Detection and Treatment of Cancer Using Electric Fields

Research emphasis:
Dr. Sano's laboratory investigates the complex phenomena which arise when cells and tissues are exposed to electric fields. Practical applications of these phenomena include early cancer screening, focal cancer treatments, and in vivo gene transfection. The lab is particularly interested in the development of new clinical tools for the treatment of brain tumors and we employ a number of 3D cell culture and microfluidic techniques to optimize protocols before evaluating them in vivo.

Application:
- Genetic Engineering
- Focal Cancer Ablation
- Early Cancer Detection
- Electrochemo Therapy

Collaboration potential:
- Treatment of Inoperable Tumors
- Medical Device Development
- Microfluidic Device Design
- 3D Tumor Models

Selected publications:

Michael B. Sano, Christopher Arena, Katelyn Bittleman, Matthew DeWitt, Hyung Cho, Christopher Szot, Yong Lee, Rafael Davalos – Bursts of Microsecond Pulses Inhibit Tumor Growth, Nature Scientific Reports, 5, 14999; doi: 10.1038/srep14999 (2015)

