

## BIOGRAPHICAL SKETCH

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NAME <b>Adam P. Klausner, M.D.</b>		POSITION TITLE <b>Associate Professor of Urology &amp; Warren W. Koontz Professor of Urologic Research</b>	
eRA COMMONS USER NAME <b>aklausner</b>			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
<b>Cornell University, Ithaca, NY</b>	<b>BA</b>	<b>1988-1992</b>	<b>English</b>
<b>State University of New York, Syracuse</b>	<b>MD</b>	<b>1992-1996</b>	<b>Doctor of Medicine</b>
<b>Mount Sinai Medical Center, New York, NY</b>		<b>1996-2002</b>	<b>Resident in Urology</b>
<b>Univeristy of Virginia School of Medicine, Charlottesville, VA</b>		<b>2002-2004</b>	<b>Fellow in Bladder Basic Science</b>

### A. Personal Statement

My initial exposure to research during my urologic residency made me realize the important, yet limited, role of urodynamics (cystometrics) in the management of patients with voiding dysfunction (see ref #1). After my residency, I completed a fellowship in the laboratory of Dr. William Steers at the University of Virginia in 2004. During this two-year fellowship, I gained in-depth experience in basic research involving voiding dysfunction. The research focused on development of animal models, including the partial bladder outlet obstruction model in rodents, and evaluation of neurochemical changes in the brain and spinal cord. The experience also provided expert training in the performance conscious cystometrogram studies in small animals. After joining the faculty at VCU, I began my clinical work as a neuro-urologist, treating a large volume of patients with overactive bladder (OAB) and incontinence. In this capacity, I directly oversee more than 500 urodynamic studies per year at our parent institution (VCU) and our affiliate Veterans Affairs hospital where I provide neuro-urologic care for one the largest spinal cord injury units in the country. In these clinical endeavors, I was frustrated by a lack of understanding of OAB and limited treatment options available for my patients.

Fueled by this frustration and a desire to answer clinically important questions regarding the regulation of bladder during the filling phase of micturition, I began a collaboration with Dr. Paul Ratz, a well-known basic science researcher in vascular and detrusor smooth muscle pharmacology and physiology, and Dr. John Speich, a mechanical engineer interested in understanding the unique biomechanical properties of the urinary bladder. Our initial work on spontaneous contractile rhythm in rabbits led to several publications, an internal grant (AD Williams), prize honors at a national urologic research competition, and awards for best basic science poster at two separate meetings of the Society of Urodynamics and Female Urology. In addition, our work on adjustable passive stiffness and adaptation in the bladder has resulted in multiple collaborative publications. In recognition for my research efforts, I was promoted to the rank of Associate Professor in 2009 and given an endowed professorship (the Warren W. Koontz, Jr. MD professor of urologic research) to help support these research activities.

In the current proposal, the multi-disciplinary collaboration of a neuro-urologist with a background in basic science and a mechanical engineer who can apply systems-based analyses to the physiology of biologic tissues is an important asset that will likely help in its successful completion. The central hypothesis of our research is that the load on the detrusor tension sensor can be affected by biomechanical properties including bladder geometry, dynamic compliance, and spontaneous rhythmic contractions. Furthermore, we believe that continuously recorded urgency, the acute output of the tension sensor, reflects changes in the load on the tension sensor. Our hypothesis is highly testable, and we expect that successful completion of the current proposal will allow for development of novel metrics for improved cystometrics testing, improved

sub-categorization of OAB, and will provide a foundation for future research aimed at exploring the mechanisms of our observed findings.

