Curriculum Vitae

Rei Unno, MD, PhD Rei.Unno@ucsf.edu

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Nagoya City University Graduate School of Medical Sciences (NCU)	PhD	09/2019	Renal Physiology
Hamamatsu University School of Medicine	MD	03/2010	Medicine

A. Positions and Honors

Positions

2020 - present	University of California San Francisco	Visiting Researcher	Urology
2019 - present	Japanese Society on Urolithiasis Research	Councilor	
2016 - present	BMC Urology	Ad hoc Referee	
2016 - present	International Journal of Urology	Referee	
2020 - 2020	Nagoya City University	Associate Professor	Nephro-urology
2019 - 2020	Gamagori City Hospital	Staff Physician	Urology
2018 - 2019	DAIDO Hospital	Physician in Chief	Urology
2014 - 2018	Nagoya City University Hospital	Staff Physician	Urology
2012 - 2014	Nagoya City East Medical Center	Fellow	Urology
2010 - 2012	Nagoya City East Medical Center	Resident	Urology

Honors

2019	Best Dissertation of the Year	Nagoya City University Graduate School of Medical Sciences
2018	JUA/AUA Resident program Award	Japanese Urological Association American Urological Association
2017	Best Presentation Award, 105h Annual Meeting	Japanese Urological Association
2017	Best Presentation Award, 60th Annual Meeting	Japanese Society of Nephrology
2017	Best Paper Award, 26th Annual Meeting	Japanese Society of Pediatric Urology
2016	Best Poster Award, 34th Annual Meeting	European Association of Urology
2016	Best Presentation Award, 26th Annual Meeting	Japanese Society on Urolithiasis Research
2014	Best Presentation Award, 266th Meeting	Japanese Urological Association, Tokai

PROFESSIONAL MEMBERSHIPS

2016-present	Japanese Society of Nephrology	2016-present	Japanese Endourological Society
2012-present	Japanese Urological Association	2014-present	Japanese Society on Urolithiasis Research

B. Peer-ReviewPublications

1. **Unno R**, Taguchi K, Fujii Y, Unno N, Hamamoto S, Ando R, Nakane A, Okada A, Kamiya H, Yasui T. Surgical hand hygiene and febrile urinary tract infections in endourological surgery: A single-centre prospective cohort study. Sci Rep. 10:14520. 2020. doi: 10.1038/s41598-020-71556-z.
2. **Unno R**, Kawabata T, Taguchi K, Sugino T, Hamamoto S, Ando R, Okada A, Kohri K, Yoshimori T, Yasui T. Deregulated MTOR (mechanistic target of rapamycin kinase) is responsible for autophagy defects exacerbating kidney stone development. Autophagy. 16:709-723. 2020. doi: 10.1080/15548627.2019.1635382.
3. Hamamoto S, Okada S, Inoue T, Sugino T, **Unno R**, Taguchi K, Ando R, Okada A, Miura H, Matsuda T,

Yasui T. Prospective evaluation and classification of endoscopic findings for ureteral calculi. Sci Rep. 23;10(1):12292. 2020. doi: 10.1038/s41598-020-69158-w.

