

Mentor-Postdoc Spotlights Series 2019



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After completing his Doctor of Medicine degree at the Shanghai Medical University, Dr. Yang-Xin Fu obtained his PhD in Immunology from the University of Miami Miller School of Medicine under the supervision of Professor Diana M. Lopez. Currently, Dr. Fu is a Professor of Pathology in the Department of Pathology at the UT Southwestern Medical Center.

Under the guidance of Dr. Willi Born, Dr. Fu completed his postdoctoral studies in the Division of Infectious Disease, at the Department of Medicine of the National Jewish Center for Immunology and Respiratory Medicine, in Denver. In 1998, he completed his clinical training in pathology at Washington University in St. Louis and started his own laboratory. His research was focused on understanding the role of lymphoid microenvironment in cellular and humoral immune responses using various TNF superfamily members, such as the LIGHT/lymphotoxin pathway. As a result of his extensive training in clinical pathology and immunology, he has been able to direct clinical, translational, and preclinical studies in tumor immunology for more than 15 years. Those studies led to the development of novel immunotherapeutic molecules, antibodies, and armed antibodies by protein engineering. Additionally, Dr. Fu's team has established mouse tumor models expressing various oncogenic receptors to mimic clinical tumors. His research has made significant progress in understanding how traditional cancer therapies both rely on and impact the immune system. Currently, his research interests are centered in investigating the mechanisms underlying ionizing radiation-induced extrinsic resistance and in developing personalized immunotherapies to overcome these resistance mechanisms for improved and long-lasting tumor control.

With over 30 years of research experience, Dr. Fu has published more than 275 research articles and reviews focused on: (1) the relationship between the therapeutic effect of ablative irradiation and innate and adaptive immune responses; (2) induction of stress signals by blockade of oncogenic receptor for tumor regression; and (3) new strategies to recruit and activate dendritic cells and lymphocytes into tumor tissues to enhance immunotherapy. Among

his publications, there are more than 50 research papers relating to the mechanistic understanding autoimmunity and immunity against pathogens and tumor in top journals (e.g., *Science*, *Nature*, *Nature Immunology*, *Nature Medicine*, *Cancer Cell*, *Immunity*, *Journal of Experimental Medicine*, and *Journal of Clinical Investigation*). A sample of Dr. Fu's publications includes:

1. Deng L et al. Radiation-triggered cytosolic DNA sensing pathway bridges Type I interferon-dependent innate and adaptive immune responses. *Immunity*, 41(5):843-52, 2014.
2. Park S et al. The therapeutic effect of anti-HER2/neu antibody depends on both innate and adaptive Immunity. *Cancer Cell*. 18:160-70, 2010. PMID: PMC2923645.
3. Yang X et al. Targeting the tumor microenvironment with interferon- γ bridges innate and adaptive immune responses. *Cancer Cell*. 25(1):37-48, 2014. PMID: PMC3927846.
4. Yu P et al. Priming of naïve T cells inside tumors leads to the eradication of established tumors. *Nat Immunol*. 5:141-9, 2004.

For more information about his current research, publications and team, check out the lab website: <https://www.utsouthwestern.edu/labs/fu-yang-xin/>

Dr. Fu strongly believes that a thorough understanding of immunity during current standard-of-care treatments is imperative if immunotherapeutics are to be clinically successful. His word of advice for postdoctoral researchers is **Think big and you can do it**, as a philosophy to apply in any aspect of their lives.

Dr. Zhida Liu is a Postdoctoral Researcher in Dr. Fu's lab at UT Southwestern Medical Institute since 2015. His PhD studies were focused on the "Development of dendritic cell targeting vaccines based on DEC205 antibody and PEG-PE nano-micelle". He obtained his PhD from the Institute of Biophysics in the Chinese Academy of Sciences under the supervision of Professor Mingzhao Zhu. His 10 years of research experience have led to the publication of 15 papers in renowned scientific journals. Read his most recent manuscript titled *Combining immune checkpoint blockade with ErbB targeted therapies for cancer treatment* in the December 2019 issue of [JoLS](#), Journal of Life Sciences.

