

UCSF UROLOGY KURe Career Development Program

UNIVERSITY OF CALIFORNIA SAN FRANCISCO | SCHOOL OF MEDICINE

2017-18
NEWSLETTER



KURe Scholars and Mentors

KURe Scholars Grow Careers

Lindsay Hampson, MD, MAS, and Adriane Sinclair, PhD, are the newest scholars to join the UCSF Multidisciplinary K12 Urologic Research (KURe) Career Development Program. With third-year scholar Anne Suskind, MD, MS, they form the current team of KURe-funded investigators at UCSF. KURe scholars are drawn from junior faculty in diverse disciplines who are interested in pursuing careers in the study of benign urological diseases. All scholars work with faculty mentors on their research projects.



Adriane Sinclair, PhD, 1st year KURe scholar

Dr. Sinclair is a laboratory-based scientist mentored in the Baskin Laboratory who conducts

research on the development of the reproductive tract and the endocrinology of normal and abnormal reproductive development. She is currently investigating how alterations in the balance of hormones during development disrupt the morphology of the external genitalia. "KURe grant support has allowed me to bring in techniques such as in situ hybrid-

ization to investigate the genes involved in normal genital development and what role they may play in disorders such as hypospadias," said Dr. Sinclair.



Lindsay Hampson, MD, MAS, 1st year KURe scholar

Dr. Hampson, a clinical urologist based at the San Francisco

Medical Center and UCSF Parnassus campus, specializes in genitourinary reconstruction and the management of patients with congenital urologic conditions who are transitioning from pediatric to adult care. "I was drawn to reconstructive surgery not only because of the creativity it requires in the operating room, but also because it offers the ability to improve patients' quality of life," said Hampson. KURe funds support her research on improving value and quality in healthcare, enhancing care for adults with congenital urologic conditions, and developing shared decision-making between physicians and patients regarding surgical treatments.



Anne Suskind, MD, MS, 3rd year KURe scholar

Dr. Suskind's research focuses on improving urologic care for older adults, who are often treated

based on care paradigms developed in younger, healthier patients. She is looking in particular at simple measures of frailty in older adults that can help doctors weigh the risks and benefits of different types of urologic care. Dr. Suskind's research interests are particularly entwined with her clinical practice. "I get to experience firsthand what does and does not work in clinical care and where important knowledge gaps lie," she said. Her KURe projects have included building a geriatric urology database that uses a popular, simple mobility test (rising from a chair and walking) to measure frailty in older adults who come in for treatment of benign urologic conditions, such as overactive bladder. She has also evaluated the functional effects of minor urologic procedures among male nursing home residents, using Medicare data and the Minimum Data Set for Nursing Home Residents. A project on frailty and

Former KURe Scholarship Recipients

KURe scholarship funding has helped to launch the careers of several outstanding physicians who currently serve on the UCSF urology faculty.

Benjamin Breyer, MD, MAS, focused his KURe research on the effect of HIV on voiding dysfunctions. Now chief of urology at Zuckerberg San Francisco General Hospital, he continues his interest in voiding problems and heads a service that is nationally recognized for its expertise in urologic reconstruction. Breyer is also a member of the 12-center Trauma and Urinary Reconstructive Network of Surgeons, a national group that analyzes treatment outcomes in order to advance best practices. More than 10 foundation grants support his research projects.

As a KURe scholar, Thomas Chi, MD, helped develop a model for urinary stone disease in the common fruit fly,

Drosophila melanogaster. Supported by NIH funding, his laboratory continues to investigate how the genetic and microbial environment of the kidney induces stone formation. He has established an automated registry for urinary stones, a valuable tool for tracking clinical outcomes and translating laboratory findings to patient care. Chi's clinical practice focuses on minimally invasive treatments for stone disease. He is internationally recognized for the use of ultrasound in the management of kidney stones to minimize patient radiation exposure.

Nadia Roan, PhD, has had a long-standing interest in understanding the effect of host factors on microbial pathogens of the genital mucosa. As a KURe scholar, she investigated how seminal amyloid fibrils, which are naturally present in human semen,

promote HIV infection. Her laboratory continues to examine how mucosal factors influence HIV transmission, as well as the effect of mucosal factors on human reproductive health. NIH grants support much of Dr. Roan's research.

As a KURe scholar, pediatric urologist Hillary Copp, MD, MS, conducted a study of the treatment of prenatally detected urinary tract dilation, utilizing data from the Northern California Kaiser Permanente Medical Program. Copp continues to research the results of health care practice and interventions, including the value of antibiotic prophylaxis in treating recurrent urinary tract infection in children and the optimal treatment of prenatally detected-hydronephrosis. External grants support her work.

