*Curriculum vitae*

**James Caldwell Williams, Jr.**
Professor
Department of Anatomy, Cell Biology & Physiology
Indiana University School of Medicine
635 Barnhill Drive MedSci 5065A
Indianapolis, IN 46202-5120
+01 317 274 3423
jwillia3@iu.edu

## EDUCATION:

POSTDOCTORAL

| | | |
|---|---|---|
| Division of Nephrology<br>University of Alabama at Birmingham | Postdoctoral Fellow | 11/82-6/86 |

GRADUATE

| | | |
|---|---|---|
| Cornell University, Ithaca NY | Ph.D.<br>Physiology<br>minors in ecology & applied physics | 1983 |

UNDERGRADUATE

| | | |
|---|---|---|
| Rhodes College, Memphis TN | B.S.<br>Biology, with Distinction | 1978 |

## APPOINTMENTS:

ACADEMIC

| | | |
|---|---|---|
| Urological Research Center<br>University of Southern Denmark | Adjunct Professor<br>in Urology (honorary) | 9/1/15-8/31/20<br>10/1/20-9/30/25 |
| Department of Anatomy & Cell Biology<br>Indiana University School of Medicine | Professor<br>Associate Professor | 7/1/06-present<br>8/1/91-6/30/06 |
| Department of Anatomy & Cell Biology<br>Medical University of South Carolina (MUSC) | Assistant Professor | 1/1/87-7/31/91 |
| Department of Physiology<br>University of Alabama at Birmingham | Research Instructor | 7/1/86-12/31/86 |

## PROFESSIONAL ORGANIZATION MEMBERSHIPS:

| | |
|---|---|
| American Association of Anatomists | 2006-present |
| American Urological Association | 2012-present |
| Research on Calculus Kinetics (ROCK) Society | 2007-present |
| Endourology Society | 2016-present |

## PROFESSIONAL HONORS AND AWARDS:

| | |
|---|---|
| Named as one of the Twenty Most Active Referees in 2020 by the journal *Comptes Rendus Chimie*, cited in volume 25, pages1-7 | 2021 |

| | | |
|---|---|---|
| Trustee Teaching Award for 2018-19 | Indiana University | 2019 |
| Trustee Teaching Award for 2013-14 | Indiana University | 2014 |
| Trustee Teaching Award for 2009-10 | Indiana University | 2010 |
| Shellhamer Outstanding Teacher Award | Dept. Anat. and Cell Biol. | 2007 |
| Trustee Teaching Award for 2003-04 | Indiana University | 2004 |
| Teaching Excellence Recognition Award | IU Board of Trustees | 1997 |
| Shellhamer Outstanding Teacher Award | Dept. Anat. and Cell Biol. | 1996 |
| Faculty Excellence Award | Med. Univ. S. Carolina | 1991 |
| Golden Apple Award from AMSA | Med. Univ. S. Carolina | 1990 |
| Faculty Excellence Award | Med. Univ. S. Carolina | 1990 |

## TEACHING:

### GRADUATE

Human Structure 2016-present

I facilitate the histology laboratory sessions, meet with students for help sessions, and assist in the block review sessions. Typical enrollment is 180 students.

G855 Experimental Design and Research Biostatistics 2008-present

I am director and sole lecturer for this course, which is required for second-year PhD students in the School of Medicine. Typical enrollment is 40 students.

D502 Basic Histology 2021-present

I help with the student laboratory sessions in this course, and in 2022 I filled in for Dr. Byram for one subject review presentation to the students. Typical enrollment is 60 students.

F603 Integrated Medical Physiology 2019-present

I have one lecture in this course, which is part of the graduate curriculum in Physiology. Typical enrollment is 20 students.

### GRADUATE DEGREE ADVISORY COMMITTEE

Advanced Masters in Kidney Stone Disease: From Diagnosis to Treatment 2023-present

I am past of the scientific advisory committee for this Certificat d'Université from the Université libre de Bruxelles. This certificate is designed for all health professionals involved with the diagnosis and preventive treatment of kidney stones.

## MENTORING:

### GRADUATE STUDENT ADVISORY COMMITTEES

| | |
|---|---|
| Megan Balle (Anatomy) | PhD 2023 |
| Andrew Cale (Anatomy) | PhD 2023 |
| Alex Mehreteab, **research mentor** | MSMS 2023 |
| Angela Sabo (Physiology), **research mentor** | PhD 2023 |
| Lauren Maghak (Physiology) | MS 2023 |
| Sifon Benson, **research mentor** | MSMS 2022 |
| Victor Hugo Canela (Anatomy & Cell Biology), **research mentor** | PhD 2022 |
| Seth Winfree (Physiology) | PhD 2020 |
| Courtney Weiler (Physiology), **research mentor** | MS 2015 |

| | |
|---|---|
| Andre Turner, **research mentor** | MSMS 2015 |
| Roselyn Sagastume, **research mentor** | MSMS 2014 |
| Leslie Pillow, **research mentor** | MSMS 2013 |
| Dalielah Jappie-Mahomed, University of Cape Town, South Africa | Ph.D. 2013 |
| Kate Englert (Anatomy & Cell Biology), **research mentor** | M.S. 2011 |
| Naseem Khan, **research mentor** | MSMS 2011 |
| Christian Beuschel (Anatomy & Cell Biology), **research mentor** | M.S. 2009 |
| Su Huang (Anatomy & Cell Biology) | Ph.D., 2007 |
| Andrew Lindsley (Anatomy & Cell Biology) | MD/PhD, 2006 |
| Durriell Brown, **research mentor** | MSMS 2004 |
| Charva Poole, **research mentor** | MSMS 2004 |
| Lawrence Mark (Biophysics), **research mentor** | MD/PhD, 2002 |
| James Stanton, **research mentor** | MSMS 2001 |
| Kerryn A. Greive, Monash University, Australia | Ph.D. 2001 |
| Dahua Zhang (Anatomy & Cell Biology) | Ph.D. 2001 |
| Carolina Tuma (Anatomy & Cell Biology) | Ph.D. 2000 |
| A.C. Dumaual (Biophysics) | Ph.D. 2000 |
| Angella Talley, **research mentor** | MSMS 1999 |
| Sherry G. Babb (Anatomy & Cell Biology) | Ph.D. 1999 |
| Hua-Qiong Shen (Anatomy & Cell Biology) | Ph.D. 1996 |
| Wei Zhang (Anatomy & Cell Biology) | Ph.D. 1996 |
| Nick Doyle (Anatomy & Cell Biology) | M.S. 1996 |
| Lan Qin (Anatomy & Cell Biology) | Ph.D. 1995 |
| Jie-Guang Chen (Physiology) | Ph.D. 1995 |
| Rickey Rivers (Anatomy, MUSC), **research mentor** | Ph.D. 1999 |
| Judy Boyd-White (MCBP, MUSC), **research mentor** | Ph.D. 1996 |
| Douglas Brees (Anatomy, MUSC), **research mentor** | Ph.D. 1993 |
| David Andres (Anatomy & Cell Biology) | M.S. 1993 |

GRADUATE STUDENT RESEARCH ROTATIONS (IBMG)

| | |
|---|---|
| Angela Sabo | Spring 2019 |
| Victor Hugo Canela | Spring 2017 |
| Carla Mangum | Spring 2010 |
| Rachel Deal | Spring 2010 |
| Jessica Walsh | Spring 2009 |
| Takeisha Farmer | Summer and Fall 2009 |

FOREIGN MEDICAL STUDENT RESEARCH ROTATIONS

| | |
|---|---|
| Mattanawee Sangkao (Bangkok, Thailand) | Summer 2017 |
| Maria Pless (Odense, Denmark) | Fall 2016 |
| Cornelius Dzien (Innsbruck, Austria) | Summer 2015 |
| Alessia Gambaro (Verona, Italy) | Summer 2008 |

MINORITY ASSOCIATION OF PRE-MEDICAL STUDENTS (IUB)

| | |
|---|---|
| Networking Night, invited participant | April 2017 |

MENTOR FOR PROJECT SEED (ACS program for economically disadvantaged high school students; involves mentoring the student through a summer-long project)

| | |
|---|---|
| Kailee Jackson | 2017 |
| Kyle Torain | 2007 |
| Leo Salinas | 2006 |
| Christiana Adeola | 2005 |
| Michael Douglas | 2004 |
| Pauline Khumalo | 2003 |
| Bella Siangonya | 2002 |
| Sowmya Kypa | 2001 |
| Chad Zarse | 2000 |
| Jason Chapman | 1994 |
| Rolonda Trice | 1993 |

MENTOR FOR UNDERGRADUATE RESEARCH STUDENTS

| | |
|---|---|
| Christina Wolfe | 2007-2008 |
| Nuzhat Shahid | 2017-2018 |
| Christopher Hoffman | 2017-2018 |
| Emily Wachter | 2022 |

ADVISOR FOR MEDICAL STUDENTS (including writing the 'dean's letter')

| | |
|---|---|
| Jeffrey G. Huxford | class of 2003 |
| Marcus A. Hendry | class of 2003 |
| Travis G. Snyder | class of 2000 |

MENTOR FOR IU MEDICAL STUDENT PROGRAM FOR RESEARCH AND SCHOLARSHIP

| | |
|---|---|
| Haider Al-Awadi | summer, 2019 |

FACULTY MENTOR FOR MEDICAL STUDENT PEER AND SELF ASSESSMENT REVIEW

| | |
|---|---|
| Caleb Walters | 2013, 2014 |
| Kathryn Meyer | 2013, 2014 |
| Kevin Chu | 2013, 2014 |
| Megan Feustel | 2013, 2014 |
| Gerard Hills | 2013, 2014 |
| Rahul Abhyankar | 2012, 2013, 2014 |
| Nicole Mensah | 2012, 2013 |
| Benson Njenga | 2012, 2013 |
| Deborah Olmstead | 2012, 2013 |
| Benjamin Seagren | 2012, 2013 |
| Arabelle Abellard | 2013 |
| Nicholas Race | 2013 |
| Luke Pittman | 2009, 2010, 2011, 2012 |
| Kayla Herget | 2010, 2011, 2012 |
| Kendal Herget | 2010, 2012 |
| Christian Beuschel | 2010, 2011, 2012 |
| Cole Turner | 2011, 2012 |
| Emily Mindrebo | 2011, 2012 |

| | |
|---|---|
| Jessica Lee | 2012 |
| Brian LeCleir | 2009, 2010, 2011 |
| Sashana Gordon | 2011 |
| Ashley Suah | 2011 |
| James Wilcox | 2011 |
| Steven Lee | 2009, 2010 |

FACULTY MENTORING COMMITTEES

| | |
|---|---|
| for Matthew Allen | 2008-2013 |
| for Lilian Plotkin, Chair | 2008-2014 |
| for William Truitt, Chair | 2009-2016 |
| for Audra Schutte Schaefer | 2015-2018 |
| for Jason Organ, Chair | 2013-2019 |
| for Margaret McNulty | 2017-2021 |
| for Leslie Hoffman | 2015-2022 |
| for Polly Husmann | 2016-2021 |
| for Jessica Byrum | 2019-present |
| for Jim Davis | 2023-present |

## RESEARCH:

### GRANTS AND FELLOWSHIPS IN RESEARCH:

GRANTS, CURRENT FUNDING

Principal investigator at 25%, Core B, "Histopathology and Stone Analysis," of NIH P01 DK056788, "Pathogenesis of Calcium Nephrolithiasis," Elaine Worcester PPG PI. Core B receives $1,732,405 total costs for the period 7/1/2017 through 6/30/2022, in no cost extension through 6/30/2023.

Co-investigator at 6%, Project 2 (J. Lingeman, PI), "Plaques and Plugs: Pathogenesis and Relationship to Nephrolithiasis," of NIH P01 DK056788, "Pathogenesis of Calcium Nephrolithiasis," Elaine Worcester PPG PI. Project 2 receives $1,036,360 total costs for the period 7/1/2017 through 6/30/2022, in no cost extension through 6/30/2023.

Co-investigator at 5%, Project 3 (T. Ashkar, PI), "Molecular and Cellular Pathobiology of Stone Forming Papillae," of NIH P01 DK056788, "Pathogenesis of Calcium Nephrolithiasis," Elaine Worcester PPG PI. Project 3 receives $1,659,025 total costs for the period 7/1/2017 through 6/30/2022, in no cost extension through 6/30/2023.

Co-PI at 20%, NIH P01 DK43881, project 3, "BWL interaction with kidney tissue," Co-PI with James E. Lingeman, $2,228,569 total costs for the period of 7/1/19 through 6/30/24.

Member at 0%, NIH T32 DK120524, "Indiana University Kidney Training Program (IU-KTP)," PI is Sharon Moe, $1,495,242 total costs for the period of 4/1/2019 through 3/31/2024.

Principal investigator at 5%, RFA-KPMP-OP-19-003, NIH/NIDDK passed through the Kidney Precision Medicine Project, "Healthy Reference Tissue for KPMP," $300,000 total costs for the period 09/01/2019 - 06/30/2022, in no cost extension through 6/30/2023.

Principal investigator at 10%, NIH R01 DK124776, "Essential characterization of the Randall's plaque-overgrowth interface," $713,250 total costs for the period of 5/1/2020 through 3/31/2023.

Co-I at 5%, NIH R01 EY030914, PI: Eric Beyer (University of Chicago), "Geobiology of Cataracts," $252,286 total costs to IU for the period of 9/1/2020-5/31/2024.

