

Joseph I. Shapiro, M.D., F.A.H.A., F.A.C.P., F.A.S.N.

Curriculum Vitae: March, 2013

Title:

Dean, Joan C Edwards College of Medicine  
Marshall University

Personal History:

Born	08/24/54, Newark, New Jersey
Citizenship	United States
Marital Status	Married
Address	7027 Altonbrough Drive Toledo, Ohio 43617
Home Telephone	(419) 842-0079
Office Telephone	(304) 691-1700
EMAIL	shapiroj@marshall.edu

Education and Post Graduate Training:

University of Pennsylvania B.A. Mathematics	9/72-6/76.
UMDNJ-New Jersey Medical School M.D.	9/76-6/80.
Georgetown University: Residency in Internal Medicine	7/80-6/83.
University of Colorado: Fellowship in Renal Diseases	7/83-6/87.

Licensure:

Currently licensed in Ohio.

Board Certification:

Internal Medicine (1983)  
Nephrology (1986).

## Faculty Positions:

University of Colorado: Director, Chronic Dialysis Service	1986-1991.
University of Colorado: Instructor in Medicine	1986-1987.
University of Colorado: Assistant Professor of Medicine	1987-1993.
University of Colorado: Co-Director NMR Spectroscopy	1989-1995.
University of Colorado: Co-Director Renal Transplant Physicians	1989-1997.
University of Colorado: Assistant Professor of Radiology	1989-1993.
Denver University: Adjunct Professor of Physics	1992-1997.
University of Colorado: Associate Professor of Medicine	1993-1997.
University of Colorado: Associate Professor of Radiology	1993-1997.
Denver VAMC: Director, Renal Transplant Service	1995-1997.
Denver VAMC: Section Head, Renal Diseases	1996-1997.
University of Toledo (formerly Medical College of Ohio at Toledo): Professor of Medicine & Physiology/Pharmacology	1997-2012.
University of Toledo: Renal Division Head	1997-1999.
University of Toledo: Interim Chairman of Medicine	1999-1999.
University of Toledo: Chairman of Medicine	1999-2012.
University of Toledo: Interim Chairman of Physiology	2004-2005.
University of Toledo: Associate Dean for Business Development	2006-2012.
University of Toledo Physicians, President	2011-2012.
Marshall University: Dean, College of Medicine	2012-present
Marshall University: Professor of Medicine	2012-present

## Peer Review:

### Editorial Board:

Kidney International 2002-2005, 2005-2012.  
Frontiers in Bioscience 2002-present.  
Biological Research in Nursing 2002-present.  
American Journal of Medicine 2005-present.  
American Society for Artificial Internal Organs 2005-present.  
Arterial'naya Gipertenziya – The Arterial Hypertension 2006-present.  
International Journal of Hypertension 2009-present  
Journal of Signal Transduction 2010 - present  
Hypertension 2010 – 2012  
Recent Patents on Biomedical Engineering 2010-present  
Chinese Journal of Clinicians 2010 – present  
World Journal of Hypertension 2011-present  
Journal of the American Heart Association 2011-present (Associate Editor)  
World Journal of Clinical Urology 2011-present  
Physiology Journal 2012-present  
West Virginia Journal 2012-present (Associate Editor)  
Journal of Hypertension Open Access 2012-present (Editor in Chief)  
Cureus (2012-present)

Have reviewed journal articles for other peer review journals including: *AJKD, American Journal of Nephrology, AJP, ASAIO, Chest, Circulation, Circ Research, Crit Care Research, Dialysis and Transplantation, Embo J, Hypertension. JASN, J Cellular Phys, J Clin Invest, J Crit Care, J Hypertension, J Mol Cel Card, J Ped Res, J Reprod, Placenta, Nature, Nephron, PNAS, Renal Failure, Transplantation and Transplantation Proceedings*

Have reviewed grant applications for National Institutes of Health (ad hoc 1992, 1994), European Commission (2004), American Heart Association (1992-97, 98-2001, 2002-2003), National Kidney Foundation (2002), Arizona Disease Control Foundation (1997, 2000), Michigan Kidney Foundation (1998,2000) and Veterans Administration (ad hoc, 1997). Have reviewed abstracts for AFCR (national and western), SMRM as well as ASN meetings (1993, ARF, 1995 Acid-base, 1999-hemodialysis hemodynamics, selection chairman). Member ASN Finance Committee (2002-2007). Member AHA – Kidney in Cardiovascular Disease (KCVD) Council (2009-present, membership committee chairman 2012-present).

### Patents:

- 1) "Apparatus and method for analyzing heart sounds" by JI Shapiro and HD Weinberger through the University of Colorado, # 08/498,673.
- 2) "Apparatus and method for analyzing heart sounds" by JI Shapiro and HD Weinberger through the University of Colorado # 08/746,738.
- 3) "Albumin based colloid composition and method of use in treating hypovolemia and multiorgan dysfunction by RA Assaly, JI Shapiro and D Dignam through University of Toledo, #7,037,895.
- 4) "Albumin based colloid composition condition having a least one protected thiol region and methods of use" by RA Assaly, JI Shapiro and D Dignam through University of Toledo, #10/985,798 (continuation in part).
- 5) "PCT Filing" by RA Assaly, JI Shapiro and D Dignam through University of Toledo, #US06/041432 (PCT).
- 6) "Albumin based colloid (PEG-Alb with Cys-34 preserved as a thiol)" by RA Assaly, JI Shapiro and D Dignam through University of Toledo, #11/258,646 (continuation in part).
- 7) "Albumin based colloid composition (in vivo method claims)" by RA Assaly, JI Shapiro and D Dignam through University of Toledo, #11/387,381 (continuation).
- 8) "Na/K-ATPase ligand" by JI Shapiro and Z Xie through University of Toledo, #60/763,783 (provisional).
- 9) "Na/K-ATPase ligand" by JI Shapiro and Z Xie through University of Toledo, #US2007/002365 (PCT).
- 10) "Na/K-ATPase ligand-specific peptide inhibitors/activators in Src and Src family kinases" by Z Xie, JI Shapiro and J Tian through University of Toledo, #US8,283441 B2, Issued Oct 9, 2012.
- 11) "Na/K-ATPase ligand-specific peptide inhibitors/activators in Src and Src family kinases" by JI Shapiro, J Tian and Z Xie through University of Toledo, #60/855,482 (Provisional).