Nadia R. Roan, PhD
Assistant Professor of Urology



Hillary L. Copp, MD, MS
Associate Professor of Urology



Thomas Chi, MD
Assistant Professor of Urology



Benjamin N. Breyer, MD, MAS
Associate Professor of Urology
and Epidemiology & Biostatistics



Key Papers

SUSKIND

The Timed Up and Go Test as a measure of frailty in urologic practice. Pangilinan J, Quanstrom K, Bridge M, Walter LC, Finlayson E, **Suskind AM**. *Urology*. 2017 Aug;106:32-38. PMID: 28477941.

Frailty and the role of obliterative versus reconstructive surgery for pelvic organ prolapse: a national study. **Suskind AM**, Jin C, Walter LC, Finlayson E. *J Urol*. 2017 Jun;197(6):1502-1506. PMID: 27939512. PMCID: PMC5472344

Functional outcomes after Transurethral Resection of the Prostate (TURP) in nursing home residents. **Suskind AM**, Walter L, Zhao S, Finlayson E. *J Am Geriatr Soc*. 2017 Apr;65(4):699-703. PMID: 27918098.

Urinary incontinence in older women: The role of body composition and muscle strength: From the Health, Aging, and Body Composition Study. **Suskind AM**, Cawthon PM, Nakagawa S, Subak LL, Reinders I, Satterfield S, Cummings S, Cauley JA, Harris T, Huang AJ. *J Am Geriatr Soc*. 2017 Jan;65(1):42-50. PMID: 27918084. PMCID: PMC5258849

ROAN

Mass cytometric analysis of HIV entry, replication, and remodeling in tissue CD4+ T Cells. Cavois M, Banerjee T, Mukherjee G, Raman N, Hussien R, Rodriguez BA, Vasquez J, Spitzer MH, Lazarus NH, Jones JJ, Ochsenbauer C, McCune JM, Butcher EC, Arvin AM, Sen N, Greene WC, **Roan NR**. *Cell Rep*. 2017 Jul 25;20(4):984-998. doi: 10.1016/j.celrep.2017.06.087. PMID:28746881

Semen amyloids participate in spermatozoa selection and clearance.

Roan NR, Sandi-Monroy N, Kohgadai N, Usmani SM, Hamil KG, Neidleman

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outcomes related to surgery for pelvic organ prolapse in older women drew on data from the American College

of Surgeons (ACS) and National Surgical Quality Improvement Program (NSQIP). Dr. Suskind has

won external grant support for many of these projects.

J, Montano M, Ständker L, Röcker A, Cavrois M, Rosen J, Marson K, Smith JF, Pilcher CD, Gagsteiger F, Sakk O, O'Rand M, Lishko PV, Kirchhoff F, Münch J, Greene WC. *Elife*. 2017 Jun 27;6. pii: e24888. doi: 10.7554/eLife.24888. PMID:28653619

Mucosal stromal fibroblasts markedly enhance HIV infection of CD4+ T cells. Neidleman JA, Chen JC, Kohgadi N, Müller JA, Laustsen A, Thavachelvam K, Jang KS, Stürzel CM, Jones JJ, Ochsenbauer C, Chitre A, Somsouk M, Garcia MM, Smith JF, Greenblatt RM, Münch J, Jakobsen MR, Giudice LC, Greene WC. **Roan NR.** *PLoS Pathog*. 2017 Feb 16;13(2):e1006163. doi: 10.1371/journal.ppat.1006163. eCollection 2017 Feb. PMID:28207890

BREYER

Product related adult genitourinary injuries treated at emergency departments in the United States from 2002 to 2010. Bagga HS, Tasian GE, Fisher PB, McCulloch CE, McAninch JW, **Breyer BN.** *J Urol*. 2013 Apr; 189(4):1362-8. PMID: 23127766

HIV status is an independent risk factor for reporting lower urinary tract symptoms. **Breyer BN,** Van den Eeden SK, Horberg MA, Eisenberg ML, Deng DY, Smith JF, Shindel AW. *J Urol*. 2011 May; 185(5):1710-5. PMID:21420120

Sexual dysfunction in male Iraq and Afghanistan war veterans: association with posttraumatic stress disorder and other combat-related mental health disorders: A population-based cohort study. **Breyer BN,** Cohen BE, Bertenthal D, Rosen RC, Neylan TC, Seal KH. *J Sex Med*. 2014 Jan; 11(1):75-83. PMID: 23679562.

