



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
DP150102

Project Title:
Image-Guided Smart Laser Knife for Cancer Surgery

Award Mechanism:
Bridging the Gap: Early Translational Research Awards

Principal Investigator:
Milner, Thomas

Entity:
The University of Texas at Austin

Lay Summary:

Brain cancer surgery requires expensive tools that allow advanced imaging for fine cutting and removal of tumor cells and tissues without damage to nearby healthy nerves. Success of current brain cancer surgeries is severely limited by three factors: 1) lack of advanced imaging capabilities that can see into the brain; 2) use of cautery tools that cause too much damage in nearby healthy nerves; and 3) lack of fine-cutting tools that can remove as little as a few cell layers at a time. We propose to demonstrate a new surgical tool that we have named an "image-guided smart laser knife" that solves these problems. The image-guided smart laser knife incorporates for the first time three new laser beams for imaging, prevention of bleeding and tissue cutting and will be used to remove neural tumors inside the body. Our proposal to demonstrate this new surgical tool has four important advantages: 1) promise of realizing new and groundbreaking cancer surgeries; 2) use of low-cost high-tech laser and fiber-optic technology; 3) blocking patents that can be applied legally to shut down copycats; and 4) a team of excellent people with a successful track record. Development and demonstration of our new surgical tool is accomplished in four steps: 1) Implementation of a FDA regulatory strategy; 2) Verifying that the cutting beam works correctly; a leading cancer surgeon using our tool to remove 3) skin cancer tumors and 4) neural tumors through an endoscope. The project head and his co-workers believe successful completion of our project will produce a radically new surgical tool that will find use not only in brain cancer surgery but other surgical specialties and presents a great economic opportunity for Texans.