

Stanford



Alan C. Pao

Assistant Professor of Medicine (Nephrology) and, by courtesy, of Urology at the Palo Alto Veterans Affairs Health Care System

Medicine - Nephrology

CLINICAL OFFICES

- **Nephrology Clinic**

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Bio

CLINICAL FOCUS

- Hypertension, Renal
- Kidney Stones
- Nephrology

ACADEMIC APPOINTMENTS

- Assistant Professor - Med Center Line, Medicine - Nephrology
- Assistant Professor - Med Center Line (By courtesy), Urology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)

HONORS AND AWARDS

- Phi Beta Kappa, Stanford University (1994)
- John S. Miller Award, University of Texas Southwestern Medical Center (2001)
- SPARK Scholar, Stanford University (2010)

PROFESSIONAL EDUCATION

- Fellowship: UCSF Dept of Nephrology (2006) CA
- Medical Education: Washington University School Of Medicine Registrar (1998) MO
- Residency: University of Texas Southwestern Medical Center (2001) TX
- M.D., Washington University , Medicine (1998)
- B.S., Stanford University , Biological Sciences (1994)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

We are interested in how the kidneys control salt, water, and electrolyte homeostasis in the body. We use cultured kidney cells, transgenic mice, and human samples to study hormonal and signal transduction pathways that control epithelial ion transport. Clinical implications of our work include a better understanding of the pathogenesis of salt-sensitive hypertension and kidney stone formation and growth.

Teaching

STANFORD ADVISEES

Postdoctoral Research Mentor

Calyani Ganesan, Shen Song

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Medicine (Masters Program)

Publications

PUBLICATIONS

- **THE EPIDEMIOLOGY OF URINARY STONE DISEASE IN PREGNANCY: A CLAIMS-BASED ANALYSIS OF 1.2 MILLION PATIENTS**
Sohlberg, E., Brubaker, W., Zhang, C., Dallas, K., Ganesan, C., Song, S., Pao, A., Liao, J., Leppert, J., Elliott, C., Conti, S.
LIPPINCOTT WILLIAMS & WILKINS.2019: E846
- **Prevalence of twenty-four hour urine testing in Veterans with urinary stone disease.** *PloS one*
Ganesan, C., Thomas, I. C., Song, S., Sun, A. J., Sohlberg, E. M., Kurella Tamura, M., Chertow, G. M., Liao, J. C., Conti, S., Elliott, C. S., Leppert, J. T., Pao, A. C.
2019; 14 (8): e0220768
- **Payer Type, Race/Ethnicity, and the Timing of Surgical Management of Urinary Stone Disease** *JOURNAL OF ENDOUROLOGY*
Brubaker, W. D., Dallas, K. B., Elliott, C. S., Pao, A. C., Chertow, G. M., Leppert, J. T., Conti, S. L.
2019; 33 (2): 152–58
- **Payer Type, Race/Ethnicity, and the Timing of Surgical Management of Urinary Stone Disease.** *Journal of endourology*
Brubaker, W. D., Dallas, K., Elliott, C. S., Pao, A. C., Chertow, G., Leppert, J. T., Conti, S. L.
2018
- **PREOPERATIVE KIDNEY FUNCTION TRENDS: IMPROVING ESTIMATES OF BASELINE KIDNEY FUNCTION PRIOR TO KIDNEY CANCER SURGERY**
Sun, A., Thomas, C., Ganesan, C., Sylman, J., Pao, A., Wagner, T., Brooks, J., Chertow, G., Leppert, J.
ELSEVIER SCIENCE INC.2018: E362
- **Unplanned Emergency Department Visits and Hospital Admissions Following Ureteroscopy: Do Ureteral Stents Make a Difference?** *Urology*
Mittakanti, H. R., Conti, S. L., Pao, A. C., Chertow, G. M., Liao, J. C., Leppert, J. T., Elliott, C. S.
2018
- **Redefining the Stone Belt: Precipitation is Associated with Increased Risk of Urinary Stone Disease.** *Journal of endourology*
Dallas, K. B., Conti, S. L., Liao, J. C., Sofer, M., Pao, A. C., Leppert, J. T., Elliott, C. S.
2017
- **Crescentic Glomerulonephritis With Immunoglobulin G4-Related Disease.** *The American journal of the medical sciences*
Raber, I., Ediriwickrema, A., Higgins, J., Kambham, N., Pao, A. C.
2017; 354 (3): 236–39
- **An experimentum crucis in salt sensitivity.** *American journal of physiology. Renal physiology*
Pao, A. C., Chang, T. I.

