CURRICULUM VITAE

Virginia J Savin, MD
Professor of Medicine
Division of Nephrology

Home Address: 3649 Pennsylvania Ave.
Kansas City, MO 64111
(414) 899-4955

Office Address: Kansas City VA Medical Center
4801 Linwood Blvd (Research 151)
Kansas City, MO 64128
E-mail: vjsavin@gmail.com
virginia.savin@va.gov

Place of Birth: Pittsburgh, Pennsylvania

Citizenship: USA

Education:

9/1962 - 5/1966	BA	Radcliffe College Cambridge, MA
6/1966 - 5/1970	MD	University of Pittsburgh Pittsburgh, PA

Postgraduate Training and Fellowship Appointments:

7/1970 - 6/1971	Medical Intern, DC General Hospital, (Georgetown Division), Washington, DC
7/1971 - 6/1972	Medical Resident, DC General Hospital, Washington, DC
7/1972 - 6/1973	Fellow, Pediatric Nephrology, Duke University, Durham, NC
7/1973 - 6/1975	Fellow, Nephrology, University of Washington, Seattle, WA

Faculty Appointments:

1975 - 1981	Medical Director, Renal Dialysis Unit, University of Kansas Medical Center, Kansas City, KS
1975 - 1982	Assistant Professor of Medicine, University of Kansas Medical Center, Kansas City, KS
1982 - 1987	Associate Professor of Medicine, University of Kansas
1984 - 1985	Visiting Associate Professor, Department of Physiology, Harvard Medical School, Boston, MA (sabbatical year in laboratory of Claude Lechene)
1987 - 1994	Professor of Medicine, University of Kansas Medical Center, Kansas City, KS

1994 - 2009	Professor, Department of Medicine, Division of Nephrology, Medical College of Wisconsin, Milwaukee, WI
2009-present	Professor, Department of Medicine Kansas City VA Medical Center Kansas City, MO

Administrative Appointments:

8/1994 – 8/2001	Chief, Division of Nephrology, Medical College of Wisconsin, Milwaukee, WI
8/1994 – 10/2002	Fellowship Director, Division of Nephrology, Medical College of Wisconsin, Milwaukee, WI
8/1994 – 8/2001	Member Hospital Advisory Committee, Froedtert Hospital, Milwaukee, WI
9/1994 – 9/1996	Clinical Practices Committee, Froedtert Hospital, Milwaukee, WI
9/1994 – 3/1995	Selection Committee, Dean School of Medicine, Medical College of Wisconsin
10/1994 – 10/1996	Executive Steering Committee, Medical College of Wisconsin
9/1996 – 6/1997	Long Range Planning Committee, Medical College of Wisconsin
6/1998 – 3/1999	Planning Committee, Research Building, Medical College of Wisconsin
7/2000 – 2/2001	Committee on Competencies in Graduate Medical Education, Medical College of Wisconsin
9/2000 – present	Research Affairs Committee, Medical College of Wisconsin
7/2002 – 6/2004	Human Research Review Committee, Medical College of Wisconsin
6/2003 – 6/2007	Data and Safety Monitoring Committee, MCW
2/2010 – present	Human subjects committee, KC VAMC

Specialty Boards and Certification:

Boards	Eligible or Certified	Issue Date	Expiration
American Board of Internal Medicine	Certified	10/1974	n/a
ABIM - Nephrology	Certified	6/1976	n/a
Licensure	**Number**	**Issue Date**	**Expiration**
Wisconsin	35796	07/1994	10/31/2011
Washington			03/24/2012
Missouri	20100008204	03/2010	01/31/2012

Honors and Awards:

12/1962 - 5/1966	National Merit Scholar, Radcliffe College
5/1966	BA Magna Cum Laude, Radcliffe College
1982 - 1987	Research Career Development Award, NIH

Memberships in Professional and Honorary Societies:

1978 - present	American College of Physicians

	1975 - present	American Heart Association, Council Member
	1975 - present	American Society of Nephrology
	1975 – present	National Kidney Foundation
	1975 - present	International Society of Nephrology
	1978 – present	Central Society for Clinical Research
	1984 - present	American Society of Clinical Investigation
Editorial Boards:	4/1990 – 7/2002	Journal of Laboratory and Clinical Medicine
	1/1994 – 1/2004	Seminars in Nephrology
	1/1997 – 1/2000	American Journal of Kidney Disease

National Elected/Appointed Leadership and Committee Positions:

7/1984 – 6/2001	American Heart Association, Council on the Kidney in Cardiovascular Disease, Member
12/1996 - 6/1998	American Heart Association, Council on the Kidney in Cardiovascular Disease, Nominating Advisory Group, Chair
11/1996 - 6/1998	American Heart Association, Council on the Kidney in Cardiovascular Disease Long Range Planning Committee
7/1998 - 6/2000	American Heart Association, Council on the Kidney in Cardiovascular Disease, Executive Committee Chairman
4-2002 – 2004	American Heart Association, Kidney Council and Hypertension Council Program committee Hypertension Research Meeting, - Member
1984	National Kidney Foundation, Fellowship Review Committee
1996 - 1997	National Kidney Foundation, Career Awards Review
1986 - 1988	Veterans Administration, Merit Review Board, Nephrology
2007- present	Veterans Administration, Merit Review Board, Nephrology
1980	NIH Site visitor: Program Project, San Antonio
1981	NIH Ad Hoc reviewer Path A
1992	NIH Site visitor: GCRC renewal, University of Minnesota
1993	NIH Reviewer O'Brian Centers
1995 – 2000	NIH Reviewer, NIDDK-D Special Grants Review Committee
2000 - 2003	NIH General Medicine B Review Committee
2003 –present	NIH ad hoc reviewer
1983	NIH Organizing Committee: Symposium on Renal Cell Biology 1982 - 1984

1985	NIH Organizing Committee: Symposium on Renal Vasculature
1995	NIH Symposium on Progressive Renal Disease, invited speaker
2000	NIH Symposium on Recurrent Disease in Transplantation, invited speaker
1995 – 1999	American Society of Nephrology, Training Program Directors Executive Committee, member

Regional/Local/Appointed Leadership and Committee Positions:

1978 - 1980	ESRD Network #9, Medical Review Board, Member
1980 - 1982	ESRD Network #9, Medical Review Board, Chairman
1982 - 1992	ESRD Network #9 and #12, Board of Directors, Member
1985-86, 1988-89	ESRD Network #9 and #12 Board of Directors, Chairman
1978 – 1992	American Heart Association, Kansas Affilitate, Research Committee, Executive Committee
1990 - 1992	Missouri Kidney Program, Scientific Advisory Committee Member
1995-1997	National Kidney Foundation, Wisconsin, Research Committee
2003-2004	Milwaukee Academy of Medicine, Program Committee
2007-present	Central society for Clinical Research Exec Committee

Clinical and Teaching Responsibilities (partial list):

1975-1994	University of Kansas Medical Center Ward attending with residents and nephrology fellows 3-5 months/year
1994-present	Medical College of Wisconsin Ward attending with medical students, residents and nephrology fellows 4-5 months/year
1994-2004	Clinical Correlation lectures in Physiology and Pathology Courses Second year medical students

2003-2007	Mentor, Medical Ethics, Masters in Bioethics students
1978-present	Univ. of Kansas and Medical College of Wisconsin, Mentor, Nephrology research, second and third year nephrology fellows, pre- and post-doctoral students

Research Grants, Contracts, Awards, Projects:

Title:	"Modulation of Ultrafiltration Coefficient"
Source:	NIH RO1 DK22040
Role:	Principal Investigator
Dates:	1979-1996
Direct Funds:	$90,000/year
Title:	"Etiologic Factor in Focal Segmental Glomerular Sclerosis"
Source:	NIH RO1 DK 43752
Role:	Principal Investigator
Dates:	1993-1997
Direct Funds:	$120,000/year
Title:	“Regulation of laminin synthesis in glomerular epithelial cells"
Source:	American Heart Association, Wisconsin Affiliate, Grant in Aid
Role:	Principal Investigator
Dates:	1996-1998
Direct Funds:	$50,000/year
Title:	“Purification of Etiologic Factor in FSGS”
Source:	American Society of Nephrology, Career Development Award
Role:	Principal Investigator
Dates:	1997-1998
Direct Funds:	$50,000
Title:	"Etiologic Factor in Focal Segmental Glomerular Sclerosis"
Source:	NIH RO1 DK43752-05A2
Role:	Principal Investigator
Dates:	1998-2001
Direct Funds:	$175,000/year
Title:	" Cytochrome P-450 and glomerular permeability "
Source:	NIH
Role:	Collaborator, PI - Ellen T McCarthy
Dates:	2004-2009
Direct Funds:	$250,000/year
Title:	" VPR and glomerulosclerosis "
Source:	MCW Research Affairs Committee
Role:	PI
Dates:	2004-2005
Direct Funds:	$25,000

Title:	"Cardiotrophin like cytokine 1 candidate for FSGS permeability factor"
Source:	NIH R21
Role:	PI
Dates:	2009-2011
Direct Funds:	$ 275,000

Title:	"Murine model of FSGS"
Source:	VA Merit
Dates:	2011-2015
Direct Funds:	Award pending final approval

ONGOING CLINICAL STUDIES (since 2002)

Studies of focal segmental glomerulosclerosis – collaboration with J Kopp, MD, National Institutes of Health, 2000 to present

Studies of collapsing glomerulopathy – collaboration with G Appel, MD, Columbia-Presbyterian Hospital, New York City, 2000 to present

FSGS Clinical Trial – NIH, NIH sponsored trial of therapy in steroid resistant FSGS, PI MCW site. 2004-2009.

