BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Mark S. Segal	Assistant Professor of Medicine
eRA COMMONS USER NAME SEGALMS	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
MIT, Cambridge, MA	B.S.	1980-84	Biology
Joint Degree Program:			
UT Southwestern, Dallas, TX	M.D./Ph.D.	1984-92	Cellular & Molec. Biol.
UT Southwestern, Dallas, TX	M.D./Ph.D.	1984-92	Medicine

A. Positions

1983-1984 Under the undergraduate research opportunities program, I spent two years doing research with Dr. Monty Krieger, Department of Biology at M.I.T. studying alterations in the glycosylation pattern of an LDL receptor mutant.

1986-1990 Worked on my dissertation in the laboratory of Dr. Mary Jane Gething and Dr. Joseph Sambrook at UTSouthwestern at Dallas. I studied the folding pattern of the hemagglutinin protein and its interaction with the heat shock protein BiP. In addition, I investigated the role that hemagglutinin folding plays in determining its movement through the secretory pathway of eukaryotic cells.

1992-1995 Intern and Resident, Department of Internal Medicine, Parkland Memorial Hospital, University of Texas Southwestern at Dallas

1995-1998 Nephrology Research Fellow, Division of Nephrology, Beth Israel Deaconess Medical Center.

1998-1999 Instructor of Medicine, Division of Nephrology, Department of Medicine, Beth Israel Deaconess Medical Center, Harvard Medical School

1999-present Assistant Professor of Medicine, Division of Nephrology, Hypertension and Transplantation, University of Florida College of Medicine

Honors:

1983-1984 Sigma XI Undergraduate Research Opportunity Program Award

1984 John L. Asinari Award. Awarded for outstanding biologic research to an MIT undergraduate

1998 K08 Award from the NIH NIDDK

B. Publications (Selected Publications)

Krieger, M., Martin, J., Segal, M., and Kingsley, D. (1983) Amphotericin B Selection of Mutant Chinese Hamster Cells With Defects in the Receptor-Mediated Endocytosis of Low Density Lipoprotein and Cholesterol Biosynthesis. PNAS 80:5607-5611.

Kingsley, D., Kozarsky, K., Segal, M., and Krieger, M. (1986) Three types of Low Density Lipoprotein Receptor-deficient Mutants have Pleiotropic Defects in the Synthesis of N-linked, O-lingked, and Lipid-linked Carbohydrate Chains. J. Cell Biology. 102:1576-1585.

Kozutsumi, Y. Segal, M., Normington, K., Gething, M.J., and Sambrook, J. (1988) The presence of malfolded proteins in the endoplasmic reticulum signals the induction of glucose-regulated proteins. Nature. 332:462-464.

Segal, M.S., Bye, J.M., Sambrook, J.F., and Gething, M.J. (1992) Disulfide bond formation during the folding of influenza virus hemagglutinin. J.Cell Biology 118:227-244.

Gething MJ, Blond-Elguindi S, Buchner J, Fourie A, Knarr G, Modrow S, Nanu L, Segal M, Sambrook J. (1995). Binding sites for Hsp70 molecular chaperones in natural proteins. Cold Spring Harb Symp Quant Biol. 60:417-28.

Smith, JW and Segal, M. (1994) Urinary tract infection in men--an internist's viewpoint. Infection 22:S31-4.

Dhanabal, M., Ramchandran R., Waterman, MJ., Lu, H. Knebelmann, B., Segal, M., Sukhatme, VP. (1999). Endostatin Induces Endothelial Cell Apoptosis. J. Biol. Chem. 274 (17)11726.

Ramchandran R., Dhanabal, M., Volk, R., Waterman, MJ., Segal, M., Lu, H., Knebelmann, B., Sukhatme, VP. (1999). Antiangiogenic activity of restin, NC10 domain of human collagen XV: comparison to endostatin. Biochem. Biophys. Res. Commun. 255(3)735.

Lu, H., Dhanabal, M., Volk, R., Waterman, M.J., Ramchandran, R., Knebelmann B., Segal, M., Sukhatme, V.P. (1999). Kringle 5 Causes Cell Cycle Arrest and Apoptosis of Endothelial Cells. Biochem Biophys Res Commun. 258(3):668-673.

Segal, Mark S. and Beem, Elaine. Effect of pH, ionic charge and osmolality on cytochrome c mediated caspase-3 activity. Am J Cell Physiol. 281:C1196-11204.