- 12) "PEG-Alb as a platform for antioxidants and other meds" by RA Assaly, JD Dignam and JI Shapiro. Provisional application #61/211,796 for IDF #D2009-48.
- 13) "Na/K-ATPase-Derived Peptide Src Inhibitor and Ouabain Antagonist" by Z Xie, Z Li, and JI Shapiro Provisional Patent Application Ser. No. 61/122,205.
- 14) "Na<sup>+</sup>/K<sup>+</sup>-ATPase Ligands, Ouabain Antagonists and Uses Thereof" by Z Xie, S Si, Z Zhang, and JI Shapiro Provisional Patent Application Ser. No. 61/243,036.

## Board Memberships

American Heart Association of Toledo: Board of Directors Member (2007-2012), President (2011-2012).  
Regional Growth Partnership of NW Ohio: Scientific Advisory Board Member (2007-present).  
ADS-Biotechnology: Board of Managers Chairman (2008-present).  
Accelerated Healing: Board of Managers Chairman (2008-present).  
Alliance for Paired Donation Board of Directors Member (2008-present).  
Promedica Health Systems Academic Health Center Board of Managers (2010-present).

## Spin Off Companies

SeeHear LLC (1992-1997, 1.5M in investment capitalization)  
Developed Graphical Electronic Stethoscope  
ADS-Biotechnology, LLC (> 1M in investment capitalization)  
Developed Pegylated Albumin as therapy for capillary leak  
Accelerated Healing, LLC  
Platform of products based on Na/K-ATPase signaling

## Grant Support (dollar amounts are approximate direct costs):

### Principal Investigator:

N.I.H. NRSA (1985-87) Energy Metabolism in Acute Renal Failure. L. Chan, Sponsor (\$60,000).  
American Heart Association Clinician Scientist Award (1988-92) NMR spectroscopy studies of systemic acidosis. R.W.Schrier, Sponsor. (\$250,000).  
Colorado Heart Association Beginning Grant in Aid (1988-89, 89-90, 90-91) NMR studies of systemic acidosis (Total \$65,000).  
Knoll Pharmaceuticals (1991-93) Use of a combination calcium channel blocker and ACE inhibitor in the progression of chronic renal failure (\$100,000).  
US Army Medical Research (1990-92) Interactions between hypoxia and acidosis: Implications for treatment of battlefield trauma. Co-PI R. Kucera (\$80,000).

Amgen Inc. Effect of erythropoietin on iron metabolism in ESRD patients. (1991-93). Co-PI P. Seligman. (\$80,000)

American Heart Association Established Investigator Award (1992-97) Energy metabolism during acidosis. (\$300,000).

Somatogen Inc. (1993-94) NMR studies of recombinant hemoglobin in the isolated heart. (\$30,000).

University Hospital. (1994-95) Treatment of hypertension in a managed care population Co-PIs M. Shapiro and C. Yucha (\$28,000).

Merck and Company. (1994-95) Matching Educational Grant Co-PIs M. Shapiro and C. Yucha (\$28,000).

Colorado Heart Association Standard Grant in Aid. (1996-98) Energetic effects of potassium depletion (\$60,000).

Merck and Company (1996-2001). Study of Losartan in the treatment of Type II Diabetic Nephropathy. Co-PI A. Alfrey (\$100,000).

Allos Therapeutics: Investigation into the mechanisms by which an allosteric modulator of hemoglobin saturation influences experimental acute renal failure. (1995-97) Co-PI T.J. Burke (\$65,000).

N.I.H. The National Analgesic Study Grant N01-DK-0-2400. (1999-2004) 3.5M. Direct Costs. JI Shapiro, PI. Multi-center trial examining the prevalence of analgesic nephropathy.

N.I.H. Contract (263-MA707136-1, 2008-2010). \$100,000 Direct Costs. JI Shapiro and D Malhotra Co-PIs. Single center pilot study examining effect of Digibind on blood pressure and oxidant stress in hemodialysis patients.

N.I.H. RO1 (HL109015, 2011-2015) \$450,000-500,000/year Direct Costs. JI Shapiro and Z Xie Co-PIs. Receptor Na/K-ATPase Antagonists As Novel Therapeutics For Renal/Cardiac Diseases.

Youbo Pharmaceuticals. 2012-present. \$250,000 Total Costs. JI Shapiro and Z Xie Co-PIs. Active component s of Shuxutong.

New Chapter, Inc. 2012-present. \$25,000 Total Costs. JI Shapiro and J Liu Co-PIs. Dermal production of collagen in response to cardiotonic steroids.

### *Co-Principal Investigator:*

Knoll Pharmaceuticals (1987-89) Prevention of the progression of chronic renal insufficiency with calcium channel blockers. PI: Robert W. Schrier, M.D., Dept. of Medicine, University of Colorado Health Sciences Center (\$120,000).

American Heart Association (1987-90). Detection of cardiac graft rejection with NMR spectroscopy. PI: Laurence Chan, M.D., Dept. of Nephrology, University of Colorado Health Sciences Center (\$135,000).

Colorado Heart Association (1990-91, 91-92 and 92-93). Monitoring of cytosolic sodium with Na NMR spectroscopy. PI: Robert Hutchison, Ph.D., Privately Employed (\$60,000).

Amgen Inc. Effect of erythropoietin on muscle energy metabolism in ESRD patients. (1991-93). PI: L. Chan, M.D. (\$40,000)

Whitaker Foundation (1993-96). Construction of a probe for NMR studies of Cell Suspensions. PI: R. Hutchison, Ph.D. (\$180,000).

N.I.H. Physician Scientist Award (1993-98). Evaluation of muscle cell energetics with <sup>31</sup>P NMR spectroscopy; implications for rehabilitation. PI: Michael Blei, M.D., Dept. of Rehabilitation, University of Colorado Health Sciences Center. Co-Sponsor with L. Chan (\$350,000).

N.I.H. Physician Scientist Award (1995-2000) Role of creatine kinase isoforms in cardiac energy metabolism. PI: Howard Weinberger, M.D., Dept. of Cardiology, Univ. of Colorado Health Sciences Center. Co-Sponsor with M. Benjamin Perryman (\$350,000).