## GRANTS, SUBMITTED

Principal investigator at 25%, NIH R01 DK136894, "Renal papillary inflammation and healing from direct tissue injury and hyperoxaluria as occurs in renal stone formers," $3,762,075 total costs for the period of 7/1/2023 through 6/30/2028.

Co-investigator at 14%, NIH R01proposal with PI Elaine Worcester, University of Chicago, "Mechanisms of inflammation in idiopathic calcium oxalate stone formers,' $2,380,995 total costs to IU for the period of 7/1/2023 through 6/30/2028.

Principal investigator at 22%, NIH SBIR proposal from General Optics, LLC, 'A high energy x-ray multi-contrast imaging system for kidney stone imaging,' $80,000 total costs to IU for the period of 9/1/2023 through 8/31/2024.

## GRANTS, PAST FUNDING

Principal investigator (no salary), Clinical and Translational Sciences Institute Core Facilities Pilot grant, "Pilot study of second harmonic generation in nascent kidney stones," $9,240 total costs for the period 8/1/18 through 7/31/20.

Co-PI at 20%, NIH P01 DK043881, project 3, "Removal of incidental stones to improve patient outcomes," Co-PI with James E. Lingeman, $2,020,921 total costs for the period of 9/15/14 through 6/30/19.

Co-investigator at 11%, NIH P50 DK083007, "Improving stone disease treatment by accurate phenotyping and risk stratification," John Lieske, PI. $5,600,000 total costs for the period of 7/1/13 through 12/31/18.

Core faculty member (no salary), IUPUI Signature Centers Initiative Program, "Research Center for Quantitative Renal Imaging," G.D. Hutchins and B.A. Molitoris, Co-Directors, $390,000 total costs for the period 7/1/14 through 6/30/17.

Co-investigator at 10%, NIH P01 DK56788, "Pathogenesis of Calcium Nephrolithiasis," project 2, James E. Lingeman, PI, 7/1/2011 through 6/30/2016, total costs $1,054,953 (in no-cost extension).

Co-investigator at 5%, NIH P01 DK56788, "Pathogenesis of Calcium Nephrolithiasis," project 3, Andrew P. Evan, PI, competitive renewal for the period of 7/1/2011 through 6/30/2016, total costs $1,967,080 (in no-cost extension).

Principal investigator (no salary, 1% effort), NIH S10 OD016208-01A1, "SkyScan 1176 Micro CT System," $382,900 direct and total costs for the period 3/1/14 through 2/28/15.

Co-investigator at 20%, NIH P01 DK43881, project 2, "Mechanisms of shock wave action for improved SWL," James A. McAteer, p.i., $1,179,702 total costs for the period of 7/1/09 through 6/30/14.

Co-investigator at 5%, NIH P50 DK083007, "Mayo Clinic O'Brien Research Center," John Lieske, p.i. $5,597,211 total costs for the period of 9/1/08 through 8/31/13.

Principal investigator at 50%, NIH R01 DK59933, "The structural basis of kidney stone fragility." $ 2,392,622 total costs for period of 8/1/2004 through 8/31/2013.

Principal investigator (no salary, 1% effort), NIH S10 RR023710, "SkyScan 1172 High-resolution desk-top micro-CT system." $297,300 total costs for purchase of a micro CT system, 4/1/07 through 3/31/08.

Preceptor at 3% (no salary), NIH GM067592, "Bridges to the doctorate." Hal Broxmeyer, p.i. $605,234 total costs for period of 6/1/03 through 5/31/06.

Co-investigator at 20%, NIH R01 DK55674, "Physical mechanisms of tissue damage in SWL," James A. McAteer, p.i. $1,430,607 total costs for the period of 4/1/00 through 6/30/06.

Co-investigator, Intramural grant, Medical University of South Carolina, "Transport properties of isolated perfused ray nephrons", 7/1/87 through 6/30/88, principal investigator: Eric R. Lacy, total funding: $17,642.

Principal investigator, National Institutes of Health grant R29 DK-39023, "Volume absorption in the renal proximal tubule", 4/1/88 through 3/31/94, total direct costs: $232,841.

Co-Principal investigator, NSF grant DCB-8903369, "Urea transport in the elasmobranch kidney", 11/1/89 through 10/31/92, first year direct costs: $63,541.

Principal investigator, American Heart Association South Carolina Affiliate Grant-In-Aid, "Composition of renal tubular basement membrane", 7/1/90 through 6/30/91, direct costs: $12,296.

Principal investigator, American Diabetes Association IN Affiliate Small Grant, "Permeability properties of isolated glomerular basement membrane in insulin-dependent and non-insulin dependent diabetes mellitus," 1/1/93 through 12/31/93, total costs: $15,000.

Principal investigator, American Heart Association Established Investigator Grant Award, "Permeability properties of renal tubular basement membrane", 7/1/89 through 6/30/94, first year direct costs: $35,000 plus fringe benefits costs. Total direct support at IU was $130,709.

Principal investigator, Juvenile Diabetes Foundation International, "Permeability of basement membranes and application to microvasculature," 9/1/93 through 8/31/95, total costs: $95,367.

AHA Graduate Fellowship to Lawrence Mark, J.C. Williams, mentor. Total costs $14,000, 7/1/98 through 6/30/99.

AHA Graduate Fellowship to Lawrence Mark, J.C. Williams, mentor. Total costs $16,000, 7/1/99 through 6/30/00.

National Kidney Foundation—Indiana Affiliate grant-in-aid to Ryan F. Paterson (Urology Fellow), J.C. Williams, mentor, 2/1/01 to 1/31/02, $5,000.

Preceptor, American Foundation for Urologic Disease Research Scholar Application for Samuel C. Kim, M.D., "The structural basis of kidney stone fragility to lithotripter shock waves," 7/1/02 through 6/30/04, total direct costs: $60,000.

## INVITED PRESENTATIONS—RESEARCH:

### LOCAL

22 April 1992, "Role of basement membrane in volume absorption in proximal tubule," Renal Conference, Division of Nephrology

14 October 1992, "Basement membrane composition in renal disease," Renal Conference, Division of Nephrology

16 October 1992, "Basement membrane function and composition," IU Center for Medical Education, Evansville

10 March 1993, "Role of basement membrane in proximal tubule volume absorption," Department of Physiology and Biophysics

10 January 1994, "Permeability of basement membranes," Pulmonology Research Conference

18 February 1994, two posters presented at the Indiana University School of Medicine Scientific Session, "Hydraulic conductivity and protein sieving coefficient of Matrigel, a basement membrane-like matrix" with J. Boyd-White, and "Automated determination of water and urea permeability of the water-tight apical membrane of a renal-derived epithelium" with R. Rivers, J. McAteer and J. Clendenon.

19 January 1995, "Basement membranes as barriers to macromolecules," Department of Anatomy

14 August 1996, "The glomerular capillary wall as a dynamic barrier," Renal Conference, Division of Nephrology

6 February 1997, "Protein permeation across the glomerular capillary wall," Department of Anatomy

30 September 1998, "Holding back the tide: Can a gel like the glomerular basement membrane really be the filter that keeps protein out of the urine?", Department of Chemistry, IUPUI. Similar seminars delivered on October 1 to the Department of Anatomy, and October 9 at the Northwest Center for Medical Education

3 October 2000, "Shear stress-induced cell injury in shock wave lithotripsy," Department of Anatomy and Cell Biology

19 September 2001, "Shock Waves and Kidney Stones: How High-Energy Sound Breaks Rocks Inside the Body," Department of Biology, Marian College

20 September 2001, "Shock Wave Lithotripsy: Breaking of Stones and Injury to Cells," Physics Department, IUPUI

11 September 2002, "Breaking Kidney Stones with Shock Waves: How Does a Laboratory Experiment Compare to What Happens inside a Patient?," Department of Biology, Marian College

19 November 2003, "Calculi and Computerized Tomography. Seeing Kidney Stones with CAT Scans," Department of Biology, Marian College

13 October 2004, "What Makes a Kidney Stone Hard to Break with Shock Waves? Experiments with Cat and Dog Stones." Department of Biology, Marian College

13 September 2005, "Kidney Stone Disease: Insights from Radiologic Investigation of Calculi," Department of Anatomy & Cell Biology

2 November 2005, "New Insights into Kidney Stone Disease," Department of Biology, Marian College

26 September 2006, "Use of Micro CT for Study of Kidney Stone Diseases," Department of Anatomy & Cell Biology

19 October 2006, "Using Micro 'CAT' Scanning to Study Kidney Stone Diseases," Department of Biology, Marian College

23 October 2007, "What CT Can Tell Us about Kidney Stones," Department of Biology, Marian College

18 November 2008, "Kidney Stones: Data on One Type within a Set of Diseases," Department of Biology, Marian College

30 October 2009, "Recent Advances in Understanding the Formation of Kidney Stones," Department of Biology, IUPUI

7 December 2011, "Using stone structure to understand different pathologies underlying renal calculus formation," Department of Urology, IU School of Medicine.

10 January 2017, "What are kidney stones and how do they form?," Department of Physiology, IU School of Medicine

22 September 2017, "Science and honesty," keynote address at the Indiana Academy of Science High School Talent Search.

12 October 2019, "The development of kidney stones on Randall's (interstitial) plaque: Type I kidney stones?", Anatomy, Cell Biology & Physiology Fall Research Forum.

NATIONAL

10 February 1992, "Ion transport and cystic fibrosis," presented as a lecture in the program, "Adventures in the New Biology," sponsored by Roper Hospital Continuing Medical Education, Charleston, SC.

6 March 1992, "Role of basement membrane in volume absorption in proximal tubule," Nephrology Research Conference, University of Cincinnati.

14-15 November 1992, "Oncotic effects across isolated renal tubular basement membrane," presented at the American Heart Association Research Fellowship Symposium, New Orleans, LA.

29-30 April 2005, "Stone structure: New insights from radiologic investigation," annual meeting of the R.O.C.K. Society (Research on Calculus Kinetics), Chicago, IL.

3-5 June 2005, "Micro CT Analysis of Kidney Stones," at the Scanco MicroCT User Meeting, Philadelphia, PA.

9-10 March 2006, "Determination of stone composition fragility by imaging," invited presentation as part of the NIDDK 2006 Urolithiasis Symposium, Baltimore, MD.

14 September 2006, "Use of micro CT for the study of kidney stone disease," at the Skyscan User Meeting, Philadelphia, PA.

Member of the Organizing Committee, 1st International Urolithiasis Research Symposium, Indianapolis, IN, 2-3 November 2006

3 November 2006, "Using helical CT to assess stone fragility at diagnosis," at the 1st International Urolithiasis Research Symposium, Indianapolis, IN.

17 March 2007, "What CT can tell us about kidney stones," at the meeting of the ROCK Society, Dallas, TX.

31 March 2007, "Computed tomography: How it is helping understand the formation of kidney stones," at the Technical Professionals Special Interest Group meeting of the National Society of Black Engineers, Columbus, OH.

24 November 2008, "Kidney Stones: New Data on an Old Set of Diseases," Rutgers University, NJ.

3 October 2009, "Micro CT of Stones," Research on Calculus Kinetics meeting, Chaska, MN.

6 November 2010, "Micro CT and Its Value in Studying Stone Genesis," Research on Calculus Kinetics meeting, Los Angeles, CA.

26 April 2011, "Urolithiasis is Not Just One Disease" and "Knowns and Unknowns in How Kidney Stones Form," Division of Nephrology and Hypertension, Mayo Clinic, Rochester, MN.

17 September 2011, chair for Session 4 (Imaging and Phosphate Stones) of the Research on Calculus Kinetics meeting, Boston, MA.

1-2 December 2011, "Stone Imaging" and "Non-invasive Characterization of Renal Stones," at the Urology Program Director's Meeting, NIDDK, Ellicott City, MD.

6 May 2013, chair for Session 1 (Detection of Stones) of the Research on Calculus Kinetics meeting, San Diego, CA.

19 May 2014, "New Methods for Studying Stone Structure," invited lecture as part of the ROCK Society meeting, AUA, Orlando, FL

6 October 2014, "Pathogenesis of renal stones: Lessons from the stones themselves," invited seminar in the Division of Nephrology, NYU Langone Medical Center, New York, NY

9 May 2016, chair for Moderated Poster Session MP67: Stone Disease: Basic Research & Pathophysiology II, AUA, San Diego, CA

20 October 2016, "Distinct Mechanisms for Early Stone Formation," University of California, San Francisco, School of Medicine.

6 April 2017, "Randall's Plaques Overview," invited talk as part of the CaOx Translational Summit meeting, Madison, WI.

27 July 2017, "Risk of Renal Stone Formation," invited talk as part of a panel presentation to the National Academies of Sciences, Engineering, and Medicine's Committee to Review NASA's Evidence Reports on Human Health Risks, Washington, DC.

27 October 2017, "Novel Stone Imaging for Stone Characterization," invited talk as part of the Clinical Society of Genitourinary Surgeons meeting, Indianapolis, IN

30 March 2019, "Neutrophil infiltration and NETosis in the pathogenesis of human kidney stones," ROCK Society Annual Meeting, Cleveland, OH.

29 January 2021, "Randall's Plaque Stone Formers," Research Conference at the UT Southwestern Center for Mineral Metabolism and Clinical Research, Dallas, TX.

