



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
R1118

Project Title:  
Recruitment of First-Time, Tenure-Track Faculty Members

Award Mechanism:  
Recruitment of First-Time, Tenure-Track Faculty Members

Principal Investigator:  
Dong, Guangbin

Entity:  
The University of Texas at Austin

### Lay Summary:

Dr. Guangbin Dong received his B.S. degree from Peking University and completed his Ph.D. degree in Chemistry from Stanford University with Professor Barry M. Trost. In 2009, He joined the group of Prof. Robert H. Grubbs at California Institute of Technology, as a postdoctoral researcher. His expertise is in the field of organic synthesis, catalysis, organometallics and medicinal chemistry. His future research interests lie at the development of powerful chemical tools for addressing questions of biological importance. His research program will bring together the complimentary knowledge of organic synthesis, medicinal chemistry and organometallic chemistry in collaboration with scientists in the field of cellular biology and animal pharmacology to identify effective small-molecule agents that target new molecular mechanisms for cancer treatment.

Dr. Dong's Ph.D. research studies involved development of new catalytic enantioselective synthetic methods and applied these methods in the total syntheses of biologically important molecules. The majority of the natural products Dr. Dong synthesized exhibit high potent anticancer activity, such as agelastatin A, terpestacin, and bryostatins. In addition, he has designed and synthesized a new bryostatin analogue; in collaboration with Genetech, this agent has show nanomolar anticancer activity again several cancer cell lines. This work has been published in Nature.

At California Institute of Technology, Dr Dong was a Camille and Henry Dreyfus Environmental Chemistry Fellow in the group of Professor Robert H. Grubbs. His research focused on the development of catalysts for anti-Markovnikov hydration of olefins, considered as one of the top 10 challenges in catalysis. Dr. Dong developed the first reproducible anti-Markovnikov olefin hydration process using a triple relay-catalysis system (patent pending).

Dr. Dong's research interests at the University of Texas at Austin will mainly focus on developing new synthetic technology to construct small molecule agents for biomedical research, particularly cancer research, including 1) developing novel catalytic C-H and C-C bond activation methods for efficient small-molecule library synthesis; 2) establishing efficient synthetic routes to access natural products with high potent anticancer activity and their unnatural analogues; and 3) evaluating in vitro and in vivo efficacy of rationally designed natural product analogues and understanding the origins of the selectivity in the cell-killing process. His research goal is to harness the power of transition-metal

catalysts to ease the discovery of new cancer therapeutics and ultimately address the pressing needs in the development of anti-cancer drug.