N.I.H. Academic Investigator Award (1995-98) Role of the sympathetic nervous system in essential hypertension. PI: C. Yucha, Ph.D., R.N., Assoc. Dean for Research, Univ. of Florida School of Nursing. Co-Sponsor with S. Linas (\$210,000).

Allos Therapeutics: Effect of an allosteric modulator of hemoglobin saturation on experimental acute renal failure. PI: T.J. Burke, M.D., Dept. of Medicine, Univ. of Colorado (\$20,000).

Colorado Heart Association (1996-97) Role of creatine kinase isoforms in cardiac energy metabolism. PI: H. Weinberger (\$20,000).

N.I.H. SCOR (1996-1999) Impact of Injury on the Immature Pulmonary Circulation Grant# 1P50HL57144-01 Project 4: Oxidants, Energy and Pulmonary Vascular Development. PI: Carl White, M.D., Dept. of Pediatrics, Univ. of Colorado (\$550,000).

N.I.H. RO1 (2000-2004) Role of sodium pump in cardiac hypertrophy. HL63238. PI: Zijian Xie, Ph.D., Dept. of Pharmacology, Medical College of Ohio, Co-PI: JI Shapiro (\$800,000).

US Army (2001-2004) Use of pegylated albumin as a volume expander in systemic capillary leak. PI: Ragheb Assaly, M.D., Pulmonary/Critical Care Medicine, Medical College of Ohio. Co-PI: JI Shapiro (approx \$750,000 total but budget renegotiated on yearly basis )

N.I.H. RO1 (2002-2007) Role of ROS in uremic cardiomyopathy. HL67963. PI: Zijian Xie, Ph.D. Department of Pharmacology, Medical College of Ohio. Co-PI: JI Shapiro (approx \$1,000,000).

Centicor Corporation (2002-2006). RESIST. PI Christopher Cooper, Co-Investigator and PI for core lab, JI Shapiro, M.D. (approx 300,000 per year).

N.I.H. RO1 (2004-2012) Cardiovascular outcomes in renal atherosclerotic lesions (CORAL). PI Christopher Cooper, M.D., HL071556, National enrollment committee chairman and site co-PI, JI Shapiro, M.D. (approx 2.7M per year).

N.I.H. RO1 (2011-2016, 250K per year.). Na/K-ATPase reduction in renal disease-related cardiac dysfunction. PI – Jiang Tian, PhD, Co-I JI Shapiro, MD. HL105649.

## Honors and Awards:

Pi Mu Epsilon (Mathematics honor society, 1974)  
Graduated University of Pa. Magna cum Laude with distinction in Mathematics (1976).  
University of Medicine and Dentistry of New Jersey: Alpha Omega Alpha (1980).  
Georgetown University: Dudley P. Jackson Award (1983).  
NIH fellowship award (1985-87).  
American Heart Clinician-Scientist Award (1988-92).  
American Heart Association Established-Investigator Award (1992-97).  
Western Society for Clinical Investigation (1992).  
Medical College of Ohio Internal Medicine Faculty Teaching Award (1998).  
Central Society for Clinical Investigation (2000)  
American Society of Nephrology (1999). Chairman, Dialysis Hemodynamics Abstract Selection Committee.  
American Heart Association – Hypertension Fellow (2001).  
American Heart Association – Kidney Disease Fellow (2001)  
Fellow of the American College of Physicians (2001).  
Arnold P. Gold – Healthcare Foundation of New Jersey Humanism in Medicine Award (2002).  
Mercy Health Partners-Northern Region Endowed Chair of Excellence in Internal Medicine Education (2003).  
Fellow of the American Society of Nephrology (2004).  
St. Vs- UT Internal Medicine Excellence in Education Award (2009).  
America's Top Doctors (2009-present).  
America's Best Doctors (2009-present).  
Castle Connolly Top Doctors (2012-present).

## Society Memberships:

Society of Magnetic Resonance in Medicine  
International Society of Nephrology  
American Society of Nephrology (National Finance Committee, 2004-2006)  
Colorado Society of Nephrology  
American Association for the Advancement of Science  
American College of Physicians  
Western Society for Clinical Investigation  
Central Society for Clinical Investigation  
American Heart Association – Kidney in Cardiovascular Disease Council (Vice Chairman, 2007-2008)  
American Heart Association – High Blood Pressure Research  
American Society of Nephrology – Chronic Kidney Disease Advisory Group (2010-present)  
Association of Professors of Medicine  
Association of Program Directors in Internal Medicine

## Institutional Teaching Activities:

### University of Colorado

- 1981-1983 Clinical teaching as a resident/Dudley P. Jackson award as outstanding teaching resident (Georgetown University Hospital, 1983)
- 1984-1985 Active in ward teaching as a clinical Nephrology fellow (University of Colorado Hospital)
- 1985-1993 Small Group Section Group Leader, Renal Pathophysiology Course (University of Colorado). Participated in course design and implementation.
- 1986-1995 Course Director, Dialysis/Transplantation Core Lecture Series (University of Colorado). Wrote syllabus and organized mini-course for Nephrology fellows.
- 1993-1997 Overall Course Director, Renal Pathophysiology Course (University of Colorado). Wrote syllabus, designed course and examination for 2<sup>nd</sup> year med students.
- 1988-1997 Clinical Teaching, Nephrology Consult Service (University Hospital, University of Colorado). Taught 4<sup>th</sup> year med students, residents and fellows during out and inpatient clinical Nephrology service.
- 1988-1998 Clinical Teaching, Darley Internal Medicine Service (University Hospital, University of Colorado). (Taught 3<sup>rd</sup> and occasionally 4<sup>th</sup> year med students, residents and fellows during out and inpatient clinical internal medicine service.
- 1988-1995 Course Director, Clinical Case Nephrology Conference (University of Colorado). Developed and maintained weekly conference consisting of resident and fellow case presentations with group discussion.
- 1992-1997 Conference Director, City Wide Nephrology Rounds (University of Colorado). Organized and maintained a monthly conference schedule involving faculty and trainees of the University of Colorado along with private Nephrology attendings practicing in and around the city of Denver.

### University of Toledo (formerly Medical College of Ohio)

- 1997-present Clinical Teaching, Med V Service.  
Taught 3<sup>rd</sup> and 4<sup>th</sup> year medical students as well as interns, residents and fellows during clinical nephrology/internal medicine service. *Won Faculty Teaching Award, 1997-98.*
- 1997-present Dialysis attending.
- 1997-present Outpatient clinics.
- 1997-present Transplant nephrology attending (back up).
- 1997-present Systems Course Planning/Action Committee (MCO).