Bicycle trauma injuries and hospital admissions in the United States, 1998-2013. Sanford T, McCulloch CE, Callcut RA, Carroll PR, **Breyer BN.** *JAMA*. 2015 Sep 1; 314(9):947-9. PMID: 26325564

CHI

Contrast Enhanced Ultrasound as a radiation free alternative to fluoroscopic nephrostogram for evaluating ureteral

patency. **Chi T,** Usawachintachit M, Weinstein S, Kohi MP, Taylor A, Tzou DT, Chang HC, Stoller M, Mongan J. *J Urol*. 2017 Jul 23. pii: S0022-5347(17)77191-1. doi: 10.1016/j.juro.2017.07.074. [Epub ahead of print] PMID: 28743528

Rationale and design of the Registry for Stones of the Kidney and Ureter (ReSKU): A prospective observational registry to study the natural history of urolithiasis patients. Chang HC, Tzou DT, Usawachintachit M, Duty BD, Hsi RS, Harper JD, Sorensen MD, Stoller ML, Sur RL, **Chi T.** *J Endourol*. 2016 Dec;30(12):1332-1338. Epub 2016 Nov 1. PMID: 27758162

Ultrasound guidance for renal tract access and dilation reduces radiation exposure during percutaneous nephrolithotomy. **Chi T,** Masic S, Li J, Usawachintachit M. *Adv Urol*. 2016;2016:3840697. doi: 10.1155/2016/3840697. Epub 2016 Mar 2. PMID: 27042176

A drosophila model identifies a critical role for zinc in mineralization for kidney stone disease. **Chi T,** Kim MS, Lang S, Bose N, Kahn A, Flechner L, Blaschko SD, Zee T, Muteliefu G, Bond N, Kolipinski M, Fakra SC, Mandel N, Miller J, Ramanathan A, Killilea DW, Brückner K, Kapahi P, Stoller ML. *PLoS One*. 2015 May 13;10(5):e0124150. doi: 10.1371/journal.pone.0124150. eCollection 2015. PMID: 25970330

HAMPSON

Variation in laparoscopic nephrectomy surgical costs: Opportunities for high-value care delivery. **Hampson LA,** Odisho AY, Meng MV. *Urology Practice* Published online 2017 Sept 20.

Variation and predictors of surgical case costs among urologists. **Hampson LA,** Odisho AY, Meng MV, Carroll PR. *Urology Practice* 2016 Oct 15 [Epub ahead of print].

COPP

Use of urine testing in outpatients treated for urinary tract infection. **Copp HL,** Yiee JH, Smith A, Hanley J, Saigal CS; *Urologic Diseases in America*

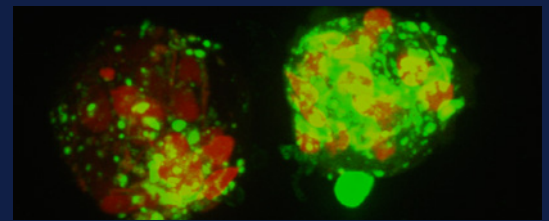
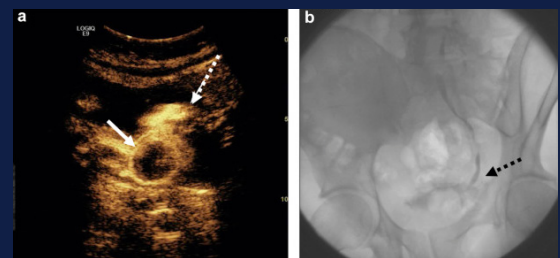
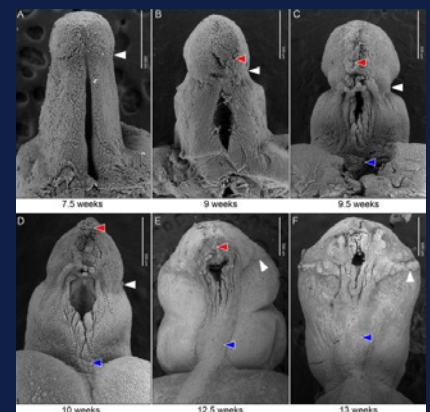


Image showing two macrophages, which in the presence of semen fibrils are capable of phagocytosing over a dozen spermatozoa. Macrophages were labeled with a membrane dye (green) while human spermatozoa are shown in red. Individual sperm heads and portions of sperm tails can be observed within the macrophages. The results from the study by Roan et al demonstrate that naturally occurring structures in human semen can promote the disposal of damaged sperm by facilitating their engulfment and subsequent destruction by macrophages which infiltrate the female reproductive tract following semen exposure.



