

# SHA ZHU, MD, PhD

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## **RESEARCH INTERESTS & CAREER GOALS**

As an MD-PhD graduate, I am dedicated to bridging cutting-edge cancer research with patient care. My research focuses on the molecular and genomic mechanisms of advanced prostate cancer, utilizing CRISPR functional genomics, multi-omics profiling, and translational approaches to identify novel therapeutic regimens. I am committed to pursuing a clinical career where I can integrate these research insights to improve outcomes for patients with genitourinary malignancies. My goal is to establish a physician-scientist practice combining clinical care with translational research.

## **EDUCATION**

**West China School of Medicine, Sichuan University** | Chengdu, China

Doctor of Medicine (MD), Clinical Medicine | 2014–2019

- Ranked 1st-3rd in class of 226 students throughout medical school
- Recipient of National Scholarship for four consecutive years (2015-2018)

**Sichuan University & Netherlands Cancer Institute | 2019–2023**

Doctor of Philosophy (PhD), Joint PhD program, Oncogenomics and Urology

- Dissertation: Decoding the Complexity of Intraductal Carcinoma of the Prostate: Integrative Genomic, Transcriptomic and Epigenomic Exploration
- Advisors: Dr. Hao Zeng (Sichuan University) and Dr. Jacqueline Jacobs (Netherlands Cancer Institute)
- Conducted translational research on prostate cancer and renal cell carcinoma
- Participated in multidisciplinary tumor board discussions
- Co-led liquid biopsy studies for metastatic castration-resistant prostate cancer
- Mentored medical students in clinical research methodology

## **PROFESSIONAL EXPERIENCE**

**University of California, San Francisco (UCSF)** | San Francisco, CA

Postdoctoral Scholar, Department of Urology | December 2023–Present

- Advisor: Dr. Carissa Chu (Previous co-advisor: Dr. Felix Feng)
- Conducting genome-scale CRISPR functional screens to identify novel regulators of surface antigen in prostate cancer
- Integrating combination therapeutic strategies to enhance STEAP1-directed immunotherapy
- Collaborating with clinical teams to translate research findings into potential therapeutic strategies

- Awarded UCSF Prostate Cancer Program Pilot Research Award (2025)
- Results have led to potential therapeutic collaborations

## **CLINICAL EXPERIENCE**

### **Medical School Clinical Rotations | West China Hospital | 2018–2019**

Rotations: Internal Medicine (Oncology), Surgery (Urology & Surgical Oncology), Obstetrics & Gynecology, Pediatrics

#### **Experience Highlights:**

- Regular participation in multidisciplinary tumor board meetings
- Case presentations at departmental and national conferences
- Exposure to complex genitourinary oncology cases
- Integration of clinical care with research understanding of cancer biology

## **CERTIFICATIONS & LICENSING**

- USMLE Step 2 CK – Scheduled for Jan. 2026
- USMLE Step 1 – Passed
- ECFMG Certification – In progress
- Applying for U.S. Residency Training – 2026 Match Cycle

## **RESEARCH SKILLS & EXPERTISE**

#### **Laboratory Techniques:**

CRISPR/Cas9 genome editing, CRISPR screening (genome-scale), Flow cytometry (FACS), Next-generation sequencing, Multi-omics analysis, Liquid biopsy, Cell culture, Molecular cloning, R programming, Python (basic)

#### **Languages:**

English (Fluent), Mandarin Chinese (Native)

## **SELECTED PUBLICATIONS**

Published 38 peer-reviewed articles (15 as first or co-first author) | [H-index: 21, 1,289 citations (Google Scholar, Oct 2025)]