Segal, Mark S., Bihorac, Azra, and Koc, Mehmet. Circulating endothelial cells: tea leaves for renal disease. Invited Review. Am J Renal Physiol. 283(1):F11-9.

Lee, Pui, Beem, Elaine, and Segal, Mark S. Marker for real-time analysis of caspase activity in intact cells. Biotechniques. 2002 Dec;33(6):1284-7, 1289-91.

Agarwal, Anupam and Segal, Mark S. (2003). Intimal Exuberance: Veins in Jeopardy. Commentary. American Journal of Pathology. 162(6):1759-1761.

Koc, Mehmet, Bihorac, Azra, and Segal, Mark S. (2003). Circulating Endothelial Cells as a potential marker of a dysfunctional endothelium in hemodialysis patients. AJKD. 42(4):704-12.

Jochimsen F, Gruening W, Arnould T, Segal MS, Kruskall MS, Colgrove R Jr, Walz G. (2004). Thrombotic microangiopathy associated with unusual viral sequences in HIV-1-positive patients. Nephrol Dial Transplant. 19(5):1129-35.

Tucci, M., E. Barnes, E.S. Sobel, B.P. Croker, M.S. Segal, W. Reeves, and H. Richards. (2004). A Functional Polymorphism in the Monocyte Chemoattractant Protein (MCP) - 1 Promoter Gene is Strongly Associated with Lupus Nephritis. Arthritis & Rheumatism. 50(6):1842-9.

Srinivas, Titte R., Herrera-Acosta, Jaime, Feig, Daniel I., Kang, Duk-Hee, Segal, Mark S., and Johnson, Richard J. (2004). Diuretic-induced hyperuricemia does not decrease cardiovascular risk. Journal of Hypertension. 22:1–3.

Beem, Elaine, Holliday, Lexus S., and Segal, Mark S. (2004). Effect of pH and ionic charge on apoptosome formation. AJP: Cell. Sep;287(3):C664-72.

Lee P, Segal MS. (2004). Real-time analysis of apoptosis in vivo. Methods Cell Biol. 75:343-54.

Brooks HL Jr, Caballero S Jr, Newell CK, Steinmetz RL, Watson D, Segal MS, Harrison JK, Scott EW, Grant MB. (2004). Vitreous levels of vascular endothelial growth factor and stromal-derived factor 1 in patients with diabetic retinopathy and cystoid macular edema before and after intraocular injection of triamcinolone. Arch Ophthalmol. 122(12):1801-7.

Butler JM, Guthrie SM, Koc M, Afzal A, Caballero S, Brooks HL, Mames RN, Segal MS, Grant MB, Scott EW. (2005). SDF-1 is both necessary and sufficient to promote proliferative retinopathy. JCI. 115(1):86-93.

Koc, Mehmet, Bihorac, Azra, Ross, Edward, Schold, Jesse and Segal, Mark S. (2005). Circulating Endothelial Cells and markers of inflammation in hemodialysis patients. Kidney Int. Mar;67(3):1078-83.

Chen, Sifeng, Segal, Mark, Agarwal, Anupam. (2004). "A simple "lumen digestion" technique for isolation of aortic endothelial cells from heme oxygenase-1 knockout mice." Biotechniques. 37:84-89.

Johnson RJ, Segal MS, Srinivas T, Ejaz A, Mu W, Roncal C, Sanchez-Lozada LG, Gersch M, Rodriguez-Iturbe B, Kang DH, Acosta JH. Essential hypertension, progressive renal disease, and uric acid: a pathogenetic link? J Am Soc Nephrol. 2005 Jul;16(7):1909-19.

Diao, Yanpeng, Xue, Jing, Segal, Mark S. A Novel Murine Model of Intimal Hyperplasia Induced by Autologous Venous Graft into the Aorta. Journal of Surgical Research. 126(1):106-13.

Barnes EV, Narain S, Naranjo a, Shuster J, Segal MS, Sobel ES, Reeves WH, Richards HB. High sensitivity c-reactive protein in systemic lupus erythematosus: Relation to disease activity and clinical presentation. Lupus, 2005, 14:576.

Zhuang H, Narain S, Sobel E, Lee PY, Nacionales DC, Kelly KM, Richards HB, Segal M, Stewart C, Satoh M, Reeves WH. Association of anti-nucleoprotein autoantibodies with upregulation of Type I interferon-inducible gene transcripts and dendritic cell maturation in systemic lupus erythematosus. Clin Immunol. 2005 Aug 24

Segal, Mark S., Shah, Ronak, Afzal, Aqeela, Caballero, Sergio, Koc, Mehmet, Harrison, Jeffrey K., Grant, Maria B. Nitric oxide cytoskeletal-induced alterations reverse the endothelial progenitor cell migratory defect associated with diabetes. Diabetes. 2006. 55(1):102-9.