	Participated in the development and implementation of the new systems course.
1997-present	Renal System Planning/Action Sub-committee (MCO). Participated in the specific development and implementation of the renal section of the new systems course.
1997-present	Renal core curriculum lectures and conferences for students and residents.
1997-present	Renal journal clubs.
1997-present	Medical Grand Rounds.
1997-present	Physiology course lecture.
1997-present	Physician Assistant program lecture.
1997-present	Physical diagnosis course.
1997-present	Renal Grand Rounds.
1997-present	Renal Fellowship Program. Restarted renal fellowship program at MCO. Recruited fellows, developed and implemented curriculum for fellowship program.
1998-present	Pathophysiology Section Leader (MCO) Pathophysiology small group facilitator during the fall of 1998 in the new pathophysiology course for 1 <sup>st</sup> year med students.
1999-present	Residents' Morning Report (MCO) Morning report from residents each week at MCOH.
1999-present	Chairman's Rounds (MCO) Special teaching rounds with 3 <sup>rd</sup> and 4 <sup>th</sup> year students at MCOH each month.
1999-present	Professor's Rounds (St. Vincent's Hospital) Special teaching rounds with 3 <sup>rd</sup> and 4 <sup>th</sup> year med students as well as residents and fellows at St. Vincent's Hospital approximately every 3-4 weeks.
2001-2006	Mini-med school (course director) Oversee annual series of medical seminars for lay public.

### Invited Lectureships:

University of Colorado. 1987. Renal Grand Rounds. Alkalization therapy of metabolic acidosis.

University of Colorado. 1988. Medical Grand Rounds. Biomedical Applications of NMR Spectroscopy.

Aspen Renal Conference. 1988. Obstructive Uropathy.

Aspen Renal Conference. 1990. Treatment of Metabolic Acidosis.

US Army Conference on ICU Care, Ft. Gordon, Ga. 1991. Pathogenesis and treatment of metabolic acidosis.

Aspen Renal Conference. 1992. Clinical-pathological case studies of renal transplant patients.

University of Arizona. 1992. Medical Grand Rounds: Alkalization therapy of metabolic acidosis.

University of California at Los Angeles-Cedar Sinai Medical Center. 1992. Renal Grand Rounds. Alkalization therapy of metabolic acidosis.

American Society of Nephrology 1993. Therapy of anion-gap metabolic acidosis.

Washington Hospital Center Symposium on ICU Care 1994. (Washington, Pennsylvania). New treatments in acute renal failure.

University of Colorado. 1993. Medical Grand Rounds. Alkalization therapy of metabolic acidosis.

Fitzsimmons Army Medical Center. 1993. Pathogenesis and treatment of metabolic alkalosis.

Association of Dialysis Nurses and Technicians Annual Meeting. 1994. Prescription dialysis based on urea kinetics; is this approach rational?

US Navy at Bethesda Naval Hospital. 1995. Alkalization therapy as part of fluid resuscitation.

Medical College of Ohio. 1996. Medical Grand Rounds. Alkalization therapy of metabolic acidosis.

American Society of Nephrology. 1996. Acid-base disturbances in liver disease.

Medical College of Ohio. 1997. Medical Grand Rounds. Acid-base disturbances associated with liver disease.

Washington University (St. Louis, MO). 1997. Renal Grand Rounds. Effects of hypokalemia on cardiac energetics and function.

University of Colorado. 1997. Renal Grand Rounds. Energetic effects of hypokalemia.

Aspen Renal Conference. 1997. Acid-base disturbances associated with liver disease.

Breckenridge Controversies in Transplantation Conference. 1998. Acid-base disturbances associated with liver transplantation.

Roche Symposium on Hypertension Therapy (Troy, Michigan). 1998. Effects of hypokalemia on cardiac energetics and growth.

Medical College of Ohio. 1998. Medical Grand Rounds. Effects of hypokalemia on cardiac metabolism, function and growth.

The Toledo Hospital. 1998. Medical Grand Rounds. Effects of hypokalemia on cardiac metabolism, function and growth.

Medical College of Ohio. 1998. College Research Conference. Effects of hypokalemia on cardiac energetics and growth.

Medical College of Ohio. 1998. Renal Grand Rounds. Urea kinetics: What do they mean?

St. Vincent's Hospital. 1999. Ob-gyn Grand Rounds. Water metabolism in women; what every obstetrician/gynecologist needs to know.

Medical College of Ohio. 1999. Medical Grand Rounds. Effects of sodium pump inhibition on cardiac function and growth.

University of Colorado. 2000. Renal Grand Rounds. Uremic Cardiomyopathy.

George Washington University. 2000. Physiology Grand Rounds. Uremic Cardiomyopathy: new look at an old disease.

Merck "Cyberlecture Series": Treatment of Type II Diabetes: Focus on Dyslipidemia.

Medical College of Ohio. Medicine Grand Rounds. 2000. Uremic Cardiomyopathy: new look at an old disease.

Medical College of Ohio Symposium on Diabetes. 2000. Diabetic Nephropathy.

University of Colorado. 2001. Uremic Cardiomyopathy: New Look at an Old Disease.

Ohio Chapter ACPASIM Annual Scientific Mtg., Cleveland, OH. 2001. "Meet the Professor" session.

Henry Ford Hospital. 2001. Detroit, MI. Uremic Cardiomyopathy: New Look at an Old Disease.

Medical College of Ohio. 2001. Mini Med School lecture series. Body Chemistry, Blood Pressure.

Medical College of Ohio. 2001. Medicine Research Conference. Induction of sodium pump internalization of cardiac glycosides in proximal tubule cells.

MCP Hahnemann University, 2001. Renal Grand Rounds. Regulation of Proximal Tubule NaK-ATPase Activity by Digitalis Like Substances.

MCP Hahnemann University, 2001. Medicine Grand Rounds. Uremic Cardiomyopathy: New Look at an Old Disease.

National Institutes of Health (National Institute of Aging – Cardiovascular Division), 2002. Invited Lecture: Regulation of Proximal Tubule NaK-ATPase by Digitalis Like Substances.

