. *Journal of the American Chemical Society* 1971;93(17):4295-4297.
- 2 Willcott MR, Lenkinski RE, Davis RE. Interpretation of Pseudocontact Model for Nuclear Magnetic-Resonance Shift Reagents Agreement Factor-R. *Journal of the American Chemical Society* 1972;94(5):1742-1744.
 - 3 Davis RE, Willcott MR, Lenkinski RE, Doering WVE, Birladeneau L. Interpretation of Pseudocontact Model for Nuclear Magnetic-Resonance Shift Reagents. Colinearity in Structural Elucidation of Nitriles. *Journal of the American Chemical Society* 1973;95
 - 4 Gansow OA, Loeffler PA, Davis RE, Willcott MR, Lenkinski RE. Evaluation of Lanthanide-Induced C-13 Contact Vs Pseudocontact Nuclear Magnetic-Resonance Shifts. *Journal of the American Chemical Society* 1973;95(10):3389-3390.
 - 5 Gansow OA, Loeffler PA, Davis RE, Willcott MR, Lenkinski RE. Evidence for Europium-Induced Fermi Contact Shifts in C-13 Nuclear Magnetic-Resonance Spectra. *Journal of the American Chemical Society* 1973;95(10):3390-3392.
 - 6 Gansow OA, Loeffler PA, Davis RE, Lenkinski RE, Willcott MR. Contact Vs Pseudocontact Contributions to Lanthanide-Induced Shifts in Nuclear Magnetic-Resonance Spectra of Isoquinoline and of Endo-Norbornenol. *Journal of the American Chemical Society* 1976;98(14):4250-4258.
 - 7 Lenkinski RE, Reuben J. Multi-site Model for Lanthanide Shift-Reagent Coordination to Monofunctional Substrates - Effects of Rotational and Site Averaging on Shifts and Relaxation Rates. *Journal of the American Chemical Society* 1976;98(14):4065-4068.
 - 8 Lenkinski RE, Reuben J. Studies of Binding of Calcium and Lanthanum Ions to D-Lyxose and D-Ribose in Aqueous-Solutions Using Proton Magnetic-Resonance. *Journal of the American Chemical Society* 1976;98(11):3089-3094.
 - 9 Lenkinski RE, Reuben J. Line Broadenings Induced by Lanthanide Shift-Reagents - Concentration, Frequency, and Temperature Effects. *Journal of Magnetic Resonance* 1976;21(1):47-56.
 - 10 Agresti DG, Lenkinski RE, Glickson JD. Lanthanide induced NMR perturbations of HEW lysozyme: evidence for nonaxial symmetry. *Biochem Biophys Res Commun* 1977;76(3):711-719.
 - 11 Chang CHF, Pitner TP, Lenkinski RE, Glickson JD. C-13 Fourier-Transform Nuclear Magnetic-Resonance Study of Gallium Citrate in Aqueous-Solution. *Journal of the American Chemical Society* 1977;99(18):5858-5863.
 - 12 Lenkinski RE, Chen DM, Glickson JD, Goldstein G. Nuclear Magnetic-Resonance Studies of Denaturation of Ubiquitin. *Biochimica Et Biophysica Acta* 1977;494(1):126-130.
 - 13 Chang CHF, Pitner TP, Lenkinski RE, Glickson JD. Interactions of Gallium with Various Buffers and Chelating-Agents in Aqueous-Solution - Ga-71 and H-1 NMR-Studies. *Bioinorganic Chemistry* 1978;8(1):11-19.
 - 14 Lenkinski RE, Agresti DG, Chen DM, Glickson JD. Analysis of Co²⁺-Induced Nuclear Magnetic-Resonance Perturbations of Hen Egg-White Lysozyme. *Biochemistry* 1978;17(8):1463-1468.
 - 15 Lenkinski RE, Chang CHF, Glickson JD. Ga-71 and P-31 Nuclear Magnetic-Resonance Studies of Interactions of Gallium with Phosphoric-Acid in Aqueous-Solution. *Journal of the American Chemical Society* 1978;100(17):5383-5386.
 - 16 Lenkinski RE, Elgavish GA, Reuben J. Criteria and Algorithms for the Characterization of Weak Molecular Complexes of 2-1 Stoichiometry from Nuclear Magnetic-Resonance Data - Applications to a Shift-Reagent System. *Journal of Magnetic Resonance* 1978;32
 - 17 Lenkinski RE, Glickson JD, Walter R. Fluorescence Study of Binding of Calcium and Terbium Ions to Angiotensin. *Bioinorganic Chemistry* 1978;8(4):363-368.
 - 18 Ostroy F, Gams RA, Glickson JD, Lenkinski RE. Inhibition of Lysozyme by Polyvalent Metal-Ions. *Biochimica Et Biophysica Acta* 1978;527(1):56-62.
 - 19 Lenkinski RE, Dallas JL. Nmr Investigation of the Kinetics of Dissociation of the Zinc(II) Complex of Bleomycin Antibiotics. *Journal of the American Chemical Society* 1979;101(20):5902-5906.
 - 20 Lenkinski RE, Dallas JL, Glickson JD. Paramagnetic Ion Induced Perturbations in the H-1-NMR Spectrum of Lysozyme - Reassignment of the Tryptophan Indole NH Resonances. *Journal of the American Chemical Society* 1979;101(11):3071-3077.
 - 21 Degani H, Lenkinski RE. Ionophoric Properties of Angiotensin-II Peptides - Nuclear Magnetic-Resonance Kinetic-Studies of the Hormone-Mediated Transport of Manganese Ions across Phosphatidylcholine Bilayers. *Biochemistry* 1980;19(15):3430-3434.
 - 22 Lenkinski RE, Pearce BE, Dallas JL, Glickson JD. Interactions of Gallium(III) with Bleomycin Antibiotics. *Journal of the American Chemical Society* 1980;102(1):131-135.
 - 23 Lenkinski RE, Pearce BE, Pillai RP, Glickson JD. Calcium(II) and the Trivalent Lanthanide Ion Complexes of the Bleomycin Antibiotics - Potentiometric, Fluorescence, and H-1-NMR Studies. *Journal of the American Chemical Society* 1980;102(23):7088-7093.