NIH sponsored Glomerular Disease Consortium Concept and Development Planning Group – member, 2003 to present

Engage - Phase 3, Randomized, Double-Blind, Double-Dummy, Parallel Group, Multi-Center, Multi-National Study for Evaluation of Efficacy and Safety of DU-176b Versus Warfarin In Subjects with Atrial Fibrillation, Daiichi Sankyo
Pharmacy Development, Co-PI, 2010 to present

Regadenoson - A Phase 4, Multicenter, Double-Bind, Randomized, Placebo-controlled, Study of the Safety and Tolerance of Regadenoson in Subjects with Renal Impairment, PPD, INC. Co-PI, 2010 to present

DAPA - A Multicenter, Double-Blind, Placebo-Controlled, Parallel Group, Randomized, Phase 2/3 Trial to Evaluate the Glycemic Efficacy, Renal Safety, Pharmacokinetics, and Pharmacodynamics of Dapagliflozin in Subjects with Type2 Diabetes Mellitus and Moderate Renal Impairment Who Have Inadequate Glycemic Control. Bristol-Myers Squibb. Co-PI 2010 to present. KREMEZIN - A Phase III, Randomized, Double-Blind, Placebo-Controlled Study of AST-120 for Prevention of Chronic Kidney Disease Progression in Patients with Moderate to Severe Chronic Kidney Disease, Mitsubishi Pharma Corporation. Co-PI, 2010 to present.

CURRENT RESEARCH INTERESTS

My primary laboratory and clinical research interests have centered on the control of glomerular filtration and proteinuria. Projects designed to define the role of dynamic modulation of filtration parameters have been funded by the NIH and AHA from 1979 to the present. This funding included grants to me and my colleagues who are currently at the Medical College of Wisconsin. The concept that we pioneered is that the glomerular filtration barrier is controlled by the podocyte and that both physiological stimuli and pathologic agents can change the ultrafiltration coefficient and the macromolecular permeability in a rapid and reversible manner. Recent identification of nephrin and other components of the slit-pore junction has enhanced interest in the podocyte and supported our ideas about the cellular contribution to filtration. Recent investigation has focused on the cellular determinants of proteinuria in models of nephrotic syndrome, radiation injury, proteinuria in mutant and transgenic mice, diabetes mellitus, and HIV associated nephropathy. The role of eicosanoids including 20-HETE is the primary focus of my colleague Dr. McCarthy. New areas of investigation include: application of novel methods to measure the effect of several treatments on the podocyte, development of novel treatment for nephrotic syndrome, cellular effects of the injurious substance in recurrent focal glomerulosclerosis after renal transplantation, and potential protective roles of NO and of 20-HETE in glomerular injury.

I am also serving as co-PI in a number of industry sponsored clinical trials at the Midwest Biomedical Research foundation, Kansas City Veteran’s Administration Hospital, Kansas City, MO. My roles in these studies include administrative functions including preparing submissions to the IRB, recruitment of subjects, monitoring study patients and providing documentation of study visits, reporting adverse events to the IRB and to the data and safety monitoring committees of the parent trial, and assisting the study staff as required. Areas of study in these trials range from interventions aimed as progression of renal disease and management of patients with electrolyte disorders and renal disease, to control and monitoring of hyperglycemia and of anti-coagulation in Veteran patients. I anticipate that I will play an increasing role in these studies.

BIBLIOGRAPHY

Original Papers

1. Thomas JH, Pierce GE, Greathouse J, Hermreck AS, Diederich DA, Grantham JJ, Chonko AM, **Savin VJ,** Mebust WK, Cross DE: Renal Transplantation: A decade of experience. Kansas Med J 80:120-125, 1979
2. **Savin VJ:** Malignant hypertension J Kansas Med Soc 80:612, 1979
3. **Savin VJ,** Terreros DA: Filtration in single isolated mammalian glomeruli. Kidney Int 20:188-197, 1981
4. **Savin VJ,** Lindsley HB, Nagle RB , Cachia R: Ultrafiltration coefficient glomerular capillary resistance in a model of immune complex glomerulonephritis. Kidney Int 21:28-35, 1982
5. **Savin VJ,** Patak RV, Marr G, Hermreck AS, Ridge SM, Lake K: Glomerular hydraulic conductance after ischemic renal injury in dogs. Circ Res 53:439-447, 1983
6. **Savin VJ:** Ultrafiltration in single isolated human glomeruli. Kidney Int 24:749-753, 1983
7. Ridge SM, Patak R, **Savin VJ**: Decreased ultrafiltration coefficient of glomeruli isolated from volume depleted rats. J Lab Clin Med 103:363-372, 1984
8. **Savin VJ**, Karniski L, Cuppage F, Hodges G, Chonko, A: Effect of gentamicin on isolated glomeruli and proximal tubules of the rabbit. Lab Invest 52:93-102, 1985
9. Wiegmann TB, Stuewe B, Duncan KA, Chonko AM, Diederich DA, Grantham JJ, **Savin VJ**, MacDougall ML: Effective use of streptokinase for peritoneal catheter failure. Am J Kidney Dis 6:119-123, 1985
10. **Savin VJ**, Beason-Griffin C, Richardson, WP: Ultrafiltration coefficient of isolated glomeruli of rats aged 4 days co-maturation. Kidney Int 28:926-931, 1985
11. Pinnick RV, **Savin VJ**: Filtration by superficial and deep glomeruli of normovolemic and volume-depleted rats. Am J Physiol I 250:F86-F91, 1986
12. Lohr JW, MacDougall ML, Chonko AM, Diederich DA, Grantham JJ, **Savin VJ**, Wiegmann TB: Percutaneous transluminal angioplasty in transplant renal artery stenosis: Experience and review of literature. Am J Kidney Dis 7:363-367, 1986
13. Duncan KA, Seaton RD, **Savin VJ:** Filtration by rat glomeruli following expansion of extracellular fluid volume. J Lab Clin Med 108:309-314, 1986
14. **Savin VJ**: *In vitro* effects of angiotensin II on glomerular function. Am J Physiol 251:F627-F634, 1986
15. Richardson WP, Hassanien R, Pinnick RV, **Savin VJ:** Ultrafiltration coefficients of glomeruli from human biopsies. Kidney Int 34:845-852, 1988
16. Rome L, **Savin V**, Grantham J, Lechene C: Volume regulation in proximal S_2 segments: Intracellular ion changes following hypo-osmotic challenge. FASEB A839, 1988
17. **Savin VJ,** Seaton RD, Richardson WP, Duncan KA, Beason-Griffin C, Ahnemann J: Dietary protein and glomerular response to subtotal nephrectomy in the rat. J Lab Clin Med 113:41-49, 1989