#### ***First-Author Publications***

1. **Zhu S<sup>#</sup>**, Xu N<sup>#</sup>, Zeng H. Molecular complexity of intraductal carcinoma of the prostate. *Cancer Med.* 2024 Jan;13(2):e6939.
2. **Zhu S<sup>#</sup>**, Xu N<sup>#</sup>, Liang J, Zhao F, Wang Z, Ni Y, Dai J, Zhao J, Zhang X, Chen J, Sun G, Shen P, Zeng H. Mutations in epigenetic regulator *KMT2C* detected by liquid biopsy are associated with worse survival in prostate cancer patients. *Oncol Res.* 2023 Jun 27;31(4):605-614.
3. **Zhu S<sup>#</sup>**, Chen J<sup>#</sup>, Zeng H. Our Current Understanding of the Heterogeneity in Prostate Cancer and Renal Cell Carcinoma. *J. Clin. Med.* 2023; 12(4):1526.
4. **Zhu S<sup>#</sup>**, Zhao J, Nie L, Yin W, Zhang Y, Zhao F, Ni Y, Zhang X, Wang Z, Dai J, Liu Z, Chen J, Zeng Y, Wang Z, Sun G, Liang J, Zhao X, Zhu X, Tao R, Yang J, He B, Chen N\*, Shen P\*, Zeng H\*. Homologous recombination deficiency (HRD) score in aggressive prostatic adenocarcinoma with or without intraductal carcinoma of the prostate (IDC-P). *BMC medicine.* 2022;20(1):237.
5. **Zhu S<sup>#</sup>**, Ni Y<sup>#</sup>, Wang Z<sup>#</sup>, Zhang X, Zhang Y, Zhao F, Dai J, Wang Z, Zhu X, Chen J, Zhao J, Zeng Y, Chen N,

- Zeng P, Shen P\*, Sun G\*, Zeng H\*. Plasma Exosomal AKR1C3 mRNA Expression Is a Predictive and Prognostic Biomarker in Patients with Metastatic Castration-Resistant Prostate Cancer. *Oncologist*. 2022.
6. **Zhu S<sup>#</sup>**, Bao Y<sup>#</sup>, Zheng L<sup>#</sup>, Zhao J, Chen Y, Huang R, Sun G, Zhao F, Zhang X, Liang J, Chen J, Wang Z, Ni Y, Chen N, Shen P, Zeng H. Chronological Liquid Biopsy Reveals the Impact of Platinum-Based Chemotherapy on a Prostate Cancer Patient's CDK12 Mutation: A Case Report. *Onco Targets Ther*. 2022;15:947-52.
  7. **Zhu S<sup>#</sup>**, Ni Y<sup>#</sup>, Sun G<sup>#</sup>, Wang Z, Chen J, Zhang X, Zhao J, Zhu X, Dai J, Liu Z, Liang J, Zhang H, Zhang Y, Shen P\*, Zeng H\*. Exosomal TUBB3 mRNA expression of metastatic castration-resistant prostate cancer patients: Association with patient outcome under abiraterone. *Cancer medicine*, 2021, 10(18): 6282-6290.
  8. **Zhu S**, Chen J, Ni Y, Zhang H, Liu Z, Shen P, Sun G, Liang J, Zhang X, Wang Z, Wei Q, Li X, Chen N, Li Z, Wang X, Shen Y, Yao J, Huang R, Liu J, Cai D, Zeng H. Dynamic multidisciplinary team discussions can improve the prognosis of metastatic castration-resistant prostate cancer patients. *The Prostate*, 2021, 81(11): 721-727.
  9. **Zhu S<sup>#</sup>**, Xu H<sup>#</sup>, Shen C, Wang Y, Xu W, Duan S, Chen H, Ou X, Chen L, Ma X<sup>#\*</sup>. Differential diagnostic ability of 18F-FDG PET/CT radiomics features between renal cell carcinoma and renal lymphoma [J]. *The quarterly journal of nuclear medicine and molecular imaging : official publication of the Italian Association of Nuclear Medicine (AIMN) [and] the International Association of Radiopharmacology (IAR), [and] Section of the So*, 2021, 65(1): 72-78.
  10. **Zhu S<sup>#</sup>**, Zhao Y, Quan Y, Ma X. Targeting Myeloid-Derived Suppressor Cells Derived From Surgical Stress: The Key to Prevent Post-surgical Metastasis. *Frontiers in surgery*. 2021;8:783218.
  11. **Zhu S<sup>#</sup>**, Zhao J G<sup>#</sup>, Chen J R, Liu Z H, Sun G X, Wang Z P, Ni Y C, Dai J D, Shen P F\*, Zeng H\*. Intraductal carcinoma of the prostate in prostate biopsy samples: correlation with aggressive pathological features after radical prostatectomy and prognostic value in high-risk prostate cancer. *Asian journal of andrology*, 2020, 22(5): 519-525.
  12. **Zhu S<sup>#</sup>**, Yang J, Cui X, Zhao Y, Tao Z, Xia F, Chen L, Huang J\*, Ma X<sup>#\*</sup>. Preoperative platelet-to-lymphocyte ratio and neutrophil-to-lymphocyte ratio as predictors of clinical outcome in patients with gallbladder cancer. *Scientific reports*, 2019, 9(1): 1823.
  13. **Zhu S<sup>#</sup>**, Xu H<sup>#</sup>, Shen C, Wang Y, Xu W, Duan S, Chen H, Ou X, Chen L, Ma X<sup>#\*</sup>. Differential diagnostic ability of 18F-FDG PET/CT radiomics features between renal cell carcinoma and renal lymphoma. *The quarterly journal of nuclear medicine and molecular imaging : official publication of the Italian Association of Nuclear Medicine (AIMN) [and] the International Association of Radiopharmacology (IAR), [and] Section of the So*, 2019,

