

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format on for each person. (See attached sample). **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Lori Ann Birder		Assistant Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Duquesne University, Pittsburgh PA	B.S.	1982	Chemistry
Duquesne University, Pittsburgh PA	M.S.	1985	Pharmacology
University of Pittsburgh School of Medicine	Ph. D.	1992	Neuropharmacology

A. Positions and Honors.**Positions and Employment**

- 1988 – 1992 Graduate Student Researcher, Department of Pharmacology, University of Pittsburgh School of Medicine, Pittsburgh, PA
- 1992 International Research Fellow, Showa University, Tokyo, Japan
- 1992 – 1997 NRSA Postdoctoral Fellow, UNC Chapel Hill Department of Physiology, Chapel Hill, NC
- 1997 Instructor, Dept. Pharmacology, University of Pittsburgh School of Medicine, Pittsburgh PA
- 1998 Research Assistant Professor of Pharmacology, University of Pittsburgh School of Medicine
- 2001 Assistant Professor of Medicine, University of Pittsburgh School of Medicine

Other Experience and Professional Memberships

Society for Neuroscience
Western Society for Pharmacology
International Continence Society
American Society for Pharmacology and Experimental Therapeutics
American Physiological Society
Society for Basic Urological Research

Honors

- 1989 Graduate Student Award Pittsburgh Society for Neuroscience
- 1991 Graduate Student Travel Award (ASPET annual meeting)
- 1992 NRSA Postdoctoral Fellowship
- 2002 Recipient IUPHAR Young Investigator 1st Place Award
- 2003 Senior Vice Chancellor Invited Presentation University of Pittsburgh
- 2003 APS Lazaro J. Mandel Young Investigator Award

B. Selected peer-reviewed publications (in chronological order).

- Birder LA**, de Groat WC. The effect of glutamate antagonists on c-fos expression induced in spinal neurons after irritation of the lower urinary tract. *Brain Res* 1992;580:115-120.
- Birder LA**, de Groat WC. Increased c-fos expression in spinal neurons after chemical irritation in the lower urinary tract of the rat. *J Neurosci* 1992;12:4878-4889.
- Birder LA**, de Groat WC. Induction of c-fos gene expression of spinal neurons of the rat by nociceptive and non-nociceptive stimulation of the lower urinary tract. *Am J Physiol* 1993;265:R326-R333.
- Birder LA**, Kanai AJ, de Groat WC. DMSO: effect on bladder afferent neurons and nitric oxide release. *J Urol* 1997;158:1989-1995.

Principal Investigator/Program Director (Last, First, Middle):

