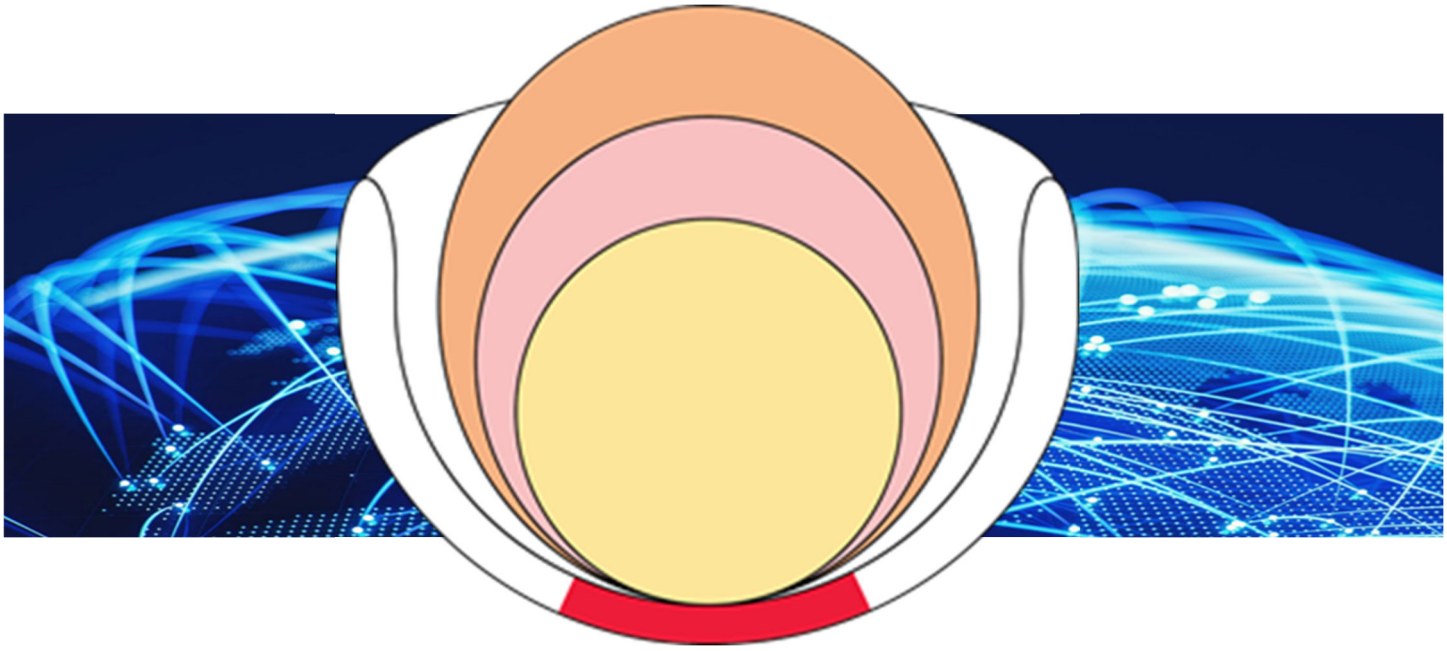
THE SOCIETY FOR PELVIC RESEARCH

SIXTH ANNUAL MEETING



MEETING PROGRAM

December 10-12, 2021
Virtual Meeting

#PelvRes21

In Partnership with:

The International Continence Society ICS

AUA Urology Research Conferences Advisory Board (URCAB) American Urological Association

The Sociedad Mexicana de Ciencias Urogenitales SMCU

Special Thanks to:

Mr. Michael Morran, the Zoom Support Specialist. He may be contacted for providing Zoom Support Services at<michaelhmorran@gmail.com>

The 2021 SPR Abstract Review Committee

Ma. hew O. Fraser, PhD
Michael E. DiSanto, PhD
Francis "Monty" Hughes, Jr., PhD
Johanna L. Hannan, PhD
Carol A. Podlasek, PhD
Sylvia O. Suadicani, PhD
Maryrose P. Sullivan, PhD

The 2021 SPR Online Meeting Preparation / Execution Volunteers

Trainee Affairs Committee Workshop

Michael R. Odom, PhD

Meeting

Matthew O. Fraser, PhD
Sylvia O. Saudicani, PhD
Michael R. Ruggieri, Sr, PhD
Kelvin P. Davies, PhD
Johanna L. Hannan, PhD
The SPR BOD

The 2021 SPR Trainee Awards Committee

Mary F. Barbe, PhD
Francis "Monty" Hughes, Jr., PhD
Sylvia O. Suadicani, PhD
Carol A. Podlasek, PhD
Invited Speakers who participated in judging

All those who attended and participated in the Sixth Annual Meeting

Our Mission Statement

To promote the highest standards of basic and translational science research directed toward understanding benign pelvic visceral and musculoskeletal function and dysfunction through education, interaction, and advocacy.