Medical College of Ohio. 2002. Mini Med School lecture series. Body Chemistry, Blood Pressure.

Cincinnati ACP Meeting. 2002. Water Metabolism in Women.

University of Cincinnati. 2002. Medicine Grand Rounds. Uremic Cardiomyopathy: New Look at an Old Disease.

Breckenridge Transplant Conference. 2003. Cardiac disease in renal transplant recipients.

Beijing University. 2003. Renal Grand Rounds. Uremic Cardiomyopathy: New Look at an Old Disease.

Shanghai University. 2003. Renal Grand Rounds. Uremic Cardiomyopathy: New Look at an Old Disease.

Medical College of Ohio. 2003. Mini Med School lecture series. Body Chemistry, Blood Pressure.

Medical College of Ohio. 2003. Medicine Grand Rounds. Uremic Cardiomyopathy: New Look at an Old Disease.

St. Vincent Mercy Medical Center. 2003. Core Curriculum. Acute Renal Failure.

Medical College of Ohio. 2004. Department Research Conference. Endocytosis of the sodium pump in response to digitalis glycosides.

Ohio State University. Cardiology Grand Rounds. Uremic Cardiomyopathy.

Medical College of Ohio. 2004. Pathology Grand Rounds. Uremic Cardiomyopathy: New Look at an Old Disease.

Medical College of Ohio. 2004. Mini Med School lecture series. Body Chemistry, Blood Pressure.

Medical College of Ohio. 2004. Translational Research Symposium. Endocytosis of the Na/K-ATPase in response to cardiotonic steroids.

Medical College of Ohio. 2005. Medicine Research Conference. Uremic Cardiomyopathy.

Medical College of Ohio. 2005. Ob/Gyn Grand Rounds. Water Metabolism in Women.

University of Colorado. 2005. Renal Grand Rounds. Uremic Cardiomyopathy.

Copper Mountain CME Update for Family Medicine. 2005. Hypertension; current concepts.

Medical College of Ohio. 2004. Mini Med School lecture series. Body Chemistry, Blood Pressure.

Copper Mountain CME Update for Family Medicine. 2005. Role of renal failure in cardiovascular disease.

Tulane University. 2005. Medicine Grand Rounds. Uremic Cardiomyopathy.

Korotkov Symposium on Hypertension, St. Petersburg, Russia. 2005. Role Of Digitalis Like Substances In The Pathogenesis Of Uremic Cardiomyopathy.

University of Michigan. 2005. Renal Grand Rounds. Uremic Cardiomyopathy.

Fourth World Congress of Cellular and Molecular Biology. Poitiers, France. 2005. Role of Cardiotonic Steroids in the Pathogenesis of Cardiac Fibrosis.

Medical University of Ohio. 2005. 17<sup>th</sup> Annual Cardiovascular Disease Symposium. Renal and Heart Disease: An Emerging Connection.

West Virginia University. 2006. Medicine Grand Rounds. Uremic Cardiomyopathy.

CORAL Investigators' Meeting (Nashville, Tennessee, 2006). Challenges in patient enrollment.

CORAL Investigators' Meeting (Melbourne, Australia) 2007. Challenges in patient enrollment.

CORAL Investigators' Meeting (Auckland, New Zealand) 2007. Challenges in patient enrollment.

Breckenridge Transplant Conference (Breckenridge, Colorado) 2007. Recurrent renal disease as a cause of graft loss.

University of Toledo Health Science Campus. 2007. Surgery Grand Rounds. Digitalis – New Insights and Applications.

University of Toledo Health Science Campus. 2007. Medicine Research Conference. Uremic Cardiomyopathy.

Toledo Vascular Symposium. 2008. Treatment of ischemic vascular disease.

Medical University of South Carolina. 2008. Renal vascular disease; the case for the CORAL study.

University of Cincinnati. 2008. Renal vascular disease; the case for the CORAL study.

University of Toledo Health Science Campus. 2008. Medicine Grand Rounds. Uremic Cardiomyopathy.

Medical College of Wisconsin. 2008. Renal Grand Rounds. Uremic Cardiomyopathy.

Mercy Gilbert Medical Center. 2008. Cardiology Grand Rounds. Ischemic Nephropathy.

Akron General Hospital. 2009. Cardiology Grand Rounds. Ischemic Nephropathy: The CORAL Trial.

University of Toledo. 2009. Medicine Research Conference. Mechanism of action of spironolactone in the treatment of cardiac fibrosis.

Baxter Healthcare Inc. 2009. Development and Use of Pegylated Albumin for Capillary Leak.

Brown University. 2009. Spironolactone in Ischemic Renal Disease.

University of Toledo. 2009. Medicine Grand Rounds. Uremic Cardiomyopathy.

CORAL2 Planning Committee (Held in Toledo, OH) 2009. Cardiotonic Steroids and Ischemic Renal Disease.

University of Colorado. 2009. Renal Grand Rounds. Role of Cardiotonic Steroids in Natriuresis, Hypertension and Renal Fibrosis: Update on 3<sup>rd</sup> Factor.

University of Toledo Medical Grand Rounds. 2010. Role of Cardiotonic Steroids in Natriuresis, Hypertension and Renal Fibrosis: Update on 3<sup>rd</sup> Factor.

Breckenridge Transplant Conference 2010. Management Decisions in Renal Transplantation.

6<sup>th</sup> International Congress of Pathophysiology. 2010. Montreal, Canada. Cardiotonic steroids, hypertension and progressive renal injury.

International Conference on Aging. 2010. Pisa, Italy. Aging and the Kidney: Implications for Cardiovascular Disease.

National Institutes of Health. 2010. Bethesda, MD. Update on the CORAL study.

Cleveland Clinic Foundation: Cell Biology Grand Rounds. 2010. Cardiotonic steroids, natriuresis and hypertension. An update on 3<sup>rd</sup> factor.

University of Colorado. 2010. Professors' Rounds. Uremic Cardiomyopathy.

Wayne State University: 2010. Cardiotonic steroids, natriuresis and hypertension. An update on 3<sup>rd</sup> factor.

International Society of Nephrology Meeting, Vancouver, Canada. 2011. Cardiotonic steroids, renal fibrosis and hypertension.

Baxter International. Westlake, CA. 2011. Pegylated Albumin for systemic capillary leak.

Youbo Pharmaceuticals, Beijing, China. 2011. Pegylated Albumin for systemic capillary leak.

