Shang SU Ph.D.

Post-doctoral Fellow
Xiaohong Li lab
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Education

Tsinghua University, Beijing, CHINA **2019**
Ph. D. in biology
Tsinghua University, Beijing, CHINA **2011**
B. Sc. in biology

Research Experiences

Laboratory of Tumor microenvironment and metastasis
The University of Toledo **2020 - Now**
Van Andel Institute **2019 - 2020**
Post-doctoral fellow. *Mentor: Dr. Xiaohong Li*

Prostate cancer bone metastasis, drug resistance, and tumor dormancy

- Deciphering how bone microenvironment (mainly on osteoblast) is involved in metastasis and enzalutamide resistance of prostate cancer. We found that enzalutamide induced TGFBR2 loss in osteoblasts via PTH1R mediated endocytosis, which in turn led to the resistance of bone-metastatic prostate cancer cells to the androgen receptor antagonist enzalutamide.
- Developing novel systems to detect and monitoring tumor cell dormancy and re-proliferation. We are applying in vivo and in vitro models to recapitulate the dormancy of prostate cancer cells and elucidate vital players in this process.
- Application of virtual drug screen against gene signatures in prostate cancer bone metastases and dormancy, to repurpose or verify drugs against prostate cancer tumor growth in bone.

Laboratory of Cellular and Developmental Biology
Tsinghua University **2010 - 2018**
Undergraduate; Graduate *Mentors: Dr. Wei Wu, Dr. Yu Rao*

Targeted protein degradation, cell cycle regulation

- Developed small-molecule degraders of therapeutic proteins by PROTAC to overcome drug resistance.
- Integrated biochemical/cellular/fluorescence microscopic techniques to characterize the potent PROTACs.
- Discovered S/G2-phase enrichment of β-catenin/TCF transcriptional complex in colorectal cancer cells.
- Deciphered the upstream and downstream events of β-catenin/TCF enrichment to learn more on cell cycle.

Scientific Community Services as Reviewer

17 papers reviewed.
2021 – Now, Reviewer for ***PeerJ (*IF 3.061*)*.**
2021 – Now, Reviewer for ***Chinese Journal of Cell Biology*.**
2021 – Now, Reviewer for ***Molecular and Cellular Endocrinology* (IF 4.102).**
2021 – Now, Reviewer for ***MDPI journals (Cancers,* IF 6.575; *International Journal of Environmental Research and Public Health* IF 4.614; Cells IF 7.666;Tomography IF 3.000)**.
2022 – Now, Reviewer for ***Journal of Oncology* (IF 4.501).**
2022 – Now, Reviewer for ***Cancer Letters* (IF 9.756).**
2022 – Now, Reviewer for ***Genes and Diseases* (IF 7.243).**
2022 – Now, Reviewer for ***ACS.*** Approved with certificate.

2022 – Now, Reviewer for ***Frontiers journals.*** Invited as reviewer editor for ***Frontiers of Drug Discovery***.

Scientific Publications

Total publications = 8, **h-index** = 5, **Google Scholar citations** 330 by Nov 2022.

1. Liu R[#], **Su S[#]**, Liu K, et al.. Tumor removal limits prostate cancer cell dissemination in bone cortex and osteoblasts induce cancer cell dormancy. BioRxiv, 2022 (DOI 10.1101/2022.09.02.506436). (#, co-first author)
2. **Su S**, Li X. Dive into Single, Seek out Multiple: Probing Cancer Metastases via Single-Cell Sequencing and Imaging Techniques. **Cancers**, 2021, 13, 1067.
3. **Su S[#]**, Cao J[#], Meng X[#], et al.. Enzalutamide-induced and PTH1R-mediated TGFBR2 degradation in osteoblasts confers resistance in prostate cancer bone metastases. **Cancer Letters,** 2021,525: 170-178.(#, co-first author)
4. **Su S[#]**, Yang Z[#], Gao H, et al.. Potent and Preferential Degradation of CDK6 via Proteolysis Targeting Chimera. **Journal of Medicinal Chemistry**, 2019, 62 (16), 7575-7582. (#, co-first author) (**100+** citations within 3 years)
5. An Z, Lv W, **Su S**, et. al.. Developing potent PROTACs tools for selective degradation of HDAC6 protein. ***Protein & Cell***, 2019, 10(8): 606-609.
6. Zhao Q, Lan T, **Su S**, Rao Y. Induction of Apoptosis in MDA-MB-231 Breast Cancer Cells by a PARP1-Targeting PROTAC Small Molecule. ***Chemical Communications***, 2019, 55 (3), 369-372.
7. Ding Y[#], **Su S[#]**, Tang W, et. al.. Enrichment of the β-catenin–TCF complex at the S and G2 phases ensures cell survival and cell cycle progression. ***Journal of Cell Science***, 2014, 127: 4833-4845. (#, co-first author)
8. **Su S**, Wu W. Regulation of target gene transcription by Wnt/β-catenin signaling. ***SCIENTIA SINICA Vitae***, 2014, 44: 1029–1042. (Invited review in Chinese)