18. Celsi G, Larsson L, Seri I, **Savin V**, Aperia A: Glomerular adaptation in uninephrectomized young rats. Ped Nephrol 3:280-285, 1989
19. Rome L, Grantham J, **Savin V**, Lohr J, Lechene C: Proximal tubule volume regulation in hyperosmotic media: Intracellular K^+, Na^+ and Cl^-. Am J Physiol 26:C1093-C1100, 1989
20. Wiegmann TB, Sharma R, Diederich DA, **Savin VJ**: *In vitro* effects of cyclosporine on glomerular function. Am J Med Sci 299:149-152, 1990
21. Wiegmann TB, MacDougall ML, **Savin, VJ**: Glomerular effects on angiotensin II require intrarenal factors. Am J Physiol 258:F717-F721, 1990
22. Celsi G, **Savin VJ**, Henter JI, Sohtell M: The contribution of ultrafiltration pressure for glomerular hyperfiltration in young nephrectomized rats. Acta Physiol Sca 141:483-487, 1991
23. Ellis EN, Wiegmann TB, **Savin VJ**: Diminished glomerular capillary function hydraulic conductivity precedes morphologic changes in experimental diabetes mellitus in the rat. Diabetes 41:1106-1112, 1992
24. Sharma R, Lovell HB, Wiegmann TB, **Savin VJ**: Vasoactive substances induced cytoskeletal changes in cultured glomerular epithelial cells. J Am Soc Nephrol 3:1131-1138, 1992
25. **Savin VJ,** Sharma R, Lovell HB, Welling, DJ: Measurement of albumin reflection coefficient with isolated rat glomeruli. J Am Soc Nephrol 3:1260-1269, 1992
26. **Savin VJ**: Mechanisms of proteinuria in non-inflammatory glomerular disease. Am J Kidney Dis 21:347, 1993
27. Dileepan KN, Sharma R, Stechschulte D, **Savin VJ:** Effect of superoxide exposure on albumin permeability of isolated rat glomeruli J Lab Clin Med 121:797-804, 1993
28. **Savin VJ,** Johnson RJ, Couser WJ: C5b-9 increases albumin permeability of isolated glomeruli *in vitro* Kidney Int 46:382-387, 1994
29. Li JZ, Sharma R, Dileepan KN, **Savin VJ:** Polymorphonuclear leukocytes increase glomerular albumin permeability via hypohalous acid. Kidney Int 46:1025-1030, 1994
30. Artero ML, Sharma R, **Savin VJ**, Vincenti F: Plasmapheresis reduces proteinuria, serum capacity to injure glomeruli in patients with recurrent focal glomerulosclerosis. Am J Kidney Dis 23:574-581, 1994
31. Lovell H, Sharma R, **Savin V:** Sodium nitroprusside increases hydraulic conductivity of isolated rat glomeruli. J Lab Clin Med 125:450-455, 1995
32. **Savin VJ,** Sharma R, Sharma M, McCarthy ET, et al: Circulating factor increasing glomerular permeability in recurrent focal segmental glomerulosclerosis. N Engl J Med 334:878-883, 1996
33. Sharma R, **Savin VJ:** Cyclosporine prevents the increase in glomerular albumin permeability caused by serum from patients with focal segmental glomerular sclerosis. Transplantation 61: 381-383, 1996
34. Sharma R, Suzuki K, Nagase H, **Savin VJ**: Matrix metalloproteinase -3 (stromelysin) increases albumin permeability of isolated rat glomeruli. J Lab Clin Med, 129:298-303, 1996
35. Sharma R, Sharma M, Ge XL, McCarthy ET, **Savin VJ**: Cyclosporine protects glomeruli from FSGS factor via an increase in glomerular cAMP. Transplantation 62:1916-20, 1996

36. Adler S, Sharma R, **Savin VJ**: Alteration of glomerular permeability to macromolecules induced by cross-linking of β_1 integrin receptors. Am J Path 149:987-996, 1996

37. Sharma M, Li JZ, Sharma R, Artero M, Ge XL, McCarthy ET, Wang HY, **Savin VJ**: Inhibitory effect of Tripterygium wilfordii multiglycosides on increased glomerular permeability in vitro. Nephrol Dial Transplant, 12: 2064-2068, 1997

38. Sharma R, Sharma M, Li JZ, McCarthy ET, **Savin VJ**: Direct effect of platelet activating factor on glomerular capillary permeability. Kidney and Blood Pressure Res 20:25-30, 1997

39. Ellis EN, Warady BA, Wood EG, Hassanein R, Richardson WP, Lane PH, Howard C, Kemp SF, Aceto T, Garibaldi L, Wiegmann TR, **Savin VJ**: Renal structural-functional relationships in early diabetes mellitus. Pediatr Nephrol 11: 584-591, 1997

40. Ahluwalia N, Skikne BS, **Savin VJ**, Chonko A: Markers of masked iron deficiency and effectiveness of EPO therapy in chronic renal failure. Am J Kidney Dis 30:4 532-541, 1997

41. McCarthy ET, Sharma R, Sharma M, Li JZ, Ge XL, Dileepan KN, **Savin VJ**: Tumor necrosis factor α increases albumin permeability of isolated rat glomeruli through generation of superoxide. J Am Soc Nephrol: 9: 433-438, 1998

42. Sharma M, Sharma R, Greene AS, McCarthy ET, **Savin VJ**: Documentation of angiotensin II receptors in glomerular epithelial cells. Am J Physiol Renal, 274(3 Pt 2): F623-F627, 1998

43. Feld SM, Figueroa P, **Savin V**, Nast CC, Sharma R, Sharma M, Hirschberg R, Adler SG: Plasmapheresis in the treatment of steroid-resistant focal segmental glomerulosclerosis in native kidneys. Am J Kidney Dis 32(2): 230-237, 1998

44. Hariharan, S, Peddi, VR, **Savin, V**, Johnson, C, First, MR, Roza, A, Adams, M: Recurrent and De Novo Renal Diseases After Renal Transplantation: A report from the Renal Allograft Disease Registry (RADR) . Am J Kid Dis, 31: 928-931, 1998

45. Trachtman H, Futterweit S, Singhal PC, Franki N, Sharma M, Sharma R, **Savin V**: Circulating factor in patients with recurrent focal segmental glomerulosclerosis post-renal transplantation inhibits expression of inducible nitric oxide synthase and nitric oxide production by cultured rat mesangial cells. J Inv Medicine 47: 114-120, 1999

46. Sharma M, Sharma R, McCarthy ET, **Savin VJ:** "The FSGS Factor:" Enrichment and in vivo effect of activity from focal segmental glomerulosclerosis plasma. J Am Soc Nephrol 10: 552-561, 1999

47. Sundaram Hariharan, **Savin VJ:** Recurrent and de novo glomerular diseases after renal transplantation. Graft 2: S113-S118, 1999

48. Sharma R, Khanna A, Sharma M, **Savin VJ:** Transforming growth factor-beta1 increases albumin permeability of isolated rat glomeruli via hydroxyl radicals. Kidney Int Jul;58(1):131-6, 2000

49. Sharma R, Sharma M, McCarthy ET, Ge XL, **Savin VJ**:Components of normal serum block the focal segmental glomerulosclerosis factor activity in vitro. Kidney Int 58:1973-9, 2000

50. Sharma M, Sharma R, Ge XL, Fish BL, McCarthy ET, **Savin VJ**, Cohen EP, Moulder JE: Early detection of radiation-induced glomerular injury by albumin permeability assay. Radiation Research 155:474-80, 2001

51. Sharma R, Sharma M, Vamos S, **Savin VJ**, Wiegmann TB: Both subtype 1 and 2 receptors of angiotensin II participate in regulation of intracellular calcium in glomerular epithelial cells. J Lab Clin Med 138:40-49, 2001

52. Sharma M, Sharma R, Reddy SR, McCarthy ET, **Savin VJ**: Proteinuria after injection of human focal sclerosis factor. Transplantation 73: 366-372, 2002

53. Sharma R, Sharma M, Datta PK, **Savin VJ**: Induction of metallothionein-1 protects glomeruli from superoxide-mediated increase in albumin permeability. Exp Biol Med 227:26-31, 2002

54. Cattran D, Neogi T, McCarthy ET, **Savin VJ**, Sharma R: Serial estimates of serum permeability activity and clinical correlates in patients with native kidney focal segmental glomerulosclerosis. J Am Soc Nephrol 14:448-53, 2003

55. **Savin VJ**, McCarthy ET, Sharma M: Permeability factors in FSGS - Invited review. Semin Nephrol, 23: 147-160, 2003

56. Sharma M, Sharma R, McCarthy ET, **Savin VJ**: The focal segmental glomerulosclerosis permeability factor: biochemical characteristics and biological effects. Exp Biol Med 229: 85-98, 2004

57. McCarthy ET, Sharma M, Sharma R, Falk RJ, Jennette JC, **Savin VJ**: Effect of serum from patients with collapsing glomerulopathy on albumin permeability. J Lab Clin Med 143:225-229, 2004.

58. Hariharan S, **Savin VJ**: Recurrent and de novo disease after renal transplantation: a report from the Renal Allograft Disease Registry. Pediatr Transplant 8:349-50, 2004

59. Trachtman H, Greenbaum LA, McCarthy ET, Sharma M, Gauthier BG, Frank R, Warady B, **Savin VJ** Glomerular permeability activity: prevalence and prognostic value in pediatric patients with idiopathic nephrotic syndrome. Am J Kidney Dis 44:604-10, 2004

60. Dahly-Vernon AJ, Sharma M, McCarthy ET, **Savin VJ**, Roman RJ: Transforming growth factor-beta, 20-HETE interaction, and glomerular injury in Dahl salt-sensitive rats. Hypertension, 45:643-8, 2005.