### **Co-First Author Publications**

14. Zhao J<sup>#</sup>, Xu N<sup>#</sup>, **Zhu S<sup>#</sup>**, Nie L, Zhang M, Zheng L, Cai D, Sun X, Chen J, Dai J, Ni Y, Wang Z, Zhang X, Liang J, Chen Y, Hu X, Pan X, Yin X, Liu H, Zhao F, Zhang B, Chen H, Miao J, Qin C, Zhao X, Yao J, Liu Z, Liao B, Wei Q, Li X, Liu J, Gao AC, Huang H, Shen P, Chen N, Zeng H, Sun G. Genomic and Evolutionary Characterization of Concurrent Intraductal Carcinoma and Adenocarcinoma of the Prostate. *Cancer Res*. 2024 Jan 2;84(1):154-167.
15. Liang J<sup>#</sup>, Sun G<sup>#</sup>, Pan X<sup>#</sup>, Zhang M<sup>#</sup>, Shen P<sup>#</sup>, **Zhu S<sup>#</sup>**, Zhao J, Zheng L, Zhao J, Chen Y, Yin X, Chen J, Hu X, Zeng Y, Chen J, Wang Y, Liu Z, Yao J, Su M, Huang R, Liao B, Wei Q, Li X, Zhou Q, Liu J, Shen Y, Liu Z, Chen N, Zeng H, Zhang X. Genomic and transcriptomic features between primary and paired metastatic fumarate hydratase-deficient renal cell carcinoma. *Genome Med*. 2023 May 2;15(1):31.
16. Zeng Y<sup>#</sup>, **Zhu S<sup>#</sup>**, Wang Z, Chen J, Dai J, Liu Z, Sun G, Liang J, Zhang X, Wang Z, Zhao J, Ni Y, Yang J, Wang M, Wei Q, Li X, Chen N, Li Z, Wang X, Shen Y, Yao J, Huang R, Liu J, Cai D, Zeng H, Shen P. Multidisciplinary Team (MDT) Discussion Improves Overall Survival Outcomes for Metastatic Renal Cell Carcinoma Patients. *J Multidiscip Healthc*. 2023;16:503-513.
17. Wang Z<sup>#</sup>, **Zhu S<sup>#</sup>**, Tan S, Zeng Y, Zeng H. The P2 purinoceptors in prostate cancer. *Purinergic signalling*. 2022.
18. Sun G<sup>#</sup>, Zhang X<sup>#</sup>, Liang J<sup>#</sup>, Pan X<sup>#</sup>, **Zhu S<sup>#</sup>**, Liu Z<sup>#</sup>, Armstrong C M, Chen J, Lin W, Liao B, Lin T, Huang R, Zhang M, Zheng L, Yin X, Nie L, Shen P, Zhao J, Zhang H, Dai J, Shen Y, Li Z, Liu J, Chen J, Liu J, Wang Z,