Our Vision Statement

The Society for Pelvic Research will be the premier professional organization for career basic and translational scientists and engineers interested in benign urogenital, distal gut and pelvic floor research.

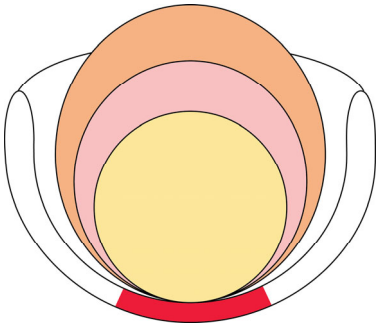
It will promote multidisciplinary interaction, intellectual cross-fertilization, networking for collaboration and career development through the regular dissemination of information via online resources, annual meetings and workshops, and published guidelines and standards for basic and translational science research.

Our History

The beginnings of the SPR trace back to the 2006 at a scientific meeting reception. Over refreshments, Matt Fraser and Mike DiSanto discussed starting a society that would serve the needs of the career basic/translational researchers in the field of Pelvic Medicine. It took until December of 2013 to take that initial thought and do something about it. An email went out to the original group and discussions and plans began. Additional Board Members were selected and invited to join in order to gain their expertise and a multidisciplinary balance.

After 5 years of Annual Meetings under two Presidents, we continue to forge new alliances with other scientific societies, have included a satellite symposium, and have been awarded an NIH R13.

Long Live the Society for Pelvic Research!



Our Board of Directors

President and **Annual Meeting Chair**
Michael R. Ruggieri, Sr, PhD
Professor, Department of Anatomy and Cell Biology, Temple University School of Medicine

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Professor, Departments of Urology and Physiology & Biophysics, Albert Einstein College of Medicine

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Mary F. Barbe, PhD
Professor, Department of Anatomy and Cell Biology, Temple University School of Medicine

Trainee Affairs Committee Chair
Michael R. Odom, PhD
Post-Doctoral Research Fellow, Department of Surgery, Duke University

Members at Large
Francis M. Hughes, Jr., PhD
Assistant Professor, Department of Surgery, Duke University

Yolanda Cruz Gómez, PhD
Professor, Centro Tlaxcala de Biología de la Conducta, Universidad Autónoma de Tlaxcala

Immediate Past President
Matthew O. Fraser, PhD (2015-2019)
Associate Professor, Department of Surgery, Duke University and Durham VA Medical Centers

Friday, December 10, 2021

Trainee Affairs Committee Workshop

11:00 AM	**Moderators: Michael Odom PhD and Matthew Fraser PhD**	
	Science Communication 101: Communicating your Science to an Audience of Everyone	**Jory Weintraub, PhD**

SPR 2021 Special Topic Symposium

	Aging of Pelvic Organs - Moderators: Michael Odom, PhD and Kelvin Davies, PhD	
1:00 PM	**Introduction**	**Kelvin Davies, PhD**
1:05 PM	**NOX enzymes in aging bladder dysfunction**	**Changhao Wu, MD PhD**
1:50 PM	**Murine Vaginal Remodeling with Maternal Age**	**Kristin S. Miller, PhD**
2:35 PM	**Is sexual function a marker of healthy aging?**	**Johanna Hannan, PhD**
3:10 PM	**Urogenital development, postnatal morphogenesis, and the aged penis**	**Carol Podlasek, PhD**
3:45 PM	**Q & A**	
4:00 PM	**BREAK**	

Main Meeting

4:15 PM	**Welcome, Day 1, Opening Remarks, Mission of SPR**	**Michael Ruggieri, Sr, PhD**
	Session 1: Funding Opportunities - Moderators: Mafalda Aresta Branco, PhD and Michael Ruggieri, Sr, PhD	
4:20 PM	**Special Guest Lecture - NIDDK/KUH Overview and Funding Considerations**	**Julia Barthold, MD**
4:50 PM	**Q & A**	
5:00 PM	**Social Hour**	