61. Hussain S, **Savin V**, Piering W, Tomasi J, Blumenthal S. Phosphorous-enriched hemodialysis during pregnancy: Two case reports. Hemodial Int. 9: 147-52, 2005.

62. Gohh RY, Yango AF, Morrissey PE, Gautam A, Sharma M, McCarthy ET, **Savin VJ**: Preemptive plasmapheresis to prevent recurrence of FSGS in high-risk renal transplant recipients. Am J Transplantation, 5:2907-12, 2005.

63. Sharma R, Sharma M, Reddy S, **Savin VJ**, Nagaria AM, Wiegmann TB. Chronically increased intrarenal angiotensin II causes nephropathy in an animal model of type 2 diabetes. Front Biosci. 11: 968-76, 2006.

64. Sharma M, McCarthy ET, **Savin VJ**, Lianos EA: Nitric oxide preserves the glomerular protein permeability barrier by antagonizing superoxide. Kidney Int ,68:2735-44, 2006.

65. Sharma M, McCarthy E, Sharma R, Fish B, **Savin V**, Cohen E, Moulder J. Arachidonic acid metabolites mediate the radiation-induced increase in glomerular albumin permeability. Exp Biol Med, 231:99-106, 2006.

66. Srivastava T, Garola RE, Kestila M, Tryggvason K, Ruotsalainene V, Sharma M, **Savin VJ**, Jalanko H, Warady BE. Recurrence of proteinuria following renal transplantation in congenital nephrotic syndrome of the Finnish type. Pediatr Nephrol 21:711-8., 2006.

67. Sharma R, Prasad V, McCarthy ET, **Savin VJ**, Dileepan KN, Stechschulte DJ, Lianos E, Wiegmann T, Sharma M. Chymase increases glomerular albumin permeability via protease-

activated receptor-2. Mol Cell Biochem. 297:161-9. 2007.

68. Aggarwal N, Batwara R, McCarthy ET, Sharma R, Sharma M, **Savin V**J. Serum permeability activity (P_{alb}) in minimal Change Nephrotic syndrome is permanently lost after successful treatment of Hodgkin's disease. Am J Kidney Dis, 2007.
69. **Savin VJ**, McCarthy ET, Sharma R, Charba D, Sharma M. Galactose binds to focal segmental glomerulosclerosis permeability factor and inhibits its activity. Transl Res. 2008 Jun;151(6):288-92.
70. Sharma M, Halligan BD, Wakim BT, **Savin VJ**, Cohen EP, Moulder JE. The Urine Proteome as a Biomarker of Radiation Injury. Proteomics Clin Appl. 2008 Jun 18;2(7-8):1065-1086.
71. Charba DS, Wiggins RC, Goyal M, Wharram BL, Wiggins JE, McCarthy ET, Sharma R, Sharma M, **Savin VJ**. Antibodies to protein tyrosine phosphatase receptor type O (PTPro) increase glomerular albumin permeability (P(alb)). Am J Physiol Renal Physiol. 2009 Jul;297(1):F138-44.
72. Sharma M, Zhou Z, Miura H, Papapetropoulos A, McCarthy ET, Sharma R, **Savin VJ**, Lianos EA. ADMA injures the glomerular filtration barrier: role of nitric oxide and superoxide. Am J Physiol Renal Physiol. 2009 Jun;296(6):F1386-95.
73. **Savin VJ**, Sharma M. Plasma "factors" in recurrent nephrotic syndrome after kidney transplantation: causes or consequences of glomerular injury? Am J Kidney Dis. 2009 Sep;54(3):406-9.
74. Sharma M, McCarthy ET, Reddy DS, Patel PK, **Savin VJ**, Medhora M, Falck JR. 8,9-Epoxyeicosatrienoic acid protects the glomerular filtration barrier. Prostaglandins Other Lipid Mediat. 2009 Jun;89(1-2):43-51.
75. Peyser A, Machardy N, Tarapore F, Machardy J, Powell L, Gipson DS, **Savin V**, Pan C, Kump T, Vento S, Trachtman H. Follow-up of phase I trial of adalimumab and rosiglitazone in FSGS: III. Report of the FONT study group. BMC Nephrol. 2010 Jan 29;11:2
76. Joy MS, Gipson DS, Powell L, MacHardy J, Jennette JC, Vento S, Pan C, **Savin V**, Eddy A, Fogo AB, Kopp JB, Cattran D, Trachtman H. Phase 1 trial of adalimumab in Focal Segmental Glomerulosclerosis (FSGS): II. Report of the FONT (Novel Therapies for Resistant FSGS) study group. Am J Kidney Dis. 2010 Jan;55(1):50-60.
77. Sharma M, Halligan BD, Wakim BT, **Savin VJ**, Cohen EP, Moulder JE. The urine proteome for radiation biodosimetry: effect of total body vs. local kidney irradiation. Health Phys. 2010 Feb;98(2):186-95.
78. Saleh MA, Boesen EI, Pollock JS, **Savin VJ**, Pollock DM. Endothelin-1 increases glomerular permeability and inflammation independent of blood pressure in the rat. Hypertension. 2010 Nov;56(5):942-9.
79. McCarthy ET, Sharma M, **Savin VJ**. Circulating permeability factors in idiopathic nephrotic syndrome and focal segmental glomerulosclerosis. Clin J Am Soc Nephrol. 2010 Nov;5(11):2115-21.

CHAPTERS and **REVIEWS**:

1. Buck RW, **Savin VJ,** Miller RE, Caul WF: Communication of affect through facial expressions in humans. In Nonverbal Communication Oxford University Press, New York, 1974

2. **Savin VJ,** Siegel L, Schreiner G: Nephropathy in heroin addicts with staphylococcal septicemia. In Glomerulonephritis P Kincaid-Smith, TH Mathew and EL Becker, eds John Wiley & Sons, New York, p 397, 1974
3. Striker GE, **Savin VJ,** Agodoa L, Killen P: Glomerular cells *in vitro*. In Contributions to Nephrology GM Berlyne, B Shea, S Giovannette, eds S Karger, Switzerl, 1976
4. Striker GE, **Savin VJ,** Agodoa L, Quadracci LD: *In vitro* basal lamina synthesis by human glomerular epithelial and mesangial cells, evidence for post-translational heterogeneity. In Biology and Chemistry of Basement Membranes Acadamic Press, Inc1978
5. **Savin VJ:** The use of video imaging techniques to study ultrafiltration and blood flow in the normal and diseased kidney. In The International Review of Experimental Pathology, Renal Disease, 30:321-355, 1988
6. **Savin VJ**: Fabry's disease. In The Principles and Practice of Nephrology HR Jacobson, GE Striker, S Klahr, eds BC Decker, Philadelphia, pp 390-394, 1991, 1996
7. **Savin VJ,** Hariharan S: Recurrent focal segmental glomerulosclerosis and other glomerular diseases after renal transplantation. Current Therapy in Nephrology and Hypertension, 1997, Ed RJ Glassock
8. Piering WF, **Savin VJ:** Fabry's Disease. Current Therapy in Nephrology, Current Therapy in Nephrology and Hypertension, 1997, Ed RJ Glassock

BOOKS

1. New *in vivo and in vitro* Imaging Techniques: International Review of Experimental Pathology, Vol 36, 1996 Editors: **Savin VJ**, Wiegmann TB
2. Kochar's Textbood of Medicine: Editors: Kochar M, et al **Savin VJ,** editor for Nephrology Section, in press, 2007.