CEUS and fluoroscopic nephrostogram images of 60-year-old male with patent collecting system 1 day after PCNL. a, 1 minute after injecting ultrasound contrast agent via preplaced nephrostomy tube CEUS of bladder identified contrast agent in bladder (dashed arrow). Note Foley balloon (solid arrow). b, fluoroscopic nephrostogram confirmed ureteral patency and contrast agent entering bladder (dashed arrow). Chi et al. Image adapted from the *Journal of Urology* 2017.



Complex epithelial remodeling underlie the fusion event in early fetal development of the human penile urethra. Sinclair et al. Image adapted from *Differentiation* 2016.

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Letter from the KURe Program Director

Laurence Baskin, MD, Chief of Pediatric Urology

The National Institutes of Health (NIH)-sponsored UCSF K12 Urologic Research (KURe) Career Development Program, now in its tenth year, supports the training of young faculty who will serve as future leaders in the field of benign urologic diseases. With our current funding cycle nearing completion, we are poised to apply for an additional five years of funding from the NIH. These federal funds are supplemented by support from the UCSF Department of Urology, under the leadership of Peter Carroll, MD, MPH, who also co-directs the UCSF KURe.

KURe scholars, all of whom hold UCSF faculty appointments, spend a minimum of half their time in research activities. They also participate in the campus-wide Clinical and Translational Science Institute and training programs. Our scholars have produced an impressive record of publications and presentations over the years, and as they launch their academic careers, they have been awarded a number of independent ROI research awards from NIH.

I want to particularly thank the many faculty mentors and advisors who guide our scholars as they work on their varied projects. These investigations range from clinical care of urological problems in infants and the elderly to basic scientific research in fields such as infectious disease and developmental biology.

We welcome applicants to the KURe program on an ongoing basis. For more information, please visit <https://urology.ucsf.edu/research/kure>

Sincerely,

Laurence S. Baskin, MD
Director, UCSF KURe Program
Chief, Pediatric Urology, Department of Urology
Professor of Urology and Pediatrics, University of California, San Francisco

Key Papers ... continued

Project. *Pediatrics*. 2013 Sep;132(3):437-44. doi: 10.1542/peds.2012-3135. Epub 2013 Aug 5. PMID: 23918886

National ambulatory antibiotic prescribing patterns for pediatric urinary tract infection, 1998-2007.

Copp HL, Shapiro DJ, Hersh AL. *Pediatrics*. 2011 Jun;127(6):1027-33. doi: 10.1542/peds.2010-3465. Epub 2011 May 9. PMID:21555502

Diagnostic performance of ultrasound in nonpalpable cryptorchidism: a systematic review and meta-analysis. Tasian GE, **Copp HL**. *Pediatrics*. 2011 Jan;127(1):119-28. doi: 10.1542/peds.2010-1800. Epub 2010 Dec 13. Review. PMID: 21149435

Antibiotic resistance patterns of outpatient pediatric urinary tract infections. Edlin RS, Shapiro DJ, Hersh AL, **Copp HL**. *J Urol*. 2013 Jul;190(1):222-7. doi: 10.1016/j.juro.2013.01.069. Epub 2013 Jan 28. PMID: 23369720

SINCLAIR

Flutamide-induced hypospadias in rats: A critical assessment. **Sinclair AW**, Cao M, Pask A, Baskin L, Cunha GR. *Differentiation*. 2017 Mar - Apr;94:37-57. doi: 10.1016/j.diff.2016.12.001. Epub 2016 Dec 31. PMID: 28043016

Complex epithelial remodeling underlie the fusion event in early fetal development of the human penile urethra. Shen J, Overland M, **Sinclair A**, Cao M, Yue X, Cunha G, Baskin L. *Differentiation*. 2016 Oct - Nov;92(4):169-182. doi: 10.1016/j.diff.2016.06.003. Epub 2016 Jul 5. PMID: 27397682

Canalization of the vestibular plate in the absence of urethral fusion characterizes development of the human clitoris: The Single Zipper Hypothesis. Overland M, Li Y, Cao M, Shen J, Yue X, Botta S, **Sinclair A**, Cunha G, Baskin L. *J Urol*. 2016 Apr;195(4 Pt 2):1275-83. doi: 10.1016/j.juro.2015.07.117. Epub 2016 Feb 28. PMID: 26926534

Mouse hypospadias: A critical examination and definition. **Sinclair AW**, Cao M, Shen J, Cooke P, Risbridger G, Baskin L, Cunha GR. *Differentiation*. 2016 Dec;92(5):306-317. doi: 10.1016/j.diff.2016.03.004. Epub 2016 Apr 5. PMID: 27068029

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For more information about applying to the KURe Program please contact Dr. Baskin at Laurence.Baskin@ucsf.edu

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