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- 30 Alyea EC, Lenkinski RE, Somogyvari A. Mo-95 Nuclear Magnetic-Resonance Studies of Molybdenum-Phosphorus Compounds. *Polyhedron* 1982;1(1):130-132.
- 31 Cocivera M, Ferguson G, Lenkinski RE, Szczecinski P, Lalor FJ, Osullivan DJ. NMR Relaxation Studies of Rh-103. *Journal of Magnetic Resonance* 1982;46(1):168-171.
- 32 Fyfe CA, Beml L, Childs R, Clark HC, Curtin D, Davies J, Drexler D, Dudley RL, Gobbi GC, Hartman JS, Hayes P, Klinowski J, Lenkinski RE, Lock CJL, Paul IC, Rudin A, Tchir W, Thomas JM, Wasylischen RE. Analytical Chemical Applications of High-Resolution Nuclear Magnetic-Resonance spectroscopy of Solids. *Philosophical Transactions of the Royal Society of London Series a-Mathematical Physical and Engineering Sciences* 1982;305(1491):591-607.
- 33 Fyfe CA, Gobbi GC, Hartman JS, Lenkinski RE, O'Brien JH. High-Resolution Solid-State MAS Spectra of Si-29, Al-27, B-11, and Other Nuclei in Inorganic Systems Using a Narrow-Bore 400-MHz High-Resolution NMR Spectrometer. *Journal of Magnetic Resonance* 1982;47(1):168-173.
- 34 Vaughn JB, Stephens RL, Lenkinski RE, Heavner GA, Goldstein G, Krishna NR. Nuclear Magnetic-Resonance Analysis of Gd-3+-Induced Perturbations in Thymopoietin32-36 - a Study of Amide and Aromatic Proton Resonances. *Archives of Biochemistry and Biophysics* 1982;217(2):468-472.
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- 43 McLennan IJ, Lenkinski RE, Yanuka Y. A Nuclear Magnetic-Resonance Study of the Self-Association of Adriamycin and Daunomycin in Aqueous-Solution. *Canadian Journal of Chemistry-Revue Canadienne De Chimie* 1985;63(6):1233-1238.
- 44 Allman T, Lenkinski RE. Solid-State P-31 CP-MAS NMR-Study of Phosphine Complexes of Mercury(II). *Inorganic Chemistry* 1986;25(18):3202-3204.
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- 65 Hendrix RA, Lenkinski RE, Vogele K, Bloch P, McKenna WG. P-31 Localized Magnetic-Resonance Spectroscopy of Head and Neck Tumors - Preliminary Findings. *Otolaryngology-Head and Neck Surgery* 1990;103(5):775-783.
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GRANT SUPPORT FUNDED AND UNFUNDED PROJECTS

Existing/Continued/Extended Grants

Grantor: NIH
Title of Project: PARACEST Agents: Optimization for Human MR Imaging. EB004582. (Award Amount-direct cost for 5 yrs)
Investigator Role: PI
Annual Amount: \$704,383 **Year(s):** 2007-2016
Total Award Amount: \$2,876,940

Grantor: NIH
Title of Project: Improving the Specificity of MRI through improved DWI. (Award Amount for direct costs for Breast for 5 yrs)
Investigator Role: Local PI
Annual Amount: \$125,786 **Year(s):** 2011-2016
Total Award Amount: \$602,414

Grantor: CPRIT
Title of Project: Missing Link Award R1107. (Award Amount-direct cost for 5 yrs)
Investigator Role: PI
Annual Amount: \$800,000 **Year(s):** 2011-2016
Total Award Amount: \$4,000,000

Grantor: NIH
Title of Project: UT Southwestern O'Brien Kidney Research Center; Project C: Cell Biology
Investigator Role: Co-Invest
Annual Amount: \$733,022 **Year(s):** 2012-2017
Total Award Amount: \$3,655,110

Grantor: NIH/QT Ultrasound (CVUS Clinical Trials)
Title of Project: Multimode Quantitative Ultrasound Prototype Breast Scan
Investigator Role: PI
Annual Amount: \$223,444 **Year(s):** 2014-2017
Total Award Amount: \$580,225