4. Taguchi K, Chen L, Usawachintachit M, Hamamoto S, Kang M, Sugino T, **Unno R**, Tzou DT, Sherer BA, Okada A, Yasui T, Ho SP, Stoller ML, Chi T. Fatty acid-binding protein 4 downregulation drives calcification in the development of kidney stone disease. Kidney Int. 97:1042-1056. 2020. doi: 10.1016/j.kint.2020.01.042.
5. Taguchi K, Hamamoto S, Okada A, Tanaka Y, Sugino T, **Unno R**, Kato T, Ando R, Tan YK, Yasui T. Robot-Assisted Fluoroscopy Versus Ultrasound-Guided Renal Access for Nephrolithotomy: A Phantom Model Benchtop Study. J Endourol. 2019. 33: 987-994. doi: 10.1089/end.2019.0432.
6. Okada A, Aoki H, Onozato D, Kato T, Hashita T, Takase H, Sugino T, **Unno R**, Taguchi K, Hamamoto S, Ando R, Mizuno K, Tozawa K, Matsunaga T, Kohri K, Yasui T. Active phagocytosis and diachronic processing of calcium oxalate monohydrate crystals in an in vitro macrophage model. Kidney Blood Press Res. 44:1014-1025. 2019. doi: 10.1159/000501965.
7. Sugino T, Okada A, Taguchi K, **Unno R**, Hamamoto S, Ando R, Mogami T, Kohri K, Yamashita H, Yasui T. Brown adipocytes and β3 stimulant-induced brown-like adipocytes contribute to prevention of renal crystal formation. Am J Physiol Renal Physiol. Am J Physiol Renal Physiol. 316: F1282-F1292. 2019. doi: 10.1152/ajprenal.00523.2018.
8. Taguchi K, Hamamoto S, Okada A, Sugino T, **Unno R**, Ando R, Gao B, Tozawa K, Kohri K, Yasui T. Helper T-cell signaling and inflammatory pathway lead to formation of calcium phosphate but not calcium oxalate stones on Randall's plaques. Int J Urol. 26:670-677. 2019.
9. Okada A, Ando R, Taguchi K, Hamamoto S, **Unno R**, Sugino T, Tanaka Y, Mizuno K, Tozawa K, Kohri K, Yasui T. Identification of new urinary risk markers for urinary stones using a logistic model and multinomial logit model. Clin Exp Nephrol. 23:710-716. 2019.
10. Sugino T, Hamamoto S, **Unno R**, Taguchi K, Okada A, Yasui T. Effectiveness of ureteroscope-assisted renal puncture for endoscopic combined intrarenal surgery. Int J Urol. 26:424-425. 2019.
11. **Unno R**. Editorial Comment to Management of large ureteral stone with severe ureteral tortuosity: A novel technique of "straightening" against the tortuous ureter using simultaneous supine percutaneous nephrolithotomy and retrograde semirigid ureterolithotripsy. Int J Urol. 25:897-898. 2018.
12. Okada A, Hamamoto S, Taguchi K, **Unno R**, Sugino T, Ando R, Mizuno K, Tozawa K,Kohri K, Yasui T. Kidney stone formers have more renal parenchymal crystals than non-stone formers, particularly in the papilla region. BMC Urol. 18:19. 2018.
13. Hamamoto S, **Unno R**, Taguchi K, Naiki T, Ando R, Okada A, Inoue T, Okada S, AbdelRazek M, Kohri K, Yasui T; SMART Study Group. Determinants of health-related quality of life for patients after urinary lithotripsy: ureteroscopic vs. shock wave lithotripsy. Urolithiasis. 46:203-210. 2018.
14. **Unno R**, Taguchi K, Okada A, Ando R, Hamamoto S, Kubota Y, Li Z, Tozawa K, Kohri K, Yasui T. Potassium-sodium citrate prevents the development of renal microcalculi into symptomatic stones in calcium stone-forming patients. Int J Urol. Int J Urol. 24:75-81. 2017.
15. Sugino T, Ando R, **Unno R**, Iida K, Naiki T, Hamamoto S, Mizuno K, Okada A, Umemoto Y, Kawai N, Tozawa K, Hayashi Y, Inaki A, Kayano D, Kinuya S, Yasui T. Complete remission of metastatic pheochromocytoma in 123I-metaiodobenzylguanidine scintigraphy after a single session of 131I-metaiodobenzylguanidine therapy: a case report. BMC Res Notes. 10:750. 2017.
16. Hamamoto S, **Unno R**, Taguchi K, Ando R, Hamakawa T, Naiki T, Okada S, Inoue T, Okada A, Kohri K, Yasui T; SMART Study Group. A new navigation system of renal puncture for endoscopic combined intrarenal surgery: real-time virtual sonography-guided renal access. Urology. 2017; 109: 44-50.
17. Taguchi K, Usawachintachit M, Hamamoto S, **Unno R**, Tzou DT, Sherer BA, Wang Y, Okada A, Stoller ML, Yasui T, Chi T. Optimizing RNA extraction of renal papilla biopsy tissue in kidney stone formers: A new methodology for genomic study. J Endourol. 2017; 31(9):922-929.
18. **Unno R**, Taguchi K, Okada A, Ando R, Hamamoto S, Kubota Y, Zuo L, Tozawa K, Kohri K, Yasui T. Response to Re: Potassium-sodium citrate prevents the development of renal microcalculi into symptomatic stones in calcium stone-forming patients. Int J Urol. 24:334-335. 2017.
19. Sugino T, Hamamoto S, Unno R, Moritoki Y, Hamakawa T, Naiki T, Ando R, Okada A, Yasui T. Two-year-old girl with impacted ureteral stone successfully treated with a single session of combined percutaneous nephrostomy and ureteroscopy. Int J Urol. 24:326-329. 2017.
20. **Unno R**, Mizuno K, Ito Y, Etani T, Okada A, Kawai N, Yasui T, Saitoh S, Hayashi Y. Treatment strategy for pediatric paratesticular rhabdomyosarcoma based on chimeric gene assessment. Urology. 95:187-9, 2016.