Saturday, December 11, 2021

12:00 PM	**Welcome, Day 2**	**Maryrose Sullivan, PhD**
	Session 2: Physiology, Pharmacology and Molecular Biology I - Moderators: Marianela Dalghi, PhD and Maryrose Sullivan, PhD	
12:05 PM	**Keynote Address / ICS Speaker - Reproducibility/robustness of non-clinical research**	**Martin Michel, MD**
12:45 PM	**Q & A**	
12:55 PM	ERK and oxidative stress contribute to High mobility group box 1-induced bladder pain	Shaojing Ye
1:05 PM	Specialized pro-resolution mediators in the bladder: receptor expression and recovery of bladder function from cystitis	Monty Hughes
1:15 PM	Lumbosacral sensory inputs from the rat penis also involve L3-L5 spinal segments	Martín Oloarte
1:25 PM	The nicotinic receptor subtype α3β4 mediates smooth muscle contractions in human and dog bladders by the release of acetylcholine from intramural nerve terminals	Nagat Frara
1:35 PM	**Q & A**	
1:45 PM	**BREAK**	

Saturday, December 11, 2021

Session 3: Therapeutic Development I - Moderators: Wrenn Palla, BS and Carol Podlasek, PhD

2:15 PM	Imaging lead placement and measuring EMG responses to stimulation in subjects using the InterStim™ system for sacral neuromodulation therapy	Katelynn Johnson for Rebecca Levine
2:25 PM	Estimating Detrusor Pressure from Single-Channel Urodynamics for Long-Term Bladder Monitoring.	Farhath Zareen
2:35 PM	Investigating the effect of tibial and pudendal nerve stimulation on external vaginal blood flow in anesthetized rodents	Elizabeth Bottorff
2:45 PM	Soft silicone-based neural interface to modulate bladder function: Chronic study	Ritesh Kumar
2:55 PM	A preclinical test platform for void monitoring during sacral neuromodulation	Lisa Jungbauer Nikolas
3:05 PM	**Q & A**	

Session 4: Neuroscience of the Pelvis - Moderators: Clifford Pierre, MS and Matthew Fraser, PhD

3:20 PM	**State of the Art Lecture - Neural Interactions of the Pelvic Viscera**	**Michael Pezzone, MD PhD**
4:00 PM	**Q & A**	
4:10 PM	Aging exacerbates the effect of Alzheimer's disease associated urinary dysfunction in two mouse models	Cara Hardy[Y]
4:20 PM	Role of PIEZO channels in urothelial mechanotransduction and bladder function	Marianela Dalghi*
4:30 PM	High glucose decreases parasympathetic and nitrergic neurons, increases sympathetic neurons and promotes apoptosis in cultured pelvic neurons	Wrenn Pallas*
4:40 PM	Diabetes mellitus affects both autonomic neurons and glial cells from the major pelvic ganglion in male rats	Aarón Pérez-Gutierrez
4:50 PM	Erectile dysfunction resulting from pelvic surgery is associated with changes in cavernosal gene expression indicative of cavernous nerve injury	Kelvin Davies for Guillermo Villegas
5:00 PM	**Q & A**	

Sunday, December 12, 2021

12:00 PM	**Welcome, Day 3**	**Matthew Fraser, PhD**

Session 5: Physiology, Pharmacology and Molecular Biology II - Moderators: Ritesh Kumar, MS PhD-Candidate and Johanna Hannan, PhD

12:05 PM	**Keynote Address - Experimental approaches for determining impact of pelvic surgeries on female sexual health: Basic science evidence trying to lead change in clinical practice**	**Michael Adams, PhD**
12:45 PM	**Q & A**	
12:55 PM	Elderly mouse detrusor maintains its peak force of contraction over time	Nadav Mortman
1:05 PM	Diabetes Causes NLRP3-Dependent Barrier Dysfunction in Mice Associated with Detrusor Overactivity but not Underactivity	Michael Odom[Y]
1:15 PM	Mapping Cannabinoid Receptor Distribution in the Human Vagina and Comparison to Cannabinoid Receptor Expression in Human Cerebellum	Jasjit Beausang for Tess Crouss
1:25 PM	Sonic hedgehog signaling in corpora cavernosal smooth muscle from prostatectomy, diabetic, hypertension and Peyronie's patients with erectile dysfunction	Sarah Martin*[Y]
1:35 PM	Mechanosensitive degradation of ATP in lamina propria of the murine bladder	Mafalda Aresta Branco
1:45 PM	**Q & A**	
2:00 PM	**BREAK**	