5. **Birder LA**, Apodaca G, de Groat WC, Kanai AJ. Adrenergic and capsaicin evoked nitric oxide release from urothelium and afferent nerves in urinary bladder. *Am J Physiol* 1998;275:F226-F229.
6. **Birder LA**, Kanai AJ, Tirney S, Huard J, Mattes CE, Ozawa H, Jung SY, Tzeng E, Kibbe M, Hierholzer C, Simmons RL, Billiar TR, de Groat WC, Chancellor MB. Direct measurement of basal NO release with a porphyrinic microsensor following inducible nitric oxide synthase gene therapy. *J Urol* 1998;159:5.
7. **Birder LA**, Roppolo JR, Erickson VE, de Groat WC. Increased c-fos expression in spinal projection and preganglionic neurons after irritation of the lower urinary tract in the rat. *Brain Res* 1999;834:55-69.
8. **Birder LA**, Perl ER. Expression of α_{2A} adrenergic receptors in rat primary afferent neurones after peripheral nerve injury or inflammation. *J Physiol* 1999;515:533-542.
9. Lecci A, **Birder LA**, Meini S, Catalioto RM, Tramontana M, Giuliani S, Criscuoli M, Maggi CA. The role of cyclooxygenase isoenzymes on the micturition reflex following experimental inflammation. *Br J Pharmacol* 2000;130:331-338.
10. Kim JC, Beckel JM, **Birder LA**, Kiss S, Siegfried J, Hopkins T, Kanai A, Dineley K, Reynolds I, de Groat WC. Nicotinic acetylcholine receptor subunit gene expression and functional properties of nicotinic receptors in human bladder epithelial cells. *J Urol* 2001;165:31.
11. Kim JC, Beckel JM, **Birder LA**, Kiss S, Washabaugh C, Kanai A, Caterina MC, de Groat WC. Messenger RNA expression of vanilloid receptor subtype 1 in urothelium and smooth muscle after bladder outlet obstruction in rat. *Urol Neurodyn*, 2001;20:445-446.
12. Lecci A, Carini F, Tramontana M, **Birder L**, de Groat W, Santicioli P, Giuliani S, Maggi CA. Effects of capsaicin in the rat and hamster urinary bladder. *Auton Neurosci* 2001;91:37-46.
13. Kanai AJ, Pearce LL, Clemens PR, **Birder LA**, VanBibber MM, Choi SY, de Groat WC, Peterson J. Identification of a neuronal nitric oxide synthase in isolated cardiac mitochondria using electrochemical detection. *Proc Natl Acad Sci USA* 2001;98:14126-14131.
14. **Birder LA**, Kanai AJ, de Groat WC, Kiss S, Nealen ML, Burke NE, Dineley KE, Watkins S, Reynolds IJ, Caterina MJ. Functional vanilloid receptors in non-neuronal urinary bladder epithelial cells. *Proc Natl Acad Sci USA* 2001;98:13396-13401.
15. Tirney S, Mattes CE, Yoshimura N, Yokayama T, Ozawa H, Tzeng E, **Birder LA**, Kanai AJ, Huard J, de Groat WC, Chancellor M. Nitric oxide synthase therapy for erectile dysfunction: comparison of plasmid, adenovirus, and adenovirus-transduced myoblast vectors. *Mol Urol* 2001;5:37-43.
16. Pearce LL, Kanai AJ, **Birder LA**, Pitt BR and Peterson J. The catabolic fate of nitric oxide: the nitric oxide oxidase and peroxynitrite reductase activities of cytochrome oxidase. *J Biol Chem* 2002;277:13556-13562.
17. Kanai AJ, Zeidel ML, Lavelle JP, Greenberger J, **Birder LA**, de Groat WC, Apodaca GL, Meyers SA, Ramage R, Epperly M. Manganese superoxide dismutase gene therapy protects against irradiation-induced cystitis. *Am J Physiol* 2002;283: F1304-1312.
18. **Birder LA**, Nealen M, Kiss S, de Groat WC, Caterina MJ, Wang E, Apodaca G, Kanai AJ. B-adrenergic agonists stimulate endothelial nitric oxide synthase in rat urinary bladder urothelial cells. *J Neurosci* 2002;22:8063-8070.
19. **Birder LA**, Nakamura Y, Kiss S, Nealen M, Barrick S, Kanai AJ, Wang E, Ruiz G, de Groat WC, Apodaca G, Watkins S, Caterina MJ. Altered bladder function in mice lacking the vanilloid receptor TRPV1. *Nat Neurosci* 2002;5:856-860.
20. **Birder LA**, Kiss S, de Groat WC, Lecci A, Maggi CA. Effect of nepadutant, an NK2 tachykinin receptor antagonist, on immediate-early gene expression following trinitrobenzenesulfonic acid (TNBS)-induced colitis in the rat. *J Pharmacol Exp Ther* 2003;304:272-276.
21. Kreiss C, **Birder LA**, Kiss S, Bauer AJ. COX-2 dependent inflammation activates intestinal primary afferents during rodent postoperative ileus. *Gut* 2003;52:527-34.
22. Chancellor MB, Tirney S, Mattes CE, Tzeng E, **Birder LA**, Kanai AJ, de Groat WC, Huard J, Yoshimura N. Nitric oxide synthase gene transfer for erectile dysfunction in a rat model. *BJU Int* 2003;91:696-696.
23. Apodaca G, Kiss S, Ruiz WG, Meyers S, Zeidel M, **Birder LA**. Disruption of bladder epithelium barrier function after spinal cord injury. *Am J Physiol* 2003;284:F966-976.

