



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP180770

Project Title:  
Preclinical Radiation Core Facility (PCRCF)

Award Mechanism:  
Core Facility Support Awards

Principal Investigator:  
Story, Michael D

Entity:  
The University of Texas Southwestern Medical Center

### Lay Summary:

More than 50% of cancer patients are treated by radiation therapy with curative intent. Pre-clinical radiation research performed using cell or small animal models, is important for understanding radiobiological mechanisms and developing new radiotherapeutic strategies that combine immunotherapy or targeted agents, as examples. Unfortunately, and a concern of the federal health agencies, is the fact that many investigators do not have the proper foundation in physics and radiobiology to properly use this technology. Experimental devices are often improperly calibrated and radiation doses are poorly calculated. Errors of  $\gt;20\%$  are often observed, which is in stark contrast to human RT where  $\lt;5\%$  uncertainty is routinely achieved. Furthermore, current facilities cannot meet the needs to support pre-clinical studies because the imaging and radiation technology in pre-clinical studies lags behind those used clinically. To address these issues, we propose to develop a Pre-Clinical Radiation Core Facility (PCRCF) at the University of Texas Southwestern Medical Center (UTSW). This facility will provide the most up-to-date technologies and equipment to support pre-clinical cancer biology studies at UTSW. The facility will also be available to users outside of UTSW. The PCRCF will begin by organizing and consolidating resources already available at UTSW and provide a single portal for radiation device users. The PCRCF will meet the mandates of federal agencies for dose accuracy in biological experiments by providing standards traceable dosimetry services for all users as well as provide biological expertise on appropriate models and radiobiological endpoints that are cancer specific. The PCRCF will be directed by experts in radiobiology and medical physics, and be overseen by representative UTSW users and experts external to UTSW. Funding of this facility will greatly advance clinically relevant pre-clinical cancer research that utilizes ionizing radiation.