CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
R1207

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

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

Principal Investigator:
Westover, Kenneth

Entity:
The University of Texas Southwestern Medical Center

Lay Summary:

Ken Westover started his research career as a Summer Undergraduate Research Fellow in the labs of Michael Brown and Joseph Goldstein. It was there that he learned the basics of biochemistry and became convinced that he wanted to become a physician scientist. As an undergraduate at Brigham Young University, Dr. Westover worked in Dan Simmons' lab and cloned canine versions of COX-1 and COX-2. These constructs were later used to clone a novel cyclooxygenase isoform, COX-3, which is postulated to be the molecular target for acetaminophen. After graduating from BYU, Dr. Westover entered the Stanford University Medical Scientist Training Program where he worked in Roger Kornberg's lab on the structural biology and biochemistry of RNA polymerase II (pol II). Specifically Dr. Westover solved x-ray structures that elucidated the mechanisms of nucleoside triphosphate selection for incorporation into RNA as well as DNA/RNA strand separation by pol II. Dr. Westover also contributed to the determination of a pol II:TFIIB x-ray structure that revealed the mechanism of promoter escape by pol II from a TATA box. Dr. Westover's work was cited in the 2006 Nobel Prize for Chemistry awarded to Roger Kornberg. While a resident in the Harvard Radiation Oncology Program, Dr. Westover worked in the lab of Nathanael Gray at the Dana Farber Cancer Institute primarily as a biochemist and structural biologist. Working together with chemists in the group, Dr. Westover helped identify several lead compounds that irreversibly bind to ErbB3. Dr. Westover also initiated a project to directly target the Ras proto-oncogene with small molecule inhibitors. At UT Southwestern Dr. Westover will continue to develop targeted irreversible and reversible therapeutics for oncology using both rational and empirical approaches. He will also work to develop methodologies that improve patient selection for combined modality therapy involving targeted systemic agents and radiation therapy.