Youbo Pharmaceuticals, Beijing, China. 2011. Sodium pump signaling; a new platform for pharmaceutical development.

American Society for Biochemistry and Molecular Biology. Pacific Grove, CA, 2011. Cardiotonic steroids, Na/K-ATPase signaling and renal fibrosis.

American Society of Nephrology Meeting, Phila, PA. 2011. Cardiotonic steroids, renal fibrosis and hypertension.

American Society of Nephrology Meeting, Phila, PA. 2011. Renal Artery Stenosis (moderator).

Baxter Healthcare, Deerfield, IL. 2012. Pegylated albumin for systemic capillary leak.

University of Toledo Medicine Grand Rounds. Toledo, OH. 2012. Salt and Cardiovascular Disease: Do Cardiotonic Steroids Provide the Molecular Link?

Friendship Hospital. Beijing, China. 2012. Salt and Cardiovascular Disease: Do Cardiotonic Steroids Provide the Molecular Link?

Beijing University Hospital. Beijing, China. 2012. Salt and Cardiovascular Disease: Do Cardiotonic Steroids Provide the Molecular Link?

Zhejiang Academy of Medical Sciences. Hangzhou, China. 2012. Salt and Cardiovascular Disease: Do Cardiotonic Steroids Provide the Molecular Link?

American Society of Hypertension. New York, New York. 2012. Cardiac steroids and cardiac remodeling.

Cabel County Medical Society. Huntington, WV. 2012. New directions for the Marshall University College of Medicine.

Norval Carter Medical Society. Huntington, WV. 2012. Do cardiotonic steroids provide the molecular link between salt and CV disease?

West Virginia ACP Meeting. Stonewall Resort, WV. 2012. Water and Women: Management issues in hyponatremia specific to females.

Huntington City Club. Huntington, WV. 2012. Update on the Joan C Edwards School of Medicine.

Marshall University. Huntington, WV. 2012. Medicine Grand Rounds. Salt, cardiotonic steroids and progressive cardiovascular disease.

Marshall University. Huntington, WV. 2013. State of the Medical School Address.

Marshall University. Huntington, WV, 2013. Research in Progress. CTS, salt handling and oxidant signaling.

University of Toledo, Toledo, OH. 2013. Special Clinical Seminar: Water Metabolism and Women.

George Washington University, Washington, DC. 2013. Renal Grand Rounds. Are cardiotonic steroids the molecular link between dietary salt and cardiovascular disease?

## **Past and Current Research Trainees:**

<u>Trainee (years)</u>	<u>Project</u>	<u>Current Position</u>
Yeong Hau (Howard) Lien, M.D., Ph.D. (1986-1989)	Brain Organic Osmoles During Hypo and Hypernatremia	Chief, Division of Nephrology and Professor, U of Arizona
Deepak Malhotra, M.D., Ph.D. (1987-1990)	Pathophysiology of Cardiac Dysfunction during Metabolic Acidosis and Pathogenesis of Cyclosporine Nephrotoxicity	Director, Transplant Nephrology, Chief, Division of Nephrology and Professor of Medicine, Medical College of Ohio
Robert Hutchison, Ph.D. (1988-1990)	Use of NMR Spectroscopy to Monitor Cytosolic Na Concentration	Scientific Writer, Privately Employed
Eric Peterson, M.D. (1991-1994)	Effect of Hypokalemia on Cardiac Energy Metabolism and Function	Private Practice
Howard Weinberger, M.D. (1991-1994)	NMR studies of CK Knockout Mice Hearts During Stress	Professor of Medicine, Univ. of Colorado
Haoran Jin, Ph.D. (1991-1994)	Development of a 3 Dimensional Gradient Surface Coil for NMR Imaging	Research Professor, Univ of California at San Diego
Anita Corn, Ph.D. (1991-1996)	Development of NMR Surface Coil Imaging Techniques	Assistant Professor, University of Colorado at Denver
Thomas Rehring, M.D. (1994-1995)	Effects of Pharmacological Preconditioning on Cardiac pH Homeostasis During Ischemia	Vascular Surgeon, Private Practice

Michael Blei, M.D. (1994-1998)	Muscle Energetics and Rehabilitation Potential	Professor of Rehabilitation, Univ. of Colorado
Carolyn Yucha, Ph.D., R.N.	Assessment of Sympathetic Nervous System Activity in Hypertension	Dean UNLV School of Nursing
Sunita Dheenani, M.D. (1998-1999)	Autonomic dysfunction in the pathogenesis of dialysis hypotension	Private Practice of Nephrology
Jiang Liu, Ph.D. (1998-2001)	Effect of Hypokalemia on Cardiac Hypertrophy	Assistant Professor of Medicine, UT
Jie Chen, B.S. (1999-2000)	Effect of Sodium Pump Inhibition on Contractile Function and Cardiac Growth Responses	Master Degree 2000
Afaqque Ahktar, M.D. (1998-1999)	Assessment of Volume Shifts During Hemodialysis by Continuous Monitoring of Hematocrit Value	Private Practice of Internal Medicine
Zyed Gilani, M.D. (1998-1999)	Pathobiology of LVH in Hemodialysis Patients	Private Practice of Internal Medicine
Siva Karunakaran, M.D. (1999-2001)	Assessment of Volume Shifts During Hemodialysis by Continuous Monitoring of Hematocrit Value	Private Practice of Nephrology
Eiad Omran, M.D. 2000-2001	Effect of renal mass reduction on cardiac calcium cycling and contractile function.	Private Practice of Internal Medicine
Anand Ravindran, M.D. 2000-2002	Strain differences in hemodynamic responses to reductions in renal mass.	Private Practice of Nephrology
Anumeet Priyadarshi, M.D. 2000-2001	Effect of renal mass reduction on oxygen tensions and erythrocyte regulation.	Private Practice of Nephrology
Snigda Priyadarshi, M.D. 2000-2002	Effect of sodium pump inhibition on cardiac function and metabolism.	Private Practice
David Kennedy 2001-2006 (Ph.D.2005).	Effect of cardiac steroids on SERCA regulation and function.	Faculty position at Cleveland Clinic
Jalla Nadoor, M.D.	Identification and	Private Practice of Internal