26 March 2022, "Type I Stone Formers: Those who make stones on Randall's plaque," presented at the annual meeting of the ROCK Society, Phoenix, AZ.

3 November 2022, "Unraveling the Microstructural Elements of Kidney Stones and Randall Plaques," as part of a special session within the American Society of Nephrology's Kidney Week, Orlando, FL.

INTERNATIONAL

11-16 November 1996, "Mechanisms by which matrix excludes serum proteins: Role of the glomerular basement membrane in renal filtration," presented as a seminar in addition to teaching as part of a graduate course in modern biology at the Gulbenkian Institute of Science in Portugal.

3 September 2001, co-chair of oral presentation session, "Shock Waves In Medicine And Lithotripsy," 17th International Congress on Acoustics, Rome, Italy.

21-24 September 2003, "Imaging Modalities today and tomorrow: Assessing stone composition and fragility," 21st World Congress on Endourology & Shockwave Lithotripsy, Montréal.

21 December 2005, "Initial Mechanisms of Attachment and Growth of Kidney Stones," Department of Urology, Josephine Nefkens Institute, Erasmus Medical College, Rotterdam, The Netherlands.

Member of the section, "Evaluation/Imaging," for the 2nd International Consultation on Stone Disease, held in Paris, France in September 2007.

8 September 2008, "Kidney Stones: New Data on an Old Set of Diseases," in the Faculty of Medicine and Surgery, University of Verona, Italy.

16 October 2008, "Micro CT: de la composition à la structure du calcul," as part of the Confrontations Clinico-biologiques de l'Hôpital Necker sur la Lithiase Urinaire, Paris, France.

17 October 2009, co-chair of Session 6, 6th eULIS Symposium (13th European Symposium on Urolithiasis), Como, Italy.

19 October 2009, "Etiologies of Urolithiasis and Insights from Micro CT Analysis of Patient Stones," Facoltà di Medicina e Chirurgia, Università Cattolica del Sacro Cuore, Rome, Italy.

8 September 2011, "Understanding stone formation from imaging," a Keynote Lecture at the First Meeting of the EAU Section of Urolithiasis (eULIS), London, United Kingdom.

10 May 2012, "Stone formation: How is mineral retained within the kidney?," invited lecture as part of the 12th International Symposium on Urolithiasis, Ouro Preto, Brazil.

16 March 2013, "Imaging for pre-treatment evaluation of stone composition and fragility," invited lecture as part of the European Association of Urology Annual Congress, Milan, Italy.

22 March 2013, "Noninvasive differentiation of uric acid versus non-uric acid stones," invited lecture as part of the conference, Nephrolithiasis: A Systemic Disorder, Rome, Italy.

5 September 2013, "Retention and growth of urinary stones: Insights from imaging," Keynote Lecture as part of the 2nd Meeting of the EAU Section of Urolithiasis (eULIS), Copenhagen, Denmark

5 September 2013, chair for Poster Session 2 (Stones and metabolism), 2nd Meeting of the EAU Section of Urolithiasis (eULIS), Copenhagen, Denmark

6 September 2013, "Predicting stone fragmentation in SWL using imaging," lecture as part of the 2nd Meeting of the EAU Section of Urolithiasis (eULIS), Copenhagen, Denmark

6 September 2013, chair for Poster Session 7 (Basic research), 2nd Meeting of the EAU Section of Urolithiasis (eULIS), Copenhagen, Denmark

11 December 2014, "Delving deep into the structure and ultrastructure of stones: insights into their pathogenesis and potential treatment," invited lecture as part of the 2nd Experts in Stone Disease Conference, Cape Town, South Africa.

12 December 2014, "What is the priority area for future stone research? Where should the focus lie? A basic scientist's point-of-view," invited lecture as part of the 2nd Experts in Stone Disease Conference, Cape Town, South Africa.

12 December 2014, "Should I send stones for analysis? What analyses should I request and how should I prepare the stone samples?," invited lecture as part of the 2nd Experts in Stone Disease Conference, Cape Town, South Africa.

20 February 2015, "Quantitative proteomic analysis reveals the complexity of the human kidney stone matrix," invited talk as part of the annual ROCK Society meeting, Fort Lauderdale, FL.

26 March 2015, "Crucial nature of stone analysis, including stone morphology," invited lecture as part of the Consensus Conference for the Metabolic Diagnosis and Medical Prevention of Calcium Nephrolithiasis and Its Systemic Manifestations, Rome, Italy.

5 August 2015, "Micro computed tomographic X-ray imaging (micro CT): A versatile and non-destructive method for biological specimens," invited lecture as a part of Microscopy & Microanalysis, Portland OR.
10 September 2015, "What have we learned from imaging?," invited lecture as part of the 3rd meeting of the EAU Section of Urolithiasis, Alicante, Spain.
10 June 2016, inaugural lecture for appointment as Adjunct Professor in Urology, University of Southern Denmark, Fredericia, Denmark.
20 July 2016, "Papillary Imaging and Stone Recurrence," invited lecture as part of the 13th International Symposium on Urolithiasis, Chiba, Japan.
21 July 2016, "Randall's Plaque," invited lecture as part of the 13th International Symposium on Urolithiasis, Chiba, Japan.
8 June 2017, "MicroCT for the study of renal stones," invited talk as part of Investigations of Biological Calcifications, the 3rd International Meeting on Nephrolithiasis, "Renal Stones in Practice: An Advanced Course," Rome, Italy.
8 June 2017, co-chair of Session I, the 3rd International Meeting on Nephrolithiasis, "Renal Stones in Practice: An Advanced Course," Rome, Italy.
27 June 2017, "Stone Formation," invited lecture as part of the special session honoring Edwin Carstensen, 3rd Joint meeting of the Acoustical Society of America and the European Acoustic Association, Boston, MA.
13 October 2017, "Update on stone formation," invited lecture as part of the 10 year Anniversary Symposium, Urological Research Center, Vejle Sygehus, Denmark.
20 June 2019, co-chair for the Consensus Conference on the Use of Urinalysis in the Treatment of Nephrolithiasis, Verona, Italy.
13 September 2019, faculty of the Consultation on Kidney Stones, Copenhagen, Denmark.
4 March 2021, "Randall's plaque from chemistry to pathology," Let's Talk About Kidney Stones series, Brussels, Belgium (remote presentation).
5-6 May 2022, "Randall's plaque formation," "Lessons from crystals in the kidney," and "Measures for the secondary prevention of nephrolithiasis – overview of weaknesses and strongest guidelines," 2nd Symposium on Kidney Stones and Mineral Metabolism, Brussels, Belgium (3 talks and chair of a session).
9-10 May 2022, "Structure and composition of metabolic stones: the GeoBioMed paradigm shift," 5th Menarini Symposium on Nephrolithiasis, Florence, Italy.
8 December 2022, "What's up with Randall's plaques?," Let's Talk About Kidney Stones series, Brussels, Belgium (remote presentation).

## SERVICE:

### UNIVERSITY SERVICE:

DEPARTMENT

| | |
|---|---|
| 1993-1994 | Chair, Strategic Planning Committee |
| 1992-2015 | Graduate Studies Committee, Dept. of Anatomy & Cell Biology |
| 1996-2013 | Chair, Graduate Studies Committee, Dept. of Anatomy & Cell Biology |
| 1996-1997 | Faculty Search Committee, Dept. of Anatomy & Cell Biology |
| 1998-1999 | Faculty Search Committee, Dept. of Anatomy & Cell Biology |
| 1999-2000 | Faculty Search Committee, Dept. of Anatomy & Cell Biology |
| 2007-2008 | Faculty Search Committee, Dept. of Anatomy & Cell Biology |

| | |
|---|---|
| 2006-2014 | Primary Committee |
| 2013 | Mentoring Task Force |
| 2014 | Shellhamer Teaching Award Selection Committee |
| 2014-2018 | Departmental Steering Committee |
| 2015-present | Chair, Primary Committee |

SCHOOL OF MEDICINE

| | |
|---|---|
| 1993-1995 | Student Promotions Committee, School of Medicine |
| 1996-1999 | Student Promotions Committee, School of Medicine |
| 1996 | Medical Histology/Physiology Curriculum planning committee |
| 2003, 2004 | Interviewer, search for Associate Dean for the Graduate School |
| 2003-2007 | Interviewer for Dual-degree candidates |
| 2003-2006 | Advisory Committee, Bridges to the Doctorate R25 grant |
| 2004-2006 | Council of Departments (for information technology) |
| 2005 | Chair, Planning Committee for the Gold Humanism Honor Society |
| 2005-2007 | Open Enrollment Planning/Steering Committee (Graduate School) |
| 2011-2013 | Student Promotions Committee, School of Medicine |
| 2008-2014 | IUSM Graduate Committee |
| 2012-2013 | Research Technicians Committee |
| 2014-2015 | IUSM Graduate Oversight Committee |
| 2015 | Co-Leader, Statewide Histology Learning Objectives Team |
| 2014-present | IUSM Promotion & Tenure Committee |
| 2017-2018 | IUSM Lecturers & Clinical Rack Faculty Promotions Committee |
| Nov 2017 | Academic Program Review Team, Department of Pharmacology and Toxicology |
| 2019-2020 | Member, Faculty Review and Enhancement Committee |

IUPUI

| | |
|---|---|
| 1999-2015 | Graduate Affairs Committee, IUPUI |
| 2003-2004 | Nominating Committee for Graduate Council, IUPUI |
| 2014-2015 | IUPUI Promotion & Tenure Committee |
| 7 Dec 2015 | Panel member, Excellence in Research, a promotion and tenure program for junior faculty |
| 6-8 Nov 2017 | Review panel for Pharmacology/Toxicology Graduate Program |

INDIANA UNIVERSITY

| | |
|---|---|
| 1999-2007 | Curriculum Subcommittee of Graduate Council |
| 2008 | Kinsley Dissertation Award Committee |
| 2009-2010 | IU Graduate Council Nominating Committee |
| 1999-2012 | IU Graduate Faculty Council |
| 2010-2012 | IU Graduate Faculty Council Awards Committee |
| 2010-2012 | Chair, IU Graduate Faculty Council |
| 2014 | Search and Screen Committee for IUPUI Associate Vice Chancellor for Graduate Education and Associate Dean, The Graduate School, IU |

**PROFESSIONAL SERVICE:**

GRANT REVIEW

National Institutes of Health

2000 Study Section SSS-M, bioengineering partnership proposals
2001 Study Section SSS-M, bioengineering and tissue engineering
2004 Study Section ZRG1-UKGD(01)Q, renal vascular water and solute transport
2007 Study Section ZRG1 RUS-C(11), kidney monitoring and therapeutics
2009 Study Section ZRG1 DKUS-K(11), kidney monitoring and therapeutics
2015 Study Section ZRG1 SBIB-Y (30), S10 shared instrumentation grants
2016 Co-Chair, Study Section ZRG1 SBIB-Y (30), S10 shared instrumentation grants
Study Section ZRG1 DKUS-G(12), R44 SBIR phase II grants
2017 Study Section ZRG1 SBIB-Y (30), S10 shared instrumentation grants
2021 Study Section for U54 applications, kidney stone and urology
2022 Study Section for P20 applications, kidney stone and urology
2022 Study Section for S10 applications, micro CT

Veterans Administration

1990 Merit Review (epithelial permeability)
1991 Career Development Award review (membrane permeability)
1994 Merit Review (epithelial permeability)
1998 Merit Review (glomerular permeability)

National Science Foundation

1995 BIO/Molecular and Cellular Biosystems (epithelial transport)
1997 BIO/Molecular and Cellular Biosystems (epithelial transport)

American Heart Association, Mid-Atlantic Consortium

2000 Pre-doctoral Fellowship (microvascular permeability)

New Zealand Lottery Health Research Grants Board

2002 Research Project proposal (membrane transport)

U.S. Civilian Research and Development Foundation

2005 Cooperative Grants Program (cavitation and shock wave lithotripsy)

Medical Research Council, South Africa

2007 Research Grants Program (kidney stones)

American Urological Association

2008 Fellowship program (kidney stones)

Oxalosis and Hyperoxaluria Foundation

2012 Research grants program (kidney stones)

Mayo Clinic O'Brien Research Center

2012 Pilot grant program (micro CT)

Israel Science Foundation

2013 Research grants program (kidney stones)

W. M. Keck Foundation

2013 Medical Research Program (mosquito biology)

Kidney Research UK

2018 Research Support Program (kidney stones)

Willy Gepts Research Foundation of the University Hospital Brussels, Belgium

2020 research grant program (kidney stones)

## REVIEW OF FOREIGN DISSERTATIONS

Jan-2001 Examiner for PhD dissertation of Kerryn A. Greive, Monash University, Australia (student of Wayne D. Comper, PhD)
Nov-2010 Examiner for PhD dissertation of A. Mohamed Ali, VIT University, Vellore, Tamil Nadu, India (student of Prof. N. Arunai Nambi Raj)
Nov-2013 Examiner for PhD dissertation of Dalielah Jappie-Mahomed, University of Cape Town, South Africa (student of Allen Rodgers, PhD)
Sep-2015 Examiner for PhD dissertation of Saajidah Fakier, University of Cape Town, South Africa (student of Allen Rodgers, PhD)
Apr-2017 External Reviewer for PhD dissertation of Sandra Nwokeoha, Oxford University, UK (student of Robin Cleveland, PhD)

## REVIEW OF FACULTY FOR PROMOTION

Dec-2021 External reviewer for promotion to professor at King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Kingdom of Saudi Arabia
Jan-2023 External reviewer for promotion to associate professor at University of Alabama at Birmingham, Department of Urology

## MEETING ABSTRACT REVIEW

Oct 2015 American Urological Association, abstracts for the 2016 annual meeting
Oct 2016 American Urological Association, abstracts for the 2017 annual meeting
Nov 2017 American Urological Association, abstracts for the 2018 annual meeting
Nov 2018 American Urological Association, abstracts for the 2018 annual meeting

## MEETING PROGRAM ORGANIZATION AND PLANNING

Member, Organizing Committee for the Translational Summit on CaOx Urolithiasis, 6-7 April 2017, Madison, WI.