## **B. Positions and Honors.**

### **Positions and Employment**

1996-1998 Resident in General Surgery, Mount Sinai Medical Center, New York, NY  
1998-2002 Resident in Urology, Mount Sinai Medical Center, New York, NY  
2002-2004 Fellowship in Urologic Research: Mentor: Dr. William Steers, Dept. of Urology, University of Virginia, Charlottesville, VA  
2004 -2009 Assistant Professor of Urologic Research, Department of Urology, University of Virginia Health Systems, Charlottesville, VA  
2004-2009 Assistant Professor, Division of Urology, VCU Medical Center and Hunter Holmes McGuire Veterans Hospital, Richmond, VA  
2009 - Associate Professor & W.W. Koontz MD Professor of Urologic Research, Division of Urology, VCU Medical Center and Hunter Holmes McGuire Veterans Hospital, Richmond, VA

### **Other Experience and Professional Memberships**

Alpha Omega Alpha  
American Urological Association  
Mid-Atlantic Section of the American Urological Association:  
Member of Board of Trustees  
American Medical Association  
Society for Urodynamics, Female Pelvic Medicine, and Urogenital Reconstruction (SUFU):  
Basic Science Co-Program Director  
American Paraplegia Society  
American Geriatrics Society

### **Honors**

2013 Selected as "Physician Champion" at VCU Medical Center in an institution-wide survey of patients, staff, and colleagues  
2013, 2012 Selected as "Top Doctor" and "Top Vote Getter" in Urology, Richmond Magazine, Apr, 2013, Apr, 2012.  
2012, 2013 Nominated as Mid-Atlantic Section Representative for the annual Gold Cystoscope Award  
2012 1<sup>st</sup> prize poster for Basic Science (SUFU annual meeting, Feb, 2012  
2010 American Urological Association Annual Research Forum- 3<sup>rd</sup> Prize  
2010 Selected as "Top Doctor" in Urology, Richmond Magazine, Apr, 2010  
2009 Appointed to the 1<sup>st</sup> Warren W. Koontz endowed professorship in urologic research at VCU Medical Center  
2009 1<sup>st</sup> prize poster for Basic Science (SUFU annual meeting, Feb, 2009)  
2003, 2002 Pfizer Scholars in Urology award for Fellows in Urology, University of Virginia  
2002 Praecis/Gerald P. Murphy Scholar award  
2001 Pfizer Scholar award in Urology for Urologic residents  
2001, 1998 Mount Sinai Merit Award, "In recognition of service beyond the call of duty and in appreciation of exceptional courage."  
2001 Honorable mention, annual F. Valentine resident Essay Competition, New York, NY  
2000 2<sup>nd</sup> Prize, annual F. Valentine resident Essay Competition, New York, NY  
1995 Alpha Omega Alpha- inducted in 3<sup>rd</sup> year of medical school  
1994 Lange Medical Publications Award for Outstanding Achievement as a Medical Student

## **C. Fifteen Selected peer-reviewed publications (from list of 55)**

- 1) **Klausner AP**, Galea J, and Vapnek JM: The effect of catheter size on urodynamic assessment of bladder outlet obstruction. *Urology*. 2002 Nov;60(5):875-80. PMID: 12429319
- 2) **Klausner AP**, Streng T, Na Y-G, Raju J, Batts TW, Tuttle JB, Andersson KE, and Steers WD. The Role of Corticotrophin Releasing Factor and its Antagonist, Astressin, On Micturition in the Rat. *Autonomic Neuroscience, Basic and Clinical*; 123 (1-2), 26-35, Dec, 2005. PMID: 16256445

