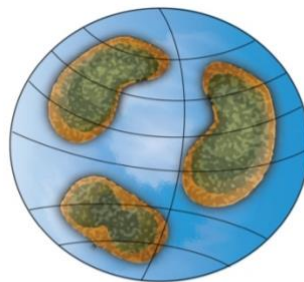


5TH CLINICAL AND SCIENTIFIC ADVANCES IN URINARY TRACT INFECTIONS

**Hyatt Regency Hotel
Columbus, Ohio
July 19-21, 2024**



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.™



*Urinary Tract Infection
Global Alliance*

5th Clinical and Scientific Advances in Urinary Tract Infections

July 19-21, 2024

Hyatt Regency Columbus

Friday, July 19

3:00 – 7:00 pm

Registration

Foyer of the Hayes/McKinley Conference Rooms-First Floor

4:00 – 5:45 pm

Opening Reception and Cash Bar

5:45 – 6:00 pm

Welcome, Opening Remarks and Announcements

Joanne Turner, PhD, Abigail Wexner Research Institute at Nationwide Children's

Molly Ingersoll, PhD, Institute Pasteur

Opening Keynotes:

6:00 – 6:35 pm

Antibiotic resistant uropathogenic *E. coli* – it's all about the clones

Mark Schembri, PhD, University of Queensland

6:35 – 7:10 pm

Recurrent UTI: Current concepts and future directions

Ann Stapleton, MD, University of Washington

7:10 – 7:45 pm

Two's a party, three's a crowd? Implications of polymicrobial bacteriuria in patients with long-term catheters

Chelsie Armbruster, PhD, University of Buffalo

Lifetime Achievement Presentation

7:45 – 8:20 pm

UPEC: from MRHA to Gene Expression during UTI

Harry Mobley, PhD, University of Michigan

Saturday, July 20

7:00 am – 5:00 pm

Registration

Foyer of the Hayes/McKinley Conference Rooms-First Floor

Panel Discussion: Diagnosis of UTI

Moderator: Barbara Trautner, MD, PhD, Baylor College of Medicine

8:00 – 8:15 am

What is acute cystitis (in women) and how do we diagnose it?

Nazema Siddiqui, MD, Duke University

8:15 – 8:30 am

What is asymptomatic bacteriuria and how do we diagnosis it?

Barbara Trautner, MD, PhD Baylor College of Medicine

8:30 – 8:45 am

What is a contaminated urine culture, and how do we distinguish this from true bacteriuria?

Thomas Mac Hooton, MD, University of Miami

8:45 – 9:00 am

What is prostatitis, and how often does it occur with male cystitis?

Dimitri Drekonja, MD, University of Minnesota

9:00 – 9:10 am

Discussion

9:10 – 9:25 am

BREAK

Session I: Microbial Pathogenesis

Moderator: Sarguru Subash, DVM, PhD Texas A & M University

9:25 – 9:45 am

Niche-specific requirements for UPEC during UTI

Maria Hadjifrangiskou, PhD, Vanderbilt University Medical Center

9:45 – 10:05 am

Gain of function enterococcal cytolysin targets bladder epithelial cells and the urinary microbiota

Nicole De Nisco, PhD, University of Texas-Dallas

10:05 – 10:25 am

Unveiling CAUTIs' Achilles heels to develop efficient intervention strategies

Ana Flores-Mireles, PhD, Notre Dame University

10:25 – 10:32 am

Delineating the Pathogenesis of *Pseudomonas aeruginosa* Urinary Tract Infections

Seth Reasoner, Vanderbilt University Medical Center

10:32 – 10:39 am

The effects of diabetes mellitus and sex on the susceptibility to urinary tract infection susceptibility

Bidhan Gautam, University of Louisiana

10:39 – 10:46 am

Dysregulated host fibrinolysis exacerbates catheter associated urinary tract infection severity and predisposes hosts to septicemia from mono- and polymicrobial infections