C. Research Support

Ongoing Research Support

Birder (PI)

7/1/02 – 6/30/04

Roche Bioscience

Principal Investigator/Program Director (Last, First, Middle):

Use of Microarray Technology to Evaluate Urothelial Targets within the Urinary Bladder

Goals: Use differential RNA expression to evaluate gene profiles in the rat and cat urinary bladder urothelium and to test selective probes (provided by Roche) to identify potential receptor urothelial targets.

Role: PI

R01 DK54824-04 Birder (PI)

7/01/02 – 6/30/06

NIH/NIDDK

Nitric Oxide in Bladder Neural-Epithelial Signaling

Goals: 1) Evaluate whether urothelial cells are involved in chemical signaling (neural-epithelial interactions) within the urinary bladder; 2) if alterations in nitric oxide (NO) may affect the barrier function of the urothelium and 3) to evaluate the effects of pathology (inflammation, spinal cord injury) on these interactions.

Role: PI

R01 DK57284-03 Birder (PI)

9/30/00 – 6/30/04

NIH/NIDDK

Role of Nitric Oxide in Interstitial Cystitis

Goals: Identify how alterations in NO production may play a role in the pathophysiology of interstitial cystitis (IC) studied in cats with a naturally occurring form of IC (feline interstitial cystitis).

Role: PI

1 P01 HD39768-01A1 Chancellor (PI)

8/22/01 – 6/30/06

NIH/NIDDK

Collaborative Urological Research in Spinal Cord Injury

Goals: Measurement of alterations in the levels of nitric oxide production (microsensor) and intracellular calcium (rhod-2 fluorescence) in the urothelial cells and autonomic neurons of spinal cord injured cats.

Role: Collaborator

2 R01 DK43955-12 Zeidel (PI)

4/1/02 – 3/31/07

NIH/NIDDK

Mechanisms of Water Flow Across Biological Membranes

Goals: This is a competing continuation of R01 DK43955. The goals of this project are to determine how the structure of apical membranes restricts the fluxes of water, small nonelectrolytes, and ammonia and; 2. To determine the mechanisms by which aquaporin water channels permit rapid and selective flow of water across membranes, and how urea transports mediate solute fluxes.

Role: Collaborator

Kanai (PI)

1/1/032 – 12/31/06

American Cancer Society

Nitric Oxide and Methyl-Nitroso-Urea Evoked Bladder Cancer

Goals: 1) Determine the involvement of NO and altered membrane resistance and permeability in MNU-induced urinary bladder cancer in the rat; and 2) Determine effectiveness of pharmacological NO modulation, surgical urinary diversion and dietary-induced alterations in urine composition on the induction of bladder cancer by MNU.

Role: Co-PI

1 P50 DK64539-01 Mayer (PI)

12/01/02 – 11/30/07

NIH/NIDDK – Specialized Centers of Research (SCOR)

Sex and Neuroendocrine Effects in Interstitial Cystitis

Goals: To investigate the neuroendocrine effects on both bladder afferent and urothelial properties of the urinary bladder in IC cats.

Role: Co-PI

Completed Research Support

Birder (PI)

7/01/98 – 6/30/00

American Heart Association; Beginning Grant-in-Aid

Principal Investigator/Program Director (Last, First, Middle):

Changes in properties of peptidergic/nitroergic cardiac nociceptors following myocardial infarction

Goals: To examine the effect of myocardial infarction on identified cardiac afferents.

Role: PI

Birder (PI)

9/15/98 – 8/31/00

Menarini Pharmaceuticals

The effect of the peptide NK2 receptor antagonist, MEN 11420, on proto-oncogene expression in rodents with experimental colitis

Goals: To evaluate the effect of a specific antagonist on proto-oncogene expression in a model of colitis in the rat.

Role: PI