- Zhu X, Ni Y, Qin D, Yang L, Chen Y, Wei Q, Li X, Zhou Q, Huang H, Yao J\*, Chen N\*, Zeng H\*. Integrated Molecular Characterization of Fumarate Hydratase-deficient Renal Cell Carcinoma. *Clinical cancer research : an official journal of the American Association for Cancer Research*, 2021, 27(6): 1734-1743.
19. Zhao J#, Sun G#, **Zhu S#**, Dai J#, Chen J#, Zhang M#, Ni Y, Zhang H, Shen P, Zhao X, Zhang B, Pan X, Nie L, Yin X, Liang J, Zhang X, Wang Z, Zhu X, Liao B, Liu Z, Armstrong C M, Gao A C, Huang H, Chen N\*, Zeng H\*. Circulating tumour DNA reveals genetic traits of patients with intraductal carcinoma of the prostate. *BJU international*, 2021,
  20. Wang Z#, **Zhu S#**, Zhao J#, Nie L#, Chen X, Zhang M, Chen N, Sun G, Chen J, Ni Y, Dai J, Liu Z, Tao R, Zhang X, Zhu X, Zhang H, Liang J, Wang Z, He B, Shen P\*, Zeng H\*. The heterogeneity of intraductal carcinoma of the prostate is associated with different efficacy of standard first-line therapy for patients with metastatic castration-resistant prostate cancer. *The Prostate*, 2021, 81(15): 1191-1201.
  21. Cheng Y#, Yu C#, **Zhu S#**, Guo L, Zhang Y, Zhang Y\*, Ma X\*. Nonleukemic granulocytic sarcoma of orbit after blunt trauma: A case report and review of literature. *Medicine*, 2018, 97(15): e0373.

### **Selected Contributing Author Publications**

22. Zhang X, Zhao J, Yin X, Liang J, Wang Y, Zheng L, Tan P, Lin Y, Xu N, **Zhu S**, Chen J, Zhao J, Hu X, Pan X, Nie L, Zhang M, Chen Y, Zhang Y, Liu H, Dai J, Wang Z, Liu H, Ni Y, Rupp NJ, Moch H, Sheng X, Gong K, Liu X, Chen Z, He Z, Wang Y, Xu L, Liu M, Zhou H, Tang B, Huang R, Wei Q, Li X, Liu J, Yao J, Liao B, Liu Z, Shen P, Chen N, Zeng H, Sun G. Comprehensive molecular profiling of FH-deficient renal cell carcinoma identifies molecular subtypes and potential therapeutic targets. *Nat Commun*. 2025 May 12;16(1):4398.
23. Yalçın Z#, Lam SY#, Peuscher MH, van der Torre J, **Zhu S**, Iyengar PV, Salas-Lloret D, de Krijger I, Moatti N, van der Lugt R, Falcone M, Cerutti A, Bleijerveld OB, Hoekman L, González-Prieto R, Jacobs JJL. UBE2D3 facilitates NHEJ by orchestrating ATM signalling through multi-level control of RNF168. *Nat Commun*. 2024 Jun 12;15(1):5032.
24. Zeng H, **Zhu S**, Li J, Chen N, Zhu Y. MDT perspective: intraductal carcinoma of the prostate: implication for diagnosis and treatment. *Prostate Cancer Prostatic Dis*. 2024 Jun;27(2):242-243.
25. Zhang M, Yin X, Chen J, **Zhu S**, Zheng L, Zeng H, Zhou Q, Chen N\*. A primary rectal neoplasm with novel DDX5-TFEB fusion. *Virchows Archiv: an international journal of pathology*. 2022.
26. Chen J, Zhang Y, Zhang X, Zhao J, Ni Y, **Zhu S**, He B, Dai J, Wang Z, Wang Z, Liang J, Zhu X, Shen P, Zeng H\*, Sun G\*. Comparison of Systemic Treatments for Metastatic Castration-Resistant Prostate Cancer After Docetaxel Failure: A Systematic Review and Network Meta-analysis. *Front Pharmacol*. 2021;12:789319.
27. Wang Z, Wang D, Dai Y, **Zhu S**, Zeng H. Urogenital System Damaging Manifestations of 3 Human Infected Coronaviruses. *The Journal of urology*, 2021, 205(3): 671-677.
28. Chen J R#, Zhao J G#, **Zhu S**, Zhang M N, Chen N, Liu J D, Sun G X, Shen P F\*, Zeng H\*. Clinical and oncologic findings of extraprostatic extension on needle biopsy in de novo metastatic prostate cancer. *Asian journal of andrology*, 2020, 22(4): 427-431.
29. Zhang H, Zhang X, Zhu X, Ni Y, Dai J, **Zhu S**, Sun G, Wang Z, Chen J, Zhao J, Zeng H, Li Z\*, Shen P\*. The Impact of Renal Impairment on Survival Outcomes in Patients With Metastatic Renal Cell Carcinoma Treated With Tyrosine Kinase Inhibitors. *Cancer control : journal of the Moffitt Cancer Center*, 2020, 27(1): 1073274820977143.
30. Chen J#, Ni Y#, Sun G, **Zhu S**, Zhao J, Wang Z, Zhang H, Zhu X, Zhang X, Dai J, Shen P\*, Zeng H\*. Survival Outcomes of Radical Prostatectomy + Extended Pelvic Lymph Node Dissection and Radiotherapy in Prostate Cancer Patients With a Risk of Lymph Node Invasion Over 5%: A Population-Based Analysis. *Frontiers in oncology*, 2020, 10(607576).
31. Liu X#, Mo F, Zeng H, **Zhu S**, Ma X\*\*. Quantitative proteomic analysis of cerebrospinal fluid from patients with diffuse large B-cell lymphoma with central nervous system involvement: A novel approach to diagnosis. *Biomedical reports*, 2019, 11(2): 70-78.
32. Ou X, Wang J, Zhou R, **Zhu S**, Pang F, Zhou Y, Tian R\*, Ma X\*. Ability of (18)F-FDG PET/CT Radiomic Features to Distinguish Breast Carcinoma from Breast Lymphoma. *Contrast media & molecular imaging*, 2019, 2019(4507694).