Segal, Mark S., Baylis, Chris, Johnson, Richard J. Endothelial health and diversity in the kidney. J Am Soc Nephrol. 2006 Feb;17(2):323-4.

C. Research Support

ONGOING

Renal Discoveries Segal (P.I.) 7/01/03-6/30/06
The Baxter Extramural Grant Program
"Cell Markers of Atherosclerosis in Renal Failure"
The major goals of this project are to profile the monocyte activation, Th1 and Th2 cells, and endothelium (using circulating endothelial cells) in hemodialysis patients with and without atherosclerosis. There is no overlap with this grant and the ADA research grant.

NIH R01 8/01/05-7/30/09
PI: Johnson
Co-PI Segal
National Heart, Lung, and Blood Institute
"Interventions to improve hypertension control rates in African Americans"
Funding is pending on this study to evaluate the effect on blood pressure and endothelial function of simultaneously treating African Americans, stage I hypertensions with allopurinol along with a diuretic. There is no overlap with this grant and the ADA research grant.

Florida Department of Health Team Science Project: 8/01/05-7/30/07
PI of Team Science Project: Johnson;
Segal PI of Project 1 entitled SMOKING ACCELERATES DECLINE IN RENAL FUNCTION and
Segal PI of Clinical Core.
This Team Science Project investigates the mechanism by which smoking accelerates the decline in renal function. There is no overlap with this grant and the ADA research grant.

JDRF Program Project Grant
PI PPG: Grant; Segal co-PI of Project 2: Segal
This project investigates VEGFR and SDF-1 signaling in the endothelial progenitor cells in type I diabetes. We are investigating this defect in patients with Type I diabetes and in mice made to be diabetic with streptozocin, a type I diabetic model. There is no overlap with this grant and the ADA research grant.

COMPLETED

American Heart Association, Florida Segal (P.I.) 7/01/03-6/30/05
Cellular and Molecular Dissection of Venous Intimal Hyperplasia
The major goals of this grant are to investigate the role of progenitor endothelial cells and progenitor smooth muscle cells in the development of venous intimal hyperplasia.

R21 (PI: Grant, Maria; co-PI: SEGAL) 12/01/02 – 11/30/05
NIH/NIDDK
"CXCR4/SDF-1 Axis in Proliferative Retinopathy"
The major goals of this project are to quantify CXCR4 on circulating endothelial progenitor cells and their behavior in response to the chemokine SDF-1 in diabetic verse non-diabetic patients.

K08 DK02537 Segal (P.I.) 7/1/98 – 6/30/04
NIH/NIDDK
"Lentiviral Vector for Infection of a pancreatic ß-cell line"
The major goals of this project are to develop assays to study endothelial cell apoptosis and the possible role of endothelial cell activation and apoptosis in development of renal disease.

HD64024 (Oh P.I.; Segal Co-PI)) 7/1/00 - 5/31/04
NIH/NHLBI
"Role of ALK1 as a Modulator for TGF-Beta Signaling on Angiogenesis"
To study the role of TGF-ß1 signaling via its two receptors ALK1 and ALK5 and there differential role in the activation and resolution phases of angiogenesis.

R03 DK59821 Segal (P.I.) 7/1/01 – 6/30/04
NIH/NIDDK
"Ionic Charge and pH Regulation of Apoptotic Signaling"
The major goals of this project are to understand the effects that pH and ionic charge have on apoptosis.

HHMI Segal (P.I.) 4/1/01-3/31/02
Howard Hughes Biomedical Research Support Program
"Ionic Charge and pH Regulation of Apoptotic Signaling"
This grant is for major equipment expenses and is a supplemental grant through the University of Florida.

F00UF-3 Segal (P.I.) 6/1/00 – 5/31/01
American Cancer Society
"Molecular mechanism of endostatin's differential effects on vascular endothelial cells"
The major goals of this project were to understand the selectivity of endostatin for endothelial cells leaving G0 as well as determine the sensitivity of endothelial cells from different vascular beds to endostatin.

The Lupus Research Institute (Richards P.I.; Segal Co-PI) 9/01/2002-8/30/2005
"Novel Methodologies to Advance Clinical Trials in Lupus"
The major goals of this grant is to develop novel markers of lupus nephritis.