Expired Grant Awards

Grantor: NIH
Title of Project: The Early Detection of CNS Involvement in HIV. R01-NS31464 (renewed once)
Investigator Role: PI

Annual Amount: \$339,659 **Year(s):** 1993-2000

Total Award Amount: \$1,698,295

Grantor: NIH

Title of Project: Resource for Magnetic Resonance and Optical Imaging. RR02305

Investigator Role: Co-PI

Annual Amount: \$500,000 **Year(s):** 1994-1999

Total Award Amount: \$2,500,000

Grantor: NIH

Title of Project: Metabolic Study of Schizophrenia Using Proton MRS. R01-MH-49390 (renewed once)

Investigator Role: PI

Annual Amount: \$207,256 **Year(s):** 1994-2001

Total Award Amount: \$1,036,280

Grantor: NIH

Title of Project: MR Spectroscopy of Suspicious Breast Masses. R01-CA70362

Investigator Role: PI

Annual Amount: \$219,274 **Year(s):** 1996-2001

Total Award Amount: \$1,097,870

Grantor: NIH

Title of Project: Multivoxel MRS of Human Breast Cancer at 3T. R01-CA098339

Investigator Role: Co-PI

Annual Amount: \$348,500 **Year(s):** 2004-2007

Total Award Amount: \$1,742,500

NARRATIVE REPORT

Since 1986, I have been involved in the technical development of Imaging methods (primarily Magnetic Resonance Imaging), with the primary purpose of translating technical advances into improved patient care. My earliest work in MR involved designing and fabricating specialized RF coils to generate high-resolution images of various anatomical locations. I was one of the four co-inventors of the endo-rectal coil for MR imaging of prostate disease (1-4). Our initial efforts were directed at MR imaging and MR spectroscopy at 1.5 T, which was the highest field used for MRI in 1986. Subsequently we developed a 3T version of this coil. These coils are currently marketed by Medrad and have been adopted as the standard of care in prostate MR.

It became evident that we needed to establish a bridge between the so-called "imaging phenotypes" of human prostate cancer and their underlying genetic and proteomic expression profiles. Accordingly we developed a methodology for establishing this bridge. We were able to demonstrate the potential for correlating genetic expression profiles with phenotypes of human prostate cancer (5-8). Our collaborators have extended this work to other human tumors like renal cell carcinomas and breast cancer.

Early on, we became involved in imaging breast cancer in patients. We recognized the need for a bilateral surface coil for MR imaging of breast cancer. We used this coil for MR imaging and localized MR spectroscopy (MRS) of breast lesions to improve the diagnostic accuracy of lesion characterization. We found that MRS of breast lesions (particularly those that enhanced after the injection of an MR contrast agent) improved the ability to determine which lesions were likely to be malignant. This proved to be particularly true in women under forty. The papers describing these studies (9-12) have been cited many times.

During the course of developing these methods, 3T and 4T MRI scanners became available. We installed an early GE 4T scanner at the University of Pennsylvania and began to transition the studies described above from 1.5 to 4T. At that time there were no RF whole-body transmit coils available for the 4T scanner, which became a major obstacle in realizing the potential signal-to-noise gains at 4T. In 1999, I moved to the Beth Israel Deaconess Medical Center (BIDMC) to work on a GE 3T with the first prototype whole-body RF coil. Our team at BIDMC demonstrated the advantages of 3T over 1.5T in imaging various organs in the body including the prostate, the female pelvis as well as breasts. We also provided GE with the clinical data for the 510K submission to the FDA for body imaging at 3T.

Since moving to the Department of Radiology at University of Texas at Southwestern in Dallas in 2011, I have continued focusing on translational research. We have initiated a project that is geared towards making diffusion weighted imaging a

quantitatively reliable, “cancer imaging” biomarker in the body. This project was submitted as an Academic - Industry (Philips Healthcare systems) collaborative grant to the NIH this year. My group has also been involved in the Renal SPORE application (PI: James Brugerolas, MD) both in a project using MRI to characterize Renal cell cancer (PI: Ivan Pedrosa, MD) as well as in the Imaging Core (Dr. Pedrosa and myself as Co-PI’s). Our group has also been collaborating with Drs. DeBerardinis, Kerstein, and Schiller on using multiparametric MRI to guide tissue procurement for genetic, proteomic, and metabolomic analyses in lung cancer. The results of this study carried out on 10 patients have been submitted for publication in Cell.

Our group has been developing multi-modality, targeted contrast agents for imaging malignant micro-calcifications in human breast cancer (13-16). We have determined the toxicity of these agents and are currently planning to initiate a “first in humans” trial of the F-18 labeled PET radiotracer. We have an FDA approved dedicated breast PET scanner which can produce high-resolution PET images of the breast.

More recently our group has been collaborating with Philips Healthcare Systems on the technical development of their dual-layer detector based multi-spectral CT system (called the IQON). We have successfully developed our own in-house two material decomposition reconstructions for the quantitative analyses of iron and several other endogenous elements.

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