Session 6: Therapeutic Development II - Moderators: Elizabeth Bottorff, MS and Monty Hughes, PhD

2:15 PM	Restoration of bladder, urethral and anal sphincter function after surgical reinnervation in lower motor neuron lesioned canines	Ekta Tiwari
2:25 PM	Characterization of the parameters of electrical stimulation to activate the pelvic floor nerves of the female rabbit	Cecilia Hernández-Bonilla
2:35 PM	Long-term administration of Resveratrol and MitoQ on endothelial function in a mouse model of erectile dysfunction	Clifford Pierre
2:45 PM	Mechanisms involved in nicotinamide adenine dinucleotide phosphate (NADPH) oxidase (Nox)-derived reactive oxygen species (ROS) modulation of muscle function in human bladders	Nagat Frara
2:55 PM	Sensory stimulation with an enriched environment improves urological functions in rats with severe spinal cord injury	Maria Santiago-Aparicio*
3:05 PM	**Q & A**	

Sunday, December 12, 2021

Session 7: Physiology, Pharmacology and Molecular Biology III - Moderators: Cara Hardy, PhD and Sylvia Suadicani, PhD

3:20 PM	**State of the Art - The role of interstitial cells in the regulation of internal anal sphincter function**	**Caroline Cobine, PhD**
4:00 PM	**Q & A**	
4:10 PM	Functional interaction between synaptic proteins Myosin 5a and α-synuclein in normal and diabetic bladders.	Vivian Cristofaro*
4:20 PM	Pathway enrichment analysis of microarray data from penis of Peyronie's and diabetic patients, in comparison with diabetic rat erectile dysfunction models	Timothy Searl
4:30 PM	Microarray and pathway analysis of corpora cavernosal tissue from Peyronie's and Prostatectomy patients with erectile dysfunction in comparison to a rat cavernous nerve resection model	Timothy Searl
4:40 PM	Smooth muscle contractility using different measurement techniques and different conditions: What's it all mean?	Matthew Fraser
5:00 PM	**Q & A**	
5:15 PM	**Trainee Awards Presentations**	**Mary Barbe, PhD and Monty Hughes, PhD**
5:25 PM	**Closing Remarks**	**Michael Ruggieri, Sr, PhD and Kelvin Davies, PhD**
5:30 PM	**MEETING ADJOURNS**	

*** - Asterisk by name of Abstract Presenter indicates Top 5 Reviewed Abstract by the SPR Abstract Review Committee**

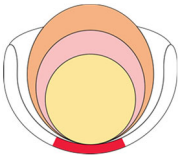
$^{\Upsilon}$– Upsilon by name of Abstract Presenter indicates Top 3 Trainee Presentation Award Winners

Top 5 Pre-Meeting Reviewed Abstracts (Abstract Review Committee)

Vivian Cristofaro*	Functional interaction between synaptic proteins Myosin 5a and α-synuclein in normal and diabetic bladders.
Marianela Dalghi*	Role of PIEZO channels in urothelial mechanotransduction and bladder function
Wrenn Pallas*	High glucose decreases parasympathetic and nitrergic neurons, increases sympathetic neurons and promotes apoptosis in cultured pelvic neurons
Maria Santiago-Aparicio*	Sensory stimulation with an enriched environment improves urological functions in rats with severe spinal cord injury
Sarah Martin*$^{\Upsilon}$	Sonic hedgehog signaling in corpora cavernosal smooth muscle from prostatectomy, diabetic, hypertension and Peyronie's patients with erectile dysfunction

Top 3 Trainee Presentation Awards (Trainee Awards Committee)

Michael Odom$^{\Upsilon}$	Diabetes Causes NLRP3-Dependent Barrier Dysfunction in Mice Associated with Detrusor Overactivity but not Underactivity
Cara Hardy$^{\Upsilon}$	Aging exacerbates the effect of Alzheimer's disease associated urinary dysfunction in two mouse models
Sarah Martin*$^{\Upsilon}$	Sonic hedgehog signaling in corpora cavernosal smooth muscle from prostatectomy, diabetic, hypertension and Peyronie's patients with erectile dysfunction