ABSTRACTS

1. **Savin VJ**, Grantham JJ: Glomerular filtration in isolated glomeruli. Clin Res 25:597A, 1977
2. **Savin VJ:** Glomerular filtration in isolated glomeruli. Proc Am Soc Nephrol 120A, 1977
3. Chonko AM, **Savin VJ,** Stewart R, Karniski L, Cuppage F, Hodges G: The effects of gentamicin on renal function in the mature vs immature rabbit. Kidney Int 16:772, 1979
4. **Savin VJ,** Patak RV, Marr G: Effect of ischemia on ultrafiltration coefficient in isolated dog glomeruli. Clin Res 27:669A, 1979
5. **Savin VJ,** Patak RV, Marr G: Glomerular filtration in ischemic renal failure. Kidney Int 16:776, 1979
6. **Savin VJ,** Terreros D, Lindsley B: Filtration in isolated glomeruli from rats with glomerulonephritis. Kidney Int 16:788, 1979
7. Cachia R, **Savin VJ,** Patak RV, Ridge SM: Effect of mercuric chloride ($HgCl_2$) and uranyl nitrate (UN) on ultrafiltration coefficient (K_f) in isolated glomeruli. Kidney Int 19:236, 1981
8. Ridge SM, Patak RV, **Savin VJ:** Effect of salt depletion and hemorrhage on ultrafiltration coefficient (K_f) in isolated glomeruli. Clin Res 29:474A, 1981
9. **Savin VJ,** Patak RV, Beason C: Ultrafiltration coefficient of human glomeruli. Abstracts of the International Congress of Nephrology Athens, Greece, June, 1981

10. **Savin VJ**, Patak RV: Variation of ultrafiltration coefficient with glomerular size in six mammalian species. Kidney Int 21:247, 1981
11. Pinnick RV, **Savin VJ:** Hydraulic conductance (L_pA) of superficial and juxtamedullary glomeruli of euvolemic and hypovolemic rats. Fed Proc 41:4316, 1982
12. **Savin VJ,** Richardson WP, Pinnick RV: Glomerular ultrafiltration coefficient in human renal disease. Kidney Int 23:248, 1983
13. **Savin VJ,** Beason C, Pinnick R: *In vitro* determination of maturational changes in glomerular ultrafiltration coefficient in developing rats. Ped Res 17:365A, 1983
14. Geiser J, **Savin V:** Glomerular ultrastructural alterations in established ischemic renal failure in dogs. Presented to the Central States Electron Microscopy Society, 1983
15. **Savin VJ,** Seaton RD, Duncan K, Beason-Griffin C, Ahnemann J: Increased K_f after renal ablation in a consequence of glomerular hypertrophy. Proc Am Soc Nephrol 154A, 1983
16. **Savin VJ,** Duncan KA, Seaton R: Plasma volume expansion increases the hydraulic conductivity of superficial but not deep glomeruli. 9th International Congress of Nephrology, 1984
17. **Savin VJ:** Effects of angiotensin II on glomerular function in vitro. Kidney Int 27:299, 1985
18. **Savin VJ,** Harris RC, Seifter JL, Brenner BM, Lechene C: Hypotonicity causes net efflux of K and Cl in normal rat renal proximal tubular cells (RPTC) and net efflux of Na and Cl in Na loaded RPTC. Kidney Int 29:406, 1986
19. **Savin VJ,** MacDougall ML, Wiegmann TB: Effect of angiotensin II (AII) on hemodynamics and ultrafiltration coefficient (K_f) in the isolated perfused rat kidney (IPK) . Clin Res 34:938, 1986
20. Harris RC, **Savin VJ**, Lechene C: Rat renal proximal tubular cells (RPTC) increase net ionic content following return to isotonicity from hypotonicity. Kidney Int 31:435, 1987
21. Richardson WP Pinnick RV Beason-Griffin CL, **Savin VJ:** Correlation of glomerular ultrafiltration coefficient with structure and function in human renal disease. Kidney Int 31:392, 1987
22. **Savin VJ**, Beason-Griffin CL: Ultrafiltration coefficient of isolated glomeruli is diminished after systemic infusion of angiotensin II. Kidney Int 31:426, 1987
23. Wiegmann TB, McDougall ML, **Savin VJ:** Effect of angiotensin II (AII) on hemodynamics and ultrafiltration coefficient (K_f) in the isolated perfused rat kidney (IPK) . Kidney Int 31:427, 1987
24. Celsi G, Larsson L, Seri I, **Savin V:** Glomerular adaptation after unilateral nephrectomy in infancy. Kidney Int 33:409, 1988
25. Rome L, Lechene C, **Savin V**, Grantham J: Critical role of short-chain fatty acids in isovolumetric regulation (IVR) of proximal S_2 segments in hyperosmotic media. Kidney Int 33:438, 1988
26. Sharma R, Diederich DA, Wiegmann TB, **Savin VJ:** Cyclosporine A causes glomerular contraction and decreases ultrafiltration coefficient of isolated rat glomeruli. Clin Res 36:597A, 1988

27. Celsi G, **Savin VJ:** Atrial natriuretic peptide increases glomerular capillary hydraulic permeability independent of hemodynamics. Clin Res 36:593A, 1988
28. **Savin V**, Ellis E: Enalapril (EN) does not normalize glomerular function in long-term experimental diabetes. Diabetes 37:12A, 1988
29. Rome L, **Savin V,** Grantham J, Lechene C: Volume regulation in proximal S_2 segments: Intracellular ion changes following hypo-osmotic challenge. Fed Proc 2:A829, 1988
30. Wiegmann T, MacDougall M, **Savin V**: Protein restriction prevents renal and glomerular hypertrophy after nephrectomy in growing rats. Clin Res 36:529A, 1988
31. Celsi G, Bohman SO, **Savin V**, Henter JI, Sohtell M: Long-term effect of lowering ultrafiltration pressure (P_{uf}) with calcium-channel blocker in the remnant kidney in young rats. Int Soc Ped Nephrol, 1988
32. Rome L, Grantham J, **Savin V**, Lechene C: Volume regulation in S_2 segments: Analysis of intracellular osmolar and anion gaps. Am Soc Nephrol, 1988
33. Lovell H, Sharma R, **Savin V**: Sodium nitroprusside increases hydraulic conductivity of isolated rat glomeruli. Am Soc Physiol, 1988
34. **Savin VJ,** Welling DJ, Lovell HB, Sharma R: Direct measurement of glomerular macro-molecular reflection coefficient after charge neutralization. ClinRes 501A, 1989
35. Dileepan KN, Sharma R, Lovell HB, Stechschulte DJ, **Savin VJ:** Superoxide enhances albumin permeability of isolated rat glomeruli. J Leukocyte Biol 46:319, 1989
36. Jameson MD, **Savin VJ,** Sharma R, Lovell HB, Diederich DA: Cyclosporine treatment decreases glomerular ultrafiltration coefficient. Clin Res 1989
37. **Savin VJ,** Dileepan KN, Sharma R, Lovell HB, Stechschulte DJ: Superoxide increases albumin permeability of isolated rat glomeruli *in vitro.* Presented Int'l Soc Nephrol, Tokoyo, Japan, July, 1990
38. Lovell HG, Sharma R, **Savin VJ:** Treatment of isolated glomeruli with cytochalasin D increases hydraulic conductivity. FASEB J 4:A773, 1990
39. Lovell HB, Sharma R, **Savin VJ**: Cytoskeleton of cultured glomerular epithelial cells is altered by agents that modulate glomerular hydraulic conductivity and cyclic nucleotide levels. Kidney Int 37:226, 1990
40. **Savin VJ,** Johnson RJ, Couser WG: Antibody induced complement activation increases albumin permeability of isolated rat glomeruli. Kidney Int 37:430, 1990
41. Ellis EN, Wiegmann TB, **Savin VJ:** Glomerular hydraulic conductivity in experimental diabetes mellitus varies with hyperglycemia and with insulin therapy. Kidney Int 37:505, 1990
42. Wiegmann T, Herron K, MacDougall M, **Savin V**, Chonko, A: Relationship between urinary albumin excretion rate and renal function in hypertensive type II diabetic men. Kidney Int 37:285, 1990
43. **Savin VJ,** Chonko AM, Sharma R, Gunwar S, Sharma M: Factor present in serum of patients with minimal change nephrotic syndrome or focal sclerosing glomerulopathy causes an immediate increase in glomerular protein permeability *in vitro.* J Am Soc Nephrol 1:567, 1990

44. MacDougall M, **Savin V,** Marbut K, Wiegmann T: Uninephrectomy (UNx) causes glomerular hypertrophy without changes in hydraulic conductivity. J Am Soc Nephrol 1:668, 1990

45. **Savin VJ,** Sharma R, Suzuki K, Nagase H: Matrix metalloproteinase-3 (stromelysin) increases albumin permeability of isolated rat glomeruli. Clin Res 1991

46. Ellis EN, Sharma R, **Savin VJ:** Circulating glomerular permeability activity in pediatric nephrotic patients. J Am Soc Nephrol 2:266, 1991

47. Lovell HB, Celsi G, Beason-Griffin C, **Savin VJ:** Maturational decrease in glomerular ultrafiltration coefficient in neonatal rats is accelerated by betamethasone. J Am Soc Nephrol 2:469, 1991

48. Lovell HB, Sharma R, **Savin VJ**: Measurement of diminished albumin reflection coefficient in glomeruli from patients with proteinuria. J Am Soc Nephrol 2:270, 1991