## MEMBER OF EDITORIAL BOARD

1995-2001 *Proceedings of the Society for Experimental Biology and Medicine*
2007-present *Urolithiasis* (previously *Urological Research*)

## REVIEWER FOR JOURNALS (current calendar yr; 395 papers during the yrs 1991-2021; 39 in 2022)

Diagnostics (Y. Chen, ed.), 1/23
Asian Journal of Urology (M. Hu, ed.), 1/23
Diagnostics (L. Zhang, ed.), 1/23
BJUI (P. Osther, ed.), 1/23
Computer Methods and Programs in Biomedicine (M.H. Yap, ed.), 1/23
Medicina (C. Zhang, ed.), 1/23
Kidney International (T. Drueke, ed.), 2/23

**PUBLICATIONS:**

1. **Williams, J.C.**, and K.W. Beyenbach. Differential effects of secretagogues on Na and K secretion in the Malpighian tubules of *Aedes aegypti* (L.). *J Comp Physiol* 149:511-517, 1983.
2. **Williams, J.C.**, H.H. Hagedorn and K.W. Beyenbach. Dynamic changes in flow rate and composition of urine during the post-bloodmeal diuresis in Aedes aegypti (L.). J Comp Physiol 153:257-265, 1983.
3. **Williams, J.C.**, and K.W. Beyenbach. Differential effects of secretagogues on the electrophysiology of the Malpighian tubules of the yellow fever mosquito. J Comp Physiol 154:301-309, 1984.
4. Schafer, J.A., and **J.C. Williams**. Transport of metabolic substrates by the proximal nephron. Annu Rev Physiol 47:103-125, 1985.
5. **Williams, J.C.**, D.W. Barfuss, and J.A. Schafer. Transport of solute in proximal tubules is modified by changes in medium osmolality. Am J Physiol 250 (Renal Fluid and Electrolyte Physiol 19):F246-F255, 1986.
6. **Williams, J.C.**, and J.A. Schafer. A model of osmotic and hydrostatic pressure effects on volume absorption in the proximal tubule. Am J Physiol 253 (Renal Fluid and Electrolyte Physiol 22):F563-F575, 1987.
7. **Williams, J.C.**, and J.A. Schafer. Cortical interstitium as a site for solute polarization during tubular absorption. Am J Physiol 254 (Renal Fluid and Electrolyte Physiol 23):F813-F823, 1988.
8. Ryu, J.Y., R.L. Davis, J.C. Williams, and **J.C. Williams** (Jr.). Evaluation of the minihollow cathode emission source for the analysis of microsamples. Applied Spectroscopy 42(8):1379-1387, 1988.
9. J.T. McDonald, J.C. Williams, and **J.C. Williams** (Jr.). Evaluation of the time-resolved spark for the determination of sodium, potassium, and calcium in microsamples. Applied Spectroscopy 43(4):697-702, 1989.
10. **Williams, J.C.**, and J.A. Schafer. Measurement of transmural water flow in isolated perfused tubule segments. Meth Enzymol 191:232-252, 1990.
11. Schafer, J.A., and **J.C. Williams**. Flux measurements in isolated perfused tubules. Meth Enzymol 191:354-370, 1990.
12. **Williams, J.C.** Cystic fibrosis: a disease caused by a single defect in salt-transporting epithelial cells. J South Carolina Med Assoc 88:331-338, 1992.
13. **Williams, J.C.** Permeability of basement membranes to macromolecules. Proc Soc Exp Biol Med 207:13-19, 1994.
14. Rivers, R.L., and **J.C. Williams**. Effect of solute permeability in determination of elastic modulus using the vesicular swelling method. Biophys J 57:627-631, 1990.
15. **Williams, J.C.**, D. Abrahamson, and J.A. Schafer. Structural changes induced by osmotic water flow in rabbit proximal tubule. Kidney Int 39:672-683, 1991.

16. Tseng, J.-L., J.C. Williams, R.B. Bartlow, S.T. Griffin, **J.C. Williams** (Jr.). Increased analytical precision in the hollow cathode discharge emission source by improved discharge current control. Anal Chem 63:1933-1942, 1991.

17. **Williams, J.C.** Oncotic effects across the isolated perfused renal tubular basement membrane. Am J Physiol 264 (Renal Fluid and Electrolyte Physiol 33):F328-F336, 1993.

18. Mixon, P.D., S.T. Griffin, **J.C. Williams** (Jr.), X.J. Cai, and J.C. Williams. Pulse optimization criteria for the microcavity hollow cathode discharge emission source. J Anal Atomic Spec, 9:697-700, 1994.

19. Brees, D.K., R.C. Ogle, and **J.C. Williams**. Laminin and fibronectin content of mouse glomerular and tubular basement membrane. Renal Physiol Biochem 18:1-11, 1995.

20. Williams, J.C., and **J.C. Williams** (Jr.). Sodium. In: Encyclopedia of Analytical Science, A. Townshend, ed. Academic Press, London, 1995, pp. 4680-4683.

21. Boyd-White, J., and **J.C. Williams**. Effect of cross-linking on matrix permeability: A model for AGE-modified basement membrane. Diabetes 45:348-353, 1996.

22. Brees, D.K., F.N. Hutchison, G.J. Cole, and **J.C. Williams**. Differential effects of diabetes and glomerulonephritis on glomerular basement membrane composition. Proc Soc Exp Biol Med 212:69-77, 1996.

23. Rivers, R.L., J.A. McAteer, J.L. Clendenon, B.A. Connors, A.P. Evan, and **J.C. Williams**. Membrane permeability in MDCK cysts. Am J Physiol 271 (Cell Physiol 40):C226-C234, 1996. (made cover of journal)

24. Lifshitz, D.A., **J.C. Williams**, B. Sturtevant, A.P. Evan, and J.A. McAteer. A method to quantitate cavitation-induced mechanical damage for in vitro shock wave lithotripsy (SWL) studies. Proceedings of the VIII International Symposium on Urolithiasis, pp. 399-400, 1996.

25. Lifshitz, D.L., **J.C. Williams**, B. Sturtevant, B.A. Connors, A.P. Evan, and J.A. McAteer. Quantitation of shock wave cavitation damage in vitro. Ultrasound Med Biol, 23:461-471, 1997.

26. McAteer, J.A., M.A. Stonehill, K. Colmenares, **J.C. Williams**, A.P. Evan, R.O. Cleveland, M.R. Bailey, L.A. Crum. SWL cavitation damage in vitro: pressurization unmasks a differential response of foil targets and isolated cells. Proceedings 16th International Congress on Acoustics and 135th Meeting Acoustical Society of America, pp. 2497-2498, 1998.

27. Cleveland, R.O., M.R. Bailey, L.A. Crum, M.A. Stonehill, **J.C. Williams**, and J.A. McAteer. Effect of overpressure on dissolution and cavitation of bubbles stabilized on a metal surface. Proceedings 16th International Congress on Acoustics and 135th Meeting Acoustical Society of America, pp. 2499-2500, 1998.

28. **Williams, J.C.**, L.A. Mark, and S. Eichholtz. Partition and permeation of dextran in polyacrylamide gel. Biophysical Journal 75:493-502, 1998.

29. Stonehill, M.A., **J.C. Williams**, M.R. Bailey, D. Lounsbery, R.O. Cleveland, L.A. Crum, A.P. Evan, and J.A. McAteer. An acoustically matched high pressure chamber for

control of cavitation in shock wave lithotripsy: mechanisms of shock wave damage in vitro. Methods Cell Sci, 19:303-310, 1998.

30. Bailey, M.R., R.O. Cleveland, O.A. Sapozhnikov, J.A. McAteer, **J.C. Williams**, and L.A. Crum, Effect of increased ambient pressure on lithotripsy-induced cavitation in bulk fluids and at surfaces. J Acoust Soc Amer 105:1267-1270, 1999.

31. **Williams, J.C.**, M.A. Stonehill, K. Colmenares, A.P. Evan, S.P. Andreoli, R.O. Cleveland, M.R. Bailey, L.A. Crum, and J.A. McAteer. Effect of macroscopic air bubbles on cell lysis by shock wave lithotripsy in vitro. Ultrasound Med Biol, 25(3):473-479, 1999.

32. **Williams, J.C.**, J. Woodward, M.A. Stonehill, A.P. Evan, and J.A. McAteer. Cell damage by lithotripter shock waves at high pressure to preclude cavitation. Ultrasound Med Biol, 25(9):1445-1449, 1999.

33. Saw, K.C., J.A. McAteer, A. Monga, G.T. Chua, J.E. Lingeman, **J.C. Williams**. Helical CT of urinary calculi: Effect of stone composition, stone size, and scan collimation. AJR (American Journal of Roentgenology) 175:329-332, 2000.

34. Mark, L.A., J.L. Kaplan, and **J.C. Williams**. An exact solution to the electrostatic interaction between an ion-penetrable sphere and an ion-penetrable rod. Journal of Colloid and Interface Science, 229:102-106, 2000.

35. Saw, K.C., J.A. McAteer, N.S. Fineberg, A.G. Monga, G.T. Chua, J.E. Lingeman, **J.C. Williams**. Calcium stone fragility is predicted by helical CT attenuation values. Journal of Endourology 14(6):471-474, 2000.

36. Lokhandwalla, M., J.A. McAteer, **J.C. Williams**, and B. Sturtevant. Mechanical hemolysis in shock wave lithotripsy (SWL): II. In vitro cell lysis due to shear. Physics in Medicine and Biology, 46:1245-1264, 2001.

37. Williams J.C., K.C. Saw, A.G. Monga, G.T. Chua, J.E. Lingeman, J.A. McAteer. Correction of helical CT attenuation values with wide beam collimation: in vitro test using urinary calculi. Academic Radiology 8:478-483, 2001.

38. Monga, A.G., K.C. Saw, **J.C. Williams**, N.S. Fineberg, J.A. McAteer, J.E. Lingeman, and G.T. Chua. Effect of radiographic contrast media exposure on spiral CT attenuation of renal calculi. Academic Radiology 8:982-986, 2001.

39. Williams J.C., R.F. Paterson, K. Kopecky, J.E. Lingeman, and J.A. McAteer. High resolution detection of internal structure in renal calculi by helical CT. Journal of Urology, 167:322-326, 2002. (made cover of journal)

40. Sapozhnikov, O.A., V.A. Khokhlova, M.R. Bailey, **J.C. Williams**, J.A. McAteer, R.O. Cleveland, and L.A. Crum. Effect of overpressure and pulse repetition frequency on cavitation in shock wave lithotripsy. J Acoust Soc Am, 112:1183-1195, 2002.

41. Evan, A.P., L.R. Willis, J.A. McAteer, M.R. Bailey, B.A. Connors, Y. Shao, J.E. Lingeman, **J.C. Williams**, N.S. Fineberg, L.A. Crum. Kidney damage and renal functional changes are minimized by waveform control that suppresses cavitation in SWL. J Urol 168:1556-1562, 2002.

42. Paterson, R.F., D.A. Lifshitz, J.E. Lingeman, A.P. Evan, B.A. Connors, N.S. Fineberg, **J.C. Williams**, and J.A. McAteer. Stone fragmentation in shock wave lithotripsy is

improved by slowing the shock wave rate: studies with a new animal model. J Urol 168: 2211-2215, 2002.

43. Paterson, R.F., J.E. Lingeman, A.P. Evan, B.A. Connors, **J.C. Williams**, and J.A. McAteer. Percutaneous stone implantation in the pig kidney: a new animal model for lithotripsy research. J Endourol 16(8):543-547, 2002.

44. **Williams, J.C.**, D.L. Rietjens, C.A. Zarse, and J.A. McAteer. Breakage of membrane vesicles by shock waves is independent of cavitation. Proceedings 17th International Congress on Acoustics, VII:182-183, 2002.

45. McAteer J.A., R.F. Paterson, D.A. Lifshitz, J.E. Lingeman, D.L. Rietjens, B.A. Connors, A.P. Evan, and **J.C. Williams**. In vitro model of shock wave lithotripsy (SWL) produces stone breakage equivalent to that seen in vivo. Proceedings 17th International Congress on Acoustics, VII:180-181, 2002.

46. Paterson R.F., D.A. Lifshitz, J.E. Lingeman, **J.C. Williams**, D.L. Rietjens, A.P. Evan, B.A. Connors, M.R. Bailey, L.A. Crum, R.O. Cleveland, Y.A. Pishchalnikov, I.V. Pishchalnikova, and J.A. McAteer. Slowing the pulse repetition frequency in shock wave lithotripsy (SWL) improves stone fragmentation in vivo. Proceedings 17th International Congress on Acoustics, VII:200-201, 2002.

