

## Research Projects Currently in Progress

- Laser Immunotherapy (LIT) for Treatment of Metastatic Tumors: Combining laser irradiation and immunological stimulation, Dr. Chen's research group has developed a novel treatment modality for late-stage, metastatic cancers. In pre-clinical studies and preliminary clinical studies, LIT has been shown to be promising in eradicating both treated primary tumors and untreated metastatic tumors at distant sites.
- Simulation of Selective Photothermal Effects: Computer simulations have been conducted to determine tissue optical properties in order to achieve optimal laser photothermal destruction of target tumors while sparing the normal surrounding tissue.
- MRI-Guided Laser Cancer Treatment: Dr. Chen's group is currently collaborating with researchers at the Oklahoma Medical Research Foundation to develop an imaging guided laser treatment modality for cancer. The Magnetic Resonance Imaging will be used to detect the tumor and to monitor the tissue temperature distribution during treatment and tumor development after the treatment.
- Bio-nanotechnology for Cancer Treatment: Dr. Chen's group has developed an immunologically modified nanotube for cancer treatment. With laser irradiation, this novel compound can provide synchronized photothermal and immunological responses for targeted cancer therapy.