6th Annual Meeting of the Society for Pelvic Research

December 10-12, 2021

Virtual Format

#PelvRes21

Start Time	End Time	Abst #		Presenter
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Trainee Workshop				
			Trainee Affairs Committee Workshop - Moderators: Michael Odom PhD and Matthew Fraser PhD	
11:00 AM	12:00 PM		**Science Communication 101: Communicating your Science to an Audience of Everyone**	**Jory Weintraub, PhD**
SPR 2021 Special Topic Symposium				
			Aging of Pelvic Organs - Moderators: Michael Odom, PhD and Kelvin Davies, PhD	
1:00 PM	1:05 PM		**Introduction**	**Kelvin Davies, PhD**
1:05 PM	1:50 PM		**NOX enzymes in aging bladder dysfunction**	**Changhao Wu, MD PhD**
1:50 PM	2:35 PM		**Murine Vaginal Remodeling with Maternal Age**	**Kristin S. Miller, PhD**
2:35 PM	3:10 PM		**Is sexual function a marker of healthy aging?**	**Johanna Hannan, PhD**
3:10 PM	3:45 PM		**Urogenital development, postnatal morphogenesis, and the aged penis**	**Carol Podlasek, PhD**
3:45 PM	4:00 PM		**Q & A**	
4:00 PM	4:15 PM		**BREAK**	
Main Meeting				
4:15 PM	4:20 PM		**Welcome, Day 1, Opening Remarks, Mission of SPR**	**Michael Ruggieri, Sr, PhD**
			Session 1: Funding Opportunities - Moderators: Mafalda Aresta Branco, PhD and Michael Ruggieri, Sr, PhD	
4:20 PM	4:50 PM		**Special Guest Lecture - NIDDK/KUH Overview and Funding Considerations**	**Julia Barthold, MD**
4:50 PM	5:00 PM		**Q & A**	
5:00 PM	6:00 PM		**Social Hour**	
Saturday, December 11, 2021				
12:00 PM	12:05 PM		**Welcome, Day 2**	**Maryrose Sullivan, PhD**
			Session 2: Physiology, Pharmacology and Molecular Biology I - Moderators: Marianela Dalghi, PhD and Maryrose Sullivan, PhD	
12:05 PM	12:45 PM		**Keynote Address / ICS Speaker - Reproducibility/robustness of non-clinical research**	**Martin Michel, MD**
12:45 PM	12:55 PM		**Q & A**	
12:55 PM	1:05 PM	S2A1	ERK and oxidative stress contribute to High mobility group box 1-induced bladder pain	Shaojing Ye
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1:25 PM	1:35 PM	S2A4	The nicotinic receptor subtype α3β4 mediates smooth muscle contractions in human and dog bladders by the release of acetylcholine from intramural nerve terminals	Nagat Frara
1:35 PM	1:45 PM		**Q & A**	
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2:25 PM	2:35 PM	S3A7	Estimating Detrusor Pressure from Single-Channel Urodynamics for Long-Term Bladder Monitoring.	Farhath Zareen
2:35 PM	2:45 PM	S3A8	Investigating the effect of tibial and pudendal nerve stimulation on external vaginal blood flow in anesthetized rodents	Elizabeth Bottorff
2:45 PM	2:55 PM	S3A9	Soft silicone-based neural interface to modulate bladder function: Chronic study	Ritesh Kumar
2:55 PM	3:05 PM	S3A10	A preclinical test platform for void monitoring during sacral neuromodulation	Lisa Jungbauer Nikolas
3:05 PM	3:20 PM		**Q & A**	
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4:00 PM	4:10 PM		**Q & A**	
4:10 PM	4:20 PM	S4A11	Aging exacerbates the effect of Alzheimer's disease associated urinary dysfunction in two mouse models	**Cara Hardy^{Y}**
4:20 PM	4:30 PM	S4A12	Role of PIEZO channels in urothelial mechanotransduction and bladder function	**Marianela Dalghi***
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4:50 PM	5:00 PM	S4A15	Erectile dysfunction resulting from pelvic surgery is associated with changes in cavernosal gene expression indicative of cavernous nerve injury	Kelvin Davies for Guillermo Villegas
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4:10 PM	4:20 PM	S7A26	Functional interaction between synaptic proteins Myosin 5a and α-synuclein in normal and diabetic bladders.	**Vivian Cristofaro***
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^{Y} - Upsilon by name of Abstract Presenter indicates one of the Top 3 Trainee Presentation Award Winners