- 3) Collins C, **Klausner AP**, Herrick B, Koo HP, Miner AS, Henderson SC, Ratz PH. Potential for Control of Detrusor Smooth Muscle Spontaneous Rhythmic Contraction by Cyclooxygenase Products Released by Interstitial Cells of Cajal. *J Cell Mol Med*. 2009 Feb 20. PMID: 19243470
- 4) **Klausner AP**, Rourke, KF, Miner AS, Ratz PH. Potentiation of carbachol-induced detrusor smooth muscle contractions by beta-adrenoceptor activation. *Eur J Pharmacol*. 2009 Mar 15;606(1-3):191-8. PMID: 19374847
- 5) **Klausner AP**, Ibanez D, King AB, Willis D, Herrick B, Wolfe L, Grob BM. The influence of psychiatric comorbidities and sexual trauma on lower urinary tract symptoms in female veterans. *J Urol*. 2009 Dec;182(6):2785-90. Epub 2009 Oct 22. PMID: 19850303
- 6) Almasri AM, Ratz PH, Bhatia H, **Klausner AP**, Speich JE. Rhythmic contraction generates adjustable passive stiffness in rabbit detrusor. *J Appl Physiol*. 2010 Mar;108(3):544-53. Epub 2010 Jan 7. PMID: 20056849
- 7) **Klausner AP**, Steers WD. The neurogenic bladder: an update with management strategies for primary care physicians. *Med Clin North Am*. 2011 Jan;95(1):111-20. PMID: 21095415
- 8) **Klausner AP**, Johnson CM, Stike AB, Speich JE, Sabarwal V, Miner AS, Cleary ME, Koo HP, Ratz PH. Prostaglandin-E2 Mediates Spontaneous Rhythmic Contraction in Rabbit Detrusor Muscle. *Can J Urol*. 2011 Apr;18(2):5608-14. PMID: 21504648
- 9) Speich JE, Wilson CW, Almasri AM, Southern JB, **Klausner AP**, Ratz PH. Carbachol-Induced Volume Adaptation in Mouse Bladder and Length Adaptation via Rhythmic Contraction in Rabbit Detrusor. *Ann Biomed Eng*. 2012 May 22. PMID: 22614640
- 10) Southern JB, Frazier JR, Miner AS, Speich JE, **Klausner AP**, Ratz PH. Elevated steady-state bladder preload activates myosin phosphorylation: Detrusor smooth muscle is a preload tension sensor. *Am J Physiol Renal Physiol*. 2012 Sep 19. PMID: 22993074
- 11) Dolat MT, **Klausner AP**. Uropsychiatry: The relationship between overactive bladder and psychiatric disorders. *Curr Bladder Dysfunct Rep*. Epub Dec. 2012. No PMID available.
- 12) Byrne MD, **Klausner AP**, Speich JE, Southern JB, Habibi JR, Ratz PH. Fourier transform analysis of rabbit detrusor autonomous contractions reveals length-dependent increases in tone and slow wave development at long lengths. *J Urol*. 2013 Feb 25. pii: S0022-5347(13)00347-9. doi: 10.1016/j.juro.2013.02.071. PMID: 23485511
- 13) **Klausner AP**, King AB, Byrne MD, Habibi JR, Li K, Sabarwal V, Speich JE, Ratz PH. A new and automated method for objective analysis of detrusor rhythm during the filling phase. *World J Urol*. 2013 Apr 30. PMID: 23633125
- 14) **Klausner AP**: Overactive Bladder: Preparing for the Beast. *J Urol*, April 2013. Epub Jan 18, 2013. (Invited Editorial). PMID: 23337194
- 15) Komari SO, Headley PC, **Klausner AP**, Ratz PH, Speich JE. Evidence for a common mechanism for spontaneous rhythmic contraction and myogenic contraction induced by quick stretch in detrusor smooth muscle. *Physiol Rep*. 2013 Nov;1(6):e00168. doi: 10.1002/phy2.168. Epub 2013 Nov 22. PMID: 24400167

### C. Research Support

- 1) **AP Klausner (PI)**: An Investigation of Urinary Incontinence in Geriatric Patients with Normal Pressure Hydrocephalus. American Geriatrics Society: 2007 Dennis W. Jahnigen Career Development Award. (July 2007 – June 2009).
- 2) **AP Klausner (PI)**: A mechanistic role for prostaglandins in overactive bladder: Does spontaneous detrusor activity arise from interstitial cell to detrusor smooth muscle signaling? AD Williams Research Grant. (July 2008 – June 2009)
- 3) **AP Klausner (Co-PI) with LL Goetz (Co-PI)**: Randomized Trial of Proanthocyanidins (PACs) for reduction of bacteriuria in catheter dependent Veterans with Spinal Cord Injury. HH McGuire Veterans Affairs Medical Center. Sponsor- Trophikos, Inc. (2013 – 2014)
- 4) **AP Klausner (Co-PI) with JE Speich (Co-PI)**: Mechanical Urgency: Correlation of novel bladder wall compliance measurements with patient-reported sensations during urodynamics. Virginia Commonwealth University Presidential Research Quest Award. (July 2013 – December 2014).