47. McAteer J.A., R.O. Cleveland, R.F. Paterson, D.L. Rietjens, A.P. Evan, B.A. Connors, J.E. Lingeman, Y.A. Pishchalnikov, I.V. Pishchalnikova, and **J.C. Williams**. Evidence that cavitation and spall contribute to stone failure in an animal model of kidney stone fragmentation by shock wave lithotripsy (SWL). Proceedings 17th International Congress on Acoustics, VII:202-203, 2002.

48. McAteer J.A., R.O. Cleveland, D.L. Rietjens, Y.A. Pishchalnikov, I.V. Pishchalnikova, and **J.C. Williams**. Cavitation promotes spall failure of model kidney stones treated by shock wave lithotripsy in vitro. Proceedings 17th International Congress on Acoustics, VII:188-189, 2002.

49. Cleveland R.O., J.A. McAteer, and **J.C. Williams**. Correlation between the predicted stress field and observed spall-failure in artificial kidney stones treated by shock wave lithotripsy (SWL) in vitro. Proceedings 17th International Congress on Acoustics, VII:174-175, 2002.

50. **Williams, J.C.**, K.C. Saw, R.F. Paterson, E.K. Hatt, J.A. McAteer, and J.E. Lingeman. Variability of renal stone fragility in shock wave lithotripsy. Urology 61(6):1092-1096, 2003.

51. Kuo, R.L., R.F. Paterson, T.M. Siqueira, A.P. Evan, J.A. McAteer, **J.C. Williams**, and J.E. Lingeman. In vitro assessment of ultrasonic lithotripters. J Urol 170:1101-1104, 2003.

52. Pishchalnikov Y.A., O.A. Sapozhnikov, M.R. Bailey, **J.C. Williams**, R.O. Cleveland, T. Colonius, L.A. Crum, A.P. Evan, J.A. McAteer. Role of cavitation bubble cloud activity in the breakage of kidney stones by lithotripter shock waves. J Endourol 17(7): 435-446, 2003.

53. J.A. McAteer, **J.C. Williams**, A.P. Evan, L.R. Willis, M.R. Bailey, L.A. Crum, and R.O. Cleveland. Mechanisms of cell and tissue damage in shock wave lithotripsy. In: M.A. Andrew, L.A. Crum, and S. Vaezy, eds. Proceedings of the International Symposium on Therapeutic Ultrasound, University of Washington, Seattle, pp. 491-500, 2003.

54. Lingeman J.E., M. Delius, A.P. Evan, M. Gupta, K. Sarica, W. Strohmaier, J.A. McAteer, and **J.C. Williams**. Committee 8: Bioeffects and Physical Mechanisms of SW Effects in SWL. In: Stone Disease. 1st International Consultation in Stone Disease, J. Segura, P. Conort, S. Khoury, C. Pak, G.M. Preminger and D. Tolley. Paris, Health Publications: 249-286, 2003.

55. **Williams, J.C.**, J.A. McAteer, R.O. Cleveland, Y.A. Pishchalnikov, and I.V. Pishchalnikova. Linkage of cavitation with spall failure in lithotripsy: in vitro and in vivo results. In: Nonlinear Acoustics at the Beginning of the 21st Century, O.V. Rudenko and O.A. Sapozhnikov, eds., Faculty of Physics, MSU, Moscow, pp. 391-394, 2003.

56. Pishchalnikov, Y.A., O.A. Sapozhnikov, **J.C. Williams**, A.P. Evan, J.A. McAteer, R.O. Cleveland, T. Colonius, M.R. Bailey, and L.A. Crum. Cavitation bubble cluster dynamics induced by lithotripter shock waves at the surface of model and natural kidney stones. In: Nonlinear Acoustics at the Beginning of the 21st Century, O.V. Rudenko and O.A. Sapozhnikov, eds., Faculty of Physics, MSU, Moscow, pp. 395-398, 2003.

57. Bailey, M.R., L.A. Crum, , A.P. Evan, J.A. McAteer, **J.C. Williams**, O.A. Sapozhnikov, R.O. Cleveland, and T. Colonius. Cavitation in shock wave lithotripsy. Fifth International Symposium on Cavitation (CAV2003), Nov 1-3, 2003, Osaka, Japan. Published online at http://cav2003.me.es.osaka-u.ac.jp/Cav2003/Papers/Cav03-OS-2-1-006.pdf.

58. Bailey, M.R., R.O. Cleveland, T. Colonius, L.A. Crum, A.P. Evan, J.E. Lingeman, J.A. McAteer, O.A. Sapozhnikov, and **J.C. Williams**. The role of cavitation in tissue injury and stone comminution in shock wave lithotripsy. Proc. of IEEE-UFFC Ultrasonics Symposium (Honolulu, Hawaii, USA, 2003) 1H-2, 2003 (also published online at http://www.ieee-uffc.org/archive/ul/proceed/2003/proceed/1H-2.pdf).

59. Kuo, R.L., R.F. Paterson, T.M. Siqueira, A.P. Evan, J.A. McAteer, **J.C. Williams**, and J.E. Lingeman. In vitro assessment of lithoclast ultra intracorporeal lithotripter. J Endourol 18(2):153-156, 2004.

60. Zarse C.A., J.A. McAteer, M. Tann, A.J. Sommer, S.C. Kim, R.F. Paterson, E.K. Hatt, J.E. Lingeman, A.P. Evan, and **J.C. Williams**. Helical CT accurately reports urinary stone composition using attenuation values: In vitro verification using high resolution micro CT calibrated to FT-IR microspectroscopy. Urology 63(5):828-833, 2004.

61. Zarse, C.A., J.A. McAteer, A.J. Sommer, S.C. Kim, E.K. Hatt, J.E. Lingeman, A.P. Evan, and **J.C. Williams**. Nondestructive analysis of urinary calculi using micro computed tomography. BMC Urology 4:15, 2004. [PMC544194] (http://www.biomedcentral.com/content/pdf/1471-2490-4-15.pdf)

62. **Williams, J.C.**, S.C. Kim, C.A. Zarse, J.A. McAteer, and J.E. Lingeman. Progress in the use of helical CT for imaging urinary calculi. J Endourol, 18(10):937-941, 2004.

63. Evan, A.P., J.A. McAteer, **J.C. Williams**, L.R. Willis, M.R. Bailey, L.A. Crum, J.E. Lingeman, and R.O. Cleveland. Shock wave physics of lithotripsy: mechanisms of shock wave action and progress toward improved shock wave lithotripsy. In: Textbook of Minimally Invasive Urology, R. Moore, J.T. Bishoff, S. Loening, and S.G Docimo, Eds. Martin Dunitz Limiter, London, chapter 28, pp 425-438, 2004.

64. Paterson, R.F., S.C. Kim, R.L. Kuo, J.E. Lingeman, A.P. Evan, B.A. Connors, **J.C. Williams**, and J.A. McAteer. Shock wave lithotripsy of stones implanted in the proximal ureter of the pig. J Urol, 173:1391-1394, 2005.

65. Adams, L.G., **J.C. Williams**, JA. McAteer, E.K. Hatt, J.E. Lingeman, and C.A. Osborne. In vitro evaluation of canine and feline calcium oxalate urolith fragility via shock wave lithotripsy. Am J Vet Res 66(9):1651-1654, 2005.

66. Kim, S.C., E.K. Hatt, J.E. Lingeman, R.B. Nadler, J.A. McAteer, and **J.C. Williams**. Cystine: helical CT characterization of rough and smooth calculi in vitro. J Urol 174:1468 –1471, 2005.

67. Pishchalnikov, Y.A., O.A. Sapozhnikov, M.R. Bailey, I.V. Pishchalnikova, **J.C. Williams**, and J.A. McAteer, Cavitation selectively reduces the negative-pressure phase of lithotripter shock pulses Acoustic Research Letters Online 6(4):280-286, 2005.

68. McAteer, J.A., **J.C. Williams**, R.O. Cleveland, J.V. Cauwelaert, M.R. Bailey, D.A. Lifshitz, and A.P. Evan. Ultracal-30 gypsum artificial stones for research on the mechanisms of stone breakage in shock wave lithotripsy. Urol Res 33:429-434, 2005.

69. McAteer, J.A., M.R. Bailey, **J.C. Williams**, R.O. Cleveland, and A.P. Evan. Strategies for improved shock wave lithotripsy. Minerva Urologica e Nefrologica 57(4):271-287, 2005.

70. **Williams, J.C.** Viewing windows do not alter Hounsfield units in CT scans. (Letter) Urol Res 33:481-482, 2005.

71. Pishchalnikov, Y.A., J.A. McAteer, I.V. Pishchalnikova, S. Beard, **J.C. Williams**, and M.R. Bailey. Bubbles trapped at the coupling surface of the treatment head significantly reduce acoustic energy delivered in shock wave lithotripsy. AIP Conference Proceedings 829: International Symposium of Therapeutic Ultrasound (Boston, MA) 643-647, 2005.

72. Matlaga, B.R., **J.C. Williams**, S.C Kim, R.L. Kuo, A.P. Evan, S.B. Bledsoe, F.L. Coe, E.M. Worcester, L.C. Munch, and J.E. Lingeman. Endoscopic evidence of calculus attachment to Randall's plaque. J Urol 175:1720-1724, 2006.

73. Pishchalnikov, Y.A., J.A. McAteer, **J.C. Williams**, I.V. Pishchalnikova, and R.J. VonDerHaar. Why stones break better at slow shock wave rate than at fast rate: In vitro study with a research electrohydraulic lithotripter. J Endourol 20(8):537-541, 2006.

74. **Williams, J.C.**, C.A. Zarse, M.E. Jackson, F.A. Witzmann, and J.A. McAteer. Variability of protein content in calcium oxalate monohydrate (COM) stones. J Endourol 20(8):560-564, 2006. [PMC155562]

75. Pishchalnikov, Y.A., J.A. McAteer, R.J. VonDerHaar, I.V. Pishchalnikova, **J.C. Williams**, and A.P. Evan. Detection of significant variation in acoustic output of an electromagnetic lithotripter. J Urol 176:2294-2298, 2006.

76. Pishchalnikov, Y.A., J.S. Neucks, R.J. VonDerHaar, I.V. Pishchalnikova, **J.C. Williams**, and J.A. McAteer. Air pockets trapped during routine coupling in dry-head lithotripsy can significantly reduce the delivery of shock wave energy. J Urol 176:2706-2710, 2006.

77. **Williams, J.C.**, B.R. Matlaga, S.C. Kim, M.E. Jackson, A.J. Sommer, J.A. McAteer, J.E. Lingeman, and A.P. Evan. Calcium oxalate calculi found attached to the renal papilla:

Preliminary evidence for early mechanisms in stone formation. J Endourol, 20(11):885-890, 2006.

78. Pishchalnikov, Y.A., O.A. Sapozhnikov, M.R. Bailey, J.A. McAteer, **J.C. Williams**, A.P. Evan, R.O. Cleveland, and L.A. Crum. Interactions of cavitation bubbles observed by high-speed imaging in shock wave lithotripsy. In: Innovations in Nonlinear Acoustics (Proceedings of 17th International Symposium on Nonlinear Acoustics, State College, Pennsylvania, 18-22 July 2005), ed. by A. Atchley, V. Sparrow and R. Keolian, Amer. Inst. of Physics conference proceedings 838, pp.299-302, 2006.

79. Pishchalnikov, Y.A., J.A. McAteer, M.R. Bailey, I.V. Pishchalnikova, **J.C. Williams**, and A.P. Evan. Acoustic shielding by cavitation bubbles in shock wave lithotripsy (SWL). In: Innovations in Nonlinear Acoustics (Proceedings of 17th International Symposium on Nonlinear Acoustics, State College, Pennsylvania, 18-22 July 2005), ed. by A. Atchley, V. Sparrow and R. Keolian, Amer. Inst. of Physics conference proceedings 838, pp.319-322, 2006.

80. Paterson, R.F., S.C. Kim, and **J.C. Williams**. Helical CT imaging and SWL treatment of renal and ureteral calculi. In: Smith's Textbook of Urology, Ed: A.D. Smith. B.C. Decker Inc., Hamilton, Ontario, 2006, pp. 343-352.

81. Anderson, J.C., **J.C. Williams**, A.P. Evan, K.W. Condon, and A.J. Sommer. Analysis of urinary calculi using an infrared microspectroscopic surface reflectance imaging technique. Urol Res 35:41-48, 2007.

82. Kim, S.C., B.R. Matlaga, W. Tinmouth, R.L. Kuo, A.P. Evan, J.A. McAteer, **J.C. Williams**, and J.E. Lingeman. In vitro assessment of a novel dual probe ultrasonic intracorporeal lithotripter. J Urol 177:1363-1365, 2007.

83. **Williams, J.C.**, C.A. Zarse, M.E. Jackson, J.E. Lingeman, and J.A. McAteer. Using helical CT to predict stone fragility in shock wave lithotripsy (SWL). In: Renal Stone Disease: Proceedings of the First International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2007.

84. Matlaga, B.R., **J.C. Williams**, A.P. Evan, and J.E. Lingeman. Calcium oxalate stones are frequently found attached to Randall's plaque. In: Renal Stone Disease: Proceedings of the First International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2007.

85. McAteer, J.A., A.P. Evan, L.R. Willis, B.A. Connors, **J.C. Williams**, Y.A. Pishchalnikov, and J.E. Lingeman. Shock wave injury to the kidney in SWL: Review and perspective. . In: Renal Stone Disease: Proceedings of the First International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2007.