Dr. Jory Weintraub, PhD

Jory Weintraub is the Science Communication Director and a Senior Lecturing Fellow with Duke University's Initiative for Science & Society, where he teaches science communication courses for undergraduates and graduate students, and conducts science communication training for faculty. Jory received a BS in Biochemistry/Cell Biology from University of California at San Diego, and a PhD in Immunology from University of North Carolina at Chapel Hill. He then received an NSF postdoctoral fellowship in STEM education, and has since focused his career on science communication, STEM outreach/public engagement, diversity/equity/inclusion in STEM and faculty professional development.

Science Communication 101: Communicating your Science to an Audience of Everyone

Funding is scarce. Science has become polarized and politicized. Anti-science rhetoric is on the rise. Public understanding of (and support for) science is shaped by myriad influences – many of them non-scientific. Yet, empirical data suggest that the public remains excited about science and technology, and values the societal contributions of scientists and engineers. It is clear that effective science communication both empowers citizens and benefits the careers of scientists and engineers. This activity-based workshop will provide scientists and engineers at all levels with training to develop science communication skills and put those skills into action.

Dr. Changhao Wu, MD PhD

Dr Changhao Wu is a professor of cell physiology at University of Surrey. His research is mainly focused on cellular physiology of the bladder and pathophysiology of bladder aging and dysfunction. Dr Wu's laboratory has made important contributions in the discovery of several new ion channels, functional receptors, membrane transporters and intracellular signalling pathways in bladder smooth muscle, urothelium and suburothelium. His team has also identified several pathogenic processes that underlie the bladder overactivity.

Nox enzymes in aging bladder dysfunction

Dr Wu will present the most recent data on the identification of the unique drug-targetable ROS generating enzyme – NADPH oxidases (Nox enzymes) in the bladder. The functional role of Nox enzymes in the bladder and their pathological implications in bladder aging and dysfunction will also be discussed.

Dr. Kristin S. Miller, PhD

Dr. Kristin S. Miller is an Associate Professor of Biomedical Engineering at Tulane University. Dr. Miller's research interests are focused on the mechanobiology of soft tissues, including evaluating the role of elastic fibers and contractility in the female reproductive system. Before joining Tulane, Dr. Miller conducted postdoctoral research at Yale University and received her PhD in Bioengineering at the University of Pennsylvania. In 2018, Kristin was awarded the NSF CAREER award to develop a biomechanical model that can predict how elastic fibers in the soft tissues of the female reproductive system change in response to mechanical pressure. In 2021, Kristin was awarded the YC Fung Early Career Award from the American Society of Mechanical Engineers.

Murine Vaginal Remodeling with Maternal Age

Elastic fibers are present in most soft biological tissues and are critical to maintaining tissue function as well as providing compliance, resilience, and the ability to recoil. Loss of elastic fibers may alter tissue adaptation by both mechanical and biochemical pathways, including loss of structural integrity of the tissue and alteration in the smooth muscle cell phenotype; however, the relationship between elastic fibers and vaginal mechanical properties are not fully elucidated and may contribute to pathologies such as increased obstetric injury with aging and pelvic floor disorders. In this talk, I will present our efforts to delineate the mechanical role of elastic fibers and smooth muscle cells in the murine vagina, and how these relationships evolve with reproductive aging.

Dr. Julia Barthold, MD

As a Program Director at the Division of Kidney, Urologic and Hematologic Diseases (KUH) at the National Institute for Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health (NIH), my portfolio includes clinical, translational, and genetic/genomic studies focused on benign diseases of the bladder and urinary tract in adults, such as urinary incontinence, overactive and underactive bladder, neurogenic bladder dysfunction and urinary tract infections. I also oversee benign urologic disease research in children, including obstructive uropathy, vesicoureteral reflux, incontinence and enuresis, urinary tract conditions associated with spina bifida, and congenital abnormalities of the urinary tract and male genitalia. In addition, I serve as Project Scientist for the Prevention of Lower Urinary Tract Symptoms (PLUS) Research Consortium and the Urology Centers Program.

NIDDK/KUH Overview and Funding Considerations

My presentation will focus on an overview of NIDDK/KUH and the resources available to applicants and grantees. I will discuss available training opportunities, other initiatives that provide opportunities for funding, and highlights of the NIH application submission and review process.