Jonathan Molina, MS, University of Notre Dame

Session II: Treatment of UTI

Moderator: Christina Ching, MD, The Abigail Wexner Research Institute

10:50 – 11:10 am	Avoiding the Blame Game: UTI Management in Individuals with Neurogenic Bladder <i>Hillary Copp, MD, University of California San Francisco</i>
11:10 – 11:30 am	Pediatric UTI - How Long to Treat? <i>Joshua Watson, MD, Nationwide Children's Hospital</i>
11:30 – 11:50 am	Morphological plasticity as a therapeutic target <i>Sheryl Justice, PhD, The Ohio State University</i>
11:50 – 11:57 am	Vaginal <i>Lactobacillus</i> directly inhibits and modulates host immune response to uropathogenic <i>E. coli</i> in a human vaginal epithelial organoid model <i>Samantha Ottinger, MS, Baylor College of Medicine</i>
11:57 – 12:04 pm	Dual function of N-acetyl cysteine in eradicating <i>P. aeruginosa</i> catheter-associated UTIs <i>Arthika Manoharan, PhD, The University of Sydney</i>
12:04 – 12:11 pm	Identification of A Copper-responsive Small Molecule Inhibitor of Uropathogenic <i>E. coli</i> <i>Braden Hanson, Texas A & M University</i>
12:11 – 1:00 pm	LUNCH PROVIDED IN XXX “LUNCH AND LEARN” ALLIANCE FOR PATIENT-CENTERED UTI RESEARCH UTI HEALTH ALLIANCE, LIVE UTI FREE, CHRONIC UTI AUSTRALIA, CUTIC SCIENTIFIC WRITING AS A BIOMEDICAL CAREER, JENNIE HAZEN, PhD

Session III: Comorbidities with UTI

Moderator: John David Spencer, MD The Abigail Wexner Research Institute

1:00 – 1:20 pm	Asymptomatic Bacteriuria and Urinary Tract Infection in pregnant women <i>Suzanne Geerlings, MD, Amsterdam UMC, the Netherlands</i>
1:20 – 1:40 pm	Urinary Tract Infections in renal transplantation <i>Frederike Bemelman, MD, Amsterdam UMC, the Netherlands</i>
1:40 – 2:00 pm	Urinary Tract Infections in pediatrics <i>Emily Stonebrook, MD, Nationwide Children's Hospital</i>
<i>SUPER Summer Students</i> 2:00 – 2:05 pm	Insulin Sensitization and UTI <i>Drew Kauffman, Tulane University</i>
2:05 – 2:10 pm	Urinary tract transcriptomic changes during UTI <i>Rishil Patel, Ohio State University</i>
2:10 – 2:15 pm	Phagocyte immune responses and UTI <i>Macie Kercksmar, University of Tennessee</i>
2:15 – 2:20 pm	Impact of diabetes of urinary antimicrobial peptides <i>Natalie Holdsworth, Ohio University College of Medicine</i>

Poster Session

2:20 – 4:15 pm

Please visit Posters in the McKinley room

Session IV: Immunological Responses to UTI

Moderator: Molly Ingersoll, PhD, Institut Pasteur

4:15 – 4:35 pm

Tissue-resident memory T cells mediate mucosal immunity to recurrent urinary tract infection

Matthieu Rousseau, PhD, Institut Pasteur

4:35 – 4:55 pm

The pros and cons of neutrophils in UTI

Katy Patras, PhD, Baylor College of Medicine

4:55 – 5:15 pm

Innate immune modulation to treat bacterial infections, including antibiotic-resistant strains

Inès Ambite, PhD, Lund University

5:15 – 5:22 pm

Neutrophil NADPH oxidase (NOX2) orchestrates immunity against urinary tract infections while fine-tuning inflammation via the Nrf2-Keap1 system

Israel Cotzomi-Ortega, PhD, Nationwide Children's Hospital

5:22 – 5:29 pm

Investigating the role of Irg1/itaconate axis in the epithelial and immune compartments of the aging bladder in response to a UTI

Adwaita Parab, MS, Baylor College of Medicine

5:29 – 5:36 pm

Insulin resistance deregulates kidney's innate immune defenses that may increase UTI risk

Vidhi Tyagi, PhD, Nationwide Children's Hospital

5:40 – 6:30 pm

Adjourn with Cash Bar and appetizers.