86. Pishchalnikov, Y.A., J.A. McAteer, J.S. Neucks, I.V. Pishchalnikova, and **J.C. Williams**. The problem of coupling in dry-head lithotripsy. In: Renal Stone Disease: Proceedings of the First International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2007.

87. Evan, A.P., J.E. Lingeman, and **J.C. Williams**, eds. Renal Stone Disease: Proceedings of the First International Urolithiasis Research Symposium. American Institute of Physics, Melville, NY, 2007.

88. Zarse, C.A., T.A. Hameed, M.E. Jackson, Y.A. Pishchalnikov, J.E. Lingeman, J.A. McAteer, and **J.C. Williams**. CT visible internal stone structure—but not Hounsfield unit value—of calcium oxalate monohydrate (COM) calculi predicts lithotripsy fragility in vitro. Urol Res 35:201-206, 2007. [PMC2408919]

89. Pishchalnikov, Y.A., W. Kreider, J.A. McAteer, **J.C. Williams**, I.V. Pishchalnikova, and M.R. Bailey. Measurements of acoustic pulses in shock wave lithotripsy in the presence of cavitation. In: Acoustics for the 21st Century, Special issue of the Journal Revista de Acustica, (Proceedings of the 19th International Congress on Acoustics , Madrid, Spain, 2-7 September 2007). Eds: A. Calvo-Manzano, A. Perez-Lopez, J.S. Santiago. ISBN: 84-87985-12-2, on CD-ROM, paper #NLA-02-005-IP, 2007.

90. Kim, S.C., E.K. Burns, J.E. Lingeman, R.F. Paterson, J.A. McAteer, and **J.C. Williams**. Cystine calculi: correlation of CT-visible structure, CT number, and stone morphology with fragmentation by shock wave lithotripsy. Urol Res 35:319-324, 2007.

91. Primak, A.N., J.G. Fletcher, T.J. Vritska, O.P. Dzyubak, J.C. Lieske, M.E. Jackson; **J.C. Williams**, and C.H. McCollough. Non-invasive differentiation of uric acid versus non-uric acid kidney stones using dual-energy CT. Acad Radiol 14:1441-1447, 2007. [PMC2743375]

92. Evan A.P., J.A. McAteer, B.A. Connors, Y.A. Pishchalnkov, R.K. Handa, P. Blomgren, L.R. Willis, **J.C. Williams**, J.E. Lingeman, and S. Gao. Independent assessment of a wide-focus, low-pressure electromagnetic lithotripter: Absence of renal bioeffects in the pig. BJU Int 101:382-388 2007.

93. Matlaga, B.R., J.A. McAteer, B.A. Connors, R.K. Handa, A.P. Evan, **J.C. Williams**, J.E. Lingeman, and L.R. Willis. The potential for cavitation-mediated tissue damage in shock wave lithotripsy. J Endourol 22(1):121-126, 2008.

94. Humphreys, M.R., N.L. Miller, **J.C. Williams**, A.P. Evan, L.C. Munch, and J.E. Lingeman. A new world revealed: early experience with digital ureteroscopy. J Urol 179:970-975, 2008. (made cover for journal issue)

95. Neucks, J.S., Y.A. Pishchalnikov, A.J. Zancanaro, J.N. VonDerHaar, **J.C. Williams**, and J.A. McAteer. Improved acoustic coupling for shock wave lithotripsy. Urol Res 36:61-66, 2008.

96. Evan, A.P, J.E. Lingeman, F.L. Coe, N.L. Miller, S.B. Bledsoe, A.J. Sommer, **J.C. Williams**, Y. Shao, and E.M. Worcester. Histopathology and surgical anatomy of patients with primary hyperparathyroidism and calcium phosphate stones. Kidney Int 74:223-229, 2008.

97. Evan, A.P., J.E. Lingeman, J.A. McAteer, and **J.C. Williams**, eds. Renal Stone Disease 2: Proceedings of the 2nd International Urolithiasis Research Symposium. American Institute of Physics, Melville, NY, 2008.

98. Pishchalnikov, Y.A., J.A. McAteer, R.J. VonDerHaar, I.V. Pishchalnikova, and **J.C. Williams**. The characteristics of broad and narrow focal zone lithotripters. In: Renal Stone Disease 2: Proceedings of the 2nd International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, J.A. McAteer, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2008, pp. 238-242.

99. McAteer, J.A., A.P. Evan, B.A. Connors, Y.A. Pishchalnikov, **J.C. Williams**, and J.E. Lingeman. Treatment protocols to reduce injury and improve stone breakage in SWL. In: Renal Stone Disease 2: Proceedings of the 2nd International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, J.A. McAteer, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2008, pp. 243-248.

100. Jackson, M.E., C.A. Beuschel, J.A. McAteer, and **J.C. Williams**. Morphology of major stone types, as shown by micro computed tomography (micro CT). In: Renal Stone Disease 2: Proceedings of the 2nd International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, J.A. McAteer, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2008, pp. 333-337.

101. Pishchalnikov, Y.A., J.A. McAteer, A.J. Zacanaro, J.S. Neucks, I.V. Pishchalnikova, and **J.C. Williams**. Effect of the test basket on lithotripter shock waves, cavitation field, and stone breakage. In: Renal Stone Disease 2: Proceedings of the 2nd International Urolithiasis Research Symposium. A.P. Evan, J.E. Lingeman, J.A. McAteer, and **J.C. Williams**, eds. American Institute of Physics, Melville, NY, 2008, pp. 342-347.

102. Pramanik, R., J.R. Asplin, M.E. Jackson, and **J.C. Williams**. Protein content of human apatite and brushite kidney stones: significant correlation with morphologic measures. Urol Res 36:251–258, 2008. [DK059933, NIHMS217886]

103. Pishchalnikov, Y.A., J.A. McAteer, and **J.C. Williams**. Effect of firing rate on the performance of shock wave lithotripters. BJU International 102:1681-1686, 2008. [PMC2588648]

104. McAteer, J.A., A.P. Evan, **J.C. Williams**, and J.E. Lingeman. Treatment protocols to reduce renal injury during shock wave lithotripsy. Current Opinion in Urology 19:192–195, 2009.

105. Assimos, D.G., B. Chew, M. Hatch, R. Hautmann, R. Holmes, **J.C. Williams**, and J.S. Wolf. Evaluation of the stone former. In: J. Denstedt and S. Khoury, eds. Stone Disease. Second International Consultation on Stone Disease. Health Publications Editions21, Paris, 2008.

106. Pishchalnikov, Y.A., J.A. McAteer, I.V. Pishchalnikova, **J.C. Williams**, M.R. Bailey, and O.A. Sapozhnikov. Bubble proliferation in shock wave lithotripsy occurs during inertial collapse. Proceedings of the 18th International Symposium on Non-linear Acoustics, held in Stockholm, July, 2008. AIP Conf Proc 1022:460-463, 2008.

107. Miller, N.L., D.L. Gillen, **J.C. Williams**, A.P. Evan, S.B. Bledsoe, F.L. Coe, E.M. Worcester, B.R. Matlaga, L.C. Munch, and J.E. Lingeman. A formal test of the hypothesis that idiopathic calcium oxalate stones grow on Randall's plaque. BJU International 103:966-971, 2009.

108. Tanner, G.A., C. Rippe, Y. Shao, A.P. Evan, and **J.C. Williams**. Glomerular permeability to macromolecules in the Necturus kidney. Am J Physiol Renal 296:F1269-F1278, 2009. [PMID19339627]

109. Evan, A.P., J.E. Lingeman, F.L. Coe, S.B. Bledsoe, A.J. Sommer, **J.C. Williams**, A.E. Krambeck, and E.M. Worcester. Intra-tubular deposits, urine and stone composition are divergent in patients with ileostomy. Kidney Int 76:1081-1088, 2009.

110. Miller, N.L., **J.C. Williams**, A.P. Evan, S.B. Bledsoe, F.L. Coe, E.M. Worcester, L.C. Munch, S.E. Handa, and J.E. Lingeman. In idiopathic calcium oxalate stone formers, unattached stones show evidence of having originated as attached stones on Randall's plaque. BJU International, 105(2):242-245, 2010. [R01DK59933] [PMC2807918]

111. Evan, A.P., J.E. Lingeman, E.M. Worcester, S.B. Bledsoe, A.J. Sommer, **J.C. Williams**, A.E. Krambeck, C.L. Philips, and F.L. Coe. Renal histopathology and crystal deposits in patients with small bowel resection and calcium oxalate stone disease. Kidney International 78:310-317, 2010.

112. Krambeck, A.E., N.F. Khan, M.E. Jackson, J.E. Lingeman, J.A. McAteer and **J.C. Williams**. Inaccurate reporting of mineral composition by commercial stone analysis laboratories: implications for infection and metabolic stones. J Urol 184:1543-1549, 2010. [R01DK59933]

113. VonDerHaar, J.N., J.A. McAteer, **J.C. Williams**, and J.E. Lingeman. In vitro evaluation of the Lithoclast Ultra Vario combination lithotrite. Urol Res 38:485-489, 2010.

114. Krambeck, A.E., J.E. Lingeman, J.A. McAteer and **J. C. Williams**. Analysis of mixed stones is prone to error: A study with U.S. laboratories using micro CT for verification of sample content. Urol Res 38:469-475, 2010. [R01DK59933] [

115. **Williams, J.C.**, J.A. McAteer, A.P. Evan and J.E. Lingeman. Micro-computed tomography for analysis of urinary calculi. Urol Res 38:477-484, 2010. [R01DK59933]

116. Mitchell, C., **J. Williams**, J. Lieske, and A. Krambeck. Percutaneous Nephrolithotomy for a 2,8-Dihydroxyadenine Stone in a Horseshoe Kidney. *Videourology* 24(5):2010.0114, 2010.

117. **Williams, J.C.** Re: Serum testosterone may be associated with calcium oxalate urolithogenesis. (letter) J Endourol 25(2):351, 2011.

118. Qu, M., J.C. Ramirez Giraldo, S. Leng, **J.C. Williams**, T.J. Vrtiska, J.C. Lieske, and C.H. McCollough. Dual-energy dual-source CT with additional spectral filtration can improve the differentiation of non-uric acid renal stones: An ex vivo phantom study. AJR, 196:1279-1287, 2011. [R01DK59933]

119. Daudon, M., O. Traxer, **J.C. Williams**, and D. Bazin. Randall's plaques. In: N. Rao, J. Kavanagh, and G.M. Preminger (eds) Urinary Tract Stone Disease, Springer, New York, chapter 7, pp. 103-112, 2011.

120. Pishchalnikov, Y.A., **J.C. Williams**, and J.A. McAteer. Bubble proliferation in the cavitation field of a shock wave lithotripter. J Acoust Soc Am 130(2):EL87-EL93, 2011.

121. **Williams, J.C.**, A.P. Evan, and J.E. Lingeman. Re: Grases F, Costa-Bauzá A, Gomila I and Conte A: Origin and types of calcium oxalate monohydrate papillary renal calculi. Urology 76: 1339-1345, 2010. (letter) Urology 78(2):477, 2011.

122. Evan, A.E., R.J. Unwin, and **J.C. Williams**. Renal stone disease: a commentary on the nature and significance of Randall's plaque. Nephron Physiol 119:49-53, 2011. [PMC3701452]

123. **Williams, J.C.**, A.J. Sacks, K.M. Englert, R.C. Deal, T.L. Farmer, M.E. Jackson, J.E. Lingeman, and J.A. McAteer. Stability of the infection marker struvite in urinary stone samples. J Endourol 26(6):726-731, 2012. [R01DK59933]

124. **Williams, J.C.**, T. Hameed, M.E. Jackson, S. Aftab, A. Gambaro, Y.A. Pishchalnikov, J.E. Lingeman, and J.A. McAteer. Fragility of brushite stones in shock wave lithotripsy: Absence of correlation with CT-visible structure. J Urol 188:996-1001, 2012. [R01DK59933, P01DK043881] [PMC3418465]

125. Li, G., **J.C. Williams**, Y.A. Pishchalnikov, Z. Liu, and J.A. McAteer. Size and location of defects at the coupling interface affect lithotripter performance. BJU International 110:E971-877, 2012.

126. Viers, B., **J.C. Williams**, J. Lieske, and A. Krambeck. Calcite urolithiasis in patient with acromegaly confirmed by percutaneous removal and infrared spectroscopic analysis. BJUI.org, DOI: 10.1002/BJUIw-2012-057-web, 2012.

127. Duan X., M. Qu, J. Wang, J. Trevathan, T. Vrtiska, **J.C. Williams**, A. Krambeck, J. Lieske, and C. McCollough. Differentiation of calcium oxalate monohydrate and calcium oxalate dihydrate stones using quantitative morphological information from micro-computerized and clinical computerized tomography. J Urol 189:2350-2356, 2013.

128. **Williams, J.C.**, and J.A. McAteer. Retention and growth of urinary stones—Insights from imaging. J Nephrol 26(1):25-31, 2013. [PMC5812282]

129. Pishchalnikov, Y.A., J.A. McAteer, **J.C. Williams**, B.A. Connors, R.K. Handa, J.E. Lingeman, and A.E. Evan. Evaluation of the LithoGold LG-380 lithotripter: In vitro acoustic characterization and assessment of renal injury in the pig model. J Endourol 27(5):631-639, 2013.