2001-2002	characterization of an inhibitor of the Na pump from PD fluid	Medicine
Mustafa Aziz, M.D. 2001-2003	Development of a hemodialysis procedure for conscious rats	Research Assistant
Alaa Nadoor, M.D. 2002-2003	Mechanisms of NaK-ATPase endocytosis in proximal tubule cells	Private Practice of Vascular Medicine
Besher Kabak, M.D. 2002-2003	Regulation of NaK-ATPase in proximal tubule cells by endogenous cardiac glycosides	Private Practice of Internal Medicine
Shadi Oweis, M.D. 2002-2009	Effect of DLS on apical ion transport in proximal tubule cells	Ph.D. awarded 2010. Private Practice of Nephrology 2010.
Adnan Alsaka, M.D. 2003-2004	Effect of aldosterone on signal transduction through the	Private Practice of Nephrology
Riad Kesiry, M.D. 2003-2004 Master Degree 2004	Na/K-ATPase Proteomic studies of endosomal proteins important in Na/K-ATPase endocytosis	Private Practice of Internal Medicine
Mounir Khaled, M.D. 2003-2004	Effect of aerobic conditioning on DLS stimulated downregulation of Na/K-ATPase activity in proximal tubule cells	Private Practice of Internal Medicine
Sandeep Vetteth, M.D. 2003-2005, 2005-2011	Role of signal transduction through the Na/K-ATPase on diastolic dysfunction in uremic cardiomyopathy	Faculty in Nephrology (UT) 2010.
Yashaswi Belvadi, M.D. 2004-2005	Role of cardiac steroids in the cardiac fibrosis seen with experimental renal failure	Private Practice of Internal Medicine
Michael Garrett 2004-2006	Genetic mechanisms operant in proteinuria in the Dahl rat	Associate Professor of Medicine (University of Mississippi)
Jihad El-Kareh 2004-2008	Role of cardiotonic steroids in the pathogenesis of cardiac fibrosis in experimental renal failure	Pharmaceutical Company Scientist
Shalini Gupta 2005-present	Cross talk between ceacam-1 and sodium pump signaling	MD/PhD Student



Sleiman Smali 2005-2006	Role of cardiotonic steroids in wound healing	Ob/Gyn Physician 2010
Nasser El-Okdi 2006-2008	Role of cardiotonic steroids in wound healing	M.D. 2012
Steve Haller 2008-2012	Role of platelet derived proteins in progressive renal injury	Ph.D. 2012
Georgy Budnyy, MD 2008-2011	Role of cardiotonic steroids in cardiac fibrosis	Post-doctoral fellow
Yanling Yan 2009-2012	Role of endocytosis in sodium pump signaling	Ph.D. 2012
Christopher Drummond 2011-12	Effect of CTS on epigenetic changes in cellular phenotype.	Post-doctoral fellow

## Institutional Clinical Activities:

### University of Colorado

1986-1991	Director, Chronic Hemodialysis Service Developed treatment protocols and policies for care of chronic hemodialysis patients. Oversaw care of approximately 100 chronic hemodialysis patients.
1988-1995	Co-Director, Renal Transplant Physicians Developed treatment protocols and policies for care of renal transplant and combined renal/pancreas transplant patients. Involved in care of nearly 400 renal or renal/pancreas transplant patients during this time. Participated in the reestablishment and community marketing of the University Transplant program which had essentially shut down between 1987-88.
1995-1997	Director, Denver VA Transplant Clinic Developed treatment protocols and policies for care of renal transplant and renal/pancreas transplant patients at the Denver VAMC.
1996-1997	Renal Section Chief, Denver VA Medical Center

Oversaw educational and clinical care activities for patients with renal diseases at the Denver VAMC. Developed plan for maintaining in center hemodialysis unit during period of proposed downsizing (1995-97).

### University of Toledo

- 1997-1999 Renal Division Chief  
Oversaw educational and clinical care activities for patients with renal diseases at the Medical College of Ohio Hospitals. Established minority ownership for Department of Medicine and the associated physicians of the Medical College of Ohio (APMCO) in the newly formed Dialysis Partners free standing hemodialysis units (formerly Greenfield Dialysis Facilities of Toledo).
- 1999-1999 Acting Chairman, Department of Medicine  
1999-pres Chairman, Department of Medicine  
Oversee all research, clinical and administrative aspects for the Department of Medicine
- 2005-2006 Interim Chairman, Department of Physiology  
Oversee research and administrative aspects of Department of Physiology. Term ended with merger of Physiology and Pharmacology.
- 2006-pres Associate Dean for Business Development  
Oversee mergers/acquisitions/research partnerships for UT College of Medicine.

### Institutional Committee Work:

#### University of Colorado

- 1992-1997 Faculty Development Committee  
Participated in the development and implementation of mentoring guidelines to structure junior faculty career planning within the Department of Medicine.
- 1988-1997 Renal Transplant Service Committee  
Participated in the group which developed and implemented recipient and donor selection as well as protocol evaluation for renal and renal/pancreas transplantation.
- 1987-1997 Renal Division Fellowship Committee  
Participated in the recruitment and education of Nephrology fellows. Participated in the development and implementation of a Nephrology fellowship educational curriculum.
- 1988-1995 University Hospital End Stage Renal Disease CQI Committee (Chairman, 1992-95). Developed parameters to monitor and evaluate as indicators of the quality of ESRD treatment delivered at University Hospital. Chaired committee during JCAHO evaluation.
- 1996-1997 Renal Division Executive Committee

Participated as the VA representative to a three member committee overseeing the clinical and research activities of the University of Colorado Renal Division.