33. Sun G#, Zhang X#, Liu Z#, **Zhu S**, Shen P, Zhang H, Zhang M, Chen N, Zhao J, Chen J, Liu J, Dai J, Wang Z, Zhu X, Wang Y\*, Zeng H\*. The Adiponectin-AdipoR1 Axis Mediates Tumor Progression and Tyrosine Kinase Inhibitor Resistance in Metastatic Renal Cell Carcinoma. *Neoplasia* (New York, NY), 2019, 21(9): 921-931.
34. Wang M, Xu H, Xiao L, Song W, **Zhu S**, Ma X. Prognostic Value of Functional Parameters of (18)F-FDG-PET Images in Patients with Primary Renal/Adrenal Lymphoma. *Contrast media & molecular imaging*, 2019, 2019(2641627).
35. Cui X, **Zhu S**, Tao Z, Deng X, Wang Y, Gao Y, Liao Y, Ma W, Zhang Y, Ma X. Long-term outcomes and prognostic markers in gallbladder cancer. *Medicine*, 2018, 97(28): e11396.
36. Yang J, **Zhu S**, Pang F, Xu M, Dong Y, Hao J, Ma X. Functional Parameters of (18)F-FDG PET/CT in Patients with Primary Testicular Diffuse Large B-Cell Lymphoma. *Contrast media & molecular imaging*, 2018, 2018(8659826).
37. Zhou H, Luo Y, **Zhu S**, Wang X, Zhao Y, Ou X, Zhang T, Ma X. The efficacy and safety of anti-CD19/CD20 chimeric antigen receptor- T cells immunotherapy in relapsed or refractory B-cell malignancies:a meta-analysis. *BMC cancer*, 2018, 18(1): 929.
38. Chen L#, Zhang Y#, Cheng Y, Zhang D, **Zhu S**, Ma X\*\*. Prognostic value of circulating cell-free DNA in patients with pancreatic cancer: A systemic review and meta-analysis. *Gene*, 2018, 679(328-334).