130. Englert, K.M., J.A. McAteer, J.E. Lingeman, and **J.C. Williams**. High carbonate level of apatite in kidney stones implies infection, but is it predictive? Urolithiasis 41(5):38-394, 2013. [R01DK59933, PMC3778144]

131. Linnes, M.P., A.E. Krambeck, L. Cornell, **J.C. Williams**, M. Korinek, E.J. Bergstralh, X. Li, A.D. Rule, C.M. McCollough, T.J. Vrtiska, and J.C. Lieske. Phenotypic characterization of kidney stone formers via endoscopic and histological quantification of intra-renal calcifications. Kidney Int 84:818-825, 2013.

132. Ling, C, **J.C. Williams**, A.P. Evan, and A.J. Sommer. A comparison of reflectance and attenuated total internal reflection infrared microspectroscopic imaging techniques for the analysis of kidney stones. Microscopy and Microanalysis 19(S2):240-241, 2013.

133. Li, G., J.A. McAteer, **J.C. Williams**, and Z.C. Berwick. Effect of the body wall on lithotripter shock waves. J Endourol 28:446-452, 2014. [PMC3961776]

134. Evan, A.P., J.E. Lingeman, E.M. Worcester, A.J. Sommer, C.L. Phillips, **J.C. Williams**, and F.L. Coe. Contrasting histopathology and crystal deposits in kidneys of idiopathic stone formers who produce hydroxyapatite, brushite, or calcium oxalate stones. Anat Rec 297(4):731-748, 2014. [PMC4014063]

135. **Williams, J.C.** Invited commentary on 'Fish Oil Supplementation and Urinary Oxalate Excretion in Normal Subjects on a Low Oxalate Diet,' Urology 84(4):781-782, 2014.

136. Wang, X., A.E. Krambeck, **J.C. Williams**, X. Tang, A.D. Rule, E. Bergstralh, Z. Haskic, S. Edeh, D.R. Holmes, L.P. Hernandez, and J.C. Lieske. Distinguishing characteristics of idiopathic calcium oxalate kidney stone formers with low amounts of Randall's plaque. CJASN, 9(10):1757-1763, 2014.

137. Lieske, J.C., A. Rule, A.E. Krambeck, **J.C. Williams**, E. Bergstalh, R. Mehta, and T. Moyer. Stone composition as a function of age and sex. Clin J Am Soc Nephrol 9:2141-2146, 2014.

138. **Williams, J.C.**, J.E. Lingeman, F. Coe, E. Worcester, and A.P. Evan. Micro-CT imaging of Randall's plaques. Urolithiasis 43(suppl 1):13-17, 2015. [PMC4285664; NIHMS619482]

139. Evan, A.P., E.M. Worcester, F.L. Coe, **J.C. Williams**, and J.E. Lingeman. Mechanisms of human kidney stone formation. Urolithiasis 43(suppl 1):19-32, 2015. [PMC4285570]

140. Bhojani, N., J.A. Mandeville, T.A. Hameed, T.M. Soergel, J.A. McAteer, **J.C. Williams**, A.E. Krambeck, and J.E. Lingeman. Lithotripter outcomes in a community practice setting: Comparison of the Lithogold LG-380 and Storz Modulith SLX. J Urol 193:875-879, 2015. [PMC4412606]

141. Borofsky, M.S., J.E. Paonessa, A.P. Evan, **J.C. Williams**, F.L. Coe, E.M. Worcester, and J.E. Lingeman. Introduction of a renal papillary grading system for patients with nephrolithiasis. (video) J Endourol, Pt B: Videourology, 2015. doi: 10.1089/vid.2015.0023

142. Evan, A.P., E.M. Worcester, **J.C. Williams**, A.J. Sommer, J.E. Lingeman, C. Phillips, and F.L. Coe. Biopsy proven medullary sponge kidney: Clinical findings, histopathology, and role of osteogenesis in stone and plaque formation. Anat Rec 298(5):865-77, 2015. [PMC4405475]

143. Ribeiro, T.R., F.W.G. Costa, E.C.S. Soares, **J.C. Williams**, and C.S.R. Fonteles. Enamel and dentin mineralization in familial hypophosphatemic rickets: A micro-computed tomography study. Dentomaxillofacial Radiol 44(5):20140347, 2015. [PMC4628496]

144. **Williams, J.C.** Re: Stone size limits the use of Hounsfield units for prediction of calcium oxalate stone composition. (letter) Urology 85(4):965, 2015.

145. Ibrahim, E.-S.H., J.G. Cernigliaro, R.A. Pooley, **J.C. Williams**, and W. Haley. Motion artifacts in kidney stone imaging using single-source and dual-source dual-energy CT scanners. A phantom study. Abdominal Imaging 40(8):3161-3167, 2015.

146. **Williams, J.C.** Invited commentary on ' High prevalence of opaline silica in urinary stones from Burkina Faso,' Urology 86:1095-1096, 2015.

147. Borofsky, M.R., J.E. Paonessa, A.P. Evan, **J.C. Williams**, F.L. Coe, E.M. Worcester, and J.E. Lingeman. A proposed grading system to standardize the description of renal papillary appearance at the time of endoscopy in patients with nephrolithiasis. J Endourol 30:122-127, 2016. [PMC4744462]

148. Ibrahim, E.-S.H., J.G. Cernigliaro, R.A. Pooley, M.D. Bridges, J.G. Giesbrandt, **J.C. Williams**, and W. E. Haley. Detection of different kidney stone types: an ex vivo comparison of ultrashort echo time MRI to reference standard CT. Clin Imaging 40(1): 90-95, 2016.

149. Witzmann, F.A., A.P. Evan, F.L. Coe, E.M. Worcester, J.E. Lingeman, and **J.C. Williams**. Label-free quantitative proteomic analysis of human kidney stone matrix composition. Proteome Science 14:4, 2016. [PMC4769560]

150. Harrogate, S.R., L.M.S. Yick, **J.C. Williams**, R.O. Cleveland, and B.W. Turney. Quantification of the range of motion of kidney and ureteric stones during shockwave lithotripsy in conscious patients. *J Endourol* 30:406-410, 2016. [PMC4840995]

151. Paonessa, J.E., E. Gnessin, N. Bhojani, **J.C. Williams**, and J.E. Lingeman. Preoperative bladder urine culture as a predictor of intraoperative stone culture results: Clinical implications and relationship to stone composition. *J Urol* 196:769-774, 2016.

152. Ferrero, A., J.M. Cardona, L. Vaughn, A. Huang, I. McKeag, F. Enders, **J.C. Williams**, and C.H. McCollough. Quantitative prediction of stone fragility from routine dual energy CT: Ex vivo proof of feasibility. *Academic Radiology* 23:1545-1552, 2016. [PMC5111401]

153. Leng S., A. Huang, J.M. Cardona, X. Duan, **J.C. Williams**, and C.H. McCollough. Dual-energy CT for quantification of urinary stone composition in mixed stones: A phantom study. *Radiology* 207:321-329, 2016.

154. Borofsky, M.S., C.A. Dauw, **J.C. Williams**, A.E. Evan, and J.E. Lingeman. Integration and utilization of modern technologies in nephrolithiasis research. *Nature Reviews Urology* 13:549-557, 2016. [PMC5880530]

155. Gambaro, G., E. Croppi, F. Coe, J. Lingeman, O. Moe, E. Worcester, N. Buchholz, D. Bushinsky, G.C. Curhan, P.M. Ferraro, D. Fuster, D. S. Goldfarb, I.P. Heilberg, B. Hess, J. Lieske, M. Marangella, D. Milliner, G.M. Preminger, J.M. Reis Santos, K.Sakhaee, K. Sarica, R.Siener, P. Strazzullo, and **J.C. Williams**. Metabolic diagnosis and medical prevention of calcium nephrolithiasis and its systemic manifestations: a consensus statement. *J Nephrol* 29: 715-734, 2016.

156. Lingeman, J.E., A.E. Krambeck, T.M. El-Achkar, A.P. Evan, **J.C. Williams**, J.C. Lieske, E.M. Worcester, and F.L. Coe. (2017). Re: The Origins of Urinary Stone Disease: Upstream mineral formations initiate downstream Randall's plaque. *BJU Int*, online, http://www.bjuinternational.com/letters/re-the-origins-of-urinary-stone-disease-upstream-mineral-formations-initiate-downstream-randalls-plaque/, 2017 (letter).

157. **Williams, J.C.**, E. Worcester, and J.E. Lingeman. What can the microstructure of stones tell us? *Urolithiasis* 45:19-25, 2017. [PMC5253090]

158. Gilad, R., **J.C. Williams**, K.D. Usman, R. Holland, S. Golan, T. Ruth, and D. Lifshitz. Interpreting the results of chemical stone analysis in the era of modern stone analysis techniques. *J Nephrol* 30:135-140, 2017. [PMC5668903]

159. Kleinguetl, C., **J.C. Williams**, S.A. Ibrahim, M. Daudon, E.T. Bird, and M.M. El Tayeb. Calcium tartrate tetrahydrate, case report of a novel human kidney stone. *Journal of Endourology Case Reports* 3(1):192-195, 2017.

160. **Williams, J.C.**, M.S. Borofsky, S.B. Bledsoe, A.P. Evan, F.L. Coe, E.M. Worcester, and J.E. Lingeman. Papillary ductal plugging is a mechanism for early stone retention in brushite stone disease. *J Urol* 199:186-192, 2018. [PMC5871923]

161. Simon, J., O. Sapozhnikov, W. Kreider, M. Breshock, **J.C. Williams**, and M. Bailey. The role of trapped bubbles in kidney stone detection with the color Doppler ultrasound twinkling artifact. *Physics in Medicine and Biology* 63(2):025011, 2018.

162. Paonessa, J.E., **J.C. Williams**, and J.E. Lingeman. Addition of sodium bicarbonate to irrigation solution may assist in dissolution of uric acid fragments during ureteroscopy. *J Endourol* 32(4):305-308, 2018.

163. Bhojani, N., J.E. Paonessa, M.M. El Tayeb, **J.C. Williams**, T.A. Hameed, and J.E. Lingeman. Sensitivity of non-contrast computed tomography for small renal calculi with endoscopy as the gold standard. Urology 117:36-40, 2018.

164. Sivaguru, M., J.J. Saw, **J.C. Williams**, J.C. Lieske, A.E. Krambeck, M.F. Romero, N. Chia, D.E. Wildman, G.A. Fried, A.L. Schwaderer, C.J. Werth, R.J. Reeder, P.Yau, R.A. Sanford, W.J. Bruce, and B.W. Fouke. Geobiology reveals how human kidney stones dissolve in vivo. *Scientific Reports* 8:13731, 2018. [PMC6137216]

165. **Williams, J.C.**, M.R. Bailey, and R.O. Cleveland. Tailoring acoustics and devices for gene therapy: Comment on 'Shock-wave induced permeabilization of mammalian cells' by Lopez-Marin et al. *Phys Life Rev* 26:47-48, 2018.

166. Daudon, M., P. Jungers; D. Bazin, and **J.C. Williams**. Recurrence rates of urinary calculi according to stone composition and morphology. *Urolithiasis* 46(5):459-470, 2018.

167. Daudon, M., and **J.C. Williams**. Characteristics of Human Kidney Stones. In: *Kidney Stones: A Multidisciplinary Approach to Diagnosis and Treatment*. F.L. Coe, E.M. Worcester, A.P. Evan, and J.E. Lingeman, eds. Jaypee Medical Publishers, Philadelphia, PA, 2018.

168. Hunter, C., A.D. Maxwell, B. Cunitz, B. Dunmire, M.D. Sorensen, **J.C. Williams**, A. Randad, M. Bailey, and W. Kreider. Impact of stone type on cavitation in burst wave lithotripsy. *Proceeding of Meetings on Acoustics* 35:020005, 2018.

169. Wang, Y.-N., W. Kreider, C. Hunter, B.W. Cunitz, J. Thiel, F. Starr, J.C. Dai, Y. Nazari, D. Lee, **J.C. Williams**, M.R. Bailey, and A.D. Maxwell. An in vivo demonstration of efficacy and acute safety of burst wave lithotripsy using a porcine model. *Proceeding of Meetings on Acoustics* 35:020009, 2018.

170. Kleinguetl, C., **J.C. Williams**, J.C. Lieske, M. Daudon, M. Rivera, P.J. Jannetto, J. Bornhorst, D. Rokke, E.T. Bird, J.E. Lingeman, and M.M. El Tayeb. Uncovering a novel stone in 27 patients: Calcium tartrate tetrahydrate. *Urology* 126:49-53, 2019.

171. Borofsky, M.S., **J.C. Williams**, C.A. Dauw, A. Cohen, A.P. Evan, F.L. Coe, E. Worcester, and J.E. Lingeman. Association between Randall's plaque stone anchors and renal papillary pits. *J Endourol* 33:337-342, 2019.

172. Pless, M.S., **J.C. Williams**, K.H. Andreassen, H.U. Jung, S.S. Osther, D.R. Christensen, and P.J.S. Osther. Endoscopic observations as a tool to define underlying pathology in kidney stone formers. *World J Urol* 37(10):2207-2215, 2019.

173. Cavalcante, D., M.G. Castro, A.R. Quidute, M. Martins, A. Cid, P. Silva, **J.C. Williams**, F. Neves, T. Ribeiro, and F. Costa. Evaluation of bone texture imaging parameters on panoramic radiographs of patients with Sheehan's syndrome: A STROBE-compliant case-control study. *Osteoporosis International*, 30:2257-2269, 2019.