Dr. Martin Michel MD

Martin C. Michel is a physician scientist trained in Germany. He has held various senior positions in academia (e.g., Head of Pharmacology, Amsterdam University) and industry (Head of translational research, Boehringer Ingelheim). His research interests focus on the cardiovascular and urogenital system, most recently mainly on alterations of bladder function in diabetes. Additionally, he works on reproducibility of experimental data.

Reproducibility/robustness of non-clinical research

Apparently, more than 50% of published findings in the experimental life sciences cannot be reproduced. The lecture will discuss main causes and remedies, i.e. those related to biases at the level of study design, conduct, analysis and reporting, to low statistical power and to poor understanding and inappropriate use of statistical analysis.

Dr. Michael Pezzone, MD PhD

Dr. Michael A. Pezzone, M.D., Ph.D., is an Associate Professor of Medicine and Pharmacology & Chemical Biology at the University of Pittsburgh School of Medicine. He is Chief of Gastroenterology at UPMC Mercy, a 500-bed tertiary care teaching hospital in the Uptown section of Pittsburgh. During his graduate work, he studied neural pathways mediating stress-induced immune alterations with Bruce Rabin, and during residency and fellowship, he studied neuroimmune interactions in the gut with Chet de Groat where he developed an animal model of cross-organ sensitization in collaboration with Matthew Fraser. His current interests remain in visceral afferent sensitization and cross-sensitization and the role of neurogenic inflammation, as he re-establishes his collaborative efforts with the Pitt Urology and Pharmacology research groups.

Neural Interactions of the Pelvic Viscera

Dr. Pezzone will discuss chronic pelvic pain, the overlap of chronic pelvic pain disorders, and cross organ sensitization. He will review some of his own research and recent advances in the literature, and discuss therapeutic and future experimental trends.

Dr. Michael Adams, PhD

Dr. Michael Adams is a researcher, educator and an academic builder at Queen's University. As a research scientist, Dr. Adams has had a long-term focus on developing new strategies in the prevention and treatment of sexual dysfunction, kidney disease and cardiovascular disease. He has published more than 180 scientific papers and chapters and has 16 separate patented inventions. For the latter activities he was given the award for Most Prolific Inventor, Life Sciences at Queen's in 2007. In addition, Dr. Adams has been a founder of two start-up companies and was successful in developing a drug that reached the world market. He has mentored to successful completion more than 80 graduate students and 10 postdoctoral fellows. Dr. Adams has been an educator for several decades and more recently founded and now is Director of the new Bachelor of Health Sciences (BHSc) degree program; using a blended teaching approach and alignment with core competencies consistent with those found in health care professional programs. For these and other contributions, Dr Adams has received numerous awards for his contributions to both research and education.

Experimental approaches for determining impact of pelvic surgeries on female sexual health: *Basic science evidence trying to lead change in clinical practice*