2017; 312 (1): F190-F191

- **SGK1 regulation by miR-466g in cortical collecting duct cells** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Jacobs, M. E., Kathpalia, P. P., Chen, Y., Thomas, S. V., Noonan, E. J., Pao, A. C.
2016; 310 (11): F1251-F1257
- **Serum- and glucocorticoid-inducible kinase SGK2 regulates human organic anion transporters 4 via ubiquitin ligase Nedd4-2.** *Biochemical pharmacology*
Wang, H., Xu, D., Toh, M. F., Pao, A. C., You, G.
2016; 102: 120-129
- **There and back again: insulin, ENaC, and the cortical collecting duct.** *Physiological reports*
Pao, A. C.
2016; 4 (10)
- **Harvest and primary culture of the murine aldosterone-sensitive distal nephron.** *American journal of physiology. Renal physiology*
Labarca, M., Nizar, J. M., Walczak, E. M., Dong, W., Pao, A. C., Bhalla, V.
2015; 308 (11): F1306-15
- **Activation of ENaC by AVP contributes to the urinary concentrating mechanism and dilution of plasma.** *American journal of physiology. Renal physiology*
Mironova, E., Chen, Y., Pao, A. C., Roos, K. P., Kohan, D. E., Bugaj, V., Stockand, J. D.
2015; 308 (3): F237-43
- **Urine electrolyte composition and diuretic therapy in heart failure: back to the future?** *Circulation. Heart failure*
Pao, A. C., Chertow, G. M.
2014; 7 (5): 697-698
- **Update on the Guytonian view of hypertension.** *Current opinion in nephrology and hypertension*
Pao, A. C.
2014; 23 (4): 391-398
- **Prostaglandin E2 induces chloride secretion through crosstalk between cAMP and calcium signaling in mouse inner medullary collecting duct cells.** *American journal of physiology. Cell physiology*
Rajagopal, M., Thomas, S. V., Kathpalia, P. P., Chen, Y., Pao, A. C.
2014; 306 (3): C263-78
- **Fulvene-5 inhibition of Nadph oxidases attenuates activation of epithelial sodium channels in A6 distal nephron cells** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Trac, D., Liu, B., Pao, A. C., Thomas, S. V., Park, M., Downs, C. A., Ma, H., Helms, M. N.
2013; 305 (7): F995-F1005
- **Novel diuretic targets** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Denton, J. S., Pao, A. C., Maduke, M.
2013; 305 (7): F931-F942
- **Landscape of ENaC regulation in the kidney** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Pao, A. C.
2012; 303 (9): F1287-F1288
- **Prostaglandin E-2 mediates proliferation and chloride secretion in ADPKD cystic renal epithelia** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Liu, Y., Rajagopal, M., Lee, K., Battini, L., Flores, D., Gusella, G. L., Pao, A. C., Rohatgi, R.
2012; 303 (10): F1425-F1434
- **SGK regulation of renal sodium transport** *CURRENT OPINION IN NEPHROLOGY AND HYPERTENSION*
Pao, A. C.
2012; 21 (5): 534-540
- **Differential effects of extracellular ATP on chloride transport in cortical collecting duct cells** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Rajagopal, M., Kathpalia, P. P., Widdicombe, J. H., Pao, A. C.
2012; 303 (4): F483-F491

- **Metabolic syndrome, insulin resistance and kidney function in non-diabetic individuals** *NEPHROLOGY DIALYSIS TRANSPLANTATION*
Johns, B. R., Pao, A. C., Kim, S. H.
2012; 27 (4): 1410-1415
- **βPix is a New Player in Renal Physiology.** *Frontiers in physiology*
Hamilton, K. L., Pao, A. C.
2012; 3: 268-?
- **Epithelial Sodium Channel Regulation by Cell Surface-associated Serum- and Glucocorticoid-regulated Kinase 1** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Thomas, S. V., Kathpalia, P. P., Rajagopal, M., Charlton, C., Zhang, J., Eaton, D. C., Helms, M. N., Pao, A. C.
2011; 286 (37): 32074-32085
- **Activation of P2Y(1) and P2Y(2) receptors induces chloride secretion via calcium-activated chloride channels in kidney inner medullary collecting duct cells** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Rajagopal, M., Kathpalia, P. P., Thomas, S. V., Pao, A. C.
2011; 301 (3): F544-F553
- **The natriuretic mechanism of Gamma-Melanocyte-Stimulating Hormone** *PEPTIDES*
Kathpalia, P. P., Charlton, C., Rajagopal, M., Pao, A. C.
2011; 32 (5): 1068-1072
- **Expression and role of serum and glucocorticoid-regulated kinase 2 in the regulation of Na⁺/H⁺ exchanger 3 in the mammalian kidney** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Pao, A. C., Bhargava, A., Di Sole, F., Quigley, R., Shao, X., Wang, J., Thomas, S., Zhang, J., Shi, M., Funder, J. W., Moe, O. W., Pearce, D.
2010; 299 (6): F1496-F1506
- **Adenosine Activates A2b Receptors and Enhances Chloride Secretion in Kidney Inner Medullary Collecting Duct Cells** *HYPERTENSION*
Rajagopal, M., Pao, A. C.
2010; 55 (5): 1123-U89
- **Melamine nephrotoxicity: an emerging epidemic in an era of globalization** *KIDNEY INTERNATIONAL*
Bhalla, V., Grimm, P. C., Chertow, G. M., Pao, A. C.
2009; 75 (8): 774-779
- **NH2 terminus of serum and glucocorticoid-regulated kinase 1 binds to phosphoinositides and is essential for isoform-specific physiological functions** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Pao, A. C., McCormick, J. A., Li, H., Siu, J., Govaerts, C., Bhalla, V., Soundararajan, R., Pearce, D.
2007; 292 (6): F1741-F1750
- **Disinhibitory pathways for control of sodium transport: regulation of ENaC by SGK1 and GILZ** *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*
Bhalla, V., Soundararajan, R., Pao, A. C., Li, H., Pearce, D.
2006; 291 (4): F714-F721
- **Serum- and glucocorticoid-regulated kinase 1 regulates ubiquitin ligase neural precursor cell-expressed, developmentally down-regulated protein 4-2 by inducing interaction with 14-3-3** *MOLECULAR ENDOCRINOLOGY*
Bhalla, V., Daidie, D., Li, H. Y., Pao, A. C., LaGrange, L. P., Wang, J., VANDEWALLE, A., Stockand, J. D., Staub, O., Pearce, D.
2005; 19 (12): 3073-3084
- **SGK1: A rapid aldosterone-induced regulator of renal sodium reabsorption** *PHYSIOLOGY*
McCormick, J. A., Bhalla, V., Pao, A. C., Pearce, D.
2005; 20: 134-139