Sunday, July 21

7:00 am – 12:00 pm

Registration

Foyer of the Hayes/McKinley Conference Rooms-First Floor

Session V: Selected from Abstracts

Moderator: Laura Schwartz, PhD The Abigail Wexner Research Institute

8:00 – 8:15 am

Characterize interactions between *Enterococcus faecalis* and *Klebsiella pneumoniae* in Polymicrobial Catheter-Associated Urinary Tract Infections
Zongsen Zou, PhD Washington University in St. Louis

8:15 – 8:30 am

The microbial and biochemical ecology of the urogenital microbiome is associated with recurrent UTI in postmenopausal women
Michael Neugent, PhD, The University of Texas at Dallas

8:30 – 8:45 am

The Ins and Outs of *Proteus mirabilis* Sugar Transport during Urinary Tract Infection
Allyson Shea, PhD, University of South Alabama

8:45 – 9:00 am

Exploring the impact of polymicrobial biofilm communities in urinary tract infections (UTIs) using a urine-tolerant human urothelial organoid model (3D-UHU)
Ramon Garcia Maset, PhD, University College of London

9:00 – 9:15 am

Sex Effects on Human Urine Regulate *Klebsiella pneumoniae* Capsular Polysaccharide Properties
Brooke Ring, MPH, University of Toledo

Poster Session

9:15 – 10:30 pm

Please visit Posters in the McKinley room

Session VI: New Frontiers in UTI

Moderator: Sheryl Justice, PhD, The Ohio State University

10:30 – 10:50 am

Why are UTIs so hard to diagnose and treat? Hints from a human urothelial microtissue model
Jennifer Rohn, PhD, University College London

10:50 – 11:10 am

Pain in autistic people: when pain communication could impede diagnosis.
Michelle Failla, PhD, The Ohio State University

11:10 – 11:30 am

Neuro-immune interactions underlying bladder hypersensitivity during UTI.
Luke Grundy, PhD, Flinders University

11:30 – 11:50 am

Psychological Perspectives on Recurrent UTI
Anne Dawson, PhD, Nationwide Children's Hospital

11:50 am

Closing Remarks and Adjournment
Sheryl Justice, PhD, The Ohio State University
Maria Hadjifrangiskou, PhD, Vanderbilt University Medical Center

2024 Urinary Tract Infection Global Alliance Travel Awards

International Awardees

Ramon Garcia-Maset, University College of London

Arthika Manoharan, The University of Sydney

Benjamin Sellner, University of Basel

Domestic Awardees

Surbhi Gupta, University of Michigan

Benjamin Hunt, University of Buffalo

Bishnu Joshi, Baylor College of Medicine

Michael Neugent, University of Texas-Dallas

Zongsen Zou, Washington University in St. Louis

Clinical Definitions

Asymptomatic bacteriuria (ABU): bacteria in the urine in the absence of symptoms

Blood urea nitrogen (BUN): blood test measuring nitrogen that comes as a result of urea; reflects kidney and liver function

CAUTI: “catheter associated urinary tract infection”

Creatinine: produced as a result of muscle metabolism; reflects kidney function

Cystatin C: protein used to measure glomerular filtration rate; reflects kidney function

Cystitis: inflammation of the bladder; can be caused by infection

Cystoscopy: minimally invasive direct visualization of the inside of the bladder with a small lens placed through the urethra

DMSA: an imaging study to evaluate for renal scarring

Hematuria: blood in the urine

Hydronephrosis: urine in the renal pelvis that is not normally seen; can be concerning for obstruction or urinary reflux

Myelomeningocele: most serious form of spina bifida where both the spine and the spinal cord are abnormal. Specifically, the spine did not form or close normally exposing the spinal cord on the back.