49. Warady B, Howard C, **Savin VJ,** Ellis EN, Wiegmann T: Glomerular ultrafiltration coefficient (K_f) in early type I diabetes mellitus. J Am Soc Nephrol 2:301, 1991

50. Sharma R, Lovell HB, **Savin VJ:** Platelet activating factor causes mesangial contraction but does not alter glomerular capillary hydraulic conductivity. J Am Soc Nephrol 2:527, 1991

51. Artero M, Sharma R, **Savin V,** Vincenti, F: Association of recurrent focal glomerulosclerosis (FGS) with increased albumin permeability of glomeruli incubated with patient sera. J Am Soc Nephrol 2:791, 1991

52. Swan S, Sharma R, Sharma M, Chonko AM, Artero M, Vincenti F, **Savin VJ:** Proteinuria of membranous nephropathy does not depend on circulating factor of focal sclerosing glomerulopathy. J Am Soc Nephrol 3:883, 1992

53. **Savin VJ,** Sharma M, Sharma R: Characteristics of the circulating permeability factor in focal segmental glomerular sclerosis. J Am Soc Nephrol 3:751, 1992

54. Li JZ, Lovell HB, Sharma R, Wiegmann TB, **Savin VJ:** Glomerular hydraulic conductivity is modulated by cyclic nucleotides. FASEB 7:1134, 1993

55. Sharma R, Artero M, Vincenti F, **Savin VJ**: Glomerular injury induced by sera of patients with recurrent focal segmental glomerular sclerosis (FSGS) is prevented by normal serum. Trans Proc May, 1993

56. Smith RD, **Savin V,** Zangari G, Ladkani D, Slatopolski E, Sherrard D : Prevalence of osteitis fibrosis in hemodialysis (HD) patients (PTS). XIIth Int'l Congress of Nephrol, Jerusalem, Israel, 1993

57. McCarthy ET, Sharma R, Li JZ, **Savin VJ:** TNF-α increases albumin permeability through the generation of superoxide. J Am Soc Nephrol 4:620, 1993

58. Ahluwalia N, Skikne BS, **Savin VJ,** Chonko AM, Cook JD: Serum transferrin receptor (TfR) and automated reticulocyte count are early markers of response to recombinant human erythropoietin (rHuEPO). J Am Soc Nephrol 4:423, 1993

59. **Savin VJ,** Artero M, Sharma R, Vincenti F: Risk of recurrence of focal glomerular sclerosis (FSGS) after transplantation can be assessed using an *in vitro* assay of serum. J Am Soc Nephrol 4:960, 1993

60. Li JX, Sharma R, Dileepan JN, **Savin VJ:** Activated polymorphonuclear leukocytes increase albumin permeability in isolated rat glomerli via hypohalous acid. J Am Soc Nephrol 4:740, 1993

61. McCarthy ET, Ge X, Sharma R, Sharma M, Jennette JC, Falk RJ, **Savin VJ:** increased albumin permeability caused by sera from patients with collapsing glomerulopathy glomerular tip lesion. J Am Soc Nephrol 6:875, 1995

62. Sharma M, Ge X, Sharma R, McCarthy ET, **Savin VJ:** Partial purification of protein permeability factor from focal segmental glomerulosclerosis (FGS) sera. J Am Soc Nephrol 6:884, 1995

63. Sharma R, Li JZ, Sharma M, Ge X, McCarthy ET, **Savin VJ:** Tripterygium wilfordii glycoside (TWG) blocks experimental increase in in vitro glomerular albumin permeability. J Am Soc Nephrol 6:432, 1995

64. Sharma R, Sharma M, McCarthy ET, Artero M, **Savin VJ:** Indomethacin increases AMP and protects glomeruli from increased permeability caused by sera from patients with recurrent focal segmental glomerulosclerosis (FSGS). XXXIIIrd Congress of the EDTA European Renal Association, Amersterdam - The Netherls, 6/96

65. Sharma R, **Savin V:** Cyclosporine A prevents the increase in glomerular albumin permeability caused by sera of patients with focal segmental glomerular sclerosis. Am Soc Transplant Physicians, Dallas, Texas, 5/96

66. McCarthy ET, Sharma M, Sharma R, Chen X, **Savin VJ:** Indomethacin blocks the effect of FSGS serum on albumin permeability of isolated glomeruli. J Am Soc Nephrol 7:1740, 1996

67. Charba D, Sharma R, McCarthy ET, Chen X, **Savin VJ**: Antibodies to GLEEP1 increase albumin permeability of rabbit or rat glomeruli *in vitro.* J Am Soc Nephrol 7:1729, 1996

68. Hariharan S, Peddi VR, First MR, **Savin VJ,** Roza AM, Johnson C, Adams M: Recurrent and de novo renal diseases after renal transplantation in the cyclosporine era: Report from the renal allograft recurrent disease registry (RARDR). 29th Annual Meeting of the American Society o*f* Nephrology, New Orleans, LA, November 3-6, 1996

69. Hariharan S, George V, Adams MB, Davis CL, First MR, Johnson CP, Roza AM, Vincenti F, **Savin VJ:** Impact of Focal Segmental Glomerulosclerosis After Renal Transplantation: A Report From the Renal Allograft Recurrent Disease Registry (RARDR). American Society of Transplant Physicians, Chicago, IL, May 10-14, 1997

70. Bhaduri S, Florence L, Ross K, **Savin VJ,** Artero M, Vincenti F: Pre-transplant intervention to Prevent Recurrence of Focal Segmental Glomerulosclerosis (FSGS) in High Risk Patients. American Society of Transplant Physicians, Chicago, IL, May 10-14, 1997

71. Bhaduri S, Florence L, Artero M, Ross K, Brennan D, Winklehofer F, McCarthy ET, **et al**: Serum permeability activity predicts outcome of therapy to prevent allograft loss in focal segmental glomerulosclerosis (FSGS). J Am Soc Nephrol 10:3301, 1997

72. Cattran DC, Appel G, Hebert L, Pohl M, McCarthy ET, Sharma R, Butcher J, **Savin VJ:** Evaluation of the plasma permeability activity (Palb) in steroid resistant focal segmental glomerulosclerosis (FSGS). J Am Soc Nephrol 10:398, 1997

73. McCarthy ET, Sharma R, Reddy SR, Sharma M, Welling L, **Savin VJ:** Injection of protein fraction derived from focal segmental glomerulosclerosis (FSGS) plasma causes transient proteinuria and glomerulosclerosis in rats. J Am Soc Nephrol 10:2333, 1997

74. Sharma R, Sharma M, Reddy SR, Kotchen T, **Savin VJ:** High salt diet increases glomerular protein permeability of the Dahl salt sensitive rats (DS) and cyclic adenosine monophosphate (cAMP) reverses this effect *in vitro.* J Am Soc Nephrol 10:1626, 1997

75. Butcher J, McCarthy ET, Sharma M, Sharma R, **Savin VJ:** *In vitro* testing of FSGS patients sera for glomerular permeability. Am Soc Transplant Physicians May, 1998

76. Sharma M, Sharma R, Khanna AK, **Savin VJ**: Direct effect of human transforming growth factor-β-1 on albumin permeability of rat glomeruli *in vitro.* Am Soc Transplant Physicians May, 1998

77. McCarthy ET, Sharma M, Sharma R, Reddy SR, Butcher J, Welling L, **Savin VJ:** Injection of plasma protein fraction from patients with FSGS causes transient proteinuria in rats. Am Soc Transplant Physicians May, 1998

78. McCarthy ET, Sharma M, Sharma R, Ge XL, **Savin VJ**: Focal segmental glomerulosclerosis (FSGS) factor increases albumin permeability (P_{alb}) via product of cyclooxygenase. J Am Soc Nephrol 9: 4269, 1998

79. Sharma M, Sharma R, Ge XL, Reddy RS, McCarthy ET, **Savin VJ**: Compound from *Trypterigium wilfordii* protects isolated glomeruli from increased albumin permeability caused by FSGS serum. Transplantation 67: S75, 1999

80. Doyle SM, **Savin V**, Winn M, Conlon P: Circulating permeability factor in familial focal segmental glomerulosclerosis (FFSGS). J Am Soc Nephrol 10: 99A, 1999

81. Sharma M, Sharma R, Ge XL, Chen X, McCarthy ET, Li JZ, **Savin VJ**: Chromatographic characterization of the FSGS factor. J Am Soc Nephrol 10: 115A, 1999

82. Sharma M, Sharma R, McCarthy ET, Ge XL, Fish B, **Savin VJ,** Cohen EP, Moulder JE: Early detection of radiation induced glomerular injury by albumin permeability assay. J Am Soc Nephrol 10: 115A, 1999

