

## Jun Fang Awarded DoD Postdoctoral and Clinical Fellowship Award

Dr. Jun Fang, a postdoctoral researcher at UT Southwestern Medical Center (UTSW) in Dr. Qing Zhang's lab since May 2021, has received the prestigious Postdoctoral and Clinical Fellowship Award from the kidney cancer research program (KCRP) under the Department of Defense's (DoD) Congressionally Directed Medical Research Programs (CDMRP). Her project "Novel HIF-2 Regulators and Therapeutic Targets for Kidney Cancer," explores targeting hypoxia-inducible factor 2-alpha (HIF-2 $\alpha$ ) in clear cell renal cell carcinoma (ccRCC), the most common type of kidney cancer.



This award supports Dr. Fang's research on Suppressor of Cytokine Signaling 3 (SOCS3) and its role in regulating HIF-2 $\alpha$ . The findings suggest SOCS3 suppresses HIF-2 $\alpha$ , and its loss leads to increased HIF-2 $\alpha$  through the JAK-STAT pathway. This research could provide alternative therapeutic strategies for patients resistant to current HIF-2 $\alpha$  inhibitors like Belzutifan.

### Research Objectives:

1. Investigate SOCS3's role in regulating HIF-2 $\alpha$  in ccRCC.
2. Assess the therapeutic potential of targeting the SOCS3-HIF-2 $\alpha$  pathway using JAK1 inhibitors such as Ruxolitinib and Itacitinib.

### Impact:

Dr. Fang's study aims to improve kidney cancer treatment by identifying new regulators of HIF-2 $\alpha$ , offering alternatives for patients who do not respond to existing therapies.

Mentored by Dr. Qing Zhang, a leading expert in kidney cancer research, Dr. Fang's work demonstrates exceptional promise in advancing novel cancer treatments.

## Tao “Dylan” Wang Awarded DoD Postdoctoral and Clinical Fellowship Award

Dr. Tao “Dylan” Wang has been awarded the Postdoctoral Fellowship Award from the Department of Defense Kidney Cancer Research Program (DoD-KCRP) to support his work on elucidating oncogenic enhancer-gene regulations in clear-cell Renal Cell Carcinoma (ccRCC). This prestigious award supports postdoctoral fellows conducting innovative, high-impact kidney cancer research, providing the necessary training for early-career researchers to achieve independence as leading researchers in the field.



The awarded project titled “Enhancer CRISPR Screening Identifies PLXNA1 as a Critical Regulator for ccRCC,” aims to uncover novel oncogenic enhancers and their target genes that could potentially be therapeutically targeted. By leveraging the innovative dCas9-KRAB CRISPR screening technique, Dr. Wang identified a critical enhancer that drives the PLXNA1 gene expression. Depleting PLXNA1 gene or inhibiting its enhancer reduced ccRCC tumor growth. These preliminary findings highlight an oncogenic axis between the enhancer and the PLXNA1 gene in mediating ccRCC progression.

The proposed study under this award is structured around the following three aims:

1. Characterize the oncogenic role of the specific PLXNA1 enhancer in ccRCC tumorigenesis.
2. Identify protein factors that bind to the specific enhancer to drive PLXNA1 expression.
3. Elucidate the molecular mechanism by which PLXNA1 contributes to ccRCC tumorigenesis.

Findings from Dr. Wang's awarded project could advance our understanding of enhancer-gene regulation in ccRCC and lay a crucial foundation for targeting PLXNA1 as a potential therapeutic strategy, paving the way for novel treatment approaches for the disease.

Dr. Wang obtained his Ph.D. from the University of Kansas Medical Center and is currently a postdoctoral fellow mentored by Dr. Qing Zhang.