Neurogenic bladder: bladder dysfunction due to neurologic damage or abnormality

Obstructive uropathy: urinary tract obstruction that can affect kidney function

Pyelonephritis: inflammation of the kidney usually caused by infection

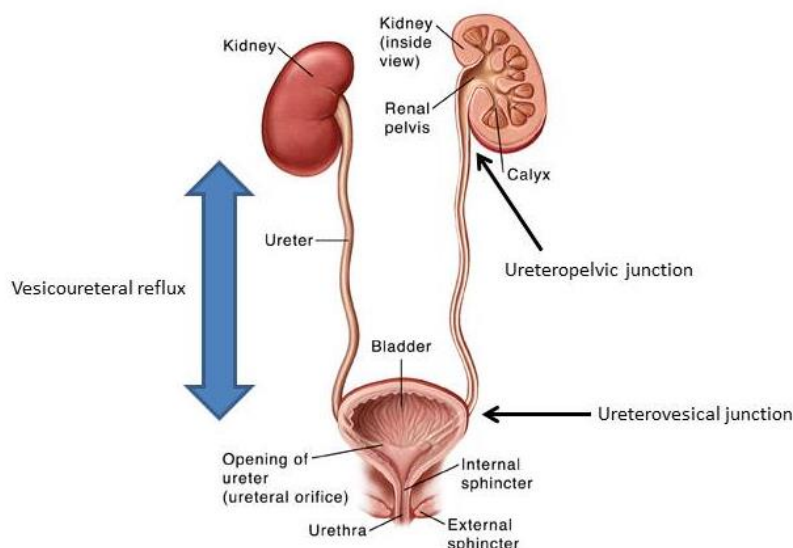
Spina bifida: developmental defect of the neural tube

Ureteropelvic junction: the transition point of the renal pelvis to the ureter

Ureterovesical junction: the transition point of the ureter to the bladder

VCUG: “voiding cystourethrogram” – a study to evaluate for vesicoureteral reflux

Vesicoureteral reflux (VUR): urine traveling from the bladder back up to the kidney



Basic Science Definitions

Adhesins/Fimbria/Pili: Proteins on the bacterial surface that mediate binding to host cells. Fimbria/pili are typically complex multimeric hair-like structures that extend far beyond the bacterial surface.

Biofilm: An organized community of bacteria with a distinct architecture with a matrix composed of proteins, DNA, lipids and complex sugars. An important bacterial lifestyle during infection.

Capsule: A polysaccharide layer on the external surface of the bacterium that aids in protection from environmental stressors.

Chimera: A genetic hybrid, typically refers to two or more genes (or parts of genes) fused together to make a single protein.

Clade: A group of organisms evolved from a common ancestor.

Cytokines: Small molecules produced by epithelial and immune cells that are a category of signaling molecules that mediate and regulate immunity, inflammation and hematopoiesis.

Genomics: The analysis of the entire genetic content, whether human or bacterial. Typically, the focus is on gene encoding sequences.

Macrophages: Specialized phagocytic cells of the innate immune response that are stationary (resident) in the tissues and can be recruited to the site of infection. Responsible for removal of bacteria and cellular debris.

Neutrophils: Specialized phagocytic cells that are the first to be recruited to the site of infection to remove bacteria.

Operons: Two or more bacterial genes that are transcribed as a single unit and often encode for proteins that act in concert or in a complex.

OTU: “operational taxonomic unit” – classifies groups of closely related individuals, particularly in microbiome studies.

SNP: “single nucleotide polymorphism” – a form of genetic variation in which a single nucleotide in the DNA is changed.

Transposon: A mobile genetic element containing an antibiotic resistance gene. These elements randomly insert into the chromosome and are exploited by researchers to identify mutants that lose important phenotypes.