## **SELECTED ACADEMIC PRESENTATIONS**

### ***Podium Presentations***

- 2025 – American Urological Association Annual Meeting | New Orleans, LA  
"FACS-based Whole-genome CRISPRi Screen to Uncover STEAP1 Regulators in Prostate Cancer"
- 2025 – UCSF Prostate Cancer Program Annual Scientific Retreat  
"Genome-scale CRISPR screens reveal novel regulatory pathways and synergistic targets to enhance STEAP1-directed therapy"
- 2024 – UCSF Prostate Cancer Program Annual Scientific Retreat  
"FACS-based Whole-genome CRISPRi Screen to Uncover STEAP1 Regulators in Prostate Cancer"
- 2022 – 117th American Urological Association Annual Meeting | New Orleans, LA  
"Homologous recombination deficiency (HRD) score in Chinese aggressive prostatic adenocarcinoma with or without intraductal carcinoma of the prostate"
- 2022 – 37th European Association of Urology Congress | Amsterdam, Netherlands  
"Multi-omics analysis of metastatic fumarate hydratase-deficient renal cell carcinoma in paired primary tumors and metastases"
- 2018 – 23rd World Congress on Advances in Oncology | Athens, Greece  
"Differential diagnostic ability of 18F-FDG PET/CT radiomics features between renal cell carcinoma and renal lymphoma"

### ***Poster Presentations***

- 2025 – 32nd Prostate Cancer Foundation Annual Scientific Retreat  
"FACS-based Whole-genome CRISPRi Screen to Uncover STEAP1 Regulators in Prostate Cancer"
- 2023 – ASCO Genitourinary Cancers Symposium | San Francisco, CA  
"Distinct genomic features and evolutionary relationships between concurrent intraductal carcinoma and adenocarcinoma of the prostate"
- 2022 – ESMO Annual Congress | Paris, France

"Plasma exosomal AKR1C3 mRNA expression is a predictive and prognostic biomarker in metastatic castration-resistant prostate cancer patients"

- 2021 – 41st Congress of Société Internationale d'Urologie (Virtual)

"Dynamic Multidisciplinary Team Discussions Can Improve the Prognosis of Metastatic Castration-resistant Prostate Cancer Patients"

- 2020 – ASCO Genitourinary Cancers Symposium | San Francisco, CA

"High exosomal AKR1C3 mRNA expression is a marker of poor efficacy of abiraterone in metastatic PCa patients"

- 2020 – ESMO Virtual Congress

"Comparing the Predictive Value of Exosome, Circulating Tumor Cells, and Tumor Tissue in Detecting AR-V7 among Metastatic Castration-resistant Prostate Cancer Treated with Abiraterone"

- 2019 – ASCO Genitourinary Cancers Symposium | San Francisco, CA

"Intraductal Carcinoma of the Prostate in Prostate Biopsy Samples: Correlation with Aggressive Pathological Features After Radical Prostatectomy and Prognostic Value in High risk Prostate Cancer"

**Complete presentation history available upon request (24 international presentations)**

## **HONORS & AWARDS**

### **Research Awards**

- 2025 – Pilot Research Award, UCSF Prostate Cancer Program (\$50,000)
- 2020 – Excellent Postgraduate Award, Sichuan University

### **Scholarships (Awarded to top 2-3% of students nationally)**

- 2018 – Tang Lixin Scholarship for Outstanding Student
- 2018 – National Scholarship of China (Ranked 2/226 in Clinical Medicine)
- 2017 – National Scholarship of China (Ranked 1/226 in Clinical Medicine)
- 2016 – National Scholarship of China (Ranked 3/226 in Clinical Medicine)
- 2015 – National Scholarship of China (Ranked 1/226 in Clinical Medicine)

### **Academic Recognition**

- 2019 – Outstanding Graduate, Sichuan University & Sichuan Province
- 2016 – Student of the Year, Sichuan University
- 2015 – Student of the Year, Sichuan University

### **Leadership & Service**

- 2017 – Outstanding Volunteer Award, Sichuan University
- 2016 – Student Leader of the Year, Sichuan University
- 2016 – Excellent Minister, Student Union, Sichuan University

## **REFERENCES**

Dr. Carissa Chu (current supervisor)

Dr. Jacqueline Jacobs (PhD advisor)

Dr. Hao Zeng (MD/PhD mentor)

*Last updated: Oct. 22, 2025*