21. Taguchi K, Okada A, Hamamoto S, **Unno R**, Moritoki Y, Ando R, Mizuno K, Tozawa K, Kohri K, Yasui T. M1/M2-macrophage phenotypes regulate renal calcium oxalate crystal development. Sci Rep. 2016 12; 6:35167.
22. Taguchi K, Okada A, Hamamoto S, **Unno R**, Kobayashi T, Ando R, Tozawa K, Gao B, Kohri K, Yasui T. Differential roles of peroxisome proliferator-activated receptor-α and receptor-γ on renal crystal formation in hyperoxaluric rodents. PPAR Res. 2016;2016:9605890.
23. Taguchi K, Hamamoto S, Okada A, **Unno R**, Kamisawa H, Naiki T, Ando R, Mizuno K, Kawai N, Tozawa K, Kohri K, Yasui T. Genome-wide gene expression profiling of randall's plaques in calcium oxalate stone formers. J Am Soc Nephrol. 28:333-347. 2016.

C. Research Support

ACTIVE:

1 Japan Society for the Promotion of Science- 19H18616 (Unno: $40,000) 04/01/2019-03/31/2021
Development of novel therapeutic agent for urolithiasis using osteopontin antibody
Focusing on the efficacy of anti-OPN antibody, this research aims to elucidate the new therapy for kidney stone formations.

2 Takeda Science Foundation (Unno: $100,000) 07/01/2020-06/30/2022
Development of novel molecular targeted therapeutics by identifying autophagy-dependent stone suppressor genes using Omics analysis
Focusing on the renal epithelial cell autophagy and crystal, we plan to perform RNA-sequence of human renal plaque tissue and validate their molecular networks using a transgenic-fly stone model.

3 Japan Society for the Promotion of Science- 19K09735 (Hirose: $44,000) 04/01/2019-03/31/2022
Clinical use of oxygen nano-bubble for kidney stone prevention
We utilize the anti-inflammatory and -oxidative effect of oxygen nano-bubble for kidney stone prevention examined with hyperoxaluric rat model. The goal of this study is to establish the preventative role of oxygen nano-bubble on crystal development for future clinical use.

4 Japan Society for the Promotion of Science- 18K09201 (Usami: $43,000) 04/01/2018-03/31/2021
Evaluation of *Nnt* gene function for urolithiasis development
Based on the preliminary study revealing the relationship between the *Nnt* gene and urolithiasis, we aim to elucidate the *Nnt* function on crystal development using in vitro and in vivo approaches.

5 Japan Society for the Promotion of Science- 18K09174 (Endo: $42,000) 04/01/2018-03/31/2021
Utilization of anti-metabolic syndrome effect of brown adipocytes for stone prevention
Focusing on the anti-metabolic syndrome (MetS) effect of brown adipocytes, this study aims to establish the prevention of crystal formation in vitro and in vivo. This potentially reveal the mechanism of relationship between MetS and urolithiasis.