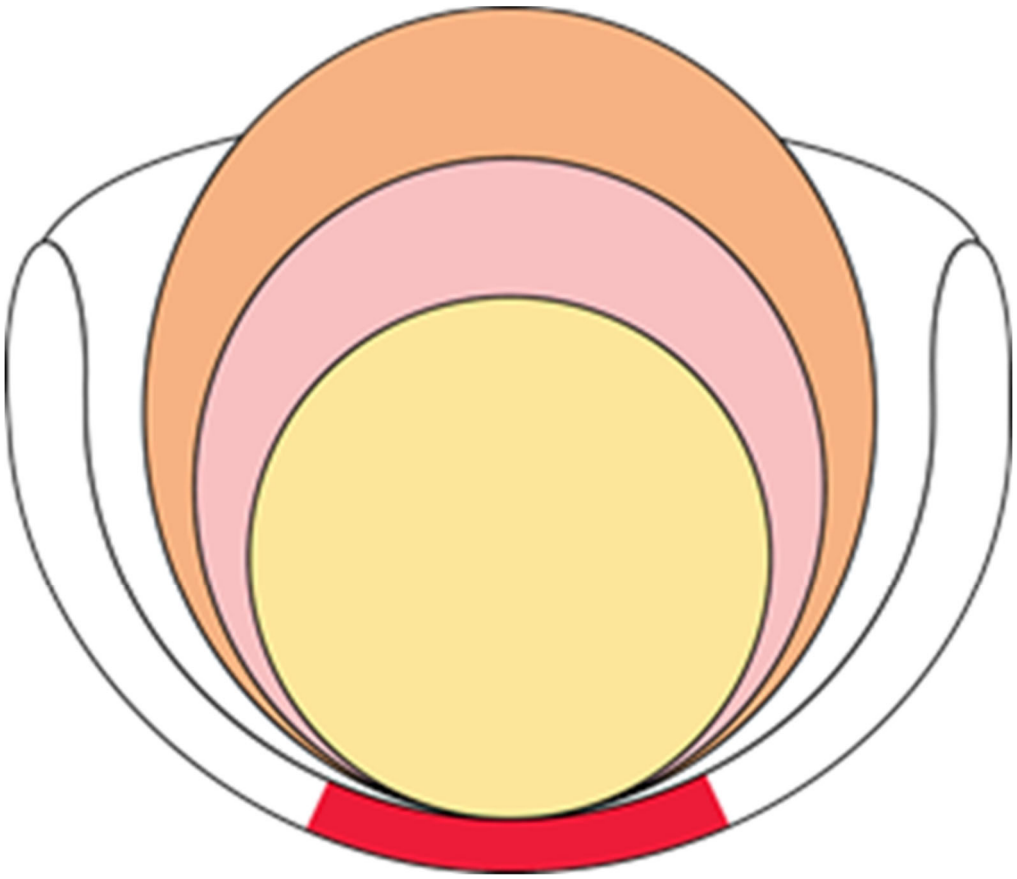
Studies highlighting the use of cadaveric research, to assess how two specific surgeries can potentially negatively impact female sexual function, will be presented. Specifically, the two surgical approaches in women which will be discussed include the Loop Electrosurgical Excision Procedures (LEEP), used to manage cervical dysplasia, and the Mid-Urethral Sling (MUS) procedure, performed to treat stress urinary incontinence. The context of a significant gap in knowledge regarding female pelvic anatomy, particularly regarding innervation that likely plays a role in female sexual responses is introduced. The evidence provided details the potential for negatively impacting autonomic and sensory innervation in both surgical fields including to glandular structures, blood vessels and the epithelium and sub-epithelium.

Dr. Caroline A. Cobine, PhD

Dr. Caroline Cobine is an Assistant Professor in the Dept. of Physiology and Cell Biology. She obtained her B.Sc. in Biomedical Science from Queen's University, Belfast, Northern Ireland and her Ph.D. in Cellular and Molecular Pharmacology and Physiology from the University of Nevada, Reno. Her interest in smooth muscle physiology and the mechanisms underlying the generation of tone came during her undergraduate studies after spending a year in the laboratory of Dr. Kathleen Keef. Subsequently, she began to investigate the role of interstitial cells in the regulation of rectoanal motility in Dr. Keef's laboratory during her graduate studies. Dr. Cobine has continued to work in this area ever since and has recently expanded her work on interstitial cells to the lower esophageal sphincter resulting in the receipt of her first R01 grant from the NIDDK. Dr. Cobine was also awarded the 2021 E.W. Richardson Excellence in teaching award from the University of Nevada, Reno School of Medicine and the 2021 Northern Nevada Healthcare Hero Educator Award from Nevada Business Magazine.

The role of interstitial cells in the regulation of internal anal sphincter function

The internal anal sphincter (IAS) is located at the distal end of the gastrointestinal (GI) tract. The IAS is responsible for ~70-85% of resting anal tone yet only 0.3% of the published literature from the GI tract is focused on studies of this region. The IAS is a phasically active muscle that generates tone. Early studies in the cat IAS indicated that phasic contractions were associated with electrical slow wave activity. Studies in other regions of the GI tract have indicated that slow waves are generated by pacemaker interstitial cells of Cajal (ICC). Neuromuscular transmission in the GI tract has also been shown to involve both ICC and a second class of interstitial cell, PDGFRa+ cells. However, less is known about the functions of interstitial cells in the regulation of IAS motility. Recent advances in the development of transgenic mice that express GFP or the calcium indicator GCaMP6f selectively in specific cell populations have furthered our knowledge of the role of interstitial cells in the IAS. Greater understanding of how IAS motility is regulated will lead to the development of better treatment strategies for conditions such as fecal incontinence and anal fissures.



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