174. Maxwell, A.D., C. Hunter, T.T. Chen, Y.-N. Wang, E. Lynch, B. Dunmire, M.R. Bailey, **J.C. Williams** and W. Kreider. Models mimicking characteristics of the urinary system and stones relevant to lithotripsy. *J Acoustical Soc Amer* 146: 3069-3069, 2019.

175. Maxwell, A.D., Y.-N. Wang, W. Kreider, B.W. Cunitz, F. Starr, D. Lee, Y. Nazari, **J.C. Williams**, M.R. Bailey, and M.D. Sorensen. Evaluation of renal stone comminution and injury by burst wave lithotripsy in a pig model. *J Endourol* 33:787-792, 2019.

176. Large, T., C. Nottingham, C. Stoughton, **J.C. Williams**, and A. Krambeck. Comparative study of holmium laser enucleation of the prostate with MOSES enabled pulsed laser modulation. *Urology* 136:196-201, 2019.

177. Borofsky, M.S., R.K. Handa, A.P. Evan, **J.C. Williams**, S. Bledsoe, F.L. Coe, E.M. Worcester, and J.E. Lingeman. In vivo renal tubule pH in stone-forming human kidneys. *J Endourol* 34:203-208, 2019.

178. Evan, A.P., F.L. Coe, E.M. Worcester, **J.C. Williams**, J. Heiman, S. Bledsoe, A. Sommer, C.L. Philips, and J.E. Lingeman. Discrepancy between stone and tissue mineral type in patients with idiopathic uric acid stones. *J Endourol* 34:385-393, 2020. (corresponding author)

179. Makki, M.S., S. Winfree, J.E. Lingeman, F. Witzmann, E.M. Worcester, A. Krambeck, F. Coe, A.P. Evan, S. Bledsoe, K. Bergsland, S. Kochare, D. Barwinska, **J.C. Williams**, and T.M. El-Achkar. A precision medicine approach uncovers a unique signature of neutrophils in patients with brushite kidney stones. *Kidney International Reports* 5(5):663-677, 2020.

180. Large, T. **J.C. Williams**, J.R. Asplin, and A. Krambeck. Using low-calorie orange juice as a dietary alternative to alkali therapy. *J Endourol* 34:1082-1087, 2020.

181. Ramesh, S., T.T. Chen, A.D. Maxwell, B.W. Cunitz, B. Dunmire, J. Thiel, **J.C. Williams**, A. Gardner, Z. Liu, I. Metzler, J.D. Harper, M.D. Sorensen, and M.R. Bailey. In vitro evaluation of urinary stone comminution with a clinical burst wave lithotripsy system. *J Endourol* 34:1167-1173, 2020.

182. **Williams, J.C.**, G. Gambaro, A. Rodgers, J. Asplin, O. Bonny, A. Costa-Bauzá, P.M. Ferraro, G.B. Fogazzi, D. Fuster, D.S. Goldfarb, F. Grases, I.P. Heilberg, D. Kok, E. Letavernier, G. Lippi, M. Marangella, A. Nouvenne, M. Petrarulo, R. Siener, H.-G. Tiselius, O. Traxer, A. Trinchieri, E. Croppi, and W.G. Robertson. Urine and Stone Analysis for the Investigation of the Renal Stone Former: A Consensus Conference. *Urolithiasis* 49(1):1-16, 2021.

183. Canela, V.H., S.B. Bledsoe, J.E. Lingeman, G. Gerber, E.M. Worcester, T.M. El-Achkar, and **J.C. Williams**. Demineralization and sectioning of human kidney stones: A molecular investigation revealing the spatial heterogeneity of the stone matrix. *Physiological Reports* 9:e14658, 2021. [PMCID: PMC7786195]

184. Winfree, S., C. Weiler, S.B. Bledsoe, T. Gardner, A.J. Sommer, A.P. Evan, J.E. Lingeman, A.E. Krambeck, E.M. Worcester, T.M. El-Achkar, and **J.C. Williams**. Multimodal imaging reveals a unique autofluorescence signature of Randall's plaque. *Urolithiasis* 49(2):123-135, 2021. [NIHMS1635930]

185. Harper, J.D., I. Metzler, M.K. Hall, T.T. Chen, A.D. Maxwell, B.W. Cunitz, B. Dunmire, J, Thiel, **J.C. Williams**, M.R. Bailey, and M.D. Sorensen. First in-human burst wave

lithotripsy for kidney stone comminution: Initial two case studies. *J Endourol* 35(4):506-511, 2021.

186. Connors, B.A., T. Gardner, Z. Liu, J.E. Lingeman, and **J.C. Williams**. Renal protection phenomenon observed in a porcine model after electromagnetic lithotripsy using a treatment pause. *J Endourol* 35(5):682-686, 2021.

187. Axelsson, T.A., C. Cracco, M. Desai, M.N. Hasan, T. Knoll, E. Montanari, D. Pérez-Fentes, M. Straub, **J.C. Williams**, M. Brehmer, and P.J.S. Osther. Consultation on Kidney Stones, Copenhagen 2019: Lithotripsy in percutaneous nephrolithotomy. *World J Urol* 39(6):1663-1670, 2021.

188. Pozdzik, A., C. Van Haute, N. Maalouf, E. Letavernier, **J.C. Williams**, M. Daudon and K. Sakhaee. "Trust my morphology", the key message from a kidney stone. *Urolithiasis* 49:494-494, 2021.

189. Sivaguru, M., J.J. Saw, E.M. Wilson, J.C. Lieske, A.E. Krambeck, **J.C. Williams**, M.F. Romero, K.W. Fouke, M.W. Curtis, J.L. Kear-Scott, N. Chia, and B.W. Fouke. Human kidney stones: a natural record of universal biomineralization. *Nature Reviews Urology* 18(7):404-432, 2021.

190. Canela, V.H., C. Dzien, S.B. Bledsoe, M.S. Borofsky, R.S. Boris, J.E. Lingeman, T.M. El-Achkar, and **J.C. Williams**. Human jackstone arms show a protein-rich, x-ray lucent core, suggesting that proteins drive their rapid and linear growth. *Urolithiasis* 50:21-28, 2022.

191. Sabo, A.R., S. Winfree, Sharon B. Bledsoe, Carrie L. Phillips, **J.C. Williams**, and T.M. El-Achkar. Using unstained paraffin sections of human kidney as a gateway to determine tissue quality and extract signatures of disease. *Physiological Reports* 10:e15167, 2022.

192. Harper, J.D., J.E. Lingeman, R.M. Sweet, I.S. Metzler, P. Sunaryo, **J.C. Williams**, A.D. Maxwell, J. Thiel, B.W. Cunitz, B. Dunmire, M.R. Bailey, and M.D. Sorensen. Fragmentation of stones by burst wave lithotripsy in the first 19 humans. *J Urol* 207:1067-1076, 2022.

193. **Williams, J.C.**, H. Al-Awadi, M. Muthenini, S.B. Bledsoe, T. El-Achkar, A.P. Evan, F. Coe, J.E. Lingeman, and E.M. Worcester. Stone morphology distinguishes two pathways of idiopathic calcium oxalate stone pathogenesis. *J Endourol* 36(5):694-702, 2022.

194. Canela, V.H., S.B. Bledsoe, E.M. Worcester, J.E. Lingeman, T.M. El-Achkar and **J.C. Williams**. Collagen fibrils and cell nuclei are entrapped within Randall's plaques but not in CaOx matrix overgrowth: A microscopic inquiry into Randall's plaque stone pathogenesis. *Anat Rec* 305(7):1701-1711, 2022.

195. Riddle, H.A.L., S. Zhang, F. Qian, **J.C. Williams**, J.R. Stubbs, P. Rowe, and S.C. Parnell. Kidney stone formation in a novel murine model of polycystic kidney disease. *AJP-Renal Physiol* 323(1):F59-F68, 2022.

196. Bailey, M.R., A.D. Maxwell, S. Cao, S. Ramesh, Z. Liu, **J.C. Williams**, J. Thiel, B. Dunmire, T. Colonius, E. Kuznetsova, W. Kreider, M.D. Sorensen, J.E Lingeman, and O.A. Sapozhnikov. Improving burst wave lithotripsy effectiveness for small stones and fragments by increasing frequency: theoretical modeling and ex vivo study. *J Endourol* 36(7):996-1003, 2022.

197. Menon, R., …, **J.C Williams**, …, and M. Vazquez [151 authors]. Integrated single-cell sequencing and histopathological analyses reveal diverse injury and repair responses in a participant with acute kidney injury: a clinical-molecular-pathologic correlation. Kidney International 101(6):1116-1125, 2022.

198. Minogue, P.J., A.J. Sommer, **J.C. Williams**, S.B. Bledsoe, E.C. Beyer, and V.M. Berthoud. Connexin mutants cause cataracts through deposition of apatite. *Frontiers in Cell and Developmental Biology* 10:951231, 2022.

199. **Williams, J.C.**, J.E. Lingeman, M. Daudon, and D. Bazin. Using micro computed tomographic imaging for analyzing kidney stones. *Comptes Rendus Chimie* 25(S1):61-72, 2022.

200. Bazin, D., E. Bouderlique, E. Tang, M. Daudon, J.-P. Haymann, V. Frochot, E. Letavernier, E. Van de Perre, **J.C. Williams**, J.E. Lingeman, and F. Borondics. Using mid infrared to perform investigations beyond the diffraction limits of microcristalline pathologies: Advantages and limitation of optical photothermal IR spectroscopy. *Comptes Rendus Chimie* 25(S1):105-131, 2022.

201. Sorensen, M.D., J.D. Harper, M.S. Borofsky, T.A. Hameed, K.J. Smoot, B.H. Burke, B.J. Levchak, **J.C. Williams**, M.R. Bailey, Z. Liu, and J.E. Lingeman. Removal of small, asymptomatic kidney stones and incidence of relapse. *New England Journal of Medicine* 387(6):506-513, 2022.

202. Lee, M.S., B.A. Connors, D.K. Agarwal, M.A. Assmus, **J.C. Williams**, T. Large, and A.E. Krambeck. Determining the threshold of safety for intrarenal pressure during flexible ureteroscopy using an in vivo pig model. *World J Urol* 40:2675-2681, 2022.

203. Connors, B.A., T. Gardner, Z. Liu, J.E. Lingeman, W. Kreider, and **J.C. Williams**. Functional and morphological changes associated with burst wave lithotripsy treated pig kidneys. *J Endourol* 36(12):1580-1585, 2022.

In press:

1. Winfree, S., A.T. McNutt, S. Khochare, T.J. Borgard, D. Barwinska, A.R. Sabo, M.J. Ferkowicz, **J.C. Williams**, J.E. Lingeman, C.J. Gulbronson, K.J. Kelly, T.A. Sutton, P.C. Dagher, M.T. Eadon, K.W. Dunn, and T.M. El-Achkar. Integrated cytometry with machine learning applied to high-content imaging of human kidney tissue for in-situ cell classification and neighborhood analysis. *Lab Invest*, in press, 2023.

2. Lake, B.B., R. Menon, S. Winfree, Q. Hu, R. Melo Ferreira, K. Kalhor, D. Barwinska, E.A. Otto, M. Ferkowicz, D. Diep, N. Plongthongkum, A. Knoten, S. Urata, L. Mariani, A.S. Naik, S. Eddy, B. Zhang, Y. Wu, D. Salamon, **J.C. Williams**, X. Wang, K.S. Balderrama, P. Hoover, E. Murray, J.L. Marshall, T. Noel, A. Vijayan, F. Chen, S.S. Waikar, S. Rosas, F.P. Wilson, P.M. Palevsky, K. Kiryluk, J.R. Sedor, R.D. Toto, C.R. Parikh, E.H. Kim, A. Greka, E.Z. Macosko, P.V. Kharchenko, J.P. Gaut, J.B. Hodgin, M.T. Eadon, P.C. Dagher, T.M. El-Achkar, K. Zhang, M. Kretzler, and S. Jain. An atlas of healthy and injured cell states and niches in the human kidney. *Nature*, in press, 2023.

Submitted:

3. Crook, D.A., A.W. Peters, M. Borofsky, C. Nottingham, S.B. Bledsoe, K. Condon, J.E. Lingeman, and **J.C. Williams**. Micro CT analysis of stones reveals bone as a retention site for the early growth of renal stones. Submitted to *Urology*, 2023.
4. Dellacqua, Z., A. Martini, F. Mattei, C. di Biagio, A. Rakaj, **J.C. Williams**, E. Witten, A. Fabris, M. Izquierdo, and C. Boglione. Distinguishing the impacts of rearing density versus tank volume on the skeletal quality and development of gilthead seabream (*Sparus aurata*) during the hatchery phase. Submitted to *Animals*, 2023.
5. Canela, V.H., W.S. Bowen, R.M. Ferreira, J.E. Lingeman, A.R. Sabo, D. Barwinska. S. Winfree, B. Lake, Y.-H. Cheng, K.A. LaFavers, K. Zhang, F.L. Coe, E. Worcester, S. Jain, M.T. Eadon, **JC. Williams**, and T.M. El-Achkar. A spatially anchored transcriptomic atlas of the human kidney papilla identifies significant immune injury and matrix remodeling in patients with stone disease. Submitted to *Nature Communications*, 2022.

Date February 8, 2023 Signature