6 Japan Society for the Promotion of Science- 18K09173 (Sakakura: $44,000) 04/01/2018-03/31/2021
Development of novel stone treatment via selective autophagy
Focusing on the renal epithelial cell autophagy, this research aims to establish the novel preventative therapy via anti-inflammatory and oxidative stress effect. We investigate the cellular network relating crystal formation in the kidney using several transgenic mice.

7 Japan Society for the Promotion of Science- 18K09143 (Hamamoto: $44,000) 04/01/2018-03/31/2021
Establishing novel biomarker for urolithiasis using impaired domain osteopontin
Based on our previous study investigating osteopontin role on stone formation, we aim to develop the screening method of impaired domain osteopontin in urine. This will establish the test of impaired domain osteopontin as a biomarker for urinary stone disease.

8 Japan Society for the Promotion of Science- 19H03791(Yasui: $200,000) 04/01/2019-03/31/2022
Development of stone dissolution therapy by cellular crystal phagocytosis network in kidneys
Focusing on the renal epithelial cell autophagy and macrophage phagocytosis, this research aims to establish the novel dissolution therapy utilizing iPS cells derived from human peripheral blood. By functional analysis of the relationship between renal cellular network, we plan to adapt cellular crystal phagocytosis mechanism into clinical use.

9 Japan Society for the Promotion of Science- 19H03454(Kawabata: $200,000) 04/01/2019-03/31/21
Failure of genomic information and carcinogenesis caused by abnormal autophagy
We elucidate the mechanism by which autophagy maintains genomic information in a stable manner, and show the path from abnormal autophagy to disruption of tumor suppressor genes and carcinogenesis.

COMPLETED:

1 Toukai Foundation for Technology Grant (Unno: $3,000) 04/01/2019-06/30/2019
Renal stone formation is suppressed by promoting autophagy.
Autophagy plays a protective role when cell received stress and inflammation. Cellular damage promoted kidney stone formation. We aimed that to elucidate autophagy roles in kidney stone formations and develop new treatment focusing on autophagy.

2 Toukai Foundation for Technology Grant (Unno: $10,000) 04/01/2017-03/31/2018
Development of new treatment for kidney stone disease focusing on autophagy.
Autophagy plays a protective role when cell received stress and inflammation. Cellular damage promoted kidney stone formation. We aimed that to elucidate autophagy roles in kidney stone formations and develop new treatment focusing on autophagy. I conducted and performed in vivo experiments and analyzed the data.

3 Japan Society for the Promotion of Science- 16K15692 (Okada: $35,000) 04/01/2016-03/31/2018
Identification of factors involved in urolithiasis formation and elimination, and development of new risk diagnosis and prevention methods
There is an association between kidney stone formation and metabolic syndromes. To clarify the facilitating role of metabolic status for kidney stone formation, we investigated the roles of adipocytes, macrophages, and pro-inflammatory cytokines, using in vitro and in vivo studies.

4 Japan Society for the Promotion of Science- 16K20153(Unno: $40,000) 04/01/2016-03/31/2018
Fundamental research for the development of new treatment for kidney stone drugs focusing on the function of polymer OPN and autophagy
OPN is an important organic substance for kidney stone, and autophagy can maintain cellular homeostasis. We propose to develop new treatment by inhibiting polymerization of OPN in urinary calculus formation process and by promoting autophagy. I conducted and performed in vivo experiments and analyzed the data.

5 Aichi Kidney Foundation Research Grant (Unno: $3,000) 04/01/2016-03/31/2017
Functional analysis of autophagy during renal stone formation for development of urinary stone prevention drugs
Autophagy plays a protective role when cell received stress and inflammation. Cellular damage promoted kidney stone formation. We aimed that to elucidate autophagy roles in kidney stone formations and develop new treatment focusing on autophagy.