83. Koukouritaki SB, McCarthy ET, Sharma R, Sharma M, **Savin VJ**: Angiotensin II (ANG II) increases tyrosine phosphorylation of focal adhesion kinase (FAK) and paxillin in cultured glomerular epithelial cells (GEC). J Am Soc Nephrol 10: 455A, 1999

84. McCarthy ET, Sharma R, Ge XL, **Savin VJ**: Prostaglandin E_2 or prostaglandin F_2 increases albumin permeability of isolated glomeruli. J Am Soc Nephrol 10: 115A, 1999

85. Sharma R, Datta PK, Sharma M, **Savin VJ**: Induction of metallothionein-I blocks the superoxide mediated increase in glomerular albumin permeability. J Am Soc Nephrol 10: 537A, 1999

86. McCarthy ET, Sharma M, Ge XL, Jennette JC, Falk RJ, **Savin VJ**, Sharma R: Permeability activity of sera from patients with collapsing glomerulopathy is similar to that of classic FSGS. J Am Soc Nephrol 10: 553A, 1999

87. Sharma M, Ge XL, McCarthy ET, Kutney JP, **Savin VJ**, Reddy RS: Purified component of *Trypterygium wilfordii* protects glomerular protein permeability barrier from FSGS serum *in vitro.* J Am Soc Nephrol 10: 669A, 1999

88. Sharma M, Sharma R, Ge XL, Fish B, McCarthy ET, **Savin VJ,** Cohen EP, Moulder JE Ionizing radiation increases glomerular albumin permeability of isolated rat glomeruli *in vitro.* FASEB Journal 14: A84, 2000

89. Sharma M, Qasba P, Sharma R, McCarthy ET, **Savin VJ**, Kulkarni AB, Brady R: Increased glomerular albumin permeability in a mouse model of Fabry's disease is abolished by cyclic AMP analog. J Am Soc Nephrol 11: 413A, 2000

90. McCarthy ET, Sharma M, Sharma R, **Savin VJ**: Angiotensin II induced reorganization of cytoskeleton in glomerular epithelial cells is blocked by inhibitors of protein tyrosine kinase. J Am Soc Nephrol 11: 424A, 2000

91. Sharma M, Ahmad F, Sharma R, Hucke BB, McCarthy ET, **Savin VJ**: FSGS factor changes phosphorylation of glomerular proteins. J Am Soc Nephrol 11: 446A, 2000

92. Sharma R, Sharma M, Ge XL, McCarthy ET, **Savin VJ**: Compound from Trypterigium wilfordii protects isolated glomeruli from increased albumin permeability caused by FSGS serum. J Am Soc Nephrol 11: 518A, 2000

93. McCarthy ET, Sharma R, Ge XL, Reddy SR, Sharma M, **Savin VJ**: Increased albumin permeability (P_{alb}) in isolated glomeruli from a model of type 2 diabetes is reversed by cyclic AMP (cAMP) analog. FASEB J15 (4) A448, 2001

94. McCarthy ET, Sharma M, Sharma R, Hucke B, Fish BL, Moulder JE, **Savin VJ**: Increased release of arachidonic acid from glomeruli following irradiation. FASEB J 15 (4) A835, 2001

95. McCarthy ET, Sharma M, Sharma R, Hucke B, Fish BL, Moulder JE, Cohen EP, **Savin VJ**: Increased release of arachidonic acid (AA) from glomerular cells following irradiation. J Invest Med 49:306, 2001

96. Sharma M, Sharma R, McCarthy ET, Ge XL, Chowdhary, Y, **Savin VJ**: Compound from *Trypterygium wilfordii* protects isolated glomeruli from increased albumin permeability (P_{alb}) caused by focal segmental glomerulosclerosis (FSGS) serum. J Invest Med 49:299, 2001

97. Sharma M, Sharma R, McCarthy ET, Ge XL, Chowdhary Y, **Savin VJ**: Compound from *Tripterygium wilfordii* protects isolated glomeruli from increased albumin permeability (P_{alb}) caused by focal segmental glomerulosclerosis (FSGS) serum. J Am Soc Nephrol 12: 692A, 2001

98. Sharma R, Sharma M, McCarthy ET, Kopp J, **Savin VJ**: Viral protein R (Vpr) increases albumin permeability (P_{alb}) of isolated glomeruli via product of the cyclooxygenase pathway. J Am Soc Nephrol 12: 685A, 2001

99. Sharma M, Qasba P, Limaye A, Sharma R, Han I, McCarthy ET, **Savin VJ**, Kulkarni AB, Brady RO: Increased glomerular albumin permeability in a genetic model of Fabry's disease is reversed by alpha-galactosidase. J Am Soc Nephrol 12: 692A, 2001

100. McCarthy ET, Sharma M, Sharma R, Hucke B, Fish BJ, Moulder JB, Cohen EP, **Savin, VJ**: Increased release of arachidonic acid (AA) from glomerular cells following irradiation. J Am Soc Nephrol 12: 584A, 2001

101. Cole DE, Hussain SA, Piering WF, **Savin VJ**: Phosphate enriched dialysate during pregnancy. J Am Soc Nephrol 12: 263A, 2001

102. Shidham G, McCarthy ET, Sharma M, **Savin VJ,** Schubert U, Kopp J, Henklein P: Effect of Viral Protein R (Vpr) on glomerular albumin permeability (P_{alb}) and arachidonic acid release. FASEB 16:A971, 2002

103. McCarthy ET, Sharma R, Sharma M, Ge XL, **Savin VJ**: Tacrolimus prevents increased glomerular albumin permeability caused by plasma from patients with recurrent FSGS. Am J Transplantation 2:195, 2002

104. Cohen EP, Sharma M, Sharma R, McCarthy ET, Fish BL, **Savin VJ**, Moulder JE: Protective effect of a cyclic AMP analog on radiation-induced increase in glomerular permeability. Rad Res Soc, April 2002

105. **Savin VJ**, Sharma R, McCarthy ET, Reddy SR, Sharma M: Focal segmental glomerulosclerosis permeability factor alters glomerular expression of nephrin. Central Soc Clin Res, 2002

106. Charba DS, Sharma R, Sharma M, McCarthy ET, Ge XL, **Savin VJ**: Plasmapheresis decreases in vitro permeability activity in patients with focal segmental glomerulosclerosis. Central Soc Clin Res, 2002

107. Reddy RS, Sharma R, Khanna AK, McCarthy ET, Moulder JE, **Savin VJ**, Sharma M: Induction of fibrogenic genes in a rat model of radiation nephropathy. J Am Soc Nephrol 13:159A, 2002

108. Sharma M, Sharma R, McCarthy ET, Fish BL, Cohen EP, Moulder JE, **Savin VJ**: Low dose ionizing radiation induces immediate changes in glomerular function and signaling pathways. J Am Soc Nephrol 13:159A, 2002

109. **Savin VJ**, Sharma M, Sharma R, McCarthy ET, Reddy SR: Focal segmental glomerulosclerosis permeability factor (FSPF1) decreases glomerular expression of nephrin. J Am Soc Nephrol 13:470A, 2002

110. **Savin VJ**, Sharma M, McCarthy ET, Sharma R, Ge XL: Biochemical characteristics of FSPF permeability factor (FSPF1). J Am Soc Nephrol 13:657A, 2002

111. Sharma R, McCarthy ET, Sharma M, Ge XL, **Savin VJ**: Permeability activity (P_{alb}) in 307 FSGS patients, 2000-2002. J Am Soc Nephrol 13:658A, 2002

112. Charba DS, Sharma R, Sharma M, McCarthy ET, Ge XL, **Savin VJ**: Decreased *in vitro* permeability activity (P_{alb}) after plasmapheresis in patients with FSGS. J Am Soc Nephrol 13:666A, 2002

113. Trachtman H, Frank R, Greenbaum LA, Warady BA, McCarthy ET, Sharma M, **Savin VJ:** Human FSGS permeability factor: prevalence and prognostic value in pediatric patients with new-onset idiopathic nephritic syndrome. J Am Soc Nephrol 13:454A, 2002

114. McCarthy ET, Schwimmer J, Sharma M, **Savin VJ**, Appel G: Permeability activity is present in sera from patients with collapsing glomerulopathy. World Congress of Nephrology, Berlin, Germany, June 2003

115. **Savin VJ**, McCarthy ET, Charba D, Sharma M: Permeability activity of FSGS sera: incidence, partial characterization and potential mechanisms. World Congress of Nephrology, Berlin, Germany, June 2003

116. McCarthy ET, Schwimmer JA, Sharma M, **Savin VJ**, Appel G. A high level of permeability activity is present in sera of patients with collapsing glomerulopathy. J Am Soc Nephrol 14:283A, 2003.