Presentations, posters & abstracts

1. **09/24/2019-09/28/2019**. International meeting. **CSHL symposium "Biology of Cancer: microenvironment & metastasis"**. Cold Spring Harbor, NY, USA. *Abstract selected for Oral Presentation*. Title: *Enzalutamide down-regulation of TGFBR2 in osteoblasts contributes to resistance in prostate cancer bone metastasis*. **Shang Su**, Jingchen Cao, Xiangqi Meng, Ruihua Liu, Xiaotun Zhang, Zachary Madaj, Xiaohong Li
2. **05/20/2021**. Regional virtual meeting with participants from US, Europe and China. **Invited speaker at Interdisciplinary Science Seminar at Center of Mathematical Sciences and Applications**, Harvard University, Cambridge, MA, USA. Title*: In silico design and evaluation of PROTAC-based protein degrader–Introductory case studies.* Single Author: **Shang Su**.
3. **10/22/2021**, Local forum (virtual). **The 2021 Larry E. Gentry Cancer Biology Fall Student Research Forum**. Toledo, Ohio, USA. *Invited Oral Presentation*. Title: *Elevated mitochondria activity in prostate cancer bone metastasis: Is it a new vulnerability as an actionable target*? **Shang Su**, Ke Liu, Jing Xing, Bin Chen, Xiaohong Li.
4. **11/04/2021-11/07/2021**, National meeting (virtual). **SBUR (Society for Basic Urology Research) Annual Meeting 2021**. *Invited Poster Presentation*. Title: *Osteoblasts induce prostate cancer cell dormancy via Cldn19-dependent physical contacts*. **Shang Su**, Ruihua Liu, Ke Liu, Jing Xing, Bin Chen, Xiaohong Li.
5. **10/11/2022**, Local forum. **The 2022 Larry E. Gentry Cancer Biology Fall Student Research Forum**. Toledo, Ohio, USA. *Invited Oral Presentation*. Title: *Sodium-Potassium ATPase Inhibitors Suppress Prostate Cancer Metastases.* **Shang Su**, Ke Liu, Jing Xing, Ruihua Liu, Yawei Zhao, Bin Chen, Xiaohong Li.
6. 12/10/2022-12/14/2022, International meeting. **12th AACR-JCA Joint Conference on Breakthroughs in Cancer Research: Translating Knowledge into Practice**. *Invited Poster Presentation*. Title: *Mitochondrial hyperactivation in prostate cancer bone metastases.* **Shang Su**, Ke Liu, Jing Xing, Yawei Zhao, Ruihua Liu, Bin Chen, Xiaohong Li.

Professional Memberships

AACR (American Association for Cancer Research), Associate Member since 2019
ASBMB (American Society of Biochemistry and Molecular Biology), Affiliate Member since 2019
SBUR (Society for Basic Urologic Research), In-training Member since 2020
ACACR (Association of Chinese Americans in Cancer Research), Member since 2021
ASPET (American Society for Pharmacology and Experimental Therapeutics), Member since 2022
SCBA (Society of Chinese Bioscientists in America), Trainee member since 2022
AAAS (American Association for the Advancement of Science), Affiliate Member since 2022

Teaching/mentoring Experiences

2019 – 2020, Group Leader for High School Journal Club in Van Andel Education Institute.
2019 – 2020, Instructor for Internal Seminar Course in Graduate School of Van Andel Institute.
2022, Mentor for a volunteer technician who got admitted into the PhD program of the University of Toledo
2022, Judge for 2022 ABRCMS ePoster Symposium hosted by American Society of Microbiology.

Selected Awards and Honors

2022 Exploration-Hypothesis Development Award, $100,000 research grant by the Department of Defense, US.
2021 Excellence Award for Outstanding Post-Doctoral Fellow in Cancer Biology at The University of Toledo
2021 Free Registration Award for Keystone Symposia's eSymposia on Targeted Protein Degradation: From Small Molecules to Complex Organelles
2021 Free Registration Award for Keystone Symposia's eSymposia on Tumor Metabolism and the Microenvironment
2016 Excellent PhD student list in School of Life Sciences, Tsinghua University
2011 Level I Excellent Graduates of Tsinghua University (TOP 2% among 3000 graduates)

Industrial Experiences

Abmart Biotech, Shanghai **2017 - 2018**
A solution provider for large-scale antibody library services
Senior Scientific Consultant/Project Managing Scientist
- Designed scientific proposals and provided technical support to target customers on various research areas including animal, plant and medical sciences. 3 of 7 proposals directly translated into contract sales.
- Delivered 20+ full proposals in different fields with average time input of less than 2 days. Rapid key points absorption.
- Supervised 20+ projects simultaneously to ensure the in-time customer delivery.
- Finalized summary report for 3 projects, which convinced customer in future contracted collaborations.

ACCB Biotech, Beijing **2011**
A solution provider for oncology diagnostics and precision medicine
Technical and Market Intern
- Optimized protocol for nucleic acid purification, which helped cut 20% time cost;
- Summarized competitor analysis reports under instruction on the major service-providers