## University of Toledo

1997- 2000.	Faculty Development Committee. Participate in the planning and implementation of "Teach the Teachers".
1997- present.	Medicine Residency Review Committee Participate in the recruitment, curriculum development and implementation of the MCO Medical Residents and Subspecialty Fellows.
1998- 2000.	Institutional Animal Care and Utilization Committee Participate in the evaluation of research or teaching protocols utilizing animals.
1999- 2001.	Associate Physicians of Medical College of Ohio Executive Committee. Elected to 9 member committee to oversee reform of APMCO.
1999- 2004.	Associate Physicians of Medical College of Ohio Finance Sub-committee. Participate in the financial management of APMCO.
1998- 2004	Clinical Resource Utilization Committee. Participate in this recently formed organization developed to assess and improve utilization of clinical resources at MCO.
1999- 2004	Curriculum Committee. Development and maintenance of MCO medical school curriculum
1999- 2001.	Internal Referral Committee Development of approaches to obstacles for internal referral
1999-2005.	Clinical Strategic Planning Committee Oversee MCO's overall clinical strategic plan.
2000-2006.	MCO Cancer Research Center Advisory Board
2000-2009	Medical Student Research Committee. Evaluate summer fellowship applications.
2001-2004	MCO Strategic Planning Committee. Participate in the formulation of strategic plan for the institution.
2001-2003	MCO Cardiovascular task force (Chairman). Develop a business plan for developing an cardiovascular institute.
2001-2005	Mini-med school planning committee (Chairman and course director). Develop and implement a mini-med school course.
2001-present	MCO Bioinformatics Steering Committee. Participate in the direction of the MCO bioinformatics initiative.
2001-2006	MCO Bioinformatics Oversight Committee (Chairman). Develop goals, objectives and metrics for evaluating the bioinformatics program.
2001-2002	Value Analysis Committee.

	Evaluate hospital business decisions.
2002-2003	Patient Volume Committee. Evaluate obstacles to increasing patient volumes at MCOH.
2002-2006	Honorary Degree Committee. Select honorary degree recipients.
2002-2003	MCO President Search Committee. Search for a new President of the Medical College of Ohio.
2003-2005	APMCO restructuring task force. Develop guidelines for restructuring of the physicians' practice plan.
2003-2006	MCO President's Cabinet. Assist the President on making decisions regarding strategic planning.
2003-2008	Distinguished Lecturers Committee. Select outside speakers for selected lectures.
2003-2004	Chairman, Ob/Gyn Chair Search Committee. Identified Dr. Terrence Horrigan as chair of Ob/Gyn for MCO.
2003-2005	Chairman, Institutional Resources Self Study (LCME). Develop a report for LCME visit regarding institutional resources.
2003-2004	Pathology Chair Search Committee. Search for a new Pathology chair.
2004-2004	Dean Search Advisory Committee. Develop guidelines for MCO School of Medicine Dean Search.
2005-2008	Research Advisory Council. Advise Dean on research matters.
2005-2012	Clinical Advisory Council (Chairman). Advise Dean on clinical matters.
2005-2007	Task Force for Improving MCOP (physician professional organization).
2006-2012	UT Finance and Strategic Planning Committee. Develop financial plan and form strategy for merged UT/MUO
2006-2012	Provost advisory council. Advise provost on strategic planning and operations.
2006-2012	UT Strategic Planning Council. Advise president on strategic planning.
2006-2012	UT College of Medicine Leadership Committee. Advise Dean on academic matters.
2006-2011	UT Physicians Executive Committee. Represent Dean's office at UTP executive committee.
2007	Pathology Search Committee (Chairman) Identified Dr. Robert Mrak as chair for UT Pathology
2007-2012	Strategic Planning Committee for COM addressing research.
2007-2012	Strategic Planning Committee for COM addressing clinical enterprise.
2007-2012	Strategic Planning Committee for COM addressing economic development (Chairman).

2007-2012	University of Toledo Physicians managed care committee. Develop and negotiate contracts with 3 <sup>rd</sup> party payers (Chairman).
2008-2009	Physiology/Pharmacology Chairman Search Committee
2011-2011	Chair of Public Health Search Committee Selected Dr. Sheryl Miltz.
2011-2011	CMIO Search Committee Selected Dr. Carl Sirio.
2011-2012	UTP Executive Committee, Chairman Oversee executive committee of UTP
2011-2012	University of Toledo External Affairs Committee Advise UT Board of Trustees on external affairs of University

## Marshall University

2012-present	MU Senior Leadership Oversee direction of Marshall University
2012-present	UP&S Board of Directors (Chairman) Oversee direction of physician practice plan
2012-present	JCESOM LCME Preparation Committee Prepare for LCME visit as well as review accreditation standards
2012-present	GME Committee Oversee graduate medical education
2012-present	JCESOM Executive Committee Oversee functions of medical school
2012-present	JCE Cancer Center Oversee functions of cancer center
2012-present	JCESOM Strategic Planning (Chairman) Develop and implement strategic planning
2013-present	Marshall University Research Corporation Oversee research at Marshall University

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### Published Original Research Articles:

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3. Mills, S., U. Schwertschlag, J.I. Shapiro, L. Chan, and R.W. Schrier. 1986. Emopamil protects against warm and cold ischemia in the isolated rat kidney. *Transplant.* 43:928-930.
4. Shapiro, J.I., and L. Chan. 1987. P-31 nuclear magnetic resonance study of urinary obstruction in the rat. *J. Clin. Invest.* 80:1422-1427.
5. Shapiro, J.I., and L. Chan. 1987. In vivo determination of absolute molar concentrations of renal phosphorus metabolites using the proton concentration as an internal standard. *J. Mag. Reson.* 75:125-128.
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7. Shapiro, J.I., C.E. Haug, R. Weil,III, and L. Chan. 1987. P-31 nuclear magnetic resonance study of acute renal dysfunction in rat kidney transplants. *Mag. Res. Med.* 5:346-352.
8. Nakamoto, M., J.I. Shapiro, L. Chan, and R.W. Schrier. 1987. The invitro and invivo protective effect of atriopeptin III in ischemic acute renal failure in the rat. *J. Clin. Invest.* 80:698-705.
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14. Shapiro, J.I., C.E. Haug, R. Weil,III, and L. Chan. 1988. P-31 NMR study of renal allograft rejection in the rat. *Transplant.* 45:17-21.
15. Shanley, P.F., J.I. Shapiro, L. Chan, T.J. Burke, and G.C. Johnson. 1988. Acidosis and hypoxic medullary injury in the isolated perfused kidney. *Kidney Int.* 34:791-796.
16. Haug, C.E., J.I. Shapiro, R.L. Cosby, L. Chan, and R. Weil,III. 1988. P-31

- nuclear magnetic resonance spectroscopy of heart, heart-lung and kidney allograft rejection in the rat. *Transpl. Proc.* 20:848-855.
17. Nakamoto, M., J.I. Shapiro, S. Mills, R.W. Schrier, and L. Chan. 1988. Verapamil improves renal preservation by 24 hour cold perfusion in the isolated rat kidney. *Transplant.* 45:313-315.
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