117. Tabatabai NM, Sharma R, McCarthy ET, Reddy SR, Blumenthal SS, Petering DH, **Savin VJ**, Sharma M. Renal expression of sodium-glucose cotransporter 2 in an animal model of type 2 diabetic nephropathy. J Am Soc Nephrol 14: 598A, 2003.

118. Sharma D, McCarthy ET, Sharma R, Reddy SR, **Savin VJ**, Sharma M: Early effect of ischemia-reperfusion injury on glomerular protein permeability barrier. FASEB J 18:A950, 2004.

119. Sharma M, Pieper GM, McCarthy ET, Sharma R, Fish BL, **Savin VJ**, Cohen EP, Moulder JE: Pharmacological protection of the glomerular filtration barrier in a rat model of radiation nephropathy. Radiation Res Soc, April 2004.

120. Sharma M, McCarthy ET, **Savin VJ**, Lianos EA: Does nitric oxide protect the glomerular filtration barrier from superoxide injury? Free Rad Biol Med, 2004.

121. Dahly-Vernon AJ, Sharma M, McCarthy ET, **Savin VJ**, Ledbetter S, Roman RJ: TGF−β mediates elevations in permeability to albumin in hypertension. J Am Soc Nephrol 15:447A, 2004

122. Sharma M, Lazar J, Lutz M, Berreto N, Andrae JW, Morena C, van Dijk S, Provoost AP, McCarthy ET, **Savin VJ,** Jacob HJ: *In vitro* glomerular albumin permeability (P_{alb}) as an early phenotypic marker of renal injury. J Am Soc Nephrol 15:206A, 2004

123. Sharma M, McCarthy ET, **Savin VJ**, Lianos EA: Role of nitric oxide in maintaining the glomerular protein permeability barrier. J Am Soc Nephrol 15:490A, 2004

124. Dahly-Vernon AJ, Sharma M, McCarthy ET, **Savin VJ**, Roman RJ. Transforming growth factor beta and glomerular protective actions of 20-hydroxyeicosatetraenoic acid agonist. Am Heart Assoc Hypertension Council, Annual Meeting, 2004.

125. Sharma M, McCarthy ET, **Savin VJ**, Lianos EA: Does nitric oxide protect the glomerular filltration barrier from superoxide injury? Free Rad Biol Med, 2004.

126. Dahly-Vernon AJ, Sharma M, McCarthy ET, **Savin VJ**, Ledbetter S, and Roman RJ. TGF-B mediates elevations in permeability to albumin in hypertension. J Am Soc Neph 15:447A(SA-PO660), 2004.

127. Sharma R, Sharma D, McCarthy ET, Wiegmann T, **Savin VJ**, Sharma M: Renal ischemia-reperfusion may cause immediate and lasting glomerular injury. Transplant Asia (Singapore NKF and ASN), Dec 1-4, 2004.

128. McCarthy ET, Sharma R, Reddy SR, Sandoval RM, Dunn KW, Molitoris BA, **Savin VJ**, Sharma M. Intravital imaging demonstrates increased glomerular protein permeability preceding proteinuria in PAN nephrosis. J Invest Med 53(2):S362(#32), 2005.

129. McCarthy ET, Reddy RS, Isaacs F, Sharma J , Sandoval R, Dunn K, Molitoris B, Sharma R, **Savin VJ**, Sharma M: Novel techniques demonstrate the effect of puromycin aminonucleoside (PAN) on glomerular protein permeability and protection by clofibrate or 20-hydroxyeicosatetraenoic acid (20-HETE), ASCI/AAP Joint Meeting, Chicago, IL, April 15-17, 2005.

130. Sharma M, McCarthy ET, Sharma R, Fish BL, **Savin VJ**, Cohen EP, Moulder JE: Ibuprofen prevents the early effects of ionizing radiation on normal glomeruli. Radiation Research Society, 52nd Annual Meeting, October, 2005.

131. McCarthy ET, Reddy S, **Savin VJ**, Sharma M: Glomerular permeability barrier requires

20-hydroxyeicosatetraenoic acid (20-HETE). Am Soc Nephrol 2005.

132. Sharma M, McCarthy ET, Sharma R, Fish BL, Cohen EP, **Savin VJ**, Moulder JE: Radiation-induced early glomerular injury is mitigated by ibuprofen. Am Soc Nephrol 2005.

133. Sharma M, McCarthy ET, **Savin VJ**, Lianos EA: Nitric oxide protects the glomerular filtration barrier against the superoxide radical Am Soc Nephrol 2005.

134. McCarthy ET, Reddy S, **Savin VJ**, Sharma M: 20-Hydroxyeicosatetraenonic Acid (20-HETE) is required to maintain integrity of glomerular protein permeabililty barrier. Am Heart Association, Hypertension Council, 2005.

135. Srivastava T, Garola RE, Kestila M, Sharma M, **Savin VJ**, A. Warady BA: Recurrence of proteinuria following renal transplantation in congenital nephrotic syndrome of Finnish Type. Am Soc Nephrol, 2005.

136. Tabatabai NM., Sharma M, Blumenthal SS, **Savin VJ**, McCarthy ET, Petering DH: *In vivo* messenger RNA expression of the kidney sodium glucose co-transporters (SGLTs) in the diabetic Zucker rats. Am Soc Nephrol 2005.

137. Sharma M, McCarthy ET, Sharma R, Brian BL, **Savin VJ**, Cohen EP, Moulder JE: NSAIDs can be potentially used to mitigate the early effects of ionizing radiation. Research Day, Department of Medicine, MCW, October 21, 2005.

138. Sharma D, McCarthy ET, Bhojak J, Reddy RS, Prasad VVTS, **Savin VJ**, Sharma M: Early renal changes after unilateral ischemia reperfusion (IR) injury. FASEB 2006.

139. Bhojak J, Sharma M, McCarthy, **Savin VJ**, Kamal R: Determinants of antioxidant effects of alfalfa seeds. FASEB 2006.

140. Sharma M, Reddy RS, Falck RJ, Harland DR, McCarthy ET, **Savin VJ**, Jacobs ER, Medhora M: 8,9-EET Protects Against FSGS Factor-Induced Glomerular Injury. 8th Winter Eicosanoids Conference, March 2006.

141. Pudur S, **Savin VJ**, McCarthy ET, Sharma M. Albumin permeability (P_{alb}) in focal segmental glomerulosclerosis (FSGS) is associated with rapid progression to end-stage renal disease (ESRD). National Kidney Foundation, Chicago, IL, March 2006.

142. **Savin V**, Sharma M, McCarthy E, Sharma R: Galactose and the focal sclerosis permeability factor (FSPF): Experimental findings, hypotheses and proposal for therapy. 6thInternational Podocyte Conference, Helsinki, Finland, June 8-11, 2006.

143. **Savin V**, Sharma M, McCarthy E, Sharma R: Galactose and the focal sclerosis permeability factor (FSPF): Experimental findings, hypotheses and proposal for therapy. EDTA/ERA, Glasgow, Scotland, July 2006.

144. Sharma M, **Savin VJ**, Sharma R, McCarthy ET: Effect of Focal Segmental Glomerulosclerosis (FSGS) serum and Puromycin Aminonucleoside on isolated mouse glomeruli. Am Soc Nephrol, San Diego, CA, Nov 2006.

145. Sharma R, Sharma M, McCarthy ET, **Savin V**, Prasad V, Dileepan KN, Lianos E, Wiegmann TB: Chymase increases glomerular albumin permeability via protease-activating receptor Type-2. Am Soc Nephrol, San Diego, CA, Nov 2006.

146. Pudur S, **Savin VJ**, McCarthy ET, Sharma M. Albumin permeability (P_{alb}) in focal segmental glomerulosclerosis (FSGS) is associated with rapid progression to end-stage renal

disease (ESRD). Am Soc Nephrol, San Diego, CA, Nov 2006.

147. Sharma M, **Savin VJ**, Sharma R, McCarthy ET: Measurement of Glomerular Permeability Using EIA, a Novel High-Throughput Method for Screening of Injury or Protection. Am Soc Nephrol, San Diego, CA, Nov 2006.

148. **Savin V**, Sharma M, McCarthy E, Sharma R: Galactose and the focal sclerosis permeability factor (FSPF): Experimental findings, hypotheses and proposal for therapy. EDTA/ERA, Am Soc Nephrol